SEASONAL BEHAVIOR OF MARKETING PATTERNS FOR GRAIN FROM NORTH DAKOTA

William W. Wilson
Steven C. Hvinden
John G. Cosgriff

UGPTI Publication No. 38
Agricultural Economics Report No. 143
March 1981

SEASONAL BEHAVIOR OF MARKETING PATTERNS FOR GRAIN FROM NORTH DAKOTA

BY

WILLIAM W. WILSON
STEVEN C. HVINDEN
JOHN G. COSGRIFF

Upper Great Plains Transportation Institute
North Dakota State University
P. O. Box 5074
Fargo, North Dakota 58105

and

Agricultural Economics Department
North Dakota Agricultural Experiment Station
North Dakota State University
Fargo, North Dakota

MARCH 1981

TABLE OF CONTENTS

	Page
An Overview: North Dakota Grain Handling, Transportation, and Merchandising Study	i
Seasonal Behavior of Marketing Patterns for Grain from North Dakota	1
General Procedures	3
Specific Procedures	5
Preliminary Estimations	6
Final Estimations	7
Data Source	8
Results of Analysis	10
Analysis of Shipments from the State to all Destinations	10
All Grains	10
Hard Red Spring Wheat	15
Durum Wheat	17
Barley	21
Oats	23
Analysis of Shipments by Crop Reporting District and Destination	28
All Grains	28
Hard Red Spring Wheat	29
Durum Wheat	29
Barley	30
Oats	30
Conclusions	30
References	32
Appendix Tables A1-A200	33
List of Tables	233
List of Figures	234

AN OVERVIEW

North Dakota Grain Handling, Transportation, and Merchandising Study

North Dakota's branchline system was developed in the late 1800's and early 1900's primarily for the purpose of moving farm commodities to markets outside the state and to bring freight such as farm inputs and other needed goods to the state's communities. The only other form of surface transportation available for moving bulk freight when the rail network was being developed (excluding some minor river transportation) was the horse-drawn freight wagon. The limited distance that a team of horses and wagon could travel influenced the design of the early branchline railroad network. This development pattern resulted in branchlines that were no further apart than 10 to 20 miles, and even the most remote producing areas were accessible to rail transportation.

Development of the country grain merchandising system was also influenced by the limited distance a team of horses and wagon could travel, the relative density of the branchline network, and available technology at that time. This resulted in a large number of country elevators spaced only a few miles apart on grain gathering rail lines. Although much of what existed in the past still exists today in the form of the branchline network, economic and technological forces that influenced its development have changed since the turn of the century. Other factors are currently at work that may influence rationalization of the railroad network and the country grain merchandising system.

Factors which will influence the future grain handling transportation and merchandising system include branchline abandonment, implementation of multiple car and unit train grain rates, and capital replacement decisions. Other factors include differing rates of cost increases in the two modes, thereby shifting their competative relationship. Competition between producing regions will also influence the future system. Efficiencies gained as a result of changes in marketing systems by competing producing regions will possibly influence a move to

obtain those same efficiencies by other producing regions. The changing technology of farm trucks and the improved quality of our highway system makes it possible for producers to move grain much further today than previously. These forces may very well influence changes in the state's traditional grain merchandising system. Government policies such as railroad deregulation may also have some impact on the system.

As a result of these impending changes that could alter a rather traditional grain handling, transportation, and merchandising system, many private and public decisions will have to be made. These include decisions regarding location, economic viability, size of plant, investment in grain facilities, investment in transportation equipment and infrastructure, efficiencies of merchandising, purchases of farm production equipment, and storage capacity. If such decisions are to be made on an informed basis, it is important that basic information about the industry be developed and published. It was for this reason that the Upper Great Plains Transportation Institute and the Department of Agricultural Economics of North Dakota State University have undertaken a study entitled the "North Dakota Grain Handling, Transportation, and Merchandising Study". Cooperators in the study include Burlington Northern Railroad, Farm Bureau, Farmers Union, Grain Terminal Association, North Dakota Agricultural Experiment Station, North Dakota Department of Agriculture, North Dakota Grain Dealers Association, North Dakota Highway Department, North Dakota Public Service Commission, St. Paul Bank for Cooperatives, and the Soo Line Railroad Company. The purpose of this study is to provide relevant information to decision makers in meeting the challenge of a changing business environment in handling, transportation, and merchandising grain in North Dakota.

The study is composed of a number of research projects that will result in thirteen separate publications of which this is one. The publications planned for release at varied time intervals are:

- Description of the Existing Country Elevator System
- Cost Analysis of Existing Country and Farm Storage System
- Cost Analysis of Subterminal Elevators
- Existing and Past Patterns of North Dakota Grain Movements
- Description of Rail Rate Structure, Multiple Car Movements, and Rates and Analysis of Shipper Owned Equipment
- Description and Analysis of Exempt Carrier Industry
- Economics of Branchline Operation
- Farm Truck Costs
- Seasonal Behavior of Marketing Patterns for Grain from North Dakota
- Grain Merchandising
- Marketing Using Delayed Pricing Controls
- Analytical Model for Analyzing Economic Efficiencies of Subterminals
- North Dakota Grain Handling, Transportation, and Merchandising Study: Summary, Conclusions, and Policy Implictions

These reports, as they are completed, will be available upon request from the Department of Agricultural Economics or the Upper Great Plains Transportation Institute, North Dakota State University.

Seasonal Behavior of Marketing Patterns for Grain from North Dakota

by

William W. Wilson and John Crabtree*

The grain handling and transportation system in North Dakota is in a state of transition as a result of institutional and technological changes. Changes in technology and relative input prices have resulted in economies of larger farm trucks, economies of size and density in the elevator system and consequently, pressure to abandon uneconomic branch lines. Recently, there has been a shift from single car sales and shipments to multi-car sales and shipments. All of these factors contribute to the evolution of the grain handling and transportation system.

Planning of new grain marketing facilities and/or expansion of existing ones is complicated by seasonality in grain marketings. The typical seasonal pattern in grain marketings has been for a peak to occur during and immediately following harvest with lower movements during the remainder of the year. The level of grain handled during the peak and off-peak periods determines utilization of marketing facilities (i.e., elevators and transportation services) and consequently, unit costs of providing the service. Utilization is typically very high during periods with peak demands and low during the off-peak periods. Intrayear variability in grain marketings is consequently an important consideration in the analysis of alternative marketing facilities.

The effect of seasonal grain marketings is important in at least two respects. First, for a given marketing system, managers must allocate resources throughout the year in response to seasonal demands. Decisions made without consideration of seasonal variation in demand would result in shortages or surpluses. Second, the general theme of this project is the evolution of

---

*Assistant Professor and Research Assistant, respectively, Department of Agricultural Economics, North Dakota State University.

marketing facilities particularly in the elevator sector. If capacity is built to accommodate demands during peak months, the facilities would be underutilized during off-peak months. Likewise, if capacity were built to accommodate average annual throughput, shortages would evolve during the peak months and facilities would be underutilized during the off-peak months.[1]

Timing of producer marketing decisions is affected by many factors. The cumulative effect of these factors has been for marketings to be greatest during the harvest and immediate post-harvest period. Those during the remainder of the year have been relatively less. The price level and expected appreciation in prices during the marketing year. On-farm inventory levels are of particular importance in the producer's marketing decision. Inventory levels are also important, as they represent the cumulative effect of past production less grain already sold. Other factors which affect timing of grain marketings are interest costs, which reflect opportunities foregone by holding grain, storage capacity, cash flow needs, participation in farm programs and individual tax situations.[2]

Several factors have changed in recent years. First, higher interest rates mean greater opportunity costs of holding grain. Second, the seasonal behavior of prices has deviated from the norm in several recent years.[3]

---

[1]Generally, optimum plant design subject to seasonal markets requires relatively more variable inputs and less fixed, relative to the case of stable marketings within a year. These concepts are developed in another part of this study. Helgeson, D. and C. Chase, "Modelling of Subterminal Facilities," Department of Agricultural Economics, North Dakota State University, research in progress.

[2]The fundamental relationships between marketings and these factors are the subject of related research presently underway in the Department of Agricultural Economics, North Dakota State University.

[3]W. W. Wilson, Factors Affecting Post Harvest Changes in Prices Received by North Dakota Farmers, Department of Agricultural Economics, North Dakota State University, forthcoming.

Whether this is a permanent shift in seasonal price patterns or an aberration is uncertain. Nevertheless, seasonal price changes do influence producers' expectations of price appreciation within a crop year. Consequently, seasonal patterns of grain marketings are also affected.

This study describes seasonal patterns of grain marketings in North Dakota. Causal relationships are being evaluated and will be reported elsewhere. A secondary objective is to evaluate changes in the seasonal pattern of marketings since 1967. The results will be useful to managers of marketing firms and to individuals making decisions to expand or build new facilities. The results also will be used in other sections of this study.[4]

General Procedures

Seasonality in grain marketings are analyzed using a statistical procedure for calculating monthly indexes. The indexes are based on 100 and deviations therefrom indicate the nature and extent of seasonality in the particular time series. The general procedures for decomposing time series data are discussed presently. Specific procedures used are discussed in the following section.

Seasonal analysis of grain marketings requires the use of monthly data. The value of an observation in time series data is affected by four forces. Three components are interdependent and recurrent. The other component is not repetitive and occurs randomly. Trend (T) is one of the components and indicates the long-term direction of change in the time series. The cyclical (C) component accounts for cyclic behavior in the series over several years. For analytical purposes, the trend and cyclic components (TC) are treated as

---

[4]Hertsgaard, T. "Optimum Organization of North Dakota Grain Handling and Transportation Facilities," and D. Helgeson and C. Chase, "Modeling of Subterminal Facilities," Department of Agricultural Economics, North Dakota State University, both forthcoming.

one influence. The seasonal component (S) in the time series indicates the intrayear variability which is the same over several years. The irregular component (I) is included to account for randomness in the time series. These latter influences occur because of weather, strikes, embargoes, and other factors which are not recurrent.

The relationship between these four components relative to each other is shown in Figure 1. The purpose of time series analysis is to decompose the monthly data so that variations in the individual components can be examined. The four components can be represented either multiplicatively (T·C·S·I) or additively (T+C+S+I). The additive model assumes all components are independent of one another. The multiplicative model assumes that the components are due to different causes but are interdependent. Of particular interest in this study is the seasonal component, which is an indicator of the intrayear variation in grain marketings. The multiplicative model was used to decompose the series of monthly data so the nature and extent of seasonality could be examine.

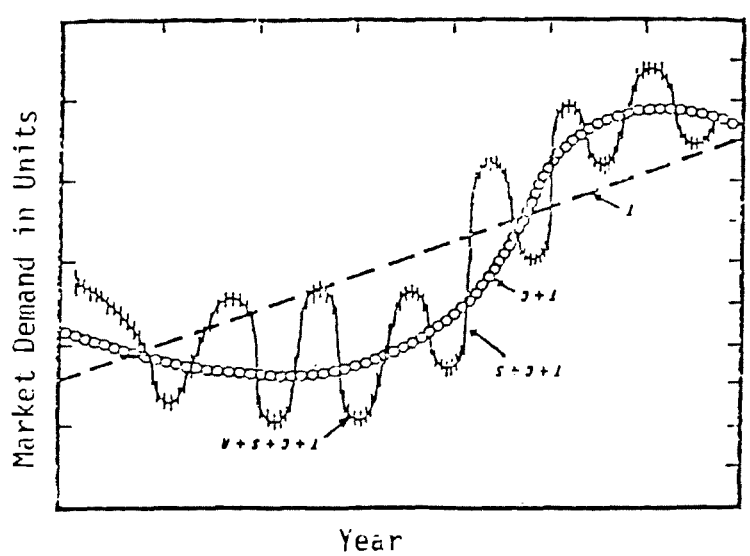

Figure 1. The Four Components of Time Series Data

In general, the model employs the ratio-to-moving average method for time series decomposition. The model removes the trend, cyclical, and irregular components from the time series so that the seasonal effect can be examined. In short, a 12-month moving-average of the original data is computed and interpreted as the trend-cycle component (TC). Dividing the original series (TCSI) by TC leaves the seasonal-irregular (SI) component for each month. An average of the SI's for each month over a period of years is calculated to remove the irregular factor. The irregular component is removed because it contains residual variations, such as the sudden impact of political events, the effect of strikes, unseasonable weather conditions, reporting and sampling errors, etc. Removal of the residual variations from the seasonal-irregular component (SI) results in a seasonal index (S), which should be interpreted as the percentage of the annual average. The seasonal index (S) is more accurate as an indicator of seasonality than the seasonal-irregular (SI) component because the irregular part of the component has been removed. A calculated seasonal index equal to 100 indicates that movements are equal to (or 100 percent of) the monthly average movement (averaged over the year). Indexes greater than 100 should be interpreted as monthly movements greater than the annual average.

Specific Procedures

The specific procedure used to decompose grain movement data was the X-11 Seasonal Adjustment Program distributed by the U. S. Bureau of Census, Economic Research and Analysis Division. This program is based on the ratio-to-moving average decomposition method. The program has several features which allow for more precise measures of the individual components than the simple decomposition procedures discussed above.[5]

---

[5]Readers not interested in specific procedures should go directly to the discussion of results.

The program is separated into two parts: preliminary and final estimations. Preliminary estimates reduce the effect of extreme irregular values. These modified values are refined in the final estimates to obtain an improved time series. A brief description of the X-11 procedure is discussed below.

Preliminary Estimates

The preliminary estimates consist of five steps and are input to the final estimates.

1) The original series is smoothed using a central 12-month moving average in order to provide an estimate of the trend-cycle (TC) component.

2) SI ratios are found by dividing the original series by the trend-cycle components.

3) Extreme values of the SI ratios are replaced or modified according to the degree of extremeness. A 3 x 3 moving average of the SI ratios is calculated which eliminates any randomness which might be present.[6] Next, a centered 12-month moving average of the seasonal factors is found.[7] An estimate of the irregular component is calculated by dividing the seasonal factors into the SI ratios. The values are then weighted according to their deviations. A zero weight is applied to irregulars beyond 2.5 standard deviations and a weight of 1.0 (full weight) to irregulars beyond 1.5 standard deviations. Values outside the specified standard deviations receive a weight of 0 (totally extreme). Values inside the specified limit receive a weight of 1.0. Any values between the two receive weights between 0.0 and 1.0 depending on their extremeness. Values receiving less than full weight are replaced with an average of the ratio times its weight and the two preceding and the two following full weight ratios for that month.

4) Preliminary seasonal factors are found by applying the 3 x 3 moving average to the SI ratios with extreme values replaced by the above procedure. The result is the elimination of randomness.

---

[6]The 3 x 3 moving average is calculated as follows: initially, a 3-month moving average of the SI ratios is calculated by month. This method is repeated once again on the moving averages.

[7]The 3 x 3 moving average is applied once again by the same method described in footnote 6.

5) The X-11 program uses a weighted Henderson moving average on the preliminary seasonally adjusted series. This particular smoothing method applies different weights for each of the months. A simple moving average gives equal weight to each month. The latter procedure results in estimates which are less efficient because in many cases the most recent observations contain more information than older ones. The Henderson moving average method is also preferred because it smoothes the series better than simple moving averages.[8] The Henderson moving average procedure is used to eliminate any seasonal and irregular effects not previously detected and to provide a second estimate of the trend-cycle components. Selection of the appropriate moving average -- 9, 13, or 23 months -- depends on the estimate of the I/C ratio.[9]

6) Steps 2 through 4 are repeated using the trend-cycle values calculated by the Henderson moving average (Step 5) instead of those calculated by the centered 12-month moving (Step 1). These steps provide second estimates of seasonal factors, irregular, and seasonally adjusted series.

Final Estimations

Generally, computations are the same in the final round as in the preliminary steps except for more refinement in isolating the individual components. The steps discussed above are repeated using the Henderson moving averages to estimate the components.

The final SI ratios and seasonal indexes are of particular interest. The SI ratios should be interpreted as the percent above or below the annual average (after the trend-cyclical component has been removed). However, the effect of irregular variation is inbedded in the SI ratio. The irregularity component is removed from the SI ratios resulting in the seasonal indexes. Seasonal indexes indicate seasonality in the series after the irregular effect is removed from the series.

---

[8]The concept and empirical use of the Henderson moving-average are discussed in more detail in Macaulay, The Smoothing of Time Series, National Bureau of Economic Research, 1931.

[9]The I/C ratio is the ratio of the average absolute month-to-month change in the irregular component to that in the trend-cycle.

Analysis of variance (ANOVA) test was performed on the SI ratios to test for the existence of seasonality.[10] The hypothesis tested is that the means of the SI ratios are equal across months. The alternative hypothesis is that the means are not equal, thereby implying that grain marketings are seasonal. In this case, the analysis tests whether monthly grain marketings are significantly different than each other or are due to chance (i.e., the differences between the movement across months are significant and not due to chance).

Seasonal factors one year forward also are presented and are useful in short-term forecasting. Estimates of the seasonal index 12-months forward are calculated by month as follows:

$$S_{t+1} = S_t + \tfrac{1}{2}\ S_t - S_{t-1}$$

where S represents the seasonal index and subscript t is the time dimensions. Therefore, S_{t+1} represents the index expected in month t, one year henceforth. The forecast of seasonal indexes takes into account previous indexes as well as the changes in the pattern of seasonal indexes.[11]

Data Source

Data were obtained from the North Dakota Public Service Commission. The statutes of the state of North Dakota require public warehouses to report shipments on a monthly basis. Shipments are reported by origin, by commodity, by destinations, and by mode of shipment. The four commodities with the largest movement, measured in terms of volume, were used. They were hard red spring

---

[10] ANOVA is performed on the SI ratios and not as the seasonal factors (S). SI ratios contain the irregularity component which is analyzed in the test. The irregularity component is eliminated in the seasonal factors and therefore, could not be tested statistically.

[11] The description of the X-11 procedure is intended to give an overview of the method. Specific details of the procedure are contained in United States Bureau of the Census, The X-11 Variant of the Census Method II Seasonal Adjustment Program, Technical Paper No. 15 (1967 revision), U.S. Government Printing Office, Washington, D.C., 1967.

wheat, durum, barley, and oats. These commodities accounted for approximately 80 percent of the total shipments of grain from North Dakota.

The destinations used were Duluth/Superior, Minneapolis/St. Paul, and the Pacific Northwest. Most grain shipped from North Dakota is to these destinations.[12] Shipments to all destinations also were analyzed.

The origins used were the nine crop reporting districts in North Dakota shown in Figure 2. Shipments were analyzed by commodity from the state to all destinations over the period 1967-68 to 1978-79. Shipments were also analyzed by individual origins to individual destinations for each of the commodities. However, in the latter case the study period was for crop years 1973-74 to 1978-79. These detailed data were not available prior to 1973-74.

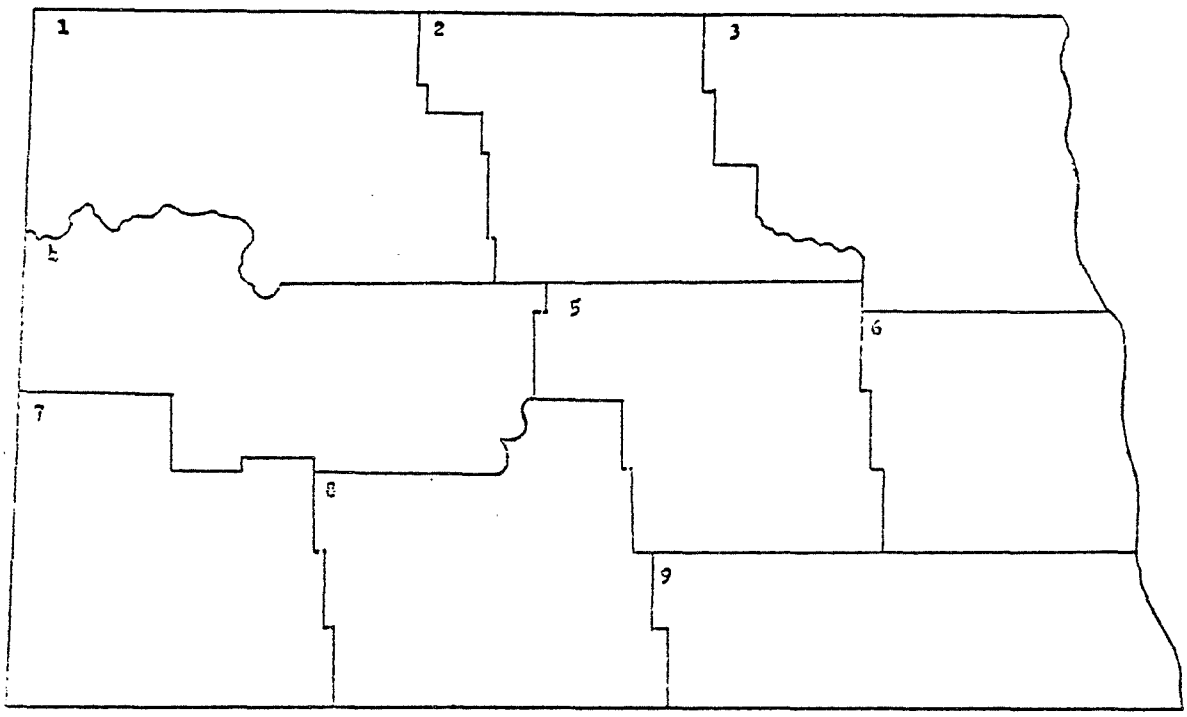

Figure 2. Crop Reporting Districts in North Dakota

[12]The relative importance of the destinations by commodity and origin are discussed in G. Griffen and K. Casavant, An Evaluation of North Dakota Grain Movements, Upper Great Plains Transportation Institute, North Dakota State University, forthcoming.

Results of Analysis

The discussion focuses on the crop years 1967-68 to 1978-79 for the four commodities selected, as well as all grains, from the state to all destinations. Results of the analyses for specific crop reporting districts and destinations are discussed in the following section and the tables are presented in the Appendix.

Analysis of Shipments from the State to All Destinations

All Grains

Seasonal-irregular (SI) ratios for all grains to all destinations are presented in Table 1. Average monthly SI ratios are listed as well as standard deviations and coefficients of variation calculated by month. The SI ratios should be interpreted as the percent of the average monthly shipments (e.g., annual movements averaged across months) before the irregular components is removed.

Examination of the SI ratios indicate the nature and extent of seasonality in the time series. Months with peak movements were July through November as indicated by the SI ratios greater than 100. For example, average September movements were 140.7 percent of the annual monthly average shipment. Off-peak movements were the remaining months. The analysis of variance indicated the differences across months were significant and not due to chance.

Standard deviations and coefficients of variation were calculated by month and are listed in Table 1. The standard deviation is a measure of variability for a given series and can be useful in deriving confidence intervals for the monthly means. However, conclusions drawn from comparison of standard deviations across months are not appropriate because the means are different. The coefficient of variation is a standardized measure of variability and is calculated as follows:

TABLE 1. MONTHLY SEASONAL-IRREGULAR RATIOS FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	113.4	124.1	127.4	115.8	107.3	65.4	85.6	85.6	108.0	79.3	81.4	88.5
1968-69	122.1	106.2	116.0	143.6	125.4	99.9	70.4	77.7	88.9	84.5	85.4	92.5
1969-70	106.4	134.1	155.8	101.8	84.1	93.9	83.5	85.6	73.5	86.6	85.5	93.5
1970-71	68.5	130.4	146.5	104.1	117.8	84.9	82.9	82.2	105.1	72.1	78.9	95.7
1971-72	140.6	139.9	127.1	79.5	106.4	93.8	71.8	91.1	105.5	95.2	72.5	121.3
1972-73	85.4	141.7	126.0	112.4	98.3	93.6	96.1	87.2	89.4	77.9	114.9	103.9
1973-74	117.2	117.9	112.2	122.7	105.0	96.8	92.0	79.4	100.2	98.0	58.5	74.0
1974-75	105.6	113.2	145.4	177.6	151.9	80.2	70.6	71.8	79.0	104.8	83.2	84.9
1975-76	99.2	151.6	222.6	142.9	95.5	77.3	65.5	78.0	100.5	64.6	82.7	109.8
1976-77	110.9	190.9	170.9	112.6	87.3	64.7	60.2	134.9	100.3	90.5	70.2	101.3
1977-78	112.5	139.7	110.6	159.1	125.8	86.9	63.3	62.1	74.9	67.9	94.8	110.3
1978-79	104.7	127.7	127.4	150.6	120.5	92.4	71.5	46.4	62.0	67.0	103.2	101.6
Average	107.2	134.8	140.7	126.9	110.4	85.8	76.1	81.8	90.6	82.4	84.3	98.1
St. Dev.	18.0	21.9	31.6	28.1	19.0	11.8	11.6	20.8	15.1	13.1	14.9	12.7
C. V.	0.17	0.16	0.22	0.22	0.17	0.14	0.15	0.25	0.17	0.16	0.18	0.13

C. V. = St. Dev./Mean

Comparison of coefficients of variation across months indicates the amount of variability in shipments in a particular month, relative to the other months. The larger the coefficient of variation, the greater is the variability relative to the other months. Comparison of the coefficients of variation indicate that months with the most variability are September, October, and February. Examination of the confidence intervals is another way to illustrate the variability in monthly movements as well as the underlying seasonality. Confidence intervals were calculated for each month at the 95 percent level of significance.[13] Results indicate that there is a 95 percent probability that the SI ratio is within the confidence interval. The average SI ratios and the confidence intervals are shown in Figure 3.

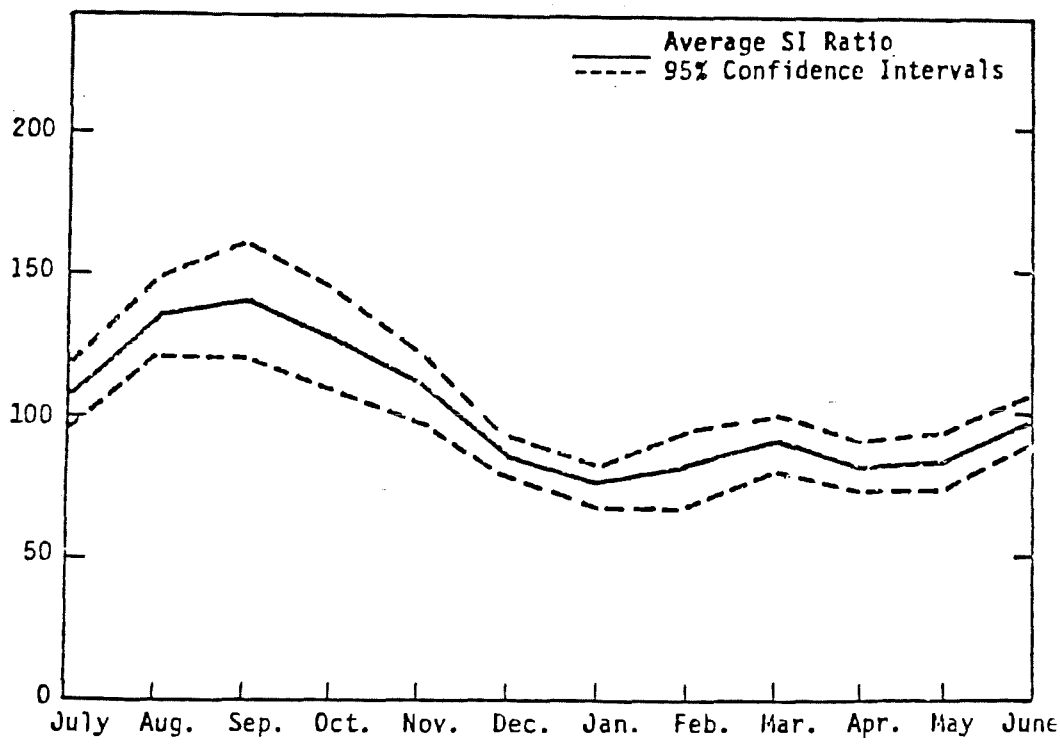

Figure 3. Monthly Seasonal-Irregular Ratios for All Grain Movements from North Dakota

---

[13]The confidence interval is calculated as follows: $\overline{SI}=T_{.05}$ (s/n) where $\overline{SI}$ is the mean of the SI ratios, $t_{.05}$ is 2.201 and is taken from the t distribution at the 95 percent level of significance, s is the standard deviation and n is the number of obserations, 12.

The figure illustrates the average seasonal movements within a year as well as the variability in a given month. The months with the most variability were September, October, and February.

Seasonal indexes were calculated by removing the irregularity components from the SI ratios. These indexes are shown in Table 2 for all grain movements. The indexes should be interpreted as the percent a particular monthly shipment deviated from the monthly average after the irregular effects were eliminated. For example, movements in December, 1978 were 80.8 percent of the monthly average movements in that year. Seasonal factors also were calculated for movements one year ahead.[14] However, these forecasts ignore changes in fundamental factors which may deviate from the seasonal pattern.

Results also indicate that the nature and amplitude of seasonality has changed through time. For example, the monthly seasonal index for August has increased each year from 122.9 in 1967 to 139.5 in 1978. There also has been a general increase in shipments during June and October. Grain movements during the winter months have decreased as indicated by declining indexes in December, January, March, and April. Generally, the seasonal indexes indicate that the inherent seasonality in grain marketings has intensified during the 1970's, resulting in a greater proportion of all grain shipments during the peak months.

---

[14]These indexes can be used for short-term forecasting within a year using the following formula:

$$EM_D = M_A \frac{I_A - I_D}{I_A} M_A$$

Where EM_D is the expected movement in December, M_A is the movement in August and I_A and I_D are the indexes for August and December respectively. For example, if movements were 100,000 bushels in August of 1979, movements for December would be expected to be 57,703 bushels. This was calculated by substituting 140.2 and 80.9 in the brackets where appropriate. This formula could be generalized for any combination of months.

TABLE 2. MONTHLY SEASONAL INDEXES FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	112.4	122.9	135.2	113.0	110.6	90.9	80.4	82.9	94.8	81.7	83.3	92.1
1968-69	111.2	124.4	135.1	112.3	110.5	90.7	79.9	83.4	96.0	82.1	82.4	92.7
1969-70	108.1	127.0	135.0	111.7	110.1	91.4	80.2	84.0	96.0	82.4	81.2	94.4
1970-71	105.2	129.9	134.0	111.1	107.6	92.2	81.7	84.9	96.4	84.3	78.3	94.5
1971-72	102.9	130.5	133.0	114.9	106.8	91.9	83.1	84.1	95.6	86.0	76.0	93.7
1972-73	102.3	131.4	131.8	121.4	105.1	90.3	82.5	83.0	95.7	87.1	74.3	92.7
1973-74	102.5	131.9	133.9	128.7	103.7	87.1	79.7	80.6	94.7	87.2	74.1	93.1
1974-75	104.5	133.4	135.4	134.8	103.0	84.2	75.5	77.6	93.1	85.7	75.4	94.6
1975-76	105.9	134.1	138.3	140.2	104.8	81.5	71.1	73.8	89.2	82.8	79.4	97.0
1976-77	107.0	136.5	137.6	143.7	107.4	80.7	67.2	71.0	86.2	78.2	84.0	100.8
1977-78	106.8	138.2	137.8	144.0	108.9	80.6	65.4	69.3	83.1	74.9	87.7	104.0
1978-79	107.6	139.5	137.0	142.2	109.4	80.8	65.1	68.8	82.6	73.5	88.3	105.2
Seasonal factors, one year ahead												
1979-80	108.0	140.2	136.6	141.4	109.6	80.9	64.9	68.6	82.4	72.9	88.7	105.8

Hard Red Spring Wheat

The seasonal-irregular ratios for hard red spring wheat shipments from North Dakota to all destinations are shown in Table 3. Examination of the ratios indicate that months with peak movements were June through November with September having the largest. The average September movement was 149.3 percent of the average monthly movements. The off-peak months were the remainder with February having the lowest annual movement. The analysis of variance indicated the observed seasonality was statistically significant and not due to chance.

Standard deviations and coefficients of variation were calculated for each month and are shown in Table 3. Comparison of the coefficients of variation across months indicate that August, October, February, and May were more variable relative to the others. The months with the least variability are March, April, and June. Standard deviations were used to calculate confidence intervals for the mean ratios. The results are shown in Figure 4.

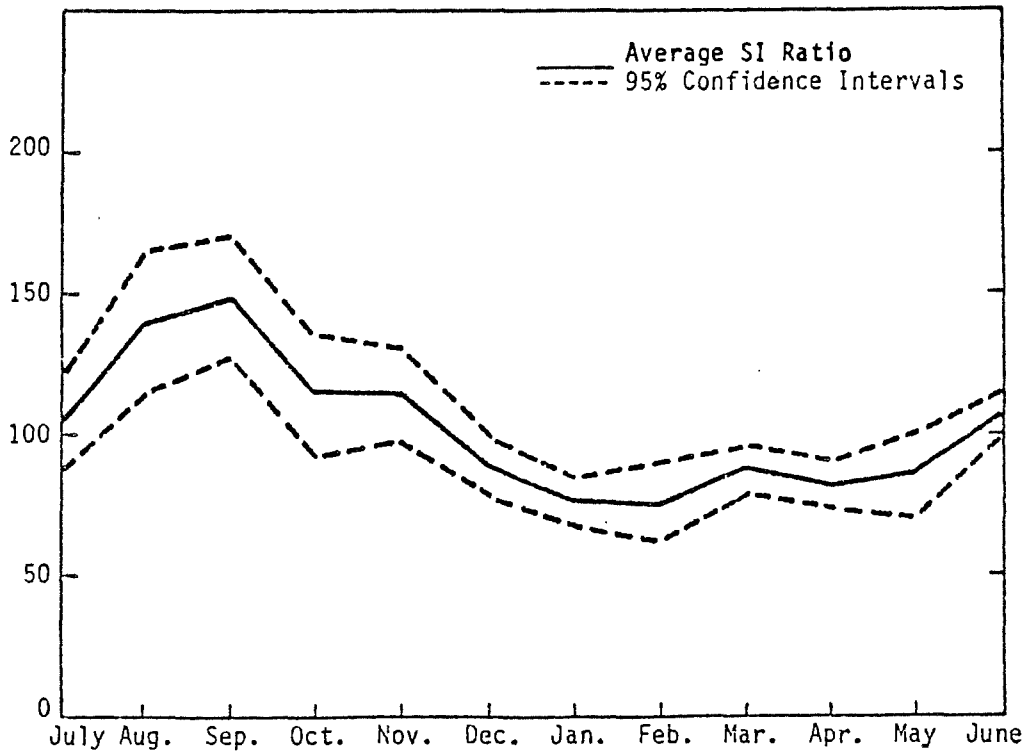

Figure 4. Monthly Seasonal-Irregular Ratios for Hard Red Spring Wheat Movements from North Dakota

TABLE 3. MONTHLY SEASONAL-IRREGULAR RATIOS FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	115.1	88.5	126.2	123.4	129.1	61.7	86.6	75.2	115.1	76.5	79.6	95.4
1968-69	147.0	97.7	104.1	140.0	124.1	98.2	73.6	79.3	90.2	84.0	84.2	96.7
1969-70	87.1	117.6	145.7	106.9	77.2	109.6	87.7	66.7	74.7	96.3	76.7	94.9
1970-71	73.4	131.1	171.5	115.1	143.5	72.4	68.7	65.2	102.0	75.3	65.9	102.6
1971-72	136.6	168.8	145.6	81.5	116.8	98.2	69.0	80.6	87.6	78.6	70.5	115.2
1972-73	78.0	165.1	117.8	118.5	103.3	101.6	93.8	80.3	73.0	85.7	123.8	100.4
1973-74	93.4	132.4	129.9	107.8	108.5	109.3	98.8	74.4	89.8	88.3	53.8	100.8
1974-75	75.7	111.6	185.2	205.8	167.3	82.2	70.9	59.4	85.2	99.3	83.2	95.7
1975-76	108.9	129.0	225.3	114.0	77.7	74.0	70.7	87.3	87.3	50.5	86.9	118.8
1976-77	91.7	238.6	180.4	83.8	92.6	80.1	63.2	136.5	95.1	91.2	75.3	123.3
1977-78	112.9	144.1	126.6	102.2	117.6	87.5	62.3	61.6	81.5	80.3	91.8	111.8
1978-79	128.9	156.8	133.0	82.2	112.8	89.1	71.1	44.5	69.5	78.0	137.5	127.2
Average	104.1	140.1	149.3	115.1	114.2	88.7	76.4	75.9	87.6	82.0	85.8	106.9
St. Dev.	24.7	39.9	34.7	33.6	25.8	15.2	12.1	22.4	12.7	12.6	23.5	11.8
C. V.	0.26	0.28	0.23	0.29	0.23	0.17	0.16	0.30	0.15	0.15	0.27	0.11

Seasonal indexes, after elimination of the irregularity component, are shown in Table 4 for hard red spring wheat shipments. The results indicate that seasonality has intensified through the years. Indexes for May, June, July, and August have all increased since 1967. Those for October through January have decreased.

Durum Wheat

Seasonal-irregular ratios for durum wheat shipments from North Dakota are shown in Table 5 and indicate the nature and amplitude of seasonality. Months with peak movements were typically July through November. September was the month with the largest movement when approximately 159.4 percent of the annual average shipments were made. The analysis of variance indicated the observed seasonal differences in movements were significant and not due to chance.

Standard deviations and coefficients of variation were calculated for each month and can be used to evaluate the variability in monthly movements. Comparison of coefficents of variation indicate that the months with the most variability in grain shipments were June, July, September, and October. Standard deviations were used to calculate confidence intervals at the 95 percent level of significance. Confidence levels and monthly indexes are shown in Figure 5. Results indicate that the months with the most variability were June through October. The remaining months had relatively less variability.

Seasonal indexes, after elimination of the irregularity component, are shown in Table 6. Results indicate that the amount of grain shipped during August and September has increased since 1967. There have been large decreases in the amount of grain shipped during December and January. Consequently, seasonality in durum movements has intensified during the 1970's relative to 1967.

TABLE 4. MONTHLY SEASONAL INDEXES FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	96.8	106.2	139.2	122.7	128.9	99.4	80.9	72.6	93.5	84.0	78.0	96.7
1968-69	94.7	111.5	140.9	120.9	128.7	98.6	79.5	72.7	93.2	82.9	76.7	98.1
1969-70	90.2	121.8	142.0	119.0	126.9	98.5	78.5	73.1	90.6	82.7	75.4	100.2
1970-71	86.8	132.9	141.6	115.2	123.0	99.6	79.9	73.8	87.7	83.3	72.8	101.8
1971-72	83.2	140.1	143.8	113.5	121.2	98.9	80.6	73.2	85.8	84.4	71.3	102.6
1972-73	84.6	142.2	145.7	112.2	118.0	96.7	81.1	73.9	85.5	85.5	71.4	104.0
1973-74	86.7	140.4	150.0	111.8	114.5	92.7	79.6	74.5	85.7	87.1	73.6	105.7
1974-75	91.8	137.4	152.2	109.5	110.9	89.7	77.3	74.5	85.7	88.2	76.4	107.9
1975-76	96.7	136.0	155.4	105.4	110.7	86.3	73.1	72.8	85.2	88.0	80.2	110.9
1976-77	103.8	138.2	153.6	101.0	109.8	84.1	69.0	72.5	84.4	86.0	84.1	115.2
1977-78	108.3	142.5	150.6	96.2	108.1	83.3	66.7	72.6	82.9	84.4	86.8	118.8
1978-79	110.8	145.4	147.7	93.2	106.2	83.9	66.4	73.1	82.9	83.4	87.1	120.5
Seasonal factors, one year ahead												
1979-80	112.0	146.9	146.2	91.7	105.3	84.2	66.2	73.4	82.9	83.0	87.3	121.4

TABLE 5. MONTHLY SEASONAL-IRREGULAR RATIOS FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	107.8	112.1	136.9	182.4	108.0	79.8	94.6	103.1	108.0	79.5	70.7	71.2
1968-69	103.8	81.1	122.4	174.1	150.0	102.8	71.9	83.9	90.3	91.8	76.7	68.7
1969-70	119.2	123.2	214.0	84.1	110.7	106.7	82.2	72.8	97.0	94.2	85.8	78.6
1970-71	52.1	123.2	133.3	101.9	116.9	94.7	98.2	74.7	104.4	77.1	98.7	86.4
1971-72	193.0	94.5	134.0	73.2	101.6	84.6	97.3	99.3	116.6	91.6	81.6	153.2
1972-73	84.8	112.4	124.9	131.0	88.0	96.3	96.0	97.4	121.9	70.1	86.3	81.0
1973-74	104.2	121.1	112.2	100.9	98.5	110.6	101.0	88.6	91.4	103.2	70.5	47.1
1974-75	100.5	96.4	174.5	162.6	124.1	67.2	58.1	91.3	91.2	132.0	85.9	56.6
1975-76	64.3	156.8	279.3	152.1	101.9	59.5	56.8	78.7	147.4	83.0	60.	83.5
1976-77	122.9	194.0	211.3	88.5	85.1	49.9	61.5	126.9	93.2	96.7	65.3	86.0
1977-78	141.4	142.2	104.7	104.9	113.1	76.1	67.5	58.2	74.1	67.9	93.7	106.2
1978-79	105.7	142.9	164.9	138.2	104.9	63.1	68.4	59.6	75.5	76.4	83.9	105.7
Average	108.3	125.0	159.4	124.5	108.6	82.6	79.5	86.2	100.9	88.6	79.9	85.4
St. Dev.	36.1	30.8	52.2	37.3	17.1	20.0	17.2	19.4	20.6	17.5	11.5	27.5
C. V.	0.33	0.25	0.33	0.30	0.16	0.24	0.22	0.22	0.20	0.20	0.14	0.32

TABLE 6. MONTHLY SEASONAL INDEXES FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	108.8	109.3	130.6	125.0	121.0	95.7	84.8	84.4	98.9	86.4	80.7	74.8
1968-69	109.0	109.3	131.1	123.2	119.6	94.9	86.3	85.0	100.4	86.4	81.8	75.9
1969-70	107.4	109.2	130.9	121.2	116.9	95.2	87.9	85.0	102.7	85.7	84.1	77.8
1970-71	106.3	110.5	129.7	117.4	111.0	96.1	91.0	86.4	105.2	86.3	84.5	77.5
1971-72	103.6	111.1	131.3	117.9	107.6	95.2	91.7	87.8	105.8	86.1	84.7	75.3
1972-73	101.6	113.9	136.5	121.7	104.3	90.8	89.6	89.7	104.4	86.8	81.1	72.1
1973-74	100.2	120.3	147.6	127.0	103.2	83.6	82.7	89.1	101.0	87.1	77.4	70.7
1974-75	103.8	130.4	157.8	127.4	103.1	77.6	75.6	85.1	95.4	87.6	74.2	72.4
1975-76	108.4	139.9	168.4	126.9	104.2	70.8	68.8	78.6	89.6	86.3	74.7	78.1
1976-77	113.4	147.4	173.8	125.0	104.7	66.0	65.0	72.6	85.1	83.8	75.7	86.3
1977-78	116.1	152.7	176.9	122.6	103.2	62.7	63.5	68.3	83.0	81.3	77.3	93.4
1978-79	118.7	156.7	176.5	117.7	101.2	62.5	64.4	66.3	82.5	80.7	77.8	96.8
Seasonal factors, one year ahead												
1979-80	119.9	158.6	176.2	115.2	100.2	62.3	64.9	65.3	82.2	80.3	78.0	98.6

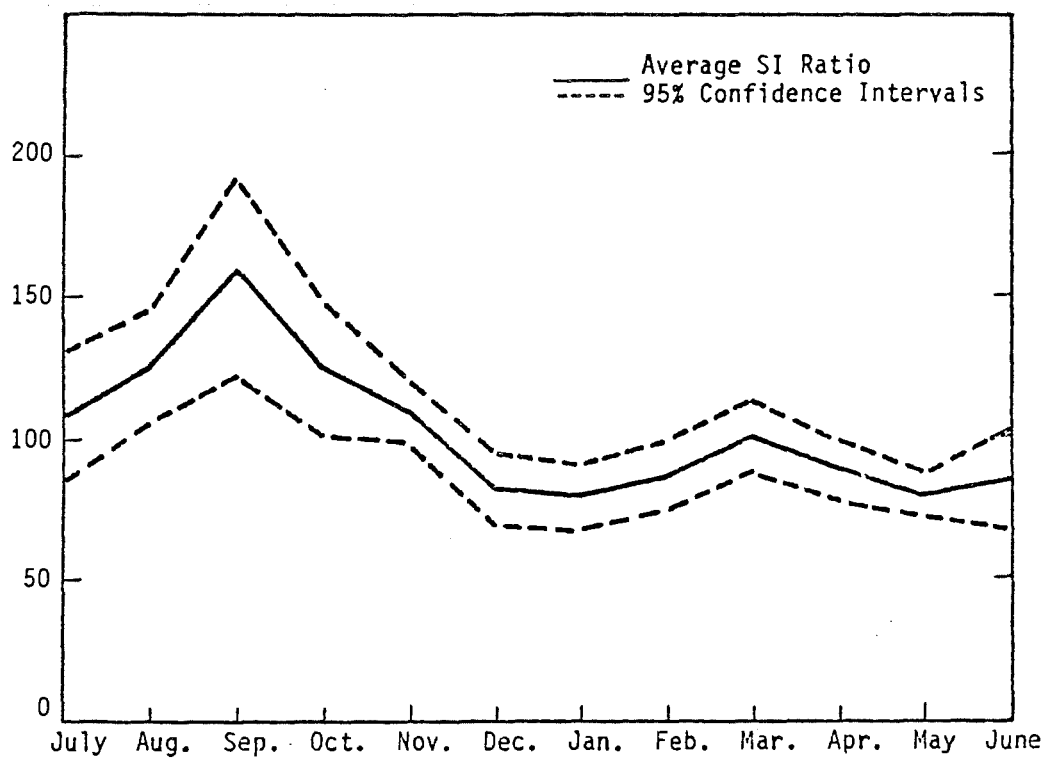

Figure 5. Monthly Seasonal-Irregular Ratios for Durum Movements from North Dakota

Barley

Seasonal-irregular ratios for barley shipments from North Dakota are shown in Table 7. Peak months for barley shipments are June through September and January is the month with least movement. On average, 152.4 percent of the monthly average shipments are made during August. The monthly differences are significant and not due to chance as indicated by the analysis of variance.

Standard deviations and coefficients of variation were calculated for each month. The coefficients of variation indicate that September, January, and February are months with more variability relative to the other months. Standard deviations were used to derive confidence levels at the 95 percent level. Results are shown in Figure 6 and confirm the conclusions discussed above.

TABLE 7. MONTHLY SEASONAL-IRREGULAR RATIOS FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	108.8	175.6	110.8	84.3	80.5	56.4	81.6	85.5	105.0	80.8	103.8	122.6
1968-69	133.2	123.4	125.3	95.8	74.1	81.5	67.6	78.4	102.3	93.5	96.5	110.2
1969-70	145.0	142.5	112.8	86.4	75.8	80.5	87.4	75.3	77.6	87.7	109.3	127.5
1970-71	62.1	135.1	115.3	76.6	66.6	83.9	85.1	112.6	127.6	73.8	88.4	100.7
1971-72	137.6	109.2	63.7	90.2	98.2	97.5	46.8	101.1	128.2	89.7	59.2	117.6
1972-73	99.4	144.1	130.3	91.1	90.4	78.2	119.7	97.4	100.8	60.4	115.0	109.8
1973-74	142.5	115.4	103.2	127.9	98.5	72.9	64.1	73.7	121.6	108.1	69.7	73.4
1974-75	151.9	156.3	107.9	103.4	115.1	63.2	86.8	67.4	65.7	106.8	62.1	90.8
1975-76	105.0	194.5	180.6	125.9	81.2	79.5	61.0	56.6	102.8	66.5	86.1	112.9
1976-77	125.3	173.9	141.6	123.6	80.5	54.3	49.9	118.1	111.8	79.3	72.0	114.2
1977-78	134.1	202.9	70.8	89.0	68.4	84.0	62.8	67.1	90.5	71.9	95.2	128.8
1978-79	118.6	156.2	136.8	60.4	66.9	123.6	78.4	54.8	72.4	74.2	109.6	118.0
Average	122.0	152.4	116.6	96.2	83.0	79.6	74.3	82.3	100.5	82.7	88.9	110.5
St. Dev.	25.1	30.0	31.0	20.7	14.9	18.6	20.0	20.9	20.7	15.0	19.3	15.8
C. V.	0.21	0.20	0.27	0.22	0.18	0.23	0.27	0.25	0.21	0.18	0.22	0.14

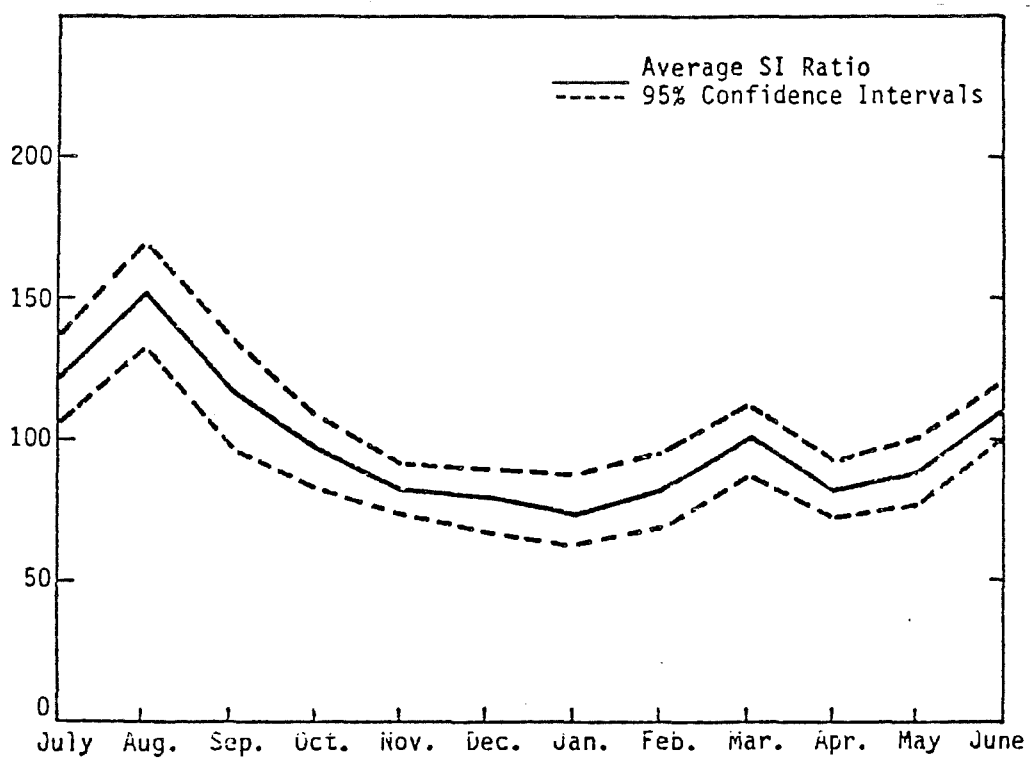

Figure 6. Monthly Seasonal-Irregular Ratios for Barley Movements from North Dakota

Seasonal indexes were calculated by eliminating the irregularity component and are shown in Table 8. Results indicate that the movements during August, September, and October have increased relative to the late 1960's. Shipments during some of the winter months have decreased relative to the late 1960's. In general, results indicate that the amplitude of seasonality in grain movements has increased in the 1970's -- the peak is greater and the valley deeper.

Oats

Seasonal-irregular ratios for oats shipments from North Dakota are shown in Table 9. Results demonstrate that months with peak movements were July, August, and September. The average August shipment was 177.9 percent of the monthly average. Off-peak months were January, March, April, and May. The observed monthly differences were significant and not due to chance as indicated by the analysis of variance. Standard deviations and coefficients of

TABLE 8. MONTHLY SEASONAL INDEXES FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	128.4	145.4	116.2	87.0	75.3	75.4	79.9	84.8	103.9	85.6	101.3	117.4
1968-69	129.1	142.6	115.0	86.5	76.3	77.3	79.4	87.5	107.0	85.4	98.2	116.6
1969-70	128.8	137.4	115.1	86.6	78.0	80.5	79.1	90.8	109.7	84.2	94.1	114.8
1970-71	129.1	132.3	113.8	89.4	81.9	82.7	78.4	92.2	112.0	84.4	88.6	111.4
1971-72	129.4	130.5	113.4	93.2	86.9	82.4	78.5	92.3	112.3	85.1	82.5	105.2
1972-73	128.9	134.9	113.9	100.1	92.3	80.5	76.7	87.7	110.9	86.1	77.1	100.9
1973-74	127.1	144.0	118.5	107.1	95.0	76.7	74.1	80.9	107.1	85.6	74.3	99.0
1974-75	127.2	156.3	123.4	112.6	93.4	74.1	69.7	72.5	103.4	84.8	75.2	101.2
1975-76	127.3	167.2	128.4	113.6	88.7	72.2	68.1	66.9	98.4	82.4	79.0	105.4
1976-77	126.2	175.8	132.7	112.6	82.2	73.6	65.9	63.2	95.6	78.8	84.1	111.8
1977-78	123.7	179.2	136.3	110.8	76.9	74.3	65.5	61.9	92.7	75.2	89.0	117.0
1978-79	122.8	180.2	137.7	110.0	73.4	74.8	64.2	61.7	93.1	73.7	91.2	119.0
Seasonal factors, one year ahead												
1979-80	122.3	180.6	138.5	109.6	71.6	75.0	63.5	61.7	93.3	73.0	92.3	120.1

TABLE 9. MONTHLY SEASONAL-IRREGULAR RATIOS FOR OATS SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	95.7	197.0	173.2	79.2	126.4	85.7	76.6	77.2	74.5	72.0	69.0	70.6
1968-69	131.0	188.2	142.9	99.3	106.4	125.1	65.2	89.4	78.0	58.4	77.2	77.1
1969-70	87.9	214.4	154.0	123.2	95.5	86.0	77.3	235.4	49.4	67.3	75.7	63.4
1970-71	96.7	148.5	165.5	104.5	125.8	95.4	82.5	71.7	83.3	65.4	77.2	90.9
1971-72	98.5	177.2	159.5	67.9	117.6	99.4	77.4	90.2	82.6	170.4	63.3	101.8
1972-73	109.4	135.7	164.8	74.3	110.3	102.4	85.8	83.2	65.7	78.1	118.4	119.7
1973-74	140.8	105.3	95.4	122.0	112.6	78.5	85.7	67.2	83.5	104.7	72.2	112.7
1974-75	209.9	165.3	87.6	81.5	74.4	103.2	67.1	102.3	63.8	83.7	88.4	114.4
1975-76	120.2	176.3	133.4	71.6	84.7	108.9	72.7	70.2	81.6	72.4	88.2	168.5
1976-77	130.9	170.7	131.3	73.9	72.2	92.6	88.9	175.8	71.4	73.8	57.6	89.6
1977-78	169.4	249.0	95.9	59.4	171.1	124.5	59.2	63.3	76.3	69.4	94.0	112.1
1978-79	119.5	206.9	135.6	68.1	68.1	100.4	118.9	72.2	80.8	67.0	89.2	90.2
Average	125.8	177.9	136.6	85.4	105.4	100.2	79.8	99.8	74.2	81.9	80.9	100.9
St. Dev.	35.1	37.9	29.6	21.5	29.2	14.3	15.3	52.2	10.3	30.2	166.2	28.0
C. V.	0.28	0.21	0.22	0.25	0.28	0.14	0.19	0.52	0.14	0.37	0.20	0.28

variation were calculated as measures of variability in the particular monthly shipments. The results indicate that February and April were months with the most relative variability. Standard deviations were used to calculate confidence intervals at the 95 percent level. The results are shown in Figure 7, along with the monthly SI ratios, and indicate the variability in shipments by month and throughout the year.

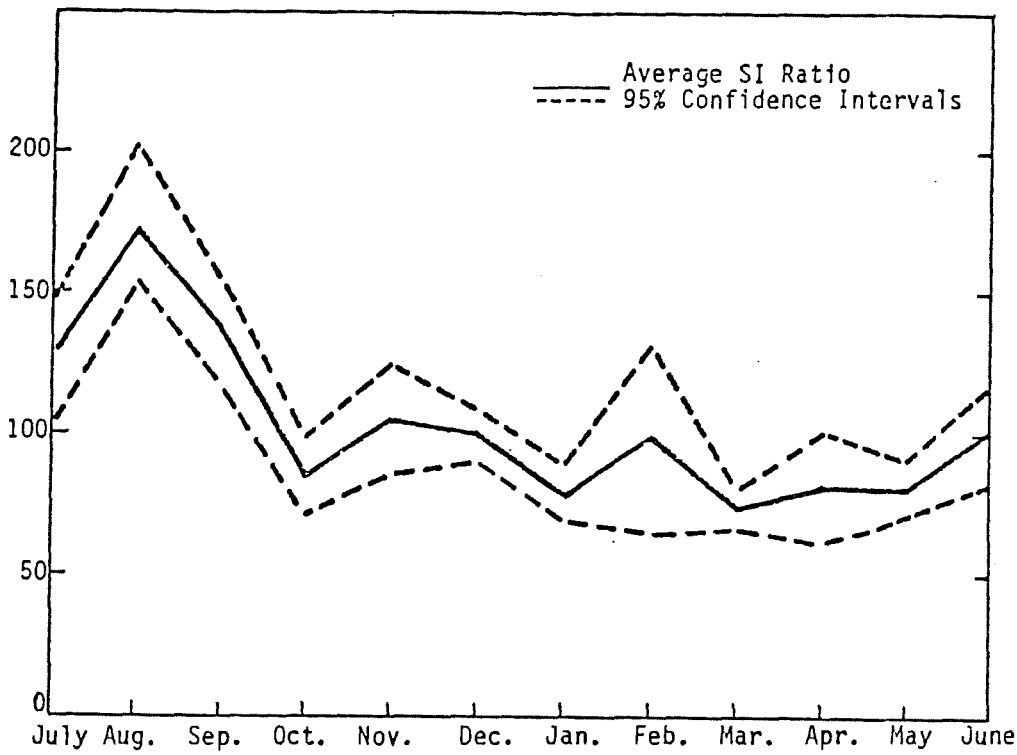

Figure 7. Monthly Seasonal-Irregular Ratios for Oats Movements from North Dakota

Seasonal indexes were calculated by removing the irregularity component. The results are shown in Table 10 and indicate the changing seasonality since 1967. Seasonal indexes indicate there have been large increases in shipments during June, July, August, and December; decreases in movements occurred primarily in September, October, and November. In general, there has been a change in the amplitude of seasonality in oats shipments since 1967.

TABLE 10. MONTHLY SEASONAL INDEXES FOR OATS SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1967-68 TO 1978-79

Year	July	August	September	October	November	December	January	February	March	April	May	June
1967-68	99.9	191.3	157.2	96.7	112.0	92.1	74.1	83.7	79.6	65.7	74.3	74.3
1968-69	99.8	188.5	158.0	95.4	113.2	92.7	74.6	83.5	80.1	66.9	74.1	77.2
1969-70	100.7	181.5	158.3	93.9	113.2	94.4	75.6	83.5	79.8	68.3	74.6	83.3
1970-71	103.0	173.3	157.1	90.4	112.8	94.1	77.6	82.8	79.7	72.5	74.5	90.8
1971-72	108.2	162.7	154.4	87.1	110.9	94.8	78.9	82.0	77.7	76.6	75.7	99.6
1972-73	113.9	157.8	150.0	81.8	107.0	95.3	79.1	80.8	76.5	80.8	76.9	106.8
1973-74	120.4	156.0	144.4	78.2	100.0	97.2	78.9	80.7	74.1	81.7	79.1	110.5
1974-75	125.7	164.8	137.0	75.1	92.3	99.2	77.6	78.9	74.0	81.0	81.6	110.7
1975-76	128.0	176.5	132.2	73.6	84.5	101.9	76.4	77.6	73.9	77.8	84.5	107.7
1976-77	128.3	191.3	129.2	70.9	79.9	105.0	74.7	75.1	75.7	74.5	86.7	105.2
1977-78	127.4	200.1	129.3	69.1	76.6	106.7	74.8	73.9	76.5	71.6	88.0	102.2
1978-79	128.1	204.6	129.2	68.1	76.4	106.9	75.4	72.4	77.4	70.8	88.1	100.6
Seasonal factors, one year ahead												
1979-80	128.5	206.9	129.2	67.6	76.2	107.0	75.7	71.6	77.8	70.4	88.1	99.8

Analysis of Shipments by Crop Reporting District and Destination

The analysis thus far has been general in that specific origin and destinations were not discussed. Data also were analyzed from 1973-74 to 1978-79 by crop reporting district, by destination, and by commodity. The results are reported in Appendix A, where tables are ordered for reference. Each table lists the monthly seasonal-irregular ratios and the monthly seasonal indexes. The first group of tables is for all grains is ordered by crop reporting district. The three individual destinations and all destinations combined are presented for each crop reporting district. Seasonal analyses were conducted on all combinations of movements by commodity, origin, and destination. The discussion which follows is general and is not intended to present all the specific details contained in the Appendix tables.

All Grains

Statistics from the movemetns of all grain are shown in Tables A1-A40. Generally, grain shipments to Duluth/Superior were more seasonal than those to other destinations. Movements to Duluth/Superior ranged from 50 percent of the annual average in January to 168 percent in September. The seasonal range in marketings to Minneapolis/St. Paul were between 75 percent and 140 percent of the annual average. Movements from the state to the Pacific Northwest vary throughout the year but the differences were not significantly different across months.

Seasonality in movements vary across the individual crop reporting districts. Generally, the crop reporting districts in the western part of the state had relatively less seasonality, presumably due to their access to the Pacific Northwest. For example, movements from crop reporting district 4 to the Pacific Northwest ranged from 85 percent to 130 percent of the annual average in June and September respectively. However, these movements were

not significantly different from each other. Movements from the eastern crop reporting districts to the Pacific Northwest were more sporadic, and generally, significant differences were observed. For example, movements from crop reporting district 6 to the Pacific Northwest in September ranged from 6.7 percent to 433 percent of the annual average in 1978 and 1974, respectively.

Hard Red Spring Wheat

The SI ratios and monthly indexes for hard red spring wheat shipments are shown in Tables A41 - A80. Monthly shipments of hard red spring wheat peaked in July through October, with September generally being the month with the greatest movements. Shipments from the individual crop reporting districts to the specific destinations vary. Those to the Pacific Northwest were typically less seasonal than were those to the eastern markets. Movements from the state to the Pacific Northwest were not significantly different across months. Likewise, those from crop reporting districts 2, 3, 4, 5, and 8 were not significantly different across months. Generally, the peak movement to the Pacific Northwest was December through March. Movements from crop reporting districts 3 and 6 to Minneapolis/St. Paul were quite sporadic throughout the study period and within any particular year.

Durum Wheat

Monthly SI ratios and indexes for durum wheat shipments are shown in Tables A81 - A120. Generally, movements to Duluth/Superior and Minneapolis/St. Paul peak in July, August, September, and October. Those movements to the Pacific Northwest peaked in December, January, and February. The seasonal indexes from the state ranged from 48 to 191 in January and September respectively. Similarly, those to Minneapolis/St. Paul ranged from 71 to 154. Consequently, movements to Duluth/Superior generally exhibited more seasonality than those to Minneapolis/St. Paul destinations.

Barley

Monthly SI ratios and indexes for barley movements are shown in Tables A121 - A162. Barley shipments generally peaked in July, August, and September. Movements from the state to Duluth/Superior ranged between 55 percent and 204 percent of the annual average in February and August respectively. Those to Minneapolis/St. Paul ranged from 73 percent to 162 percent respectively. In most cases monthly movements to the Pacific Northwest were not significantly different than each other.

Oats

Monthly SI ratios and indexes for oats shipments are shown in Tables A163 - A203. In many cases oats shipments do not exhibit significant differences across months as was the case with the other grains. Movements from the state to Duluth/Superior peaked in June through September. Movements were typically the greatest in August when about 250 percent of the annual average volume of oats are shipped. Oats shipments to Minneapolis/St. Paul also peaked in June through September and August movements were about 176 percent of the annual average movement. There appears to be more variability in oats shipments across individual origin-destination pairs than was the case with the other grains.

Conclusion

The purpose of this study was to describe the seasonal behavior of marketing patterns for grain from North Dakota. Grain marketings do exhibit seasonal behavior which is recurrent from year to year. The results illustrate that it is common for marketings in the peak months to be 160 percent of the annual average. Similarly, during the off-peak months it is common for marketings to be 50 percent of the annual average. Months with peak movements were typically those in the late spring and during and immediately

post harvest. However, specific seasonal patterns depend on the commodity, the origin, and the destination. Generally, movements to Duluth/Superior have the most seasonality, followed by Minneapolis/St. Paul. Those to the Pacific Northwest generally have the least seasonality.

An important conclusion is that not only are marketings seasonal, but the seasonality has intensified since 1967. For nearly all the commodities the proportion of grain handled during the peak months has increased every year since 1967. Likewise the proportion handled during the off-peak months has decreased. Consequently, marketings in recent years have been greater during the peak months and smaller during the off-peak months relative to those during the late 1960's. Whether this is a permanent shift in behavior is uncertain. Nevertheless, it has important implications for allocation of existing marketing services and planning of new facilities.

References

Clark, C. T., and Schkade, L. L. Statistical Analysis for Administrative Decisions, South-Western Publishing Co., 1974.

Guenther, W. C. Analysis of Variance, Prentice-Hall, Inc., 1964.

Macaulay, F. R. The Smoothing of Time Series, National Bureau of Economic Research, Inc., 1931.

Makridakis, S., and Wheelwright, S. C. Forecasting Methods and Applications, John Wiley and Sons, 1978.

Mason, R. D. Statistical Techniques in Business and Economics, Richard D. Irrin, Inc., 1970.

Neter, J., and Wasserman, W. Fundamental Statistics for Business and Economics, Allyn and Bacon, Inc., 1973.

U.S. Bureau of Census. The X-11 Variant of the Census Method II Seasonal Adjustment Program, Technical Paper No. 15 (1967 revision), U.S. Government Printing Office, Washington, D.C., 1967.

TABLE A1. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO DULUTH/ SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	139.0	142.2	136.5	136.4	96.7	78.3	121.5
1974	68.0	51.7	80.4	81.2	66.7	110.9	117.1	129.8	108.0	187.1	190.1	70.4	105.1
1975	48.2	63.7	68.9	125.6	96.9	81.8	98.6	183.3	287.1	168.0	97.3	52.6	114.3
1976	47.2	71.9	89.2	58.1	75.2	95.3	104.7	237.9	222.3	127.4	97.1	48.9	106.3
1977	44.0	103.9	78.9	76.0	62.0	105.6	132.0	154.2	117.3	176.7	136.8	76.1	105.3
1978	47.5	43.9	43.3	58.9	102.7	113.2	111.8	133.1	134.8	190.4	147.9	73.5	100.1
1979	48.1	31.2	42.8	58.1	112.9	100.6	*******	*******	*******	*******	*******	*******	65.7
AVGE	50.5	61.0	67.3	76.3	86.1	101.2	117.2	163.4	167.7	164.3	127.6	66.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	123049.500	11	11186.316	11.475**
RESIDUAL	58491.813	60	974.864	
TOTAL	181541.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	117.2	160.2	151.3	159.8	100.7	64.9	125.7
1974	53.4	62.4	79.9	73.5	77.4	97.9	117.4	161.6	151.7	159.5	103.1	64.9	100.2
1975	52.5	61.0	77.5	72.6	78.1	98.9	115.5	162.2	151.8	162.7	108.8	64.4	100.5
1976	50.3	59.0	72.5	70.2	82.0	99.4	114.1	162.9	150.8	165.9	115.3	64.3	100.5
1977	48.4	56.5	67.0	66.4	86.1	101.1	112.6	163.3	151.8	167.4	120.8	64.0	100.5
1978	46.8	54.0	62.2	64.0	89.5	102.5	113.1	164.8	153.2	165.3	122.8	64.1	100.2
1979	46.6	52.2	60.2	63.3	89.9	104.7	*******	*******	*******	*******	*******	*******	69.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	113.4	165.5	153.9	164.2	123.8	64.1	130.8
1980	46.6	51.3	59.2	63.0	90.1	105.9	*******	*******	*******	*******	*******	*******	69.3

TABLE A2. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO MINNEAPOLIS/ ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	122.9	130.0	105.9	127.9	99.2	88.7	112.4
1974	78.6	64.8	86.7	92.1	56.8	68.0	120.4	110.6	153.3	156.1	111.7	70.4	97.5
1975	73.4	72.3	72.5	94.8	74.1	95.1	101.8	136.2	181.9	124.7	98.0	86.2	100.9
1976	62.2	63.1	105.9	58.3	76.3	114.5	104.6	141.3	150.4	113.8	95.0	75.8	96.8
1977	65.3	135.5	103.7	97.2	73.1	108.4	100.7	120.4	102.7	130.5	101.0	87.6	102.2
1978	65.0	70.0	98.7	80.8	85.9	101.8	98.2	142.1	148.0	111.4	39.7	174.8	101.4
1979	104.4	63.3	81.7	89.8	111.5	114.4	*******	*******	*******	*******	*******	*******	94.2
AVGE	74.8	78.2	91.5	85.5	79.6	100.3	108.1	130.1	140.4	127.4	90.8	97.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	31522.875	11	2865.716	6.039**
RESIDUAL	28470.813	60	474.513	
TOTAL	59993.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	113.0	127.4	154.8	131.6	101.3	80.5	118.1
1974	70.2	67.4	88.7	92.1	69.8	104.2	112.0	128.0	154.3	130.7	101.1	80.8	99.9
1975	69.7	68.0	90.2	91.8	71.2	104.4	109.3	129.3	154.1	128.9	101.2	81.2	99.9
1976	68.6	68.5	91.7	91.2	74.2	105.4	105.6	131.1	153.9	125.6	100.8	83.0	100.0
1977	67.2	68.4	93.9	89.8	77.3	107.1	102.6	133.4	153.0	122.0	100.4	84.1	99.9
1978	66.4	68.4	95.4	89.3	79.5	108.5	101.2	134.7	151.7	119.3	99.6	85.1	99.9
1979	66.2	68.4	96.9	88.8	79.9	108.9	*******	*******	*******	*******	*******	*******	84.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	100.4	135.4	151.1	117.9	99.2	85.6	115.0
1980	66.1	68.5	97.7	88.6	80.1	109.1	*******	*******	*******	*******	*******	*******	85.0

TABLE A3. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	106.3	90.0	106.8	99.4	116.9	107.4	104.5
1974	101.9	98.6	115.7	140.3	44.5	39.3	78.0	91.1	256.6	162.6	133.9	85.9	112.4
1975	90.2	72.2	146.3	104.2	77.4	68.6	115.8	99.3	141.7	83.4	65.2	108.4	97.7
1976	110.6	128.1	98.9	64.8	99.2	97.1	102.9	163.2	97.9	70.1	76.3	84.6	99.5
1977	88.1	212.6	135.0	115.0	86.1	101.3	108.1	251.9	102.2	62.4	65.1	78.8	117.2
1978	91.1	128.0	145.5	101.0	101.6	120.0	113.4	94.9	73.8	62.7	69.3	109.9	100.9
1979	111.5	72.3	139.2	85.9	109.2	118.5	*******	*******	*******	*******	*******	*******	106.1
AVGE	98.9	118.6	130.1	101.9	86.4	90.8	104.1	131.7	129.8	90.1	87.8	95.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	20079.063	11	1825.369	1.310
RESIDUAL	83591.563	60	1393.193	
TOTAL	103670.625	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.9	101.0	121.7	91.2	100.2	97.6	102.0
1974	98.4	104.0	121.5	98.7	80.9	84.3	101.2	105.7	119.6	88.4	96.8	95.6	99.6
1975	97.2	106.0	123.4	99.6	82.7	87.9	102.7	110.4	115.1	83.2	90.2	93.8	99.3
1976	96.5	107.7	126.9	98.6	87.4	93.9	105.7	113.5	109.7	76.6	80.6	93.3	99.2
1977	97.3	111.3	128.8	96.2	93.0	101.3	107.6	116.5	103.0	70.9	73.3	93.2	99.4
1978	97.9	112.8	131.2	94.9	97.0	106.9	108.7	118.8	98.2	67.3	68.9	92.8	99.6
1979	98.0	114.9	132.4	95.5	98.0	109.7	*******	*******	*******	*******	*******	*******	108.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	109.3	119.9	95.8	65.6	66.8	92.6	91.7
1980	98.1	115.9	133.0	95.8	98.6	111.2	*******	*******	*******	*******	*******	*******	108.8

TABLE A4. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	128.4	129.7	122.3	128.7	103.6	89.3	117.0
1974	81.4	70.2	92.7	97.7	62.3	81.3	114.4	117.2	142.4	166.9	141.8	76.2	103.7
1975	68.7	71.4	79.3	104.3	81.6	82.9	97.6	151.6	225.4	144.3	95.0	76.2	106.5
1976	64.3	76.4	98.2	62.4	78.3	101.8	102.4	179.6	168.2	117.3	94.5	69.6	101.1
1977	62.4	133.2	95.5	85.9	68.4	101.5	114.1	139.7	107.1	149.9	118.3	83.8	105.0
1978	63.1	63.6	77.4	69.5	95.5	110.2	105.0	128.9	127.3	147.0	115.8	88.8	99.3
1979	70.4	47.1	64.5	69.9	107.0	104.4	*******	*******	*******	*******	*******	*******	77.2
AVGE	68.4	77.0	84.6	81.6	82.2	97.0	110.3	141.1	148.8	142.4	111.5	80.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	53130.875	11	4830.078	11.766**
RESIDUAL	24629.875	60	410.498	
TOTAL	77760.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	111.9	136.5	142.2	142.4	100.3	79.0	118.7
1974	70.1	72.9	90.8	89.6	73.5	90.5	111.5	137.8	142.3	141.9	101.4	78.9	100.1
1975	69.3	72.4	90.2	88.0	74.8	92.3	109.5	139.0	142.7	142.6	103.3	78.7	100.2
1976	67.7	71.5	87.7	84.7	78.8	95.7	107.5	140.7	141.3	142.7	105.5	79.3	100.3
1977	66.3	70.6	85.3	79.8	83.3	100.0	105.8	141.9	141.1	141.7	107.0	79.7	100.2
1978	65.3	69.8	82.7	76.3	86.9	103.3	105.7	143.2	140.6	139.2	107.6	80.1	100.1
1979	65.2	69.4	82.3	74.7	87.7	104.9	*******	*******	*******	*******	*******	*******	80.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	105.6	143.9	140.3	138.0	107.9	80.3	119.3
1980	65.1	69.2	82.0	73.9	88.2	105.8	*******	*******	*******	*******	*******	*******	80.7

TABLE A5. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	149.0	134.7	140.2	115.0	117.1	103.7	127.5
1974	60.9	52.5	77.8	104.2	81.1	107.0	137.3	106.1	123.1	159.9	164.2	53.7	99.8
1975	35.9	64.1	66.9	116.5	98.9	64.9	95.1	191.1	266.9	161.4	84.4	52.7	109.9
1976	44.6	76.3	122.0	75.0	53.7	86.4	143.6	213.5	214.2	63.3	59.7	46.3	99.9
1977	47.0	117.6	66.6	93.2	55.2	79.8	153.8	179.0	128.5	130.0	156.1	78.3	106.7
1978	53.9	33.8	45.8	51.8	89.2	99.4	117.1	140.7	175.3	147.4	146.6	69.0	97.5
1979	55.2	55.5	46.8	43.7	76.2	105.6	*******	*******	*******	*******	*******	*******	63.8
AVGE	49.6	66.6	71.0	80.7	74.9	90.5	127.7	160.9	178.0	129.5	121.3	68.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	110785.000	11	10071.363	9.234**
RESIDUAL	65443.250	60	1090.721	
TOTAL	176228.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	123.2	157.0	160.1	141.1	116.3	55.6	125.6
1974	47.9	64.7	70.7	98.9	74.6	86.0	125.8	160.8	160.4	138.3	117.9	56.7	100.2
1975	48.3	62.9	68.7	95.1	74.0	86.1	126.1	164.8	162.8	137.5	121.2	58.3	100.5
1976	48.3	61.2	64.7	87.5	73.3	86.5	126.8	170.7	165.5	137.3	123.7	60.9	100.5
1977	49.2	59.2	60.2	76.9	72.1	89.3	128.2	175.4	170.8	135.8	125.4	62.3	100.4
1978	50.0	57.6	56.6	68.9	70.6	91.7	131.9	180.1	174.1	132.2	124.9	63.2	100.2
1979	51.3	56.1	55.5	65.2	69.6	94.3	*******	*******	*******	*******	*******	*******	65.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	133.8	182.4	175.8	130.4	124.7	63.7	135.1
1980	51.9	55.4	55.0	63.3	69.1	95.7	*******	*******	*******	*******	*******	*******	65.1

TABLE A6. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	111.4	151.5	110.2	131.4	94.0	104.4	117.2
1974	86.9	68.0	80.2	127.2	56.7	79.5	122.6	92.6	151.2	156.9	92.3	86.2	100.0
1975	83.4	76.7	74.2	81.3	79.7	92.2	98.3	126.6	157.9	126.5	111.8	95.5	100.3
1976	75.4	68.7	135.0	73.8	67.0	164.1	105.5	153.6	153.6	117.8	102.9	73.6	107.6
1977	71.5	152.3	89.1	89.5	77.1	83.1	77.7	150.1	153.0	121.6	121.5	94.8	106.8
1978	66.8	77.3	89.4	85.4	81.8	71.0	104.8	156.9	131.6	123.9	88.4	115.9	99.[illegible]
1979	118.5	58.1	75.2	146.4	72.1	84.0	*******	*******	*******	*******	*******	*******	92.4
AVGE	83.8	83.5	90.5	100.6	72.4	95.6	103.4	138.6	142.9	129.7	101.8	95.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS.	33227.625	11	3020.693	6.118**
RESIDUAL	29622.813	60	493.713	
TOTAL	62850.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	109.8	140.0	149.5	134.5	99.7	94.2	121.3
1974	80.2	72.5	81.7	84.0	68.0	86.8	107.7	141.5	150.0	132.8	101.2	93.9	100.0
1975	78.9	73.2	82.6	84.4	69.4	85.6	105.1	143.3	150.0	130.6	102.4	94.3	100.0
1976	76.7	75.1	83.3	85.3	72.0	84.7	101.0	145.0	149.7	127.2	104.4	96.1	100.0
1977	74.2	76.6	84.1	86.0	73.8	83.4	98.8	147.4	148.5	124.3	104.6	97.9	100.0
1978	72.4	78.4	84.3	87.2	75.2	82.4	97.0	149.4	147.7	121.7	105.2	99.1	100.0
1979	71.3	79.1	84.9	87.9	75.4	81.0	*******	*******	*******	*******	*******	*******	79.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	96.0	150.4	147.3	120.5	105.4	99.6	119.9
1980	70.8	79.4	85.2	88.3	75.5	80.3	*******	*******	*******	*******	*******	*******	79.9

TABLE A7. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	140.3	122.0	106.2	99.0	104.9	86.2	109.8
1974	85.6	79.0	86.7	156.6	37.6	32.8	50.3	108.7	166.6	118.4	108.2	74.0	92.0
1975	74.5	65.0	107.4	65.6	84.2	94.3	126.[illegible]	135.9	183.8	114.4	48.6	71.3	97.6
1976	88.0	90.1	79.8	57.1	108.8	150.1	87.2	193.2	146.1	70.3	70.5	67.8	100.8
1977	67.6	185.3	117.0	96.2	72.9	120.4	126.3	381.0	137.8	61.3	65.3	74.7	125.5
1978	60.7	98.5	126.8	105.8	91.1	130.7	108.3	125.4	109.1	74.1	55.1	98.7	98.7
1979	97.2	78.0	85.2	87.6	113.8	125.3	*******	*******	*******	*******	*******	*******	97.9
AVGE	78.9	99.3	100.5	94.8	84.7	108.9	106.5	177.7	141.6	89.6	75.4	78.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	57892.938	11	5262.992	3.097**
RESIDUAL	101974.500	60	1699.575	
TOTAL	159867.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	115.5	132.9	152.3	104.5	86.2	75.7	111.2
1974	80.4	79.7	94.8	68.8	90.5	118.8	115.2	138.9	151.3	99.8	83.8	75.1	99.8
1975	78.3	81.4	97.9	72.6	89.8	120.0	112.6	144.9	150.3	93.7	78.3	75.4	99.6
1976	77.0	82.8	100.7	77.5	90.7	122.0	112.4	150.0	147.5	86.7	70.5	76.2	99.5
1977	76.5	85.3	102.1	82.3	93.3	126.0	110.0	154.1	142.9	80.0	64.5	77.7	99.6
1978	76.9	86.6	103.0	86.7	94.7	127.6	109.8	158.0	138.3	75.0	61.7	78.4	99.7
1979	76.5	88.3	104.3	89.9	94.3	128.1	*******	*******	*******	*******	*******	*******	96.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	109.7	160.0	135.9	72.4	60.3	78.7	102.8
1980	76.3	89.2	105.0	91.5	94.0	128.4	*******	*******	*******	*******	*******	*******	97.4

TABLE A8. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	143.2	140.4	123.3	111.2	99.3	93.3	118.5
1974	74.9	66.0	81.3	118.1	62.9	80.9	106.8	113.3	146.1	153.8	122.8	69.6	99.7
1975	60.2	69.9	79.8	106.2	97.3	78.3	100.7	160.0	231.3	141.7	82.3	68.4	106.3
1976	60.9	71.6	102.7	62.3	61.7	109.1	112.7	182.3	187.3	90.9	81.9	63.7	98.9
1977	66.9	148.7	85.4	96.2	65.0	83.0	117.4	187.0	135.4	118.1	133.2	85.7	110.2
1978	62.8	57.8	78.5	76.7	89.9	100.0	110.5	138.2	149.2	120.4	107.2	84.8	98.0
1979	79.2	62.1	62.6	78.8	82.2	105.6	*******	*******	*******	*******	*******	*******	78.4
AVGE	67.5	79.4	81.7	89.7	76.5	92.8	115.2	153.5	162.1	122.7	104.5	77.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	62850.938	11	5713.719	11.474**
RESIDUAL	29879.188	60	497.986	
TOTAL	92730.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	114.4	146.0	156.6	130.4	98.7	75.6	120.3
1974	66.0	70.1	85.7	99.8	66.5	83.8	114.4	150.5	156.7	127.9	98.6	75.6	100.0
1975	65.8	69.4	85.1	97.9	67.9	89.1	112.8	154.7	158.4	126.0	99.1	75.1	100.1
1976	65.9	68.4	83.3	93.5	70.6	91.2	111.5	160.2	159.1	123.6	98.7	75.7	100.1
1977	66.3	67.0	81.6	87.8	73.5	95.1	110.7	163.8	160.6	120.2	98.2	75.9	100.1
1978	67.5	66.0	79.3	83.9	75.7	97.5	111.6	167.8	160.6	116.1	97.0	76.7	100.0
1979	68.4	65.5	78.6	82.8	76.5	98.3	*******	*******	*******	*******	*******	*******	78.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	112.1	169.7	160.6	114.1	96.5	77.1	121.7
1980	68.9	65.3	78.3	82.3	76.9	98.6	*******	*******	*******	*******	*******	*******	78.4

TABLE A9. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	154.6	152.4	138.2	100.2	76.4	79.1	118.8
1974	73.2	49.5	70.5	97.4	72.7	106.0	122.[illegible]	86.4	85.8	163.0	160.0	59.3	95.6
1975	33.7	62.6	82.5	124.7	90.6	63.8	96.7	187.3	270.8	141.4	79.2	49.2	106.9
1976	41.2	65.1	88.4	85.9	65.2	102.2	109.2	229.4	228.1	72.0	67.2	41.7	99.6
1977	52.9	105.1	97.7	94.9	61.8	80.3	146.1	179.3	113.8	114.4	134.7	81.0	105.2
1978	56.8	54.1	49.1	60.2	92.7	107.5	111.9	150.8	155.4	133.8	142.7	75.7	99.2
1979	60.5	43.1	56.9	55.0	94.4	112.1	*******	*******	*******	*******	*******	*******	70.3
AVGE	53.0	63.2	74.2	86.3	79.6	95.3	123.5	164.3	165.3	120.8	110.1	64.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	93607.625	11	8509.781	7.870**
RESIDUAL	64880.375	60	1081.339	
TOTAL	158488.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	124.0	170.1	175.2	128.8	80.5	60.4	123.1
1974	48.0	59.9	83.9	102.7	74.9	90.0	124.6	173.4	173.5	125.5	83.6	60.9	100.1
1975	48.9	59.6	82.4	99.5	75.3	90.4	122.0	176.4	172.9	124.3	91.0	81.0	100.3
1976	49.4	58.7	79.8	93.4	77.2	91.2	119.7	179.4	171.2	122.6	100.3	62.3	100.4
1977	50.9	57.2	75.5	84.0	78.9	95.2	117.4	182.5	172.0	119.8	107.2	62.9	100.3
1978	52.5	55.4	72.6	76.7	80.4	98.0	118.3	186.3	172.2	115.1	109.9	63.8	100.1
1979	54.5	54.3	71.2	72.6	80.5	100.5	*******	*******	*******	*******	*******	*******	72.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	118.8	188.1	172.3	112.7	111.3	64.2	127.9
1980	55.5	53.8	70.5	70.5	80.6	101.8	*******	*******	*******	*******	*******	*******	72.1

TABLE A10. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	110.8	125.3	136.4	179.0	113.5	74.9	123.3
1974	62.3	70.6	71.4	97.4	65.2	48.4	107.3	116.6	170.9	153.2	120.2	68.1	96.0
1975	80.2	59.7	82.0	70.7	71.2	89.7	101.0	125.5	181.9	159.9	116.5	75.4	101.1
1976	62.8	51.9	99.0	80.2	64.4	141.4	121.2	147.0	151.6	121.9	100.1	81.9	101.9
1977	65.2	139.6	102.5	117.7	64.4	77.2	78.9	168.8	119.5	144.4	107.4	104.6	107.5
1978	63.4	58.3	109.8	88.5	80.3	96.4	97.0	125.1	139.1	111.6	72.0	141.9	98.6
1979	126.8	80.8	70.7	67.5	107.5	113.6	*******	*******	*******	*******	*******	*******	94.5
AVGE	76.8	76.8	89.2	87.0	75.5	94.5	102.7	134.7	149.9	145.0	104.9	91.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	46553.688	11	4232.152	7.877**
RESIDUAL	32238.813	60	537.313	
TOTAL	78792.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	108.6	126.1	161.3	157.7	114.2	74.1	123.7
1974	67.9	61.5	86.7	87.4	66.7	88.6	107.4	130.2	158.1	154.9	112.8	76.4	99.9
1975	67.4	61.5	89.0	88.8	67.7	88.8	105.4	134.3	155.1	147.7	111.3	80.6	99.8
1976	67.4	62.3	92.2	89.0	69.0	90.5	101.7	138.6	151.0	141.4	109.6	85.7	99.9
1977	66.4	62.9	95.5	88.8	70.4	93.3	100.2	141.2	147.2	133.9	107.7	90.0	99.8
1978	66.0	64.7	97.4	89.2	70.9	95.1	99.3	143.6	143.2	130.7	106.1	92.4	99.9
1979	65.1	65.8	98.5	90.8	70.8	95.1	*******	*******	*******	*******	*******	*******	81.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	98.8	144.8	141.2	129.1	105.2	93.6	118.8
1980	64.7	66.4	99.1	91.6	70.8	95.1	*******	*******	*******	*******	*******	*******	81.3

TABLE A11. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	96.0	76.7	96.5	59.5	77.5	97.2	83.9
1974	114.7	87.5	136.1	159.3	84.5	101.3	92.1	101.9	204.9	49.6	88.5	116.3	111.4
1975	79.2	86.6	143.0	127.3	116.7	102.1	106.6	95.9	68.5	57.2	81.6	105.8	97.5
1976	202.7	130.7	80.7	40.7	195.6	102.7	162.2	98.6	78.9	30.8	65.3	160.7	112.5
1977	80.0	196.7	83.4	80.0	105.5	73.7	164.1	413.0	62.5	41.1	44.0	69.2	117.8
1978	79.0	221.4	188.4	108.8	82.5	85.6	108.4	87.8	51.6	30.7	39.8	127.8	101.0
1979	160.1	79.9	120.1	85.6	86.9	110.3	*******	*******	*******	*******	*******	*******	107.2
AVGE	119.3	133.8	125.3	100.2	111.9	96.0	121.6	145.6	93.8	44.8	66.1	112.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	52994.938	11	4817.719	1.659
RESIDUAL	174263.875	60	2904.398	
TOTAL	227258.813	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	109.6	94.0	85.6	52.6	81.2	115.2	89.7
1974	97.9	117.3	115.8	123.2	103.6	99.5	116.6	96.3	83.3	50.4	77.6	113.8	99.6
1975	95.3	127.7	117.6	119.8	102.3	97.2	123.6	98.9	78.1	46.6	71.9	114.8	99.5
1976	95.7	140.0	118.8	111.9	101.4	96.0	131.0	101.7	72.1	43.5	65.1	113.6	99.2
1977	99.0	153.4	120.5	104.5	99.1	95.5	136.5	102.7	67.4	39.9	59.0	116.4	99.5
1978	103.5	162.6	120.2	97.0	97.1	94.8	141.5	103.3	65.6	38.1	55.2	116.6	99.6
1979	105.2	170.4	120.7	94.2	94.8	93.2	*******	*******	*******	*******	*******	*******	113.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	144.0	103.6	64.8	37.2	53.3	116.7	86.6
1980	106.0	174.3	121.0	92.9	93.6	92.3	*******	*******	*******	*******	*******	*******	113.4

TABLE A12. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO ALL DESTINATIONS, 1973-1979

Seasonal- Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.8	124.4	107.6	152.2	105.0	88.8	117.3
1974	64.4	55.9	79.5	80.6	61.7	53.2	130.3	112.1	164.8	156.7	121.0	61.4	95.1
1975	65.4	53.9	50.7	101.9	64.4	81.2	100.5	141.9	200.9	154.4	100.5	78.9	99.5
1976	48.6	52.1	100.6	64.1	85.1	146.9	120.7	155.5	133.5	109.5	86.3	49.8	96.1
1977	55.0	115.5	120.5	105.4	69.9	145.1	89.4	135.6	76.6	94.1	89.2	90.1	98.9
1978	62.0	76.3	105.5	68.3	91.8	102.2	98.0	140.4	175.2	107.3	78.7	121.8	102.3
1979	94.9	54.4	62.4	68.7	127.0	152.7	*******	*******	*******	*******	*******	*******	93.3
AVGE	65.1	68.0	86.5	81.5	83.3	113.5	110.8	135.0	143.1	129.0	96.8	81.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	45664.375	11	4151.305	5.848**
RESIDUAL	42593.750	60	709.896	
TOTAL	88258.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	118.5	129.8	150.7	146.9	104.9	75.0	121.0
1974	58.5	55.2	91.8	81.7	70.3	118.8	117.3	132.2	150.3	141.8	103.1	75.8	99.7
1975	58.7	57.2	94.2	81.5	71.9	119.3	113.8	135.1	154.2	133.6	99.4	77.9	99.7
1976	58.2	58.9	97.0	80.5	76.0	122.0	107.8	138.2	158.3	124.5	94.5	81.9	99.8
1977	57.1	60.3	99.3	77.1	81.4	126.6	103.8	140.9	160.2	115.9	89.5	85.4	99.8
1978	56.3	61.1	101.3	75.6	85.4	131.7	101.7	142.6	157.7	110.3	86.4	87.7	99.8
1979	56.1	62.3	103.1	74.9	86.6	133.9	*******	*******	*******	*******	*******	*******	86.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	100.6	143.4	156.4	107.6	84.8	88.8	113.6
1980	56.1	62.9	103.9	74.5	87.2	135.0	*******	*******	*******	*******	*******	*******	86.6

TABLE A13. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	121.3	135.7	138.9	125.0	105.7	92.9	120.4
1974	78.2	55.4	85.3	62.0	61.2	90.0	133.1	122.1	101.4	182.1	235.0	76.3	107.0
1975	51.1	61.7	65.6	158.2	96.7	83.5	92.2	183.8	324.0	195.0	99.0	53.2	122.0
1976	48.4	67.3	80.1	58.3	65.9	116.9	117.1	201.7	192.9	114.8	74.1	28.5	97.2
1977	37.2	100.7	89.5	88.0	66.1	106.2	95.7	190.3	103.4	192.0	138.3	82.3	107.5
1978	53.4	35.8	46.4	60.2	113.6	104.2	114.8	131.2	133.3	186.7	148.6	79.0	100.6
1979	52.2	27.7	44.6	57.5	145.1	111.1	*******	*******	*******	*******	*******	*******	73.0
AVGE	53.4	58.1	68.6	80.7	91.4	102.0	112.4	160.8	165.7	166.4	133.4	69.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	118159.375	11	10741.758	7.285**
RESIDUAL	88471.563	60	1474.526	
TOTAL	206630.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	117.2	157.4	150.0	162.3	101.4	74.8	127.2
1974	54.8	60.6	79.3	68.4	74.0	99.0	115.6	161.8	149.2	162.1	102.7	74.9	100.2
1975	53.7	58.4	77.5	68.7	75.9	99.1	113.2	165.4	147.7	165.5	106.5	73.8	100.4
1976	51.2	54.7	72.7	68.5	81.9	100.6	108.5	169.2	144.6	170.0	111.9	72.4	100.5
1977	49.3	50.3	67.2	66.7	88.1	103.6	106.5	171.1	144.3	170.6	115.5	71.7	100.4
1978	47.5	46.4	62.9	66.1	93.6	106.0	105.2	173.6	144.5	167.3	116.5	72.2	100.2
1979	47.2	44.1	61.9	66.2	95.0	107.3	*******	*******	*******	*******	*******	*******	70.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.6	174.9	144.6	165.7	117.0	72.4	129.9
1980	47.0	42.9	61.4	66.2	95.7	108.0	*******	*******	*******	*******	*******	*******	70.2

TABLE A14. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	133.4	139.6	137.2	120.6	90.9	82.4	117.3
1974	79.0	70.8	81.0	105.7	71.0	78.9	121.4	108.9	136.4	152.8	139.6	71.0	101.4
1975	56.3	69.2	87.2	103.4	83.7	73.4	101.5	160.7	237.5	153.2	95.0	66.8	107.7
1976	58.5	63.2	93.7	85.2	69.0	116.7	114.1	180.8	171.7	89.2	81.4	68.1	99.3
1977	61.4	130.7	99.6	101.8	64.2	75.3	115.5	174.7	109.7	116.4	123.3	89.4	105.2
1978	62.1	64.0	80.3	71.4	85.3	100.0	106.1	140.3	144.7	121.3	119.4	102.5	99.8
1979	91.3	60.6	75.1	64.4	91.3	103.0	*******	*******	*******	*******	*******	*******	80.9
AVGE	68.1	76.4	86.2	89.5	77.4	91.2	115.3	150.8	156.2	125.6	108.3	80.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	57075.625	11	5188.691	10.556**
RESIDUAL	29492.000	60	491.533	
TOTAL	86567.625	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	118.7	151.0	147.8	138.2	94.4	73.0	120.5
1974	63.7	68.2	89.3	100.4	73.3	81.5	118.1	154.0	147.6	135.3	95.8	73.8	100.1
1975	63.5	69.0	89.3	98.5	73.6	82.3	115.6	156.9	148.0	132.6	99.2	75.9	100.3
1976	62.3	67.0	88.8	93.9	75.3	84.7	112.5	160.0	147.8	129.5	103.4	79.0	100.3
1977	61.6	65.6	87.6	87.3	77.1	89.0	110.4	162.1	148.8	125.7	106.1	81.8	100.3
1978	61.1	64.5	86.6	82.3	78.6	91.9	110.2	164.3	149.3	121.8	106.8	83.4	100.1
1979	61.6	64.3	86.3	80.1	78.6	93.1	*******	*******	*******	*******	*******	*******	77.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	110.1	165.4	149.6	119.9	107.1	84.2	122.7
1980	61.9	64.2	86.2	79.1	78.7	93.7	*******	*******	*******	*******	*******	*******	77.3

TABLE A 15. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	142.4	104.7	98.4	83.3	78.8	106.7	1[illegible]
1974	94.6	112.5	106.6	146.8	46.1	39.5	174.4	72.9	586.1	173.0	65.9	57.6	137.5
1975	50.0	67.7	197.6	159.0	65.6	38.1	154.1	119.5	155.8	27.1	44.8	138.8	101.5
1976	120.2	113.8	59.1	23.7	490.7	103.5	335.7	98.1	39.9	349.2	190.4	70.4	165.5
1977	25.2	39.8	219.1	105.5	26.6	158.1	65.5	742.9	108.9	43.2	58.0	68.3	139.3
1978	91.6	220.7	152.5	50.4	100.5	57.0	44.9	107.8	37.5	283.0	65.1	374.8	132.1
1979	76.0	128.7	257.2	46.6	36.0	111.9	*******	*******	*******	*******	*******	*******	109.[illegible]
AVGE	76.3	112.4	163.8	88.7	127.6	82.8	153.0	207.7	167.8	159.8	83.8	139.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	116268.000	11	10569.816	0.624
RESIDUAL	1017043.000	60	16950.715	
TOTAL	1133311.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	182.3	98.5	113.5	99.6	74.1	95.0	1[illegible].7
1974	78.5	87.4	132.6	103.9	56.8	72.0	162.6	101.7	109.3	97.2	76.2	93.9	99.8
1975	76.5	91.7	138.6	104.7	57.8	74.7	175.1	10[illegible].1	100.1	107.2	77.0	95.9	99.9
1976	72.8	96.3	153.3	93.5	58.4	83.3	157.8	108.9	92.7	112.1	75.0	92.8	99.7
1977	74.2	107.2	161.0	75.6	59.7	90.3	146.7	110.9	80.8	126.4	75.8	91.6	1[illegible].0
1978	71.0	109.6	173.5	63.5	56.9	99.2	143.0	112.3	73.1	128.2	77.6	91.2	99.9
1979	69.8	112.5	178.3	58.5	55.2	103.4	*******	*******	*******	*******	*******	*******	98.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	141.1	112.9	69.2	129.1	78.5	91.0	103.7
1980	69.3	113.9	180.7	56.0	54.4	105.5	*******	*******	*******	*******	*******	*******	98.6

TABLE A16. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.9	141.9	136.0	131.6	103.4	89.1	123.3
1974	71.7	62.3	84.9	79.3	64.9	74.4	143.3	124.3	155.8	182.9	162.7	72.5	104.9
1975	62.5	65.9	77.5	139.9	86.1	82.7	99.1	161.1	251.7	165.1	96.2	69.7	113.1
1976	54.2	65.7	93.9	65.4	72.6	117.0	103.8	172.6	161.9	119.7	92.8	46.5	97.7
1977	48.9	107.0	94.3	82.8	61.3	107.4	108.6	140.6	88.7	144.3	110.7	81.6	93.8
1978	58.9	57.6	70.1	66.7	113.3	104.1	110.7	133.1	130.8	149.3	116.3	87.4	99.9
1979	67.4	43.3	62.5	68.5	151.9	129.1	*******	*******	*******	*******	*******	*******	87.1
AVGE	60.6	67.2	80.5	83.8	91.7	102.4	118.1	147.1	154.2	145.5	113.7	74.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	69659.750	11	6332.703	9.551**
RESIDUAL	39781.813	60	663.030	
TOTAL	109441.563	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.0	145.5	150.4	147.7	95.7	75.9	124.4
1974	60.5	64.3	86.5	75.3	74.5	93.5	123.2	142.3	150.6	146.4	150.2	77.2	100.0
1975	59.9	63.3	85.9	75.3	77.9	95.0	119.6	149.4	150.4	146.4	101.7	77.4	100.1
1976	58.8	62.4	83.8	74.4	81.5	100.0	114.3	150.7	148.4	146.3	103.4	75.0	100.2
1977	58.1	60.5	81.2	72.5	86.1	100.4	110.3	151.4	146.6	144.7	104.6	78.9	100.1
1978	57.7	58.6	78.8	71.6	89.4	111.9	108.2	152.8	146.3	141.6	104.8	80.0	100.0
1979	57.6	57.6	78.2	71.4	90.5	113.7	*******	*******	*******	*******	*******	*******	78.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	107.1	153.4	144.5	140.1	104.9	80.5	121.8
1980	57.6	57.1	77.8	71.3	91.0	114.6	*******	*******	*******	*******	*******	*******	78.2

TABLE A17. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO DULUTH/SUPERIOR, 1973-1979

Seasonal- Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	149.6	116.1	101.4	148.1	93.1	35.3	107.3
1974	73.8	94.6	130.1	93.0	65.5	121.5	56.8	115.6	121.8	185.9	124.3	74.9	104.5
1975	59.1	63.5	68.4	117.3	88.8	81.6	103.6	132.8	288.2	153.5	49.6	54.8	109.3
1976	57.6	65.2	95.2	76.1	86.1	120.9	77.0	183.3	197.9	89.2	70.5	67.2	96.9
1977	44.0	124.4	86.6	97.1	85.7	84.9	127.0	156.6	166.4	153.7	359.9	51.5	128.3
1978	16.4	23.6	60.0	78.3	94.3	198.0	103.8	117.3	119.5	177.4	178.0	82.0	104.0
1979	33.0	30.2	35.4	45.1	121.0	205.3	*******	*******	*******	*******	*******	*******	78.3
AVGE	47.3	66.9	79.3	84.5	90.2	135.4	103.8	136.5	165.6	150.5	145.9	60.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	104050.500	11	9459.133	4.071**
RESIDUAL	139406.563	60	2323.443	
TOTAL	243457.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	100.8	130.6	138.0	151.5	106.9	57.4	114.2
1974	61.1	72.1	95.5	95.9	81.2	134.7	100.8	134.9	143.0	145.8	103.6	57.4	103.4
1975	58.2	65.4	93.3	94.4	81.7	103.8	97.8	138.5	148.7	147.8	116.0	60.5	101.2
1976	52.3	60.1	83.5	89.3	85.7	118.3	99.1	141.2	152.5	146.6	123.6	81.6	103.2
1977	46.2	51.6	74.6	81.5	90.0	133.8	98.3	143.4	154.9	143.9	129.7	64.2	101.0
1978	41.0	44.5	66.5	74.9	94.5	145.7	100.7	146.4	156.6	139.1	130.0	63.3	100.3
1979	38.8	42.2	65.3	72.2	95.9	152.8	*******	*******	*******	*******	*******	*******	77.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	102.0	147.9	157.4	136.8	130.2	63.3	122.9
1980	37.7	41.0	64.6	70.8	96.6	156.4	*******	*******	*******	*******	*******	*******	77.9

TABLE A18. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal- Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	123.3	119.3	106.9	135.5	78.2	114.7	113.8
1974	133.9	72.4	90.9	68.3	35.2	96.1	109.3	51.5	164.6	199.1	118.9	82.5	101.9
1975	59.1	69.7	67.5	80.7	74.9	81.2	76.8	114.5	196.4	132.2	131.2	103.0	98.9
1976	75.2	68.5	81.4	48.0	64.5	127.5	92.3	96.2	234.3	120.1	86.2	72.4	97.2
1977	100.6	200.5	79.3	76.9	65.2	63.5	75.7	155.6	197.3	176.0	135.0	57.2	115.[illegible]
1978	39.1	60.7	103.2	98.7	80.4	96.4	87.5	147.2	143.7	138.9	59.8	76.1	94.3
1979	106.6	86.9	52.0	73.5	85.8	74.1	*******	*******	*******	*******	*******	*******	79.8
AVGE	85.8	93.1	79.1	74.4	67.7	89.8	95.0	114.1	173.9	150.3	101.6	84.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	65675.000	11	5970.453	6.145**
RESIDUAL	58298.000	60	971.633	
TOTAL	123973.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	104.3	113.3	172.9	148.3	107.3	97.2	123.[illegible]
1974	77.1	73.8	80.6	67.8	62.8	94.3	101.6	115.2	177.5	148.5	107.8	92.9	100.0
1975	76.5	73.7	79.5	70.2	63.7	92.7	96.2	118.7	183.8	149.0	108.3	86.1	99.9
1976	77.7	74.4	75.8	72.9	67.7	89.7	89.7	124.5	188.2	148.1	109.5	85.6	99.9
1977	78.9	74.5	72.4	74.8	71.5	89.3	85.6	128.3	191.2	145.8	107.0	75.9	99.6
1978	82.8	76.4	69.2	76.6	75.0	86.3	84.3	138.7	193.1	143.5	104.9	75.9	99.7
1979	85.0	77.3	68.8	78.0	75.5	84.5	*******	*******	*******	*******	*******	*******	78.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	83.7	131.8	194.0	142.3	103.8	75.0	121.4
1980	86.1	77.8	68.5	78.7	75.7	83.6	*******	*******	*******	*******	*******	*******	78.4

TABLE A19. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	79.1	69.7	114.9	103.1	169.9	100.5	103.2
1974	125.1	93.7	102.4	133.5	47.3	40.3	53.5	64.4	160.4	144.3	159.5	81.7	100.5
1975	105.3	80.7	113.1	107.3	109.7	55.1	74.8	83.4	220.3	138.2	58.4	111.1	104.6
1976	94.4	123.5	84.1	102.6	101.9	74.1	95.1	142.4	112.0	78.1	84.5	94.8	98.6
1977	79.4	190.6	122.0	117.8	87.6	113.4	119.9	236.8	95.1	45.0	34.2	78.3	11[illegible].0
1978	137.4	80.6	135.3	92.7	118.4	104.4	126.4	132.6	80.0	51.2	80.2	116.6	102.2
1979	145.4	81.1	84.7	100.8	125.3	123.4	*******	*******	*******	*******	*******	*******	110.1
AVGE	114.5	107.9	106.9	109.1	98.4	85.1	91.6	121.5	130.4	93.3	92.8	97.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	11983.438	11	1089.403	0.717
RESIDUAL	91174.688	60	1519.578	
TOTAL	103158.125	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	72.2	81.9	128.5	119.4	123.4	95.0	107.4
1974	102.5	96.6	101.3	113.2	92.3	65.3	77.0	88.2	120.2	114.0	122.5	94.9	99.5
1975	103.4	94.9	103.8	111.6	93.9	70.6	84.7	98.3	121.1	108.0	108.0	94.8	99.2
1976	105.5	92.7	105.4	108.2	99.1	81.2	94.3	108.3	112.8	93.9	90.9	95.9	99.0
1977	109.9	91.9	106.0	104.4	104.3	91.9	102.6	118.5	105.1	82.4	76.0	97.4	99.2
1978	113.3	90.7	106.3	102.3	107.9	102.0	107.4	124.1	99.4	74.1	65.8	97.7	99.5
1979	115.7	90.8	108.4	102.6	108.0	106.7	*******	*******	*******	*******	*******	*******	105.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	109.9	127.0	96.5	70.0	65.2	97.9	94.4
1980	116.9	90.9	109.4	102.7	108.1	109.0	*******	*******	*******	*******	*******	*******	106.2

TABLE A20. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	112.2	95.8	108.8	119.9	124.2	80.8	105.9
1974	105.9	85.2	99.1	91.4	53.3	94.9	85.2	86.4	163.6	194.0	140.1	81.7	104.7
1975	80.5	74.7	82.2	101.9	83.7	72.3	89.2	108.8	225.6	139.3	72.3	80.4	100.9
1976	78.0	84.4	93.3	73.6	79.0	112.6	83.6	140.9	187.1	101.3	84.0	82.7	100.0
1977	75.2	163.6	90.8	97.2	78.5	84.4	97.2	157.0	168.6	115.4	158.3	67.1	113.6
1978	67.8	59.8	99.8	84.9	92.5	165.0	100.5	132.5	112.2	116.6	89.0	90.8	100.9
1979	90.6	65.3	63.4	74.7	105.5	117.5	*******	*******	*******	*******	*******	*******	86.2
AVGE	83.0	88.8	88.1	87.3	82.1	107.8	94.7	120.2	161.0	131.1	113.0	80.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	39905.375	11	3627.761	4.968**
RESIDUAL	43815.938	60	730.266	
TOTAL	83721.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	94.2	100.0	167.4	125.3	111.2	81.6	114.0
1974	86.5	80.7	91.4	90.1	74.0	92.1	95.8	109.8	168.8	123.5	109.6	80.6	107.1
1975	84.6	78.9	91.6	89.9	75.3	93.1	92.6	117.5	170.9	121.9	105.7	80.4	109.2
1976	81.7	75.7	89.6	88.6	79.9	95.6	92.5	126.3	171.8	120.4	99.8	79.9	109.1
1977	79.1	72.7	88.0	85.9	84.8	101.0	92.3	133.4	170.9	118.0	94.6	80.4	109.1
1978	77.8	70.3	85.7	84.3	89.1	104.5	93.1	138.3	169.1	115.5	91.5	80.2	100.0
1979	77.7	69.4	86.0	83.8	90.2	106.5	*******	*******	*******	*******	*******	*******	85.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	93.5	140.7	168.2	114.3	90.0	80.1	114.5
1980	77.6	69.0	86.1	83.6	90.8	107.4	*******	*******	*******	*******	*******	*******	85.7

TABLE A21. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.5	119.3	122.5	130.2	112.3	80.6	115.6
1974	78.3	60.2	68.7	81.6	69.3	123.2	97.6	99.9	122.4	195.8	201.8	71.3	105.6
1975	50.1	63.5	64.4	96.6	85.7	87.8	83.9	154.3	291.8	146.8	126.2	63.4	109.6
1976	47.4	94.3	93.0	44.8	100.4	88.5	73.6	310.1	261.4	139.4	139.5	65.6	119.1
1977	46.2	103.0	88.1	76.7	65.1	95.2	107.9	101.7	98.3	183.9	203.3	78.7	104.1
1978	54.4	42.8	52.4	63.5	110.7	67.7	89.6	116.6	120.6	223.0	158.9	72.0	90.5
1979	47.9	25.2	32.9	61.2	114.2	93.4	*******	*******	*******	*******	*******	*******	82.5
AVGE	54.1	64.8	66.6	70.7	91.0	96.0	96.9	150.3	169.5	169.8	152.0	72.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	125456.688	11	11405.152	6.965**
RESIDUAL	98249.500	60	1637.491	
TOTAL	223706.188	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.9	128.3	143.6	156.4	128.2	71.7	121.4
1974	56.4	76.0	78.1	78.6	82.9	99.8	95.9	127.1	143.1	157.6	132.2	72.0	109.2
1975	55.8	75.0	77.2	77.6	83.7	98.3	95.2	125.6	142.3	164.7	138.9	71.6	109.6
1976	53.3	73.9	74.9	75.1	87.6	95.1	92.5	125.0	140.1	171.0	146.4	71.2	109.5
1977	51.2	72.6	72.5	70.3	93.2	92.6	89.5	124.8	139.9	177.0	150.4	70.3	105.4
1978	49.3	71.8	70.2	67.2	97.0	91.2	89.4	125.1	140.3	177.2	151.7	71.2	105.1
1979	49.3	71.0	69.4	65.6	97.7	91.7	*******	*******	*******	*******	*******	*******	74.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	89.3	125.3	140.4	177.2	152.4	71.5	126.0
1980	49.3	70.7	68.9	64.8	98.0	92.0	*******	*******	*******	*******	*******	*******	74.5

TABLE A22. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	111.0	136.9	123.9	143.7	103.9	80.7	116.7
1974	78.6	74.5	132.5	84.8	53.8	60.8	188.2	96.9	178.5	201.2	119.2	85.4	108.0
1975	77.6	90.6	63.3	62.4	85.4	68.3	75.0	132.5	186.0	121.8	118.9	113.2	100.0
1976	70.6	58.8	116.1	59.1	79.6	90.3	89.1	163.6	300.2	113.2	112.2	81.6	110.4
1977	53.3	125.8	111.8	130.8	82.8	85.3	69.7	82.5	132.2	131.9	146.4	139.8	107.0
1978	82.5	63.2	100.3	62.1	61.9	78.9	102.6	124.1	146.5	103.6	147.1	142.7	101.3
1979	120.0	42.6	60.7	78.2	84.0	62.4	******	******	******	******	******	******	74.7
AVGE	80.4	75.9	98.3	79.6	73.1	74.3	92.2	122.7	177.9	135.9	124.6	105.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	67200.813	11	6109.164	6.773**
RESIDUAL	54119.563	60	901.993	
TOTAL	121320.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	90.8	126.3	163.4	132.3	113.3	91.3	120.5
1974	73.9	74.7	113.8	70.6	70.9	74.8	93.7	125.8	161.8	131.5	115.5	94.2	100.1
1975	74.2	74.2	113.0	70.7	71.1	75.5	90.9	124.2	161.6	127.9	120.6	100.6	100.4
1976	74.3	72.6	109.4	70.4	73.3	76.5	87.0	123.1	159.6	123.6	126.6	109.6	100.5
1977	74.5	69.0	106.2	69.7	74.0	77.5	85.7	123.9	157.9	118.8	135.8	116.1	100.3
1978	74.3	66.7	103.2	70.3	75.6	77.6	85.0	125.7	154.8	116.7	132.4	112.6	100.1
1979	74.3	65.3	103.1	71.3	75.2	77.5	******	******	******	******	******	******	77.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	84.6	126.6	153.3	115.7	133.1	119.9	122.2
1980	74.3	64.7	103.1	71.9	75.0	77.5	******	******	******	******	******	******	77.7

TABLE A23. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	40.4	58.7	62.7	35.0	112.8	121.0	72.0
1974	86.4	156.7	111.9	117.3	16.0	15.2	65.0	53.2	572.3	217.5	129.2	70.0	134.0
1975	66.5	33.8	163.9	111.2	123.8	171.5	53.4	15.2	77.3	41.2	18.7	199.5	83.9
1976	256.5	221.2	103.3	69.6	73.2	34.0	99.7	343.7	46.2	94.5	54.5	51.3	120.6
1977	156.7	400.3	326.4	84.3	33.1	55.7	64.5	54.1	4.3	53.7	71.4	80.1	115.5
1978	98.0	239.4	225.7	106.7	66.4	120.0	63.4	22.0	20.2	24.5	84.7	241.7	109.4
1979	221.9	73.3	147.3	97.8	61.4	79.8	*******	*******	*******	*******	*******	*******	113.6
AVGE	147.7	187.5	179.7	97.9	62.3	79.5	64.4	90.3	130.5	86.2	78.6	125.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	12,863.875	11	11078.531	1.194
RESIDUAL	556613.625	60	9276.891	
TOTAL	678477.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	60.0	44.3	85.2	111.9	86.5	115.9	84.0
1974	139.6	160.8	156.5	97.7	65.9	75.7	63.2	46.5	80.3	106.7	83.6	139.8	94.7
1975	136.8	169.0	169.0	97.6	64.4	77.6	66.6	45.4	71.8	97.1	78.3	110.3	95.7
1976	142.2	171.2	183.1	95.9	66.0	83.2	68.0	42.4	59.6	78.0	70.9	120.1	93.4
1977	155.9	179.3	190.9	93.5	64.5	82.8	70.6	40.8	48.8	64.0	66.3	129.3	93.8
1978	167.5	180.9	201.5	91.6	61.7	81.9	72.1	41.7	40.8	54.1	63.7	150.1	95.0
1979	171.3	189.1	210.9	91.1	55.8	77.2	*******	*******	*******	*******	*******	*******	122.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	72.9	42.2	36.8	49.1	62.5	131.0	65.8
1980	173.3	193.2	215.6	90.8	52.9	74.9	*******	*******	*******	*******	*******	*******	133.5

TABLE A24. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.4	129.4	118.0	135.0	112.0	80.5	115.4
1974	84.4	73.1	101.7	102.6	64.8	72.2	90.1	91.6	145.5	173.7	137.3	89.3	101.9
1975	65.1	79.8	75.9	96.0	86.7	77.1	71.8	136.0	226.8	129.2	109.5	89.7	104.1
1976	71.3	85.9	100.7	60.8	82.6	76.6	85.8	215.3	217.6	125.6	105.1	80.0	109.2
1977	64.2	133.3	102.6	87.8	66.4	85.6	94.2	91.5	96.6	169.4	168.6	92.7	104.5
1978	80.6	64.1	80.7	62.4	94.3	83.4	83.8	111.2	118.2	175.4	131.9	99.3	99.6
1979	76.4	40.5	58.1	67.3	99.0	90.1	*******	*******	*******	*******	*******	*******	71.9
AVGE	73.7	80.3	87.1	79.8	82.3	81.8	93.0	129.2	153.8	151.4	127.9	88.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	57466.625	11	5224.238	7.278**
RESIDUAL	43071.250	60	717.854	
TOTAL	100537.875	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.0	120.1	154.9	143.4	119.3	85.5	117.9
1974	72.5	81.3	95.5	89.2	76.4	77.1	85.6	118.3	156.8	144.4	118.6	85.8	100.1
1975	72.6	80.1	94.9	87.3	77.0	78.2	85.9	115.1	157.9	145.2	120.2	86.7	100.4
1976	72.1	78.4	91.8	83.2	80.1	80.7	85.9	113.5	157.2	151.1	121.1	86.7	100.3
1977	72.8	76.6	88.8	77.2	83.6	83.2	85.3	112.5	157.1	153.5	121.8	90.1	100.3
1978	72.9	75.1	85.7	73.3	86.0	85.7	87.0	112.8	157.6	153.0	121.0	90.7	100.1
1979	73.5	74.2	85.4	71.8	86.2	86.8	*******	*******	*******	*******	*******	*******	75.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	87.3	113.0	157.8	152.7	120.6	91.1	123.4
1980	73.9	73.7	85.3	71.1	86.2	87.4	*******	*******	*******	*******	*******	*******	79.6

TABLE A25. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.3	147.0	120.8	150.4	95.9	79.9	119.9
1974	82.3	56.6	94.1	77.5	59.0	95.4	108.7	97.3	107.8	219.6	217.5	84.0	107.7
1975	62.6	52.2	56.2	101.2	95.5	87.2	88.5	143.9	215.4	145.0	108.2	92.2	100.7
1976	54.3	81.1	95.7	63.3	80.4	80.8	84.9	276.9	251.5	188.1	117.6	33.6	117.3
1977	31.8	77.7	59.9	51.8	68.7	137.3	131.2	134.9	136.2	233.1	111.0	67.4	103.5
1978	37.3	53.3	39.6	52.4	97.6	136.7	115.6	126.4	119.9	226.1	132.7	71.9	100.8
1979	38.7	23.7	36.7	61.0	106.5	91.2	*******	*******	*******	*******	*******	*******	59.6
AVGE	51.2	57.4	63.7	67.9	84.6	104.9	102.7	154.4	158.6	198.7	130.5	64.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	149988.188	11	13635.289	11.636**
RESIDUAL	70310.875	60	1171.848	
TOTAL	220299.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	94.2	132.9	157.6	184.3	110.5	70.1	124.7
1974	61.3	66.0	77.0	70.7	77.1	93.6	95.0	133.5	158.4	188.3	111.2	69.1	109.4
1975	58.0	65.5	73.4	68.3	77.5	99.8	98.8	132.2	158.8	194.6	113.9	67.4	107.7
1976	51.9	65.2	65.8	64.6	81.3	103.9	102.5	133.0	159.7	198.5	115.6	65.0	108.6
1977	46.1	65.3	59.6	60.9	85.2	107.5	104.9	133.3	159.7	202.9	118.1	65.4	109.6
1978	40.8	65.4	53.5	57.7	88.4	111.0	106.3	135.3	160.0	204.0	118.0	62.3	108.2
1979	38.4	65.7	51.4	56.0	88.3	115.0	*******	*******	*******	*******	*******	*******	69.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	107.0	136.3	160.2	204.5	118.0	61.8	131.3
1980	37.2	65.8	50.4	55.1	89.0	117.0	*******	*******	*******	*******	*******	*******	69.1

TABLE A26. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.2	129.8	112.2	108.3	107.5	65.8	115.5
1974	84.4	68.9	94.8	102.2	55.1	61.2	129.7	116.8	133.3	138.9	114.7	68.0	97.2
1975	75.5	65.4	88.5	116.3	73.1	96.1	109.5	166.6	183.2	109.3	82.6	90.9	104.7
1976	69.4	74.4	103.9	48.3	93.8	101.6	125.0	153.1	108.7	100.1	77.2	93.3	95.7
1977	68.3	130.3	115.4	103.8	74.0	119.1	111.6	86.4	71.7	115.9	81.2	92.1	97.5
1978	78.2	78.9	101.9	86.9	90.7	136.8	90.4	139.1	139.0	116.4	72.4	116.4	101.4
1979	100.5	68.9	84.7	82.0	112.9	117.2	*******	*******	*******	*******	*******	*******	94.4
AVGE	79.4	81.1	98.2	89.9	83.3	100.3	119.1	131.9	124.7	114.4	89.3	91.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	21355.625	11	1941.420	4.186**
RESIDUAL	27828.313	60	463.805	
TOTAL	49183.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.6	139.0	120.0	114.3	97.0	83.2	113.5
1974	74.7	70.3	98.0	104.0	72.0	101.3	126.7	139.4	119.1	113.9	95.1	84.3	99.9
1975	74.7	71.4	99.4	103.0	73.5	102.8	121.9	140.3	120.1	114.1	90.9	87.4	100.0
1976	74.0	72.4	99.9	100.6	78.3	105.5	115.6	142.2	120.6	113.2	85.4	91.9	100.0
1977	73.5	73.5	100.2	96.5	84.1	108.0	110.3	143.4	121.5	112.1	85.4	96.3	100.0
1978	72.8	74.0	100.1	93.2	86.6	110.8	108.8	144.0	120.3	110.2	77.6	98.8	99.9
1979	72.9	74.7	100.8	91.3	89.6	112.1	*******	*******	*******	*******	*******	*******	90.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	108.1	144.2	119.7	109.3	76.2	100.1	100.6
1980	73.0	75.1	101.2	90.3	90.1	112.8	*******	*******	*******	*******	*******	*******	90.4

TABLE A27. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	43.7	58.9	115.8	103.5	100.7	135.6	93.0
1974	85.6	74.3	104.1	64.1	49.5	46.1	153.5	61.7	433.1	72.6	193.7	79.6	116.2
1975	54.3	34.3	182.7	105.6	69.1	83.2	121.6	88.5	159.4	8.8	39.6	340.6	107.3
1976	220.7	229.2	73.4	119.9	39.2	21.0	162.2	121.7	7.3	105.5	27.1	49.4	99.7
1977	225.7	287.0	143.4	121.6	44.3	131.8	78.1	47.7	48.8	76.1	37.8	36.9	106.6
1978	55.7	234.8	230.6	167.4	87.7	93.6	144.0	21.3	6.7	62.4	41.1	207.1	113.1
1979	156.1	77.2	150.4	143.6	91.7	88.6	*******	*******	*******	*******	*******	*******	117.9
AVGE	133.0	156.1	147.4	120.4	62.1	78.2	122.2	66.6	128.5	71.5	73.3	141.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	81855.938	11	7441.445	1.227
RESIDUAL	363891.000	60	6064.848	
TOTAL	445746.938	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	126.0	77.2	149.7	71.4	87.3	93.3	99.8
1974	129.1	138.2	123.6	108.8	49.1	63.1	122.8	78.6	137.9	73.4	80.7	80.7	98.7
1975	125.3	149.9	130.5	105.7	51.3	69.1	129.9	76.1	118.3	72.1	69.6	76.0	97.5
1976	126.4	162.4	140.7	116.1	57.1	78.0	130.7	71.5	94.1	68.8	54.9	67.9	97.4
1977	131.9	178.3	147.8	127.2	62.4	82.1	134.5	67.6	69.8	68.5	43.1	81.5	97.5
1978	138.6	188.4	153.4	135.0	66.9	85.4	131.6	66.3	61.9	70.7	35.1	98.9	98.5
1979	141.4	198.8	155.5	136.9	67.5	91.1	*******	*******	*******	*******	*******	*******	131.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	130.1	65.7	42.9	71.8	31.1	57.7	65.6
1980	142.8	204.1	155.5	137.9	67.8	92.4	*******	*******	*******	*******	*******	*******	133.6

TABLE A28. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	105.0	134.7	113.2	150.1	104.9	93.9	118.1
1974	85.6	69.2	100.1	91.0	59.5	77.0	115.4	110.1	134.9	176.2	153.0	83.9	104.6
1975	78.4	63.6	86.7	95.7	81.1	85.9	94.6	146.8	201.9	135.4	98.7	85.0	104.9
1976	69.1	82.5	99.3	62.0	91.3	91.8	104.3	195.1	162.6	148.2	99.2	73.1	100.5
1977	61.6	120.4	89.2	73.6	71.6	124.5	125.1	110.6	134.7	157.9	152.9	85.5	104.8
1978	63.3	73.5	75.9	62.1	91.4	126.8	100.7	120.7	116.0	174.4	108.5	89.3	100.2
1979	62.1	44.0	63.1	75.8	121.3	109.5	*******	*******	*******	*******	*******	*******	79.0
AVGE	70.0	75.5	85.7	76.9	86.0	103.0	108.2	136.3	139.9	162.0	111.2	84.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	56953.000	11	5177.543	11.543**
RESIDUAL	26911.500	60	448.525	
TOTAL	83864.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	105.7	129.9	133.8	152.6	102.9	84.6	113.2
1974	75.1	72.4	94.2	79.8	77.2	91.1	107.5	128.8	133.4	155.2	103.0	84.2	100.1
1975	73.6	72.7	92.8	78.2	77.8	95.1	107.6	126.5	132.7	159.2	103.2	83.6	100.3
1976	70.5	73.5	88.9	75.8	85.3	101.4	107.8	125.5	130.0	152.4	103.2	83.6	100.2
1977	67.4	75.0	85.1	72.2	83.4	107.4	107.4	124.3	129.0	164.7	103.3	83.4	100.2
1978	64.6	76.1	81.3	70.2	85.3	112.7	107.6	124.1	128.0	165.1	102.9	83.2	100.1
1979	63.4	76.8	79.9	69.2	85.4	115.9	*******	*******	*******	*******	*******	*******	81.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	107.7	124.0	127.5	165.3	102.8	83.1	118.4
1980	62.8	77.2	79.2	68.7	85.4	117.5	*******	*******	*******	*******	*******	*******	81.8

TABLE A29. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	173.6	105.4	146.9	143.6	83.3	51.3	116.8
1974	55.1	38.9	83.5	93.2	50.3	150.6	56.0	217.3	83.9	152.7	150.6	43.9	96.3
1975	43.5	57.2	47.8	80.7	95.5	70.5	150.5	187.1	274.8	119.7	122.9	30.3	100.7
1976	37.6	68.3	62.9	38.7	101.9	125.3	68.5	233.5	150.6	55.3	91.5	71.5	93.8
1977	51.8	115.2	54.3	69.7	66.0	81.5	71.7	148.1	185.1	189.4	177.1	60.5	105.9
1978	65.1	23.7	34.5	81.3	67.7	89.3	81.1	127.9	153.9	154.1	230.1	63.4	97.7
1979	81.2	20.1	32.3	28.6	114.7	76.7	*******	*******	*******	*******	*******	*******	58.9
AVGE	55.7	53.9	52.6	65.3	82.7	100.0	103.6	169.9	165.9	135.5	142.5	52.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	133953.688	11	12177.605	7.938**
RESIDUAL	92049.313	60	1534.155	
TOTAL	226003.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	139.7	186.6	149.1	130.2	117.1	46.4	127.7
1974	47.3	56.6	64.5	74.0	81.3	112.0	123.9	185.5	151.0	138.1	119.6	48.6	109.2
1975	49.0	56.0	62.4	74.7	79.8	108.6	111.3	185.4	153.6	141.3	131.6	51.7	103.5
1976	52.3	55.2	56.5	71.6	82.4	100.4	102.3	179.6	161.2	145.0	146.5	54.1	100.5
1977	56.0	53.5	50.7	67.2	85.4	95.8	93.5	176.4	164.8	146.6	157.0	57.6	100.4
1978	60.1	51.9	45.7	63.0	88.2	98.4	91.6	173.6	169.1	147.8	159.6	60.5	100.1
1979	62.4	50.2	44.2	62.4	86.6	89.8	*******	*******	*******	*******	*******	*******	65.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	99.7	172.2	171.3	148.4	160.9	61.9	134.2
1980	63.6	49.3	43.5	62.0	85.8	89.6	*******	*******	*******	*******	*******	*******	65.6

TABLE A30. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	123.3	93.3	89.9	98.0	94.2	94.1	95.1
1974	107.8	67.8	112.2	79.9	56.9	89.0	34.0	110.6	173.1	242.3	148.8	67.4	107.2
1975	83.0	77.5	78.1	111.7	78.2	87.5	101.2	70.7	189.3	127.9	99.7	75.1	97.7
1976	74.6	95.0	158.0	83.9	87.6	155.9	62.8	119.6	142.6	113.1	86.0	96.5	105.9
1977	76.5	186.2	123.0	114.1	88.0	82.8	79.1	75.2	118.0	174.5	196.4	101.5	117.9
1978	99.7	53.4	69.2	89.9	102.6	92.2	65.1	121.0	170.7	126.8	110.2	96.1	99.8
1979	74.0	51.7	182.9	103.5	135.1	63.2	*******	*******	*******	*******	*******	*******	101.7
AVGE	85.9	88.6	119.2	97.2	91.4	94.3	77.6	98.4	143.9	146.8	122.2	88.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	34924.500	11	3174.954	2.558**
RESIDUAL	74468.625	60	1241.144	
TOTAL	109393.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	97.5	95.3	166.8	116.6	106.9	81.1	111.0
1974	86.2	80.3	105.1	95.0	76.1	93.6	94.6	95.3	162.7	120.6	108.5	83.3	100.1
1975	87.0	79.2	104.0	95.9	78.5	93.0	87.9	97.2	159.8	126.5	108.9	85.3	100.3
1976	84.9	77.0	102.3	98.0	86.1	90.6	82.3	96.5	156.3	132.7	107.7	88.3	100.2
1977	83.4	74.3	101.5	97.9	94.5	88.9	76.0	99.1	153.8	135.3	105.9	91.0	100.1
1978	81.3	71.7	102.2	99.4	102.5	86.7	73.5	99.7	150.1	136.1	103.4	94.1	100.0
1979	81.7	70.0	103.3	99.2	104.9	83.9	*******	*******	*******	*******	*******	*******	90.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	72.3	100.1	148.3	136.5	102.2	95.7	109.2
1980	81.9	69.1	103.9	99.1	106.1	82.9	*******	*******	*******	*******	*******	*******	90.5

TABLE A31. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	74.3	58.6	93.9	195.2	122.1	195.0	93.2
1974	104.7	83.9	120.6	117.0	18.7	21.0	45.5	57.0	200.7	284.2	130.6	77.4	92.5
1975	108.7	88.2	127.9	93.0	88.1	78.5	54.2	119.5	165.3	90.0	96.0	92.9	100.2
1976	83.8	117.3	115.1	65.3	97.5	101.1	91.6	143.1	95.8	68.2	104.6	93.1	97.9
1977	74.5	166.1	107.4	125.5	103.5	103.4	90.5	209.4	120.6	76.3	77.5	79.4	111.2
1978	91.9	60.1	128.1	105.6	111.4	117.6	124.5	114.8	111.4	80.5	66.5	87.6	100.0
1979	93.2	74.4	116.1	122.7	113.8	88.7	*******	*******	*******	*******	*******	*******	101.5
AVGE	92.8	98.3	119.2	104.5	89.9	85.1	80.1	117.1	132.1	103.2	99.5	89.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	15784.063	11	1434.915	1.249
RESIDUAL	68904.313	60	1148.405	
TOTAL	84688.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.8	117.4	135.2	91.2	114.0	91.6	102.2
1974	95.0	95.5	118.4	98.4	93.1	87.8	85.4	120.3	134.0	89.5	111.5	91.0	99.5
1975	93.6	93.2	115.0	99.9	92.1	90.7	72.3	124.4	132.0	86.3	105.0	89.1	99.7
1976	91.5	90.5	117.7	102.7	98.5	94.5	79.2	127.2	129.1	83.0	95.1	87.9	99.7
1977	89.2	88.0	117.6	105.2	101.7	99.0	85.6	129.3	124.2	79.7	88.7	87.2	99.7
1978	87.3	85.8	117.1	109.4	106.2	101.5	91.5	130.7	118.3	77.5	85.1	87.7	99.9
1979	86.2	84.5	117.1	112.5	107.9	103.1	*******	*******	*******	*******	*******	*******	101.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	93.9	131.4	115.4	76.6	83.3	88.0	98.1
1980	85.7	83.8	117.1	114.1	108.8	103.9	*******	*******	*******	*******	*******	*******	102.2

TABLE A 32. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	153.6	109.7	119.7	116.8	138.0	90.8	115.0
1974	91.4	75.4	114.0	100.7	40.0	74.3	46.9	114.9	149.1	192.2	135.5	67.7	102.1
1975	86.5	88.1	88.0	105.5	82.7	82.4	107.0	111.7	126.5	109.8	102.9	73.9	102.1
1976	71.3	95.1	112.8	59.3	89.8	120.6	72.7	153.2	127.7	87.0	91.8	100.6	98.5
1977	71.2	167.7	102.5	109.2	93.3	89.6	81.0	139.1	118.2	112.1	120.6	72.5	106.4
1978	82.0	48.3	91.6	94.7	101.5	99.6	92.1	109.8	127.9	105.3	100.8	87.6	95.6
1979	89.6	62.2	119.5	97.3	107.8	77.5	******	******	******	******	******	******	92.3
AVGE	82.0	89.5	104.7	94.5	85.9	90.7	93.0	123.0	138.2	120.5	109.9	82.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	21814.750	11	1983.159	3.253**
RESIDUAL	36578.375	60	609.639	
TOTAL	58393.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	[illegible]	117.9	137.9	108.7	111.6	80.7	[illegible]
1974	81.1	85.9	104.2	101.9	85.2	89.1	94.5	121.3	135.3	100.0	111.3	81.2	[illegible]
1975	80.7	87.2	103.3	101.9	86.9	89.1	91.3	124.7	135.3	106.9	110.6	81.5	[illegible]
1976	80.1	85.9	102.8	101.6	90.3	90.3	90.4	126.9	133.5	105.7	100.3	81.6	99.9
1977	79.6	86.2	103.7	100.5	94.4	92.1	88.7	128.9	131.5	103.9	106.3	83.2	99.9
1978	79.5	84.9	105.0	100.2	98.0	92.2	87.5	130.9	123.9	102.9	104.3	85.0	100.0
1979	79.6	84.2	105.9	99.9	99.3	91.8	******	******	******	******	******	******	93.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	87.0	131.9	127.7	102.4	103.4	85.9	100.4
1980	79.6	83.8	106.4	99.8	100.0	91.5	******	******	******	******	******	******	93.5

TABLE A33. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN.	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	[illegible]	122.3	143.9	94.6	82.4	67.1	107.9
1974	57.1	64.8	63.0	72.9	55.4	122.9	62.7	267.5	130.3	229.6	152.7	35.4	[illegible]
1975	54.7	44.3	38.6	99.3	76.3	63.8	97.3	221.6	264.0	106.9	64.5	66.5	[illegible]
1976	45.5	61.5	57.1	40.6	118.7	103.9	55.3	362.2	188.5	62.8	64.9	73.2	102.9
1977	33.3	99.8	80.2	90.4	51.8	75.7	88.0	181.1	207.8	154.1	141.1	57.4	105.1
1978	43.7	6.4	6.6	45.4	69.3	97.4	105.5	168.9	199.1	174.7	157.3	82.3	98.1
1979	27.0	14.1	31.5	48.1	117.4	101.7	******	******	******	******	******	******	56.6
AVGE	43.5	48.5	46.2	66.1	81.5	95.1	89.3	223.9	189.8	137.4	111.6	63.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	219830.000	11	19984.543	12.218**
RESIDUAL	98142.000	60	1635.700	
TOTAL	317972.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	92.3	233.6	137.8	101.8	89.3	60.7	[illegible]
1974	51.1	60.3	58.4	75.8	80.5	97.3	89.8	235.8	188.8	103.2	100.3	91.2	[illegible]
1975	49.8	59.7	58.3	73.9	77.4	94.9	85.1	241.7	191.9	109.4	105.2	62.0	100.7
1976	45.9	56.9	55.9	70.3	78.5	91.4	84.2	235.4	199.8	118.3	103.7	64.3	100.8
1977	41.7	53.7	52.8	62.9	82.1	91.0	82.5	236.0	202.8	123.9	111.5	66.8	100.7
1978	37.4	51.5	50.8	59.1	85.0	95.7	83.5	234.6	204.5	125.3	110.9	69.2	100.2
1979	35.7	51.2	51.4	57.2	84.0	91.9	******	******	******	******	******	******	61.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	84.0	233.9	205.4	126.0	110.6	70.3	108.4
1980	34.8	51.1	51.6	56.3	83.5	92.5	******	******	******	******	******	******	61.6

TABLE A34. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal - Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.7	93.3	57.1	93.0	84.7	110.0	87.8
1974	159.4	64.5	95.4	80.8	42.1	101.8	59.5	86.9	205.3	200.2	122.6	95.2	103.5
1975	48.4	75.2	90.7	81.8	58.1	84.4	79.8	82.0	274.7	139.8	146.7	98.3	105.0
1976	70.8	74.6	129.2	53.8	78.9	85.1	65.1	119.3	156.2	176.2	137.6	84.7	102.7
1977	70.0	144.4	85.8	75.5	99.2	53.2	69.0	50.1	138.5	175.3	194.1	111.5	104.8
1978	82.7	49.3	62.6	146.2	64.9	78.8	81.8	121.2	177.2	114.9	130.0	118.8	102.4
1979	104.5	58.4	55.6	58.4	103.7	65.9	*******	*******	*******	*******	*******	*******	74.6
AVGE	89.3	77.7	86.5	82.7	73.0	78.5	74.5	92.1	168.2	149.4	135.9	103.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	68253.875	11	6204.895	5.132**
RESIDUAL	72549.938	60	1209.166	
TOTAL	140803.813	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	76.2	93.3	194.0	158.2	122.5	100.1	104.1
1974	65.2	72.2	90.6	73.7	80.3	85.8	74.9	94.9	188.1	160.3	127.9	100.1	100.2
1975	66.7	79.7	88.5	73.5	69.1	83.5	73.9	98.1	181.4	162.0	136.1	100.4	100.3
1976	70.4	68.5	83.6	71.9	73.5	79.3	72.8	101.1	174.7	159.4	145.7	102.4	100.2
1977	75.9	65.6	77.6	68.7	73.2	75.7	72.7	105.9	169.4	156.6	150.7	103.7	100.1
1978	81.0	63.6	72.9	66.7	83.8	71.7	73.5	109.1	165.1	154.2	153.3	104.8	100.0
1979	84.1	62.2	70.9	66.1	85.7	69.7	*******	*******	*******	*******	*******	*******	73.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	73.9	110.7	163.0	153.1	154.6	105.3	100.8
1980	85.6	61.5	69.9	65.3	86.7	68.8	*******	*******	*******	*******	*******	*******	73.3

TABLE A35. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	61.5	15.2	125.9	80.6	130.7	127.3	1[illegible]1.1
1974	127.1	88.7	102.7	106.3	58.2	12.2	20.5	76.5	168.8	142.7	153.3	132.5	97.2
1975	36.0	43.6	309.5	70.5	69.3	81.9	0[illegible].8	74.9	58.3	84.2	97.1	184.6	1[illegible].4
1976	160.4	255.4	135.6	38.8	58.0	51.0	115.3	188.9	75.2	28.3	79.3	115.8	1[illegible].5
1977	121.2	242.5	146.1	134.0	83.1	56.3	94.0	191.1	66.8	24.2	26.4	124.1	109.2
1978	171.0	92.0	154.6	112.1	32.6	77.5	113.1	114.1	65.7	34.5	57.4	110.5	99.7
1979	112.7	66.9	188.3	119.2	62.2	97.5	*******	*******	*******	*******	*******	*******	107.8
AVGE	129.7	131.5	172.8	96.8	70.6	62.7	80.9	118.5	93.6	67.3	91.7	132.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	73163.438	11	6651.219	2.755**
RESIDUAL	144832.875	60	2413.881	
TOTAL	217996.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	76.2	91.8	92.3	72.5	124.3	1[illegible].5	1[illegible].0
1974	126.8	94.7	133.8	88.4	66.5	61.9	85.0	104.2	90.0	85.1	116.4	142.9	97.2
1975	128.6	94.3	134.4	91.7	68.9	62.7	86.9	119.5	83.4	73.6	103.1	138.1	9[illegible].0
1976	129.6	92.9	141.4	96.2	71.8	65.8	93.7	132.6	75.5	59.8	86.7	135.3	98.5
1977	134.5	92.1	148.1	100.2	73.5	69.8	101.8	144.4	70.0	47.8	73.7	130.3	98.8
1978	135.9	91.0	155.4	106.1	74.7	72.9	103.8	151.5	68.0	39.3	65.8	126.3	99.2
1979	138.1	91.6	158.1	111.8	75.7	72.8	*******	*******	*******	*******	*******	*******	106.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	103.3	155.1	67.0	35.0	61.9	124.4	91.4
1980	139.2	91.9	159.4	114.7	76.2	72.7	*******	*******	*******	*******	*******	*******	109.0

TABLE A36. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	155.9	143.1	142.0	111.0	110.0	55.3	120.1
1974	97.8	73.5	93.4	94.6	97.7	91.9	91.4	157.2	167.2	203.2	174.7	79.9	111.4
1975	64.0	72.9	85.6	107.6	73.7	78.4	79.9	137.7	210.1	111.4	95.0	92.6	100.8
1976	75.2	86.0	89.0	45.5	88.8	82.3	68.3	223.9	158.3	109.7	98.4	91.6	101.4
1977	76.3	164.9	107.3	104.6	85.5	62.3	85.2	128.8	134.8	118.9	130.0	101.6	108.4
1978	93.0	49.2	72.9	103.9	72.8	81.7	92.6	134.2	141.0	104.7	131.2	105.5	98.6
1979	89.7	53.7	92.9	32.5	94.9	84.0	*******	*******	*******	*******	*******	*******	83.0
AVGE	82.7	83.4	89.7	89.8	78.9	80.1	89.1	154.1	158.9	126.0	123.4	93.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	55296.438	11	5026.945	7.085**
RESIDUAL	42569.000	60	709.483	
TOTAL	97865.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	75.2	146.0	152.8	114.0	110.2	87.5	117.1
1974	77.4	77.8	91.3	100.8	75.3	81.0	75.5	145.0	150.9	114.3	111.0	88.8	100.0
1975	78.4	78.9	91.1	101.4	75.8	80.1	77.1	143.3	158.9	114.1	113.2	91.1	100.1
1976	79.1	74.7	90.9	101.1	78.8	78.8	79.2	140.0	156.0	113.3	114.9	94.3	100.1
1977	81.2	72.3	89.9	99.7	81.8	78.4	80.7	138.0	153.1	112.1	116.3	97.0	100.1
1978	82.8	70.0	90.5	98.1	84.8	77.6	82.1	136.7	150.4	111.3	116.4	98.7	99.9
1979	84.8	68.9	90.9	97.2	85.2	77.1	*******	*******	*******	*******	*******	*******	84.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	82.8	136.0	149.1	110.9	116.5	99.5	115.8
1980	85.8	68.4	91.1	96.7	85.4	76.8	*******	*******	*******	*******	*******	*******	84.0

TABLE A37. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	1[illegible].2	137.4	135.0	149.1	97.3	60.9	1[illegible].3
1974	59.5	48.1	76.4	76.7	50.2	100.9	137.3	144.8	61.4	157.6	132.6	72.3	[illegible]
1975	37.9	52.0	50.2	73.7	64.9	86.9	91.9	200.1	230.8	180.1	80.9	43.0	[illegible]
1976	48.7	73.1	99.9	32.3	79.3	57.7	1[illegible].2	245.6	220.9	153.2	95.7	55.3	1[illegible]
1977	19.3	49.8	56.4	48.3	52.9	113.7	149.3	171.0	141.9	254.5	120.1	90.3	100.1
1978	21.3	29.4	21.7	46.9	91.9	124.8	133.9	160.0	143.3	250.4	193.5	64.0	1[illegible].7
1979	26.4	13.5	24.9	56.5	87.5	96.1	*******	*******	*******	*******	*******	*******	55.9
AVGE	35.5	44.1	54.9	55.7	71.1	97.5	125.8	176.5	155.6	190.3	120.0	64.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	189245.750	11	17204.156	15.315**
RESIDUAL	67400.625	60	1125.344	
TOTAL	256646.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	122.0	177.2	137.7	163.9	104.6	59.5	1[illegible].8
1974	45.4	57.6	61.8	63.6	63.8	90.1	122.4	179.8	136.0	169.4	105.2	60.2	100.4
1975	42.3	55.0	59.2	61.2	64.4	92.9	120.1	132.9	134.0	158.8	105.7	60.8	[illegible]
1976	36.9	52.0	53.3	57.6	67.5	95.6	119.8	185.1	180.8	155.6	104.1	60.5	1[illegible].7
1977	32.4	49.1	47.2	53.2	72.5	97.8	119.5	158.1	178.2	206.0	102.9	60.5	[illegible]
1978	28.1	46.6	42.1	50.4	75.6	100.7	122.1	199.5	175.6	210.0	101.4	60.4	100.3
1979	26.2	44.7	40.7	49.1	76.6	104.3	*******	*******	*******	*******	*******	*******	55.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	123.3	191.6	174.3	212.0	100.7	60.3	143.7
1980	25.3	43.8	40.0	48.4	77.1	105.1	*******	*******	*******	*******	*******	*******	55.8

TABLE A38. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	135.4	161.4	101.0	111.1	95.8	99.9	117.8
1974	84.2	74.6	91.1	97.1	55.3	87.6	144.8	129.2	130.5	133.0	100.6	71.7	100.0
1975	78.6	97.2	71.0	76.1	62.3	127.7	120.2	160.4	174.3	103.3	87.4	92.3	104.2
1976	67.2	73.3	122.8	67.7	108.2	109.3	152.1	159.2	111.7	93.3	86.9	82.0	102.3
1977	69.0	157.3	95.2	70.9	80.1	108.6	169.8	137.6	110.9	223.8	100.4	83.0	117.0
1978	60.1	74.8	97.1	68.1	81.0	130.5	113.9	163.5	131.1	88.4	99.7	110.9	101.6
1979	75.5	52.8	66.8	62.2	95.4	127.9	*******	*******	*******	*******	*******	*******	85.1
AVGE	72.4	88.3	90.3	73.7	80.4	115.3	139.5	151.9	126.6	125.5	95.3	90.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	47025.875	11	4275.078	7.564**
RESIDUAL	33912.188	60	565.203	
TOTAL	80936.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	135.2	151.3	118.5	111.6	93.5	86.9	115.3
1974	75.3	81.5	95.1	74.5	70.9	103.1	137.5	151.2	118.0	110.7	93.8	85.5	100.0
1975	74.0	81.1	90.7	75.8	72.1	109.6	141.1	151.0	119.3	108.2	94.4	85.3	100.0
1976	72.0	80.5	89.9	71.9	75.4	113.8	141.3	151.9	120.2	104.3	94.6	85.4	100.1
1977	69.8	78.5	90.3	69.6	79.7	117.6	140.6	153.2	121.0	100.3	94.7	85.5	100.1
1978	68.6	77.1	89.3	67.7	83.5	120.4	141.4	154.6	119.6	97.5	94.5	86.2	100.0
1979	68.0	76.0	89.8	67.1	85.1	120.4	*******	*******	*******	*******	*******	*******	84.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	141.8	155.2	119.0	96.1	94.4	85.5	115.5
1980	67.8	75.4	90.1	66.8	85.9	120.4	*******	*******	*******	*******	*******	*******	84.4

TABLE A39. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	147.2	95.8	74.8	145.6	162.9	123.6	1[illegible].1
1974	85.4	111.9	103.1	63.6	39.7	13.9	95.9	89.8	97.2	222.4	137.3	114.4	97.4
1975	140.6	57.4	99.8	45.0	23.4	50.5	286.3	88.6	87.1	120.9	102.5	108.5	100.9
1976	141.7	115.5	112.8	47.6	39.8	14.1	190.8	126.8	62.2	125.8	25.7	65.4	59.0
1977	121.5	553.0	354.8	52.8	41.3	63.7	175.2	116.2	50.8	119.5	129.6	82.2	154.3
1978	72.6	165.8	158.3	66.7	110.1	124.7	101.5	48.7	29.9	70.6	171.5	117.9	98.2
1979	123.6	62.0	93.5	92.5	78.5	85.8	*******	*******	*******	*******	*******	*******	89.3
AVGE	114.3	177.6	145.4	61.3	53.8	69.1	165.8	93.0	67.0	132.6	121.6	102.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	118604.125	11	10782.191	2.087
RESIDUAL	309926.438	60	5165.438	
TOTAL	428530.563	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	156.4	94.0	82.4	156.6	133.0	107.5	122.0
1974	121.9	105.4	110.0	52.0	35.3	42.1	182.4	97.8	79.5	152.3	132.6	103.2	99.9
1975	117.8	111.1	111.0	53.0	39.5	48.0	162.8	99.7	73.6	142.8	132.7	98.7	99.2
1976	116.2	114.3	111.1	55.7	46.2	53.2	156.2	100.9	65.9	125.9	132.3	95.1	97.1
1977	113.4	119.8	119.8	59.7	55.1	68.7	154.8	101.4	58.1	112.9	134.1	92.2	99.2
1978	112.2	122.1	110.6	63.5	61.2	76.4	155.5	102.8	53.0	103.2	134.8	89.4	97.6
1979	108.7	127.1	111.6	65.6	64.8	79.6	*******	*******	*******	*******	*******	*******	92.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	165.9	103.4	50.4	98.4	135.1	88.6	106.9
1980	107.0	129.6	112.1	66.6	66.6	81.2	*******	*******	*******	*******	*******	*******	93.8

TABLE A40. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR ALL GRAIN SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	149.6	143.6	111.6	138.8	105.1	93.3	122.8
1974	83.0	72.0	88.9	85.3	55.6	90.4	131.8	139.9	118.2	135.5	117.6	79.3	101.5
1975	75.9	81.2	69.1	69.9	82.0	104.1	115.9	165.5	191.2	147.9	92.8	78.0	104.6
1976	70.9	85.3	112.4	53.9	91.4	88.2	123.5	168.7	140.3	128.4	95.1	75.7	102.6
1977	62.2	139.2	90.1	57.6	66.0	107.5	147.7	139.3	123.4	207.0	103.9	83.1	110.0
1978	29.9	82.2	69.1	59.9	82.0	122.3	115.4	137.5	118.4	157.0	147.7	92.5	101.2
1979	63.3	40.3	58.9	62.1	87.1	105.1	******	******	******	******	******	******	69.5
AVGE	64.2	83.4	81.4	64.8	74.0	102.9	130.1	149.1	133.8	155.8	110.4	83.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	75055.500	11	6368.650	16.170**
RESIDUAL	23631.313	60	393.855	
TOTAL	93686.813	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	129.8	152.3	122.9	144.4	103.5	82.6	122.6
1974	74.3	80.4	82.1	63.4	67.6	96.0	130.8	152.5	123.8	143.9	103.3	82.3	100.0
1975	72.9	80.8	81.7	62.9	68.5	98.3	129.8	152.1	125.3	144.6	102.7	81.9	100.1
1976	70.1	82.0	79.4	61.8	71.4	101.7	128.7	151.5	126.3	145.3	101.1	82.1	100.1
1977	67.4	83.2	77.2	60.3	75.7	104.5	127.0	151.0	127.2	145.5	99.9	82.5	100.1
1978	64.9	84.1	75.2	59.3	78.6	106.7	127.2	150.9	127.6	144.2	98.8	82.9	100.0
1979	63.8	84.3	75.1	58.9	79.4	107.9	******	******	******	******	******	******	75.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	127.2	150.8	127.8	143.6	98.2	83.1	121.8
1980	63.3	84.4	75.1	58.6	79.8	108.5	******	******	******	******	******	******	78.3

TABLE A41. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	114.8	165.5	164.1	112.9	98.3	78.5	122.4
1974	67.9	49.5	73.1	68.2	54.3	155.9	88.3	152.6	123.1	191.5	203.2	76.4	108.7
1975	46.0	42.3	51.2	89.5	94.0	97.3	121.5	164.9	259.9	116.4	62.6	61.2	100.6
1976	64.2	98.9	78.2	47.7	96.2	136.5	111.3	361.9	213.4	60.6	68.1	64.0	110.7
1977	45.9	99.7	81.8	69.1	87.6	144.4	126.5	186.3	145.7	111.9	122.0	88.5	105.9
1978	44.2	37.1	36.3	65.3	95.3	126.0	153.2	185.1	157.7	130.3	174.1	90.7	105.4
1979	48.7	26.4	37.8	59.1	132.6	115.4	******	******	******	******	******	******	70.0
AVGE	52.8	59.0	59.7	66.5	90.0	129.3	119.3	199.4	177.3	115.6	121.5	76.6	
			7601.3										

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	148310.563	11	13482.777	9.211**
RESIDUAL	87822.188	60	1463.703	
TOTAL	236132.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	108.8	163.5	178.1	133.4	90.7	70.9	124.2
1974	57.4	46.8	69.2	68.6	79.5	132.1	110.2	164.6	172.1	131.1	92.2	71.9	100.2
1975	56.0	46.1	67.4	68.4	79.9	132.1	113.9	166.7	177.5	127.9	94.4	73.5	100.3
1976	53.2	44.3	63.3	67.5	85.4	129.7	120.1	169.2	177.8	120.7	96.8	75.5	100.3
1977	51.4	42.5	59.1	64.6	91.6	128.5	125.5	172.2	178.1	114.2	98.1	77.1	100.2
1978	49.5	41.0	55.8	63.0	96.9	127.9	128.8	174.1	178.9	108.4	98.6	78.1	100.1
1979	48.9	40.6	55.2	62.0	97.2	129.8	******	******	******	******	******	******	72.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	130.4	175.0	179.4	105.5	98.9	78.6	125.0
1980	48.7	40.4	54.8	61.5	97.3	130.7	******	******	******	******	******	******	72.2

TABLE A42. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.8	139.0	88.3	104.5	101.1	148.3	112.3
1974	124.4	79.9	86.2	87.6	58.5	84.2	71.1	99.7	239.3	259.9	136.9	74.7	116.9
1975	63.3	56.3	84.5	102.2	69.2	113.6	91.9	80.4	213.8	122.2	116.3	79.9	99.5
1976	58.8	66.3	122.7	54.7	88.1	123.6	69.7	111.2	186.6	114.5	112.5	80.3	99.1
1977	62.0	134.4	85.6	107.3	81.0	126.4	104.7	86.3	132.2	125.7	137.1	88.7	106.0
1978	65.9	55.7	88.7	97.9	95.3	96.6	110.9	169.3	164.8	102.7	97.9	109.5	104.6
1979	89.9	58.8	89.6	82.4	115.6	97.2	*******	*******	*******	*******	*******	*******	88.9
AVGE	77.4	75.2	92.9	88.7	84.6	106.9	90.0	114.3	170.9	138.2	117.0	96.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	50724.313	11	4611.301	4.609**
RESIDUAL	60032.125	60	1000.535	
TOTAL	110756.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.0	94.0	216.6	117.1	116.4	80.4	117.7
1974	63.4	66.5	84.7	97.2	73.0	109.6	83.2	94.7	210.3	118.0	117.8	81.1	100.0
1975	63.6	65.7	85.1	98.1	75.2	109.9	85.5	95.8	200.3	118.6	119.0	83.0	100.0
1976	63.6	63.4	85.7	98.5	81.1	111.0	93.0	95.4	187.1	118.4	118.9	86.0	99.9
1977	64.0	61.7	86.4	97.7	88.1	110.9	93.1	95.6	176.6	117.0	117.4	89.1	99.9
1978	64.7	60.5	87.1	96.9	94.1	110.7	94.9	97.3	169.6	115.7	116.1	91.0	99.9
1979	65.4	60.8	87.6	96.2	96.0	109.4	*******	*******	*******	*******	*******	*******	85.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	95.8	97.7	166.1	115.1	115.4	92.0	113.7
1980	65.7	60.9	87.8	95.9	97.0	108.7	*******	*******	*******	*******	*******	*******	86.0

TABLE A43. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.5	85.6	117.9	95.5	122.2	117.2	104.0
1974	104.7	83.0	107.0	142.3	37.0	24.7	67.9	79.9	412.6	200.8	141.4	84.9	122.6
1975	84.2	70.2	181.3	117.6	82.6	53.9	90.3	98.1	165.4	85.4	61.5	108.3	99.7
1976	109.6	130.7	97.9	63.8	102.2	90.2	98.7	168.4	100.3	50.2	75.9	82.5	97.5
1977	86.8	213.8	138.6	120.6	88.0	93.3	108.3	274.2	105.2	51.7	55.8	72.4	117.4
1978	95.9	134.9	158.8	105.3	93.9	108.6	110.8	106.8	83.3	52.3	52.2	114.1	101.4
1979	121.5	70.0	119.4	114.4	103.1	112.4	*******	*******	*******	*******	*******	*******	105.8
AVGE	100.4	117.1	133.8	110.7	84.5	80.5	93.6	135.5	164.1	89.3	84.9	96.1	

TABLE TOTAL- 7743.2

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	43579.688	11	3961.790	1.425
RESIDUAL	166818.125	60	2780.302	
TOTAL	210397.813	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	83.4	99.4	139.2	86.6	103.0	98.9	101.8
1974	97.0	98.1	125.5	111.5	82.0	73.7	86.5	106.1	135.4	82.6	98.7	96.3	99.4
1975	96.1	101.3	127.7	111.3	83.2	77.3	90.8	113.9	129.1	75.7	89.6	93.4	99.1
1976	96.3	104.8	131.0	109.3	87.3	83.8	95.3	120.3	121.7	68.1	76.8	92.1	99.0
1977	98.7	110.3	131.3	106.1	91.9	92.1	100.7	126.8	113.0	60.8	66.7	91.7	99.2
1978	100.7	113.0	131.8	105.4	95.1	98.6	103.3	131.4	106.2	55.2	61.1	91.3	99.5
1979	101.9	116.1	131.8	106.6	95.4	101.5	*******	*******	*******	*******	*******	*******	109.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.6	133.7	102.8	53.9	58.3	91.2	90.7
1980	102.5	117.7	131.9	107.1	95.6	103.5	*******	*******	*******	*******	*******	*******	109.7

TABLE A44. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	103.2	138.5	129.8	103.5	101.6	100.9	112.9
1974	91.7	70.8	88.5	90.8	56.7	106.7	79.4	116.0	189.4	206.1	163.9	79.1	111.6
1975	67.8	57.4	84.0	99.8	84.2	96.9	110.0	129.8	225.3	113.5	77.1	73.4	101.6
1976	70.2	87.0	87.4	50.6	87.1	118.8	91.4	237.7	179.6	83.4	92.2	80.0	105.5
1977	63.3	137.1	95.6	91.6	75.5	123.4	112.9	144.0	126.5	102.1	117.5	87.4	106.4
1978	62.2	61.6	81.5	80.3	91.9	111.8	128.9	156.7	132.9	82.2	113.1	89.5	99.4
1979	71.6	45.0	70.3	78.9	139.1	128.4	*******	*******	*******	*******	*******	*******	88.9
AVGE	71.2	76.5	84.6	82.0	89.1	114.3	104.3	153.8	163.9	115.1	110.9	85.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	57773.688	11	5252.152	6.718**
RESIDUAL	46904.813	60	781.747	
TOTAL	104678.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	96.6	130.7	161.5	107.3	104.3	83.7	114.0
1974	74.0	74.3	87.9	92.4	75.9	109.9	97.6	132.7	160.5	105.0	104.8	83.9	100.1
1975	72.7	73.5	87.7	91.5	77.8	110.6	100.1	135.6	155.5	103.2	105.0	83.2	100.1
1976	70.1	72.5	86.3	89.9	81.0	113.0	105.0	139.4	154.3	100.1	105.2	85.0	100.1
1977	68.1	72.4	84.6	87.2	84.3	116.0	108.7	143.2	151.1	95.8	106.1	83.0	100.0
1978	66.6	72.2	83.2	85.3	86.8	119.2	110.9	145.9	147.8	93.0	105.2	83.8	100.0
1979	66.4	72.3	83.3	84.2	86.9	120.9	*******	*******	*******	*******	*******	*******	85.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	111.9	147.3	146.1	91.5	104.8	84.3	114.3
1980	66.4	72.4	83.3	83.7	87.0	121.7	*******	*******	*******	*******	*******	*******	85.7

TABLE A45. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	175.7	153.7	176.7	124.3	107.6	77.2	136.0
1974	49.2	28.8	69.4	81.8	54.1	197.1	116.5	79.0	84.8	161.7	196.7	65.7	98.8
1975	37.6	37.2	31.4	70.6	63.2	81.6	154.0	188.5	246.0	117.3	59.2	29.5	93.0
1976	45.7	80.0	73.5	38.1	36.8	91.1	155.2	259.3	227.0	62.7	71.8	63.3	100.4
1977	51.5	127.3	82.8	53.9	25.5	62.3	115.9	178.8	186.1	135.6	173.3	71.8	105.4
1978	60.0	19.7	32.6	37.5	53.6	80.1	142.3	147.8	174.9	121.3	196.0	93.6	96.6
1979	42.1	66.1	34.2	37.5	52.0	85.6	*******	*******	*******	*******	*******	*******	52.9
AVGE	47.7	59.9	54.0	53.2	47.5	99.6	143.4	167.9	182.6	120.5	134.1	66.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	164141.750	11	14921.977	10.083**
RESIDUAL	88796.938	60	1479.949	
TOTAL	252938.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	154.0	174.4	196.3	127.5	123.5	62.4	139.7
1974	46.5	53.6	64.1	63.4	48.8	85.0	151.1	178.5	196.6	124.7	124.9	63.1	100.0
1975	47.8	54.3	60.1	61.4	48.1	83.4	146.0	182.4	196.9	121.8	132.5	65.0	100.2
1976	48.5	57.1	59.5	56.0	47.1	81.6	142.4	185.9	200.2	118.7	138.3	66.5	100.2
1977	49.5	60.8	56.1	49.2	45.9	81.0	140.3	190.0	201.9	114.0	143.6	69.3	100.1
1978	49.9	63.7	53.5	44.2	44.6	79.7	141.0	195.2	204.4	109.7	142.9	71.0	100.0
1979	50.7	64.6	53.8	42.5	43.5	78.8	*******	*******	*******	*******	*******	*******	55.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	141.4	197.7	205.6	107.6	142.5	71.8	144.4
1980	51.2	65.0	53.9	41.7	42.9	78.3	*******	*******	*******	*******	*******	*******	55.5

TABLE A 46. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	89.5	131.9	112.9	110.6	106.5	108.7	110.0
1974	102.4	61.6	74.4	119.7	53.4	92.4	135.2	69.3	128.2	232.1	149.6	42.1	105.0
1975	67.4	65.3	38.8	117.7	79.0	162.2	99.2	108.9	135.4	107.1	111.9	105.0	99.8
1976	54.8	64.2	118.4	70.0	105.8	210.9	119.2	91.2	160.9	113.6	95.1	73.4	106.9
1977	62.6	145.2	76.8	98.4	92.9	125.6	129.6	123.7	108.7	114.0	105.9	76.3	105.0
1978	67.6	90.4	62.1	97.7	110.3	92.2	111.5	145.9	141.6	102.1	89.8	105.1	101.4
1979	105.8	48.1	75.9	73.4	131.2	115.8	*******	*******	*******	*******	*******	*******	91.7
AVGE	76.8	79.1	74.4	96.2	95.5	133.2	114.0	111.8	131.3	130.8	109.8	85.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	31376.063	11	2852.369	3.180**
RESIDUAL	53824.125	60	897.069	
TOTAL	85200.188	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	109.4	107.4	130.6	112.9	118.3	98.2	112.8
1974	68.9	65.3	66.3	106.9	82.4	132.3	111.6	108.0	130.8	113.5	116.4	95.6	99.8
1975	68.6	67.5	66.4	105.6	84.6	129.2	114.9	109.2	132.9	113.5	113.4	92.5	99.9
1976	66.5	69.8	66.6	101.4	92.0	127.5	116.2	113.1	133.6	112.3	109.3	90.7	99.8
1977	64.7	72.2	67.9	96.0	100.8	123.2	117.4	116.3	136.1	111.4	103.2	89.1	99.9
1978	63.3	73.7	69.7	91.4	108.3	120.3	117.2	118.7	136.9	110.9	99.2	88.1	99.8
1979	63.6	75.1	71.5	89.8	110.8	115.8	*******	*******	*******	*******	*******	*******	87.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	117.1	119.9	137.2	110.7	97.2	87.5	111.6
1980	63.7	75.7	72.3	89.0	112.0	113.5	*******	*******	*******	*******	*******	*******	87.7

TABLE A47. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	120.8	123.5	109.9	91.8	112.5	91.6	108.4
1974	73.2	80.8	106.0	205.6	52.4	29.3	57.0	88.6	347.1	97.2	126.3	73.7	111.4
1975	77.7	40.5	123.8	64.4	90.5	82.1	127.1	145.7	197.7	121.9	51.6	64.1	93.9
1976	84.3	94.5	76.6	54.8	120.4	142.2	79.0	232.0	177.7	49.1	53.3	63.3	102.3
1977	55.4	170.1	107.6	110.3	71.8	111.8	136.3	472.0	141.6	48.3	67.7	59.3	129.3
1978	50.3	98.5	136.0	105.2	83.0	124.6	121.4	143.6	118.2	58.9	50.4	91.7	98.5
1979	90.0	56.9	80.9	99.2	109.7	126.4	*******	*******	*******	*******	*******	*******	93.9
AVGE	71.8	90.2	105.2	106.6	88.0	102.7	106.9	200.9	182.0	77.9	77.0	74.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF. FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	115135.375	11	10466.852	3.236**
RESIDUAL	194070.750	60	3234.512	
TOTAL	309206.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.5	137.8	168.9	87.7	90.8	75.0	110.4
1974	75.4	79.8	102.8	73.5	86.8	116.9	104.0	146.8	167.8	83.0	87.1	73.1	99.8
1975	72.5	81.7	104.8	77.1	85.7	117.2	105.0	156.8	167.3	76.3	79.5	71.4	99.8
1976	70.7	81.8	105.0	82.0	88.1	117.4	110.4	166.6	163.4	69.3	69.3	69.9	99.5
1977	69.5	83.4	103.8	86.8	91.8	120.7	112.3	175.2	158.7	62.6	60.6	70.0	99.6
1978	69.2	83.6	102.3	92.3	93.9	122.0	114.2	182.5	153.2	57.9	56.0	69.9	99.8
1979	67.7	85.7	102.8	96.8	92.5	123.4	*******	*******	*******	*******	*******	*******	94.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	115.2	186.2	150.4	55.6	53.7	69.9	105.2
1980	67.0	86.8	103.1	99.0	91.8	124.1	*******	*******	*******	*******	*******	*******	95.3

TABLE A48. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	146.3	139.4	130.0	103.4	94.9	85.0	116.5
1974	70.5	58.5	78.5	112.0	53.1	106.2	94.5	77.1	155.0	203.2	175.7	72.8	104.8
1975	66.7	47.5	68.3	85.5	80.5	97.8	139.3	153.2	200.6	109.7	60.1	56.6	97.2
1976	59.3	71.7	76.3	52.0	77.2	135.4	109.1	188.2	189.2	81.2	74.6	69.7	98.7
1977	58.0	146.4	87.7	91.3	66.7	96.0	112.9	221.4	136.7	94.6	110.8	67.6	107.5
1978	58.6	62.9	83.1	83.3	82.1	101.3	132.5	147.1	153.3	93.1	111.7	100.8	100.8
1979	79.1	59.2	64.3	75.0	90.5	112.3	*******	*******	*******	*******	*******	*******	80.1
AVGE	65.4	74.4	76.4	83.2	75.0	108.2	122.4	154.4	160.8	114.2	104.6	75.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	68190.438	11	6199.129	7.696**
RESIDUAL	48331.375	60	805.523	
TOTAL	116521.813	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.1	162.0	167.4	106.7	90.0	71.8	120.5
1974	64.9	62.4	76.7	91.2	70.2	111.2	123.4	167.3	166.3	104.4	90.5	71.3	100.0
1975	64.2	62.8	77.6	90.6	70.7	109.6	120.8	173.0	166.9	101.7	92.3	69.9	100.0
1976	63.9	63.1	77.5	87.5	73.8	108.5	120.9	177.0	166.8	98.7	94.0	67.9	100.0
1977	63.7	63.9	77.5	84.1	76.9	109.2	120.5	179.0	167.0	95.3	95.4	66.9	99.9
1978	64.3	64.3	77.2	81.8	79.5	108.9	121.4	180.7	165.9	92.6	95.6	67.0	99.9
1979	64.3	64.9	78.0	81.9	79.4	108.0	*******	*******	*******	*******	*******	*******	79.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	121.8	181.6	165.3	91.3	95.7	67.0	120.5
1980	64.4	65.1	78.4	81.9	79.3	107.6	*******	*******	*******	*******	*******	*******	79.5

TABLE A 49. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	128.9	159.6	175.9	106.0	82.8	62.4	121.3
1974	65.4	49.9	53.2	98.0	55.5	158.7	99.7	92.4	104.8	239.2	221.1	76.8	109.5
1975	40.0	34.8	63.0	85.0	93.6	76.4	140.2	161.3	206.2	160.4	47.2	56.6	97.0
1976	43.0	68.2	60.7	56.7	65.7	152.0	78.4	255.1	238.0	58.1	49.2	48.6	97.8
1977	49.3	110.8	112.0	80.3	52.5	86.7	127.8	193.1	169.5	131.6	141.3	67.8	110.2
1978	43.6	33.6	28.0	64.5	65.9	122.3	153.8	183.3	170.5	109.5	142.4	89.6	100.6
1979	30.8	14.7	30.4	44.2	92.8	124.5	*******	*******	*******	*******	*******	*******	56.2
AVGE	45.4	52.0	57.9	71.5	71.0	120.1	120.1	174.1	177.5	134.0	114.0	70.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF. FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	139598.500	11	12690.770	8.417**
RESIDUAL	90465.563	60	1507.759	
TOTAL	230064.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	115.6	161.4	180.2	153.9	82.0	69.4	107.1
1974	50.2	52.0	59.7	80.7	69.3	123.6	114.1	167.8	182.1	149.0	85.4	68.3	100.2
1975	49.8	50.8	57.6	79.4	68.0	121.0	114.8	175.9	183.6	144.5	92.8	67.7	100.5
1976	47.0	48.7	53.9	74.6	69.4	116.6	119.5	164.6	187.0	135.8	101.1	67.4	100.5
1977	44.2	47.3	49.0	68.2	70.0	117.5	122.1	194.3	190.5	127.4	107.5	67.5	100.5
1978	41.8	45.9	45.3	63.4	71.3	116.6	123.2	203.4	195.2	118.0	110.2	67.2	100.1
1979	41.7	45.6	43.4	62.4	70.1	118.0	*******	*******	*******	*******	*******	*******	63.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	123.7	207.9	197.6	113.3	111.6	67.1	136.9
1980	41.7	45.4	42.4	61.9	69.4	118.6	*******	*******	*******	*******	*******	*******	63.2

TABLE A50. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	63.9	112.7	59.3	83.1	82.3	125.3	87.8
1974	75.5	89.2	92.1	61.0	42.8	66.0	84.3	39.2	205.0	250.1	140.1	52.8	99.8
1975	84.6	64.4	72.0	83.8	37.7	161.1	109.7	42.6	153.3	325.6	187.4	72.7	116.2
1976	55.5	44.4	133.1	93.2	74.7	153.4	79.6	59.7	274.1	143.7	129.8	81.9	110.3
1977	58.0	99.4	51.0	125.1	72.1	97.4	96.8	76.0	132.8	111.6	191.4	110.3	101.8
1978	47.6	59.6	60.9	149.2	90.5	80.1	131.9	137.6	117.1	81.1	238.6	58.4	104.4
1979	48.0	109.0	5.9	89.4	211.4	112.8	*******	*******	*******	*******	*******	*******	96.1
AVGE	61.5	77.7	69.2	100.3	88.2	111.8	94.4	78.0	156.9	165.9	161.6	83.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	91051.500	11	8277.406	3.224**
RESIDUAL	154057.938	60	2567.632	
TOTAL	245109.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	84.2	48.0	178.0	197.0	139.2	66.8	118.9
1974	69.2	73.4	73.5	85.8	54.7	131.0	85.1	50.7	174.9	189.3	142.1	70.1	100.0
1975	67.2	73.6	71.5	92.5	58.2	125.9	90.4	53.9	166.3	174.0	154.2	72.5	100.0
1976	63.1	75.0	67.3	100.6	64.8	121.8	96.9	58.0	154.1	153.4	169.7	75.9	100.1
1977	57.8	76.3	63.9	108.3	73.3	116.4	102.6	61.5	143.8	135.2	182.2	77.6	99.9
1978	53.9	80.8	60.8	113.6	80.0	111.6	103.8	64.4	138.9	124.3	186.0	80.3	99.9
1979	51.7	84.0	59.7	116.7	83.0	105.0	*******	*******	*******	*******	*******	*******	83.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.4	65.8	136.4	118.9	187.9	81.6	115.8
1980	50.6	85.7	59.1	118.3	84.5	101.7	*******	*******	*******	*******	*******	*******	83.3

TABLE A51. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	29.1	61.1	87.9	45.4	65.8	109.6	69.8
1974	131.8	91.7	158.8	333.9	149.2	41.9	35.3	81.3	469.1	74.2	22.0	142.5	144.3
1975	133.9	68.9	341.7	149.0	102.0	49.5	9.3	7.1	114.6	53.0	50.1	83.9	98.9
1976	159.9	149.3	121.9	38.1	223.2	51.9	265.8	232.4	11.2	19.5	34.5	95.3	116.9
1977	51.3	300.9	270.6	101.7	21.2	83.5	205.9	781.4	52.1	9.0	5.9	63.0	162.2
1978	94.7	268.6	240.5	147.7	77.0	60.6	79.4	44.7	19.7	14.4	27.6	109.3	95.7
1979	150.8	86.5	137.1	93.3	85.7	116.9	*******	*******	*******	*******	*******	*******	111.7
AVGE	120.4	161.0	211.8	144.0	109.7	67.4	104.2	201.3	125.8	35.9	37.7	100.6	

TABLE TOTAL- 8518.2

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	207860.500	11	18896.406	1.373
RESIDUAL	825868.000	60	13764.465	
TOTAL	1033728.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	34.6	81.0	83.2	52.8	50.9	111.6	69.0
1974	130.7	134.0	217.9	99.1	136.3	53.9	49.2	93.3	76.6	47.5	46.4	106.5	99.3
1975	122.1	148.7	218.5	101.2	125.0	55.4	66.2	103.7	65.7	40.5	38.5	101.9	95.0
1976	116.1	164.5	220.1	103.2	110.5	62.2	84.4	107.4	57.7	32.7	32.5	95.4	99.9
1977	114.9	181.6	211.2	102.7	103.9	69.7	97.8	115.2	47.1	25.5	27.9	92.7	99.2
1978	112.7	195.0	206.1	102.5	91.9	78.3	107.6	123.6	40.7	20.2	26.9	89.0	99.6
1979	108.9	209.8	203.4	103.6	84.7	82.3	*******	*******	*******	*******	*******	*******	132.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	112.5	127.8	37.5	17.5	26.5	87.2	68.2
1980	107.0	217.2	202.1	104.1	81.0	84.3	*******	*******	*******	*******	*******	*******	132.6

TABLE A52. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	114.5	154.4	147.5	87.8	83.9	93.5	113.5
1974	84.0	66.4	72.1	102.3	61.5	111.3	85.9	72.6	163.6	243.1	194.0	75.8	111.1
1975	62.9	52.5	80.6	95.5	83.8	92.0	132.3	130.5	191.3	187.3	75.6	69.5	104.5
1976	57.7	70.3	86.5	72.5	71.8	145.5	79.2	192.5	218.5	78.0	74.0	68.8	101.3
1977	54.5	112.4	99.7	95.0	58.8	83.3	117.7	177.4	144.9	112.3	130.9	68.4	104.7
1978	46.7	74.7	73.0	83.0	65.4	103.9	139.1	165.8	150.2	87.0	111.6	92.8	99.4
1979	67.7	41.1	54.2	66.0	91.5	112.9	*******	*******	*******	*******	*******	*******	7_.2
AVGE	62.2	69.6	77.7	85.9	72.1	108.1	111.5	148.9	169.3	132.6	111.7	78.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	76993.168	11	6999.379	7.029**
RESIDUAL	59751.125	60	995.852	
TOTAL	136744.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	107.8	157.6	176.7	106.5	83.4	78.7	116.5
1974	66.7	64.8	83.2	91.6	70.7	111.0	107.1	160.6	176.5	105.3	85.8	77.5	100.1
1975	64.8	65.8	83.3	91.1	69.6	108.8	108.0	164.3	176.7	104.3	90.2	76.3	100.3
1976	61.7	65.7	82.2	88.4	70.7	107.0	112.5	166.0	175.0	103.1	95.4	75.6	100.3
1977	58.9	66.3	80.0	84.2	71.7	108.2	115.2	169.1	174.8	99.9	98.8	75.7	100.2
1978	57.3	66.2	78.2	81.3	73.1	107.7	116.7	172.0	174.8	96.8	100.4	76.0	100.0
1979	56.8	67.1	77.7	80.7	72.3	107.0	*******	*******	*******	*******	*******	*******	76.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	117.5	173.4	174.8	95.2	101.2	76.2	123.1
1980	56.6	67.5	77.4	80.5	71.9	106.5	*******	*******	*******	*******	*******	*******	76.8

TABLE A 53. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTIN DISTRICT THREE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.7	154.7	173.8	109.0	110.6	89.5	122.2
1974	68.0	46.6	81.5	54.5	57.4	135.6	113.6	121.3	101.8	193.9	242.8	82.6	108.3
1975	48.2	49.7	46.2	91.0	106.2	97.4	105.2	136.9	278.1	139.6	51.1	55.9	100.5
1976	62.4	83.4	72.1	44.6	71.3	146.3	113.2	261.0	205.4	60.6	93.0	51.0	105.4
1977	46.4	101.9	103.7	65.9	91.7	134.2	111.2	157.5	142.4	125.2	112.4	86.3	105.6
1978	55.4	37.0	37.4	70.2	118.5	119.0	140.4	166.4	141.5	92.1	136.0	89.4	100.3
1979	55.0	27.5	42.8	68.8	213.1	135.9	*******	*******	*******	*******	*******	*******	90.5
AVGE	55.9	57.7	64.0	65.8	109.7	128.1	113.2	166.3	173.8	120.1	124.3	75.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	110626.813	11	10056.980	6.638**
RESIDUAL	90902.938	60	1515.049	
TOTAL	201529.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	106.2	146.8	181.0	138.0	100.0	72.4	124.1
1974	57.6	62.5	65.0	60.5	89.5	127.8	107.1	150.4	180.3	134.9	100.7	72.3	100.6
1975	56.9	61.[illegible]	63.9	61.4	85.5	127.4	110.7	154.4	177.0	130.3	102.8	72.0	101.1
1976	55.2	59.[illegible]	59.1	63.2	90.5	127.1	113.9	158.0	175.0	122.7	104.3	72.1	100.1
1977	54.6	58.0	55.0	63.4	96.3	128.5	117.6	162.9	172.4	113.6	105.6	72.1	100.1
1978	53.5	56.5	51.7	64.2	101.5	129.9	118.4	167.2	172.0	105.5	107.3	72.2	100.0
1979	53.4	55.7	51.2	64.3	102.8	131.4	*******	*******	*******	*******	*******	*******	76.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	118.8	159.3	171.8	101.5	107.7	72.2	123.6
1980	53.4	55.3	51.0	64.4	103.4	132.1	*******	*******	*******	*******	*******	*******	76.6

TABLE A54. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	83.1	81.0	54.2	79.9	80.8	190.1	94.3
1974	105.6	89.2	86.9	87.7	53.0	36.9	44.8	51.1	251.4	324.3	184.1	82.1	116.4
1975	74.6	40.2	49.9	139.3	83.4	114.8	98.4	42.6	218.7	116.8	129.9	64.5	97.7
1976	58.8	78.4	164.9	60.4	112.9	164.5	69.6	106.6	152.8	122.2	128.0	47.5	105.4
1977	44.7	89.9	69.1	130.3	72.0	183.0	98.3	70.3	117.8	124.3	127.4	106.2	102.9
1978	55.1	52.3	101.1	72.3	112.7	130.1	95.3	195.7	164.4	76.1	72.4	114.1	103.5
1979	82.2	74.5	64.0	69.6	103.5	193.6	*******	*******	*******	*******	*******	*******	97.9
AVGE	70.2	70.8	69.3	93.3	89.6	137.2	81.1	91.2	159.9	140.6	120.1	101.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	55858.938	11	5078.082	2.109
RESIDUAL	144459.063	60	2407.651	
TOTAL	200318.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	73.3	66.0	208.9	111.6	130.5	68.6	109.8
1974	72.8	72.8	70.8	102.5	81.0	141.7	75.1	68.7	200.9	113.4	130.5	79.3	100.0
1975	70.3	72.3	72.8	102.1	82.9	143.2	77.6	71.6	190.6	114.9	129.6	74.6	100.2
1976	66.1	70.5	72.9	100.2	88.1	149.6	83.4	73.9	177.1	113.8	124.3	80.4	100.0
1977	63.0	70.1	75.4	93.2	94.9	156.8	87.0	78.3	166.0	111.5	118.0	84.6	99.0
1978	60.9	70.9	75.8	89.7	98.6	165.3	89.6	82.2	156.4	109.2	112.1	86.2	99.7
1979	60.5	73.3	78.3	87.4	98.7	168.5	*******	*******	*******	*******	*******	*******	94.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	91.0	84.2	151.6	108.0	109.2	87.0	105.2
1980	60.3	74.5	79.5	86.2	98.8	170.1	*******	*******	*******	*******	*******	*******	94.9

TABLE A55. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	61.0	93.3	125.8	71.1	82.4	114.6	91.9
1974	99.4	114.8	96.6	106.6	24.4	38.1	125.0	77.7	547.0	183.8	31.3	72.4	126.4
1975	55.1	77.2	216.6	174.4	61.1	18.8	133.1	99.6	157.7	85.2	51.3	129.7	100.0
1976	118.9	109.8	53.6	47.3	294.8	83.8	120.3	146.2	82.4	95.4	91.5	96.3	111.7
1977	100.6	103.6	102.2	96.0	87.6	80.5	76.4	189.7	78.7	84.8	89.9	71.5	95.0
1978	89.5	343.2	210.0	77.8	73.6	74.1	69.9	185.8	68.1	69.4	94.4	112.1	122.3
1979	122.8	92.0	164.8	67.3	62.6	104.4	*******	*******	*******	*******	*******	*******	102.3
AVGE	97.7	140.1	140.6	94.9	100.7	66.6	97.6	132.1	177.1	88.3	73.5	99.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	67484.188	11	6134.926	1.067
RESIDUAL	344865.188	60	5747.750	
TOTAL	412349.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	111.4	101.3	147.3	101.2	69.4	107.0	106.3
1974	95.1	103.5	123.8	109.2	71.2	59.4	110.0	110.1	139.4	99.7	71.9	103.9	99.8
1975	94.8	103.9	127.8	105.9	71.9	61.2	108.1	124.1	126.4	97.5	74.8	99.9	99.7
1976	95.4	102.2	135.7	99.8	72.9	67.4	103.4	139.5	111.5	90.3	78.0	98.7	99.6
1977	99.3	102.8	142.1	89.0	73.8	75.1	99.1	153.2	97.3	85.1	81.9	97.9	99.7
1978	102.8	102.4	146.5	81.4	74.4	82.3	94.8	161.3	87.6	80.5	85.3	98.0	99.8
1979	105.7	104.2	147.1	76.6	74.8	85.3	*******	*******	*******	*******	*******	*******	99.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	92.7	165.4	83.0	78.2	87.0	98.0	100.7
1980	107.1	105.1	147.5	74.2	75.0	86.8	*******	*******	*******	*******	*******	*******	99.3

TABLE A56. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	90.4	139.1	154.4	109.9	116.7	120.1	121.8
1974	90.9	69.2	93.8	80.0	59.8	99.5	99.1	92.0	176.6	201.7	190.9	76.8	110.8
1975	58.0	52.9	83.6	118.1	95.9	89.3	110.9	120.8	255.3	123.7	68.7	64.6	103.5
1976	66.6	83.5	89.5	48.6	80.5	140.6	94.6	209.3	173.0	83.6	114.0	58.7	103.5
1977	50.1	107.1	96.7	95.1	68.4	141.3	109.0	142.3	133.5	115.7	114.1	87.7	108.1
1978	56.3	46.4	62.8	72.4	115.7	111.7	132.1	161.0	134.5	88.4	122.7	87.6	99.3
1979	65.8	41.0	58.8	73.0	208.1	146.3	*******	*******	*******	*******	*******	*******	98.8
AVGE	64.6	66.7	80.9	81.2	104.7	121.4	106.0	144.1	171.2	120.5	121.2	82.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	68628.563	11	6238.957	5.809**
RESIDUAL	64440.938	60	1074.016	
TOTAL	133069.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.1	129.4	154.9	114.6	119.5	71.3	116.5
1974	66.4	67.0	89.7	84.3	77.0	114.2	99.6	132.7	163.8	113.6	119.3	71.9	100.1
1975	66.7	65.5	88.1	84.0	79.1	115.4	102.8	137.3	161.3	111.0	119.4	72.9	100.3
1976	63.2	62.3	84.2	83.2	84.6	119.9	107.1	142.0	155.9	108.3	117.5	74.5	100.2
1977	61.0	59.9	79.6	80.1	90.3	125.6	110.6	147.9	151.9	103.6	116.3	75.5	100.2
1978	59.0	57.4	76.1	78.7	94.2	131.4	111.5	152.3	149.0	100.1	114.6	76.0	100.0
1979	58.8	56.7	75.2	78.0	95.0	134.1	*******	*******	*******	*******	*******	*******	83.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	112.0	154.5	147.6	98.4	113.8	76.2	117.1
1980	58.6	56.3	74.8	77.6	95.3	135.5	*******	*******	*******	*******	*******	*******	83.0

TABLE A57. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	113.0	137.7	104.9	168.3	111.4	30.9	111.0
1974	67.1	85.4	100.9	57.1	69.8	145.9	59.9	130.2	155.3	179.8	150.3	49.4	104.2
1975	40.8	44.4	87.6	89.8	85.0	74.9	118.3	112.4	249.6	108.3	37.0	49.1	91.4
1976	60.8	56.7	62.8	58.4	96.7	149.2	53.9	200.6	217.3	66.6	58.5	68.9	99.9
1977	42.7	93.5	68.9	98.0	51.1	59.0	79.8	144.7	181.4	167.0	253.6	73.3	109.4
1978	19.1	18.0	22.8	66.5	83.1	172.6	83.4	124.9	134.5	165.4	195.9	60.4	97.2
1979	28.2	37.3	32.4	58.6	97.4	175.5	*******	*******	*******	*******	*******	*******	71.6
AVGE	43.1	55.9	62.6	71.4	80.5	129.5	84.7	141.8	173.8	142.6	134.4	58.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	124528.625	11	11320.781	7.169**
RESIDUAL	94750.250	60	1579.171	
TOTAL	219278.875	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	92.0	140.0	180.5	143.4	124.8	47.7	121.4
1974	55.0	61.4	82.5	73.8	79.7	118.4	88.7	142.9	182.2	141.7	129.7	50.5	100.5
1975	52.2	59.0	78.4	74.5	78.3	119.6	83.4	145.0	186.1	140.1	140.3	56.7	101.1
1976	46.7	53.0	69.4	75.2	78.6	122.8	82.1	144.2	189.4	138.1	152.2	62.4	101.2
1977	41.5	47.5	58.4	72.9	80.4	133.1	79.2	145.9	189.2	135.1	159.9	67.9	100.9
1978	37.1	43.3	50.1	72.3	81.0	139.7	78.7	149.2	187.7	132.6	162.3	70.2	100.3
1979	35.5	42.5	46.6	71.8	79.9	144.6	*******	*******	*******	*******	*******	*******	70.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	78.5	150.8	187.0	131.3	163.5	71.4	130.4
1980	34.7	42.1	44.9	71.5	79.3	147.0	*******	*******	*******	*******	*******	*******	65.9

TABLE A 58. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.7	86.7	83.2	111.9	75.0	140.9	99.6
1974	193.5	53.5	97.7	96.8	32.8	88.2	84.0	71.1	218.6	427.6	131.6	89.1	132.0
1975	77.1	49.5	84.0	54.5	70.8	126.5	85.3	49.8	199.9	139.6	162.3	100.8	100.0
1976	76.7	64.6	84.5	23.6	56.9	139.5	63.5	80.3	265.9	152.2	92.1	85.0	98.7
1977	99.0	169.7	72.7	83.6	54.4	69.9	74.0	160.4	216.8	177.6	226.1	71.6	123.0
1978	34.8	38.7	108.8	87.5	76.7	53.1	116.2	175.1	143.6	120.8	64.0	95.7	92.9
1979	102.0	63.3	31.8	64.7	107.5	53.0	*******	*******	*******	*******	*******	*******	70.4
AVGE	97.2	73.2	79.9	68.4	66.5	88.4	87.1	103.9	188.0	188.3	125.2	97.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	116470.625	11	10588.238	3.697**
RESIDUAL	171845.875	60	2864.098	
TOTAL	288316.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	87.9	72.7	197.3	143.6	121.3	109.2	122.0
1974	86.9	58.3	87.9	69.5	54.4	108.9	85.4	78.9	201.7	145.9	118.4	105.0	100.1
1975	84.6	57.0	87.9	70.8	55.9	102.4	83.9	90.7	207.3	148.9	115.1	97.7	100.1
1976	82.8	56.3	84.4	70.4	61.7	94.1	84.0	105.2	208.2	150.2	111.7	92.0	100.1
1977	80.6	56.0	81.9	70.4	68.5	85.2	85.1	118.3	209.0	150.2	105.5	88.0	99.9
1978	81.7	56.8	77.9	71.4	75.3	76.4	85.4	126.4	209.3	149.8	100.4	87.4	99.9
1979	82.2	57.0	77.4	74.4	76.8	69.5	*******	*******	*******	*******	*******	*******	72.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	85.6	130.4	209.5	149.7	97.9	87.1	126.7
1980	82.5	57.1	77.1	75.9	77.6	66.1	*******	*******	*******	*******	*******	*******	72.7

TABLE A59. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	74.5	71.3	121.1	111.6	167.8	109.3	105.3
1974	122.8	89.5	95.8	109.9	47.3	44.2	43.1	71.2	179.5	159.0	160.2	89.3	101.0
1975	81.3	80.1	106.9	112.0	107.0	52.0	73.2	80.3	241.5	153.0	60.2	110.9	104.9
1976	94.9	119.4	82.3	101.0	102.9	72.6	89.6	145.8	118.1	76.4	87.3	98.6	98.9
1977	77.8	189.0	120.2	120.1	89.8	109.3	120.6	236.0	86.5	35.7	30.3	75.1	107.5
1978	137.4	80.7	133.6	92.5	120.6	103.1	126.9	129.2	81.2	53.1	50.9	117.1	102.2
1979	149.3	75.2	85.9	102.5	126.8	122.0	*******	*******	*******	*******	*******	*******	110.3
AVGE	110.6	105.7	104.1	106.3	99.1	83.9	88.0	122.3	138.0	98.1	92.8	99.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	14449.188	11	1313.563	0.774
RESIDUAL	101819.688	60	1696.995	
TOTAL	116268.875	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	67.7	83.9	139.3	129.7	126.8	100.8	106.0
1974	95.1	94.6	97.0	108.1	90.9	64.0	72.9	90.1	135.7	124.2	121.2	99.1	99.4
1975	96.7	93.1	99.9	107.2	92.9	69.2	81.2	99.7	128.9	114.5	107.4	97.6	99.0
1976	99.9	90.8	102.3	106.1	99.0	79.5	91.8	108.5	117.6	102.7	89.7	97.1	98.7
1977	106.7	89.7	103.7	103.9	105.1	90.0	100.6	117.8	107.9	89.8	75.2	97.4	99.0
1978	112.0	88.2	104.9	103.3	109.4	99.8	105.7	122.9	100.4	80.5	68.3	97.3	99.4
1979	116.2	88.2	107.3	103.2	109.7	104.4	*******	*******	*******	*******	*******	*******	104.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	108.2	125.4	96.6	75.9	64.8	97.3	94.7
1980	118.2	88.2	108.5	103.2	109.8	106.7	*******	*******	*******	*******	*******	*******	105.8

TABLE A60. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	83.0	85.1	97.7	108.4	129.4	87.6	98.5
1974	124.7	95.9	100.1	78.5	51.6	83.2	57.9	91.0	201.8	263.2	176.1	79.8	117.0
1975	76.7	61.7	86.9	85.5	83.6	83.3	107.7	93.6	221.5	129.7	68.2	78.2	98.0
1976	80.3	82.9	78.5	71.5	90.5	133.2	68.6	146.7	182.7	87.9	77.9	92.1	99.4
1977	80.8	165.7	93.3	109.7	68.9	79.1	85.8	175.0	152.9	112.1	133.2	68.8	110.4
1978	72.2	47.8	88.0	78.4	97.0	152.0	99.2	125.0	103.0	96.9	93.8	107.8	98.8
1979	104.5	61.4	60.3	76.3	105.3	109.0	*******	*******	*******	*******	*******	*******	86.1
AVGE	89.9	85.9	84.5	83.3	82.8	106.6	83.7	119.4	159.9	133.0	113.1	85.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	40771.875	11	3706.534	3.106**
RESIDUAL	71597.813	60	1193.297	
TOTAL	112369.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	80.4	98.9	188.4	118.2	116.1	83.8	114.3
1974	89.5	79.3	89.2	83.3	74.7	97.0	80.2	106.6	186.3	116.5	115.2	83.1	100.1
1975	87.7	76.6	88.9	84.0	75.7	99.6	80.9	116.8	182.4	114.1	111.9	83.9	100.2
1976	85.2	71.7	86.1	84.7	80.3	103.9	84.3	126.8	175.8	111.3	106.9	84.4	100.1
1977	83.7	67.5	82.8	83.9	85.9	111.9	86.3	134.8	168.1	107.0	101.3	86.7	100.3
1978	83.9	64.7	80.1	84.7	90.0	115.1	87.5	140.5	162.1	103.8	98.2	87.8	99.9
1979	84.9	64.2	80.2	85.6	90.3	116.2	*******	*******	*******	*******	*******	*******	86.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	88.1	143.4	159.2	101.9	96.7	88.3	112.9
1980	85.4	64.0	80.2	86.0	90.5	116.7	*******	*******	*******	*******	*******	*******	87.1

TABLE A61. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTIN DISTRICT FIVE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	101.7	143.3	150.4	115.0	103.5	80.3	115.7
1974	81.7	58.0	64.4	69.8	54.0	157.6	70.3	104.1	180.7	277.7	269.2	81.8	122.4
1975	54.3	39.8	54.2	75.6	86.3	107.1	103.3	129.0	245.7	110.3	89.7	73.2	97.4
1976	57.3	141.7	76.5	37.5	120.2	129.7	64.3	413.1	305.1	55.2	62.2	72.5	127.9
1977	39.4	79.7	67.8	55.5	73.7	143.5	115.4	138.8	139.7	103.8	159.8	94.2	100.9
1978	38.9	18.1	24.2	69.2	100.9	101.5	150.1	178.4	155.3	87.5	172.6	76.2	97.7
1979	33.9	18.3	31.7	56.4	126.0	130.5	*******	*******	*******	*******	*******	*******	66.1
AVGE	50.9	59.3	53.1	60.7	93.5	128.3	100.8	184.4	196.1	124.9	142.8	79.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	164610.250	11	14964.566	5.204**
RESIDUAL	172522.750	60	2875.379	
TOTAL	337133.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	88.0	131.2	210.2	117.8	110.3	77.9	122.6
1974	60.9	57.7	65.6	60.3	85.2	133.6	88.7	133.3	210.5	114.9	112.8	78.9	100.2
1975	58.4	58.2	62.9	60.5	85.4	131.2	92.2	137.3	210.9	110.0	119.6	79.2	100.5
1976	52.4	58.2	58.0	59.8	90.5	127.6	99.6	142.6	207.1	103.6	126.0	79.6	100.4
1977	47.0	58.4	52.8	57.9	97.1	124.4	105.2	148.8	206.0	96.5	131.3	79.1	100.4
1978	41.8	59.2	48.6	56.7	102.1	123.7	197.9	153.2	205.1	91.4	132.2	79.2	100.1
1979	40.0	60.6	46.8	56.5	102.4	124.8	*******	*******	*******	*******	*******	*******	71.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	109.3	155.3	204.7	88.9	132.7	79.2	128.3
1980	39.1	61.4	45.9	56.4	102.5	125.4	*******	*******	*******	*******	*******	*******	71.8

TABLE A62. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	70.7	139.0	79.4	100.7	92.5	103.6	97.5
1974	78.7	80.1	92.1	46.2	48.1	69.2	65.9	107.3	305.8	390.8	134.1	100.0	126.5
1975	44.7	53.4	84.8	69.9	66.3	103.2	71.4	78.0	226.3	149.1	131.7	99.0	98.2
1976	63.3	46.3	131.4	46.1	72.4	106.9	52.7	152.2	503.1	102.9	148.9	88.7	126.2
1977	40.4	97.0	77.7	148.9	88.3	85.7	78.1	49.5	169.8	129.3	149.5	104.0	101.5
1978	88.9	51.4	85.8	74.7	64.9	69.5	131.7	145.1	235.3	63.7	70.7	161.9	103.6
1979	149.3	36.9	63.3	109.3	117.8	50.9	*******	*******	*******	*******	*******	*******	87.9
AVGE	77.6	60.9	89.2	82.5	76.3	80.9	78.4	111.9	253.3	156.1	121.2	109.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	182281.000	11	16571.000	4.498**
RESIDUAL	221059.375	60	3684.323	
TOTAL	403340.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	66.7	114.4	242.5	126.7	123.6	98.8	128.8
1974	59.0	61.3	90.8	58.9	66.3	92.0	66.9	113.9	238.4	125.9	126.7	98.8	99.9
1975	60.2	61.1	89.8	61.3	67.3	90.1	67.7	113.5	236.6	122.9	128.8	101.9	100.1
1976	60.5	57.7	86.7	68.1	73.2	87.3	69.8	111.2	228.3	119.2	129.7	107.2	99.9
1977	63.8	54.0	84.1	73.4	78.7	82.8	70.9	114.0	224.4	112.7	128.5	112.5	100.0
1978	64.8	51.1	80.6	80.4	85.5	78.0	71.4	116.7	217.7	108.2	128.4	114.8	99.8
1979	66.6	51.5	79.3	82.9	87.3	74.1	*******	*******	*******	*******	*******	*******	73.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	71.7	118.0	214.4	105.9	128.4	116.0	125.7
1980	67.6	51.7	78.6	84.2	88.1	72.2	*******	*******	*******	*******	*******	*******	73.7

TABLE A63. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTIN DISTRICT FIVE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	31.7	45.2	70.1	120.3	134.2	175.9	96.2
1974	124.8	124.7	81.3	110.4	1.6	2.6	53.7	78.1	1495.0	522.5	267.0	127.3	245.1
1975	29.0	108.5	228.5	107.6	203.5	204.5	31.5	17.1	115.0	32.3	19.2	223.0	110.0
1976	268.3	222.8	100.3	71.3	79.5	34.9	109.1	212.3	31.3	5.9	52.3	50.0	103.2
1977	195.3	478.1	372.8	86.8	24.7	54.9	70.9	52.5	1.9	6.4	41.1	79.9	122.1
1978	134.9	358.5	281.2	121.0	55.4	89.1	40.8	3.7	5.8	11.4	50.5	237.2	115.8
1979	220.2	67.7	150.0	92.7	49.0	74.1	*******	*******	*******	*******	*******	*******	102.9
AVGE	162.1	226.7	202.3	98.3	68.9	76.7	56.3	68.2	286.5	116.5	94.0	148.9	

STABLE SEASONALITY TES

	SUM OF SQUARES	DGRS.OF FREEDOM.	MEAN SQUARE	F
BETWEEN MONTHS	351694.000	11	31972.180	0.815
RESIDUAL	2355174.000	60	39252.898	
TOTAL	2706868.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	46.7	43.3	102.7	89.7	119.7	147.7	91.6
1974	140.5	189.2	162.7	90.6	38.2	29.4	52.5	44.4	92.6	79.5	110.2	135.9	97.3
1975	140.3	210.2	178.0	91.6	38.6	34.5	57.4	41.8	77.9	62.7	95.6	129.8	95.5
1976	146.4	228.3	198.2	91.9	42.2	44.6	59.6	36.5	59.0	41.1	72.3	132.4	98.0
1977	163.7	245.9	209.7	92.2	47.0	54.5	63.0	31.6	41.2	22.8	54.6	133.9	96.7
1978	178.2	258.9	223.2	91.7	48.5	62.3	65.7	29.1	27.1	11.1	41.7	131.3	97.4
1979	187.4	276.6	231.9	91.5	46.3	64.0	*******	*******	*******	*******	*******	*******	149.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	67.0	27.9	20.1	5.2	35.2	130.0	47.6
1980	191.9	285.4	236.2	91.4	45.2	64.9	*******	*******	*******	*******	*******	*******	152.5

TABLE A64. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	83.7	123.2	111.3	112.9	101.8	98.8	105.3
1974	91.0	77.3	71.9	63.2	55.6	110.8	68.3	88.3	238.1	256.0	177.0	85.2	116.1
1975	62.1	60.0	71.5	77.1	71.2	103.2	90.5	106.5	227.6	114.4	90.0	85.3	96.6
1976	66.6	97.9	79.3	40.9	85.0	91.9	51.8	247.8	266.7	65.3	93.9	81.4	105.7
1977	54.7	115.6	87.4	84.5	73.0	113.4	100.3	109.7	144.3	105.1	133.2	92.8	101.2
1978	67.0	64.5	78.8	75.4	88.1	93.7	132.3	153.9	149.0	68.0	111.6	105.3	99.0
1979	80.4	33.3	58.7	66.7	103.4	113.8	*******	*******	*******	*******	*******	*******	7[illegible].0
AVGE	70.3	74.8	74.6	68.0	79.4	104.5	87.8	138.2	189.5	121.9	117.9	91.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	84634.188	11	7694.016	5.636**
RESIDUAL	81902.563	60	1365.042	
TOTAL	166536.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	81.9	110.1	225.3	113.9	109.7	86.4	121.5
1974	69.9	80.2	76.1	69.4	71.0	103.7	83.8	111.2	222.8	112.3	110.7	88.4	100.0
1975	68.9	79.5	76.6	70.6	72.3	103.6	88.3	114.1	217.1	107.5	112.0	88.6	99.9
1976	67.1	78.8	76.4	72.1	77.0	103.9	94.7	118.1	205.8	101.8	111.8	89.9	99.8
1977	66.9	79.2	75.8	72.1	82.2	103.3	100.5	123.2	197.9	94.9	110.9	90.9	99.8
1978	66.6	79.8	75.1	72.6	86.4	104.0	103.2	126.1	192.5	90.9	109.2	91.7	99.6
1979	67.0	80.7	75.4	72.9	87.4	104.4	*******	*******	*******	*******	*******	*******	81.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.6	127.5	189.8	88.9	108.3	92.1	118.5
1980	67.2	81.1	75.5	73.1	87.9	104.5	*******	*******	*******	*******	*******	*******	81.6

TABLE A65. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTIN DISTRICT SIX TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	83.2	185.8	144.9	97.5	100.1	91.7	117.2
1974	90.9	64.6	79.4	62.0	47.4	164.6	73.3	119.8	153.1	145.0	171.3	88.6	105.0
1975	55.5	46.4	64.6	116.4	117.9	113.4	116.2	160.7	280.3	105.0	67.7	64.4	109.0
1976	73.5	102.9	90.2	51.4	95.2	117.4	122.6	557.1	178.4	63.4	51.1	71.8	131.2
1977	55.7	110.6	70.1	57.1	78.5	188.2	142.1	129.6	118.2	93.0	103.9	85.9	102.8
1978	48.1	64.3	54.8	63.2	88.8	141.4	165.6	193.3	131.7	58.3	166.2	90.9	105.5
1979	49.5	21.7	41.7	64.6	124.8	113.2	*******	*******	*******	*******	*******	*******	69.2
AVGE	62.2	68.4	66.8	69.1	92.1	139.7	117.2	224.4	167.7	93.7	110.1	82.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	157251.125	11	14295.555	4.320**
RESIDUAL	198566.563	60	3309.443	
TOTAL	355817.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.3	159.0	153.6	107.6	92.8	79.8	114.7
1974	70.4	78.2	76.6	59.0	85.5	140.2	100.2	158.9	153.3	105.0	92.8	80.2	100.0
1975	68.1	78.7	74.5	59.1	85.4	142.6	110.3	158.9	151.6	99.4	92.5	80.1	100.1
1976	63.2	80.4	70.2	59.5	90.5	142.0	123.1	160.4	147.5	91.7	91.2	79.9	103.0
1977	59.3	83.2	66.3	59.5	94.6	140.2	134.0	164.2	145.5	83.0	90.1	80.0	100.0
1978	55.5	86.3	62.2	59.9	98.5	140.0	139.5	167.5	144.2	76.7	88.6	80.2	99.9
1979	54.5	88.5	60.9	60.2	97.2	143.3	*******	*******	*******	*******	*******	*******	84.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	142.2	169.1	143.6	73.6	87.8	80.3	116.1
1980	54.1	89.6	60.2	60.3	96.6	144.9	*******	*******	*******	*******	*******	*******	84.3

TABLE A66. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	92.2	150.1	103.7	82.2	88.6	120.3	106.2
1974	112.1	76.9	64.4	81.4	64.3	69.7	71.5	65.0	294.4	245.3	130.3	75.0	112.8
1975	69.5	52.3	119.7	126.7	78.7	109.5	92.8	98.4	285.6	73.7	95.8	100.4	109.0
1976	65.1	69.2	148.2	51.1	118.2	106.3	85.7	141.3	104.5	83.5	103.1	90.0	97.3
1977	68.8	137.1	102.2	126.7	83.8	192.5	138.3	81.1	110.2	89.1	100.6	90.8	110.1
1978	74.3	64.4	131.6	100.8	95.2	106.7	94.0	167.9	129.3	52.4	79.7	112.1	100.7
1979	85.3	79.8	96.4	97.8	111.1	101.3	*******	*******	*******	*******	*******	*******	95.3
AVGE	79.4	80.0	110.4	97.4	91.9	114.3	95.7	117.3	171.3	105.2	99.7	98.6	

TABLE TOTAL- 7566.9

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	37993.313	11	3453.938	1.958
RESIDUAL	105822.000	60	1763.700	
TOTAL	143815.313	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.5	123.6	152.5	86.6	104.6	98.1	108.5
1974	80.5	67.3	114.3	99.9	86.9	99.8	89.6	122.4	148.2	87.1	104.7	97.5	99.9
1975	79.6	67.5	114.8	101.3	87.4	101.6	93.5	122.1	145.0	85.2	103.8	95.8	99.8
1976	76.4	67.6	116.1	103.9	91.1	105.5	99.2	120.7	137.3	81.7	100.5	96.2	99.7
1977	74.8	68.9	118.2	102.9	96.3	107.9	101.8	123.8	130.3	77.8	97.4	96.8	99.7
1978	73.7	70.6	117.6	104.1	100.0	110.2	104.5	125.8	121.5	75.9	95.1	98.5	99.8
1979	75.0	72.7	116.3	104.0	100.4	110.2	*******	*******	*******	*******	*******	*******	96.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	105.8	126.8	117.2	75.0	94.0	99.3	103.0
1980	75.6	73.7	115.6	104.0	100.6	110.2	*******	*******	*******	*******	*******	*******	96.6

TABLE A67. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN.	FEB.	MAR.	APRIL	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	11.3	56.7	128.7	89.5	97.1	132.0	85.9
1974	88.1	49.1	134.7	97.0	77.2	36.1	207.0	64.9	762.5	109.9	52.1	129.2	147.2
1975	49.7	67.8	475.7	113.2	81.5	49.5	76.7	89.8	371.3	53.1	43.7	163.5	138.3
1976	119.6	131.4	62.1	82.1	61.8	61.9	160.8	119.6	52.3	58.8	67.9	81.7	88.3
1977	92.7	111.0	190.0	108.9	83.4	110.8	95.6	77.0	75.8	75.2	72.9	74.9	97.3
1978	60.9	454.2	231.0	144.3	74.1	146.8	67.2	70.0	61.3	47.5	41.8	385.4	148.7
1979	277.5	72.1	122.2	112.6	113.6	207.2	*******	*******	*******	*******	*******	*******	150.9
AVGE	114.8	147.6	202.6	109.7	75.3	102.0	103.1	79.6	242.0	72.3	62.6	160.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	204001.000	11	18545.543	1.425
RESIDUAL	780686.000	60	13011.430	
TOTAL	984687.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	137.8	78.0	166.8	80.6	65.0	132.7	111.2
1974	87.1	87.3	143.9	100.2	64.3	59.2	138.1	81.2	158.5	79.4	65.8	125.8	99.2
1975	85.2	90.4	151.8	103.8	66.2	68.2	133.5	94.2	144.4	75.1	62.6	118.9	98.7
1976	87.9	95.5	159.4	108.8	73.5	79.9	120.0	86.3	127.5	68.8	59.9	115.0	98.5
1977	94.5	102.0	162.8	112.7	79.3	91.5	110.8	88.5	110.4	63.1	57.5	111.3	98.7
1978	102.2	105.0	165.3	115.4	85.6	99.4	104.6	90.0	97.4	59.9	58.7	107.4	99.2
1979	105.8	106.7	168.3	116.4	86.4	104.1	*******	*******	*******	*******	*******	*******	114.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	101.5	90.7	90.9	58.3	59.3	105.5	84.4
1980	107.5	107.5	169.8	116.9	86.8	106.5	*******	*******	*******	*******	*******	*******	115.8

TABLE A68. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	88.2	170.2	132.0	92.7	95.8	103.9	114.0
1974	98.0	74.1	88.6	69.1	50.9	106.1	72.5	76.9	189.7	145.7	126.8	75.0	97.9
1975	63.3	44.3	85.8	104.3	96.9	105.3	109.5	137.8	264.6	94.3	70.8	84.0	108.1
1976	77.7	100.2	108.1	56.7	105.7	113.2	113.1	365.2	132.8	73.5	84.6	79.5	117.5
1977	64.1	118.4	81.3	77.5	76.4	169.1	146.2	107.9	107.4	89.7	113.0	87.9	103.2
1978	58.2	74.4	87.3	70.4	85.7	130.7	142.9	174.0	117.1	53.0	132.8	94.3	101.7
1979	63.9	39.3	61.4	79.0	169.9	133.3	*******	*******	*******	*******	*******	*******	91.1
AVGE	70.9	75.1	85.4	76.2	97.6	126.3	112.1	172.0	157.3	91.5	104.1	87.6	

TABLE TOTAL- 7536.0

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	69239.875	11	6294.531	3.729**
RESIDUAL	101288.875	60	1688.148	
TOTAL	170528.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	93.0	151.3	151.3	92.4	95.6	86.2	111.7
1974	76.9	87.4	91.9	70.9	65.3	115.9	98.1	149.7	148.7	91.8	96.9	86.4	100.0
1975	75.0	87.7	91.0	71.2	84.9	119.2	103.4	147.8	144.1	88.2	99.4	85.5	100.0
1976	70.7	88.6	88.2	72.2	87.4	124.4	117.1	145.0	135.8	83.9	100.6	85.7	100.0
1977	67.6	89.5	86.0	71.9	89.9	128.7	125.4	145.5	129.0	78.3	102.3	85.8	100.0
1978	64.7	91.0	82.6	72.6	91.4	133.9	130.2	145.8	123.1	75.4	102.0	86.7	100.0
1979	64.4	92.3	81.3	72.8	90.1	137.2	*******	*******	*******	*******	*******	*******	89.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	132.6	146.0	120.1	73.9	101.9	87.2	110.3
1980	64.3	92.9	80.7	72.8	89.5	138.9	*******	*******	*******	*******	*******	*******	85.9

TABLE A69. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTIN DISTRICT SEVEN TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	149.4	97.0	141.7	135.7	75.8	43.9	103.1
1974	51.2	34.4	89.4	83.7	52.1	158.8	44.2	207.5	92.7	177.8	185.1	49.5	102.2
1975	35.5	41.2	34.6	80.6	107.5	88.8	220.6	233.7	277.9	97.4	75.1	29.5	110.2
1976	33.0	67.4	46.5	37.9	108.5	189.2	100.7	272.0	128.3	38.7	45.8	64.1	94.3
1977	65.7	154.7	49.5	48.9	63.5	77.0	33.1	145.6	281.6	248.0	197.6	61.1	118.9
1978	55.6	18.3	23.6	91.5	60.2	101.2	81.5	153.4	189.8	216.5	347.5	72.8	115.3
1979	75.0	18.8	37.5	22.3	128.4	76.0	*******	*******	*******	*******	*******	*******	59.7
AVGE	52.7	55.8	46.9	60.8	90.0	115.2	104.9	184.8	185.3	152.3	154.5	54.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	185466.125	11	16860.555	4.825**
RESIDUAL	209649.000	60	3494.150	
TOTAL	395115.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	105.9	199.7	169.9	134.0	101.4	47.4	126.4
1974	45.2	50.7	57.5	66.3	87.3	133.4	99.8	197.5	173.7	138.4	105.2	49.0	100.3
1975	47.1	49.4	54.7	63.2	84.8	126.8	89.3	199.0	180.4	148.1	112.7	52.0	100.6
1976	50.2	47.1	48.1	55.6	87.1	114.7	81.3	195.4	197.1	158.3	119.0	54.1	100.7
1977	52.9	44.0	42.1	46.6	90.5	108.5	76.7	195.2	203.2	165.6	121.7	57.6	100.4
1978	57.1	41.5	38.2	39.5	94.1	100.2	77.4	193.8	208.5	169.0	121.6	60.0	100.1
1979	60.0	40.0	38.0	36.6	92.5	97.2	*******	*******	*******	*******	*******	*******	60.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	77.8	193.1	211.2	170.7	121.5	61.1	139.3
1980	61.5	39.2	37.8	35.1	91.7	95.8	*******	*******	*******	*******	*******	*******	60.2

TABLE A70. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	144.6	100.8	72.2	97.1	101.0	99.3	102.5
1974	98.1	57.4	105.3	91.2	69.8	96.6	30.5	99.7	169.6	249.2	156.7	62.3	107.2
1975	71.7	61.4	94.6	131.0	87.9	84.2	128.3	78.3	213.5	122.4	102.8	68.5	103.7
1976	73.0	94.2	129.3	85.0	99.8	168.1	58.4	93.1	158.0	123.6	88.1	111.5	106.5
1977	81.9	186.3	102.1	120.0	92.0	85.1	66.8	53.8	131.5	185.0	194.5	111.9	117.6
1978	75.2	43.9	52.0	109.5	123.8	69.9	56.5	101.9	159.1	113.3	109.7	119.6	94.6
1979	84.4	59.0	237.2	102.9	136.5	58.9	*******	*******	*******	*******	*******	*******	113.1
AVGE	80.7	83.7	120.1	106.6	101.6	93.8	80.8	87.9	150.7	148.4	125.5	95.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	40498.438	11	3681.676	2.275
RESIDUAL	97117.688	60	1618.628	
TOTAL	137616.125	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	68.0	92.6	183.5	116.9	115.0	83.0	109.8
1974	80.8	72.0	108.7	105.1	86.6	89.3	67.5	90.4	179.0	122.1	114.1	86.3	100.2
1975	80.5	71.4	107.0	106.5	89.6	87.9	65.7	88.3	172.9	123.1	113.6	90.8	100.2
1976	79.2	70.7	105.3	108.2	96.7	83.9	64.1	84.8	157.4	133.9	111.3	96.2	100.2
1977	78.3	70.3	104.5	107.3	105.4	79.6	62.2	84.0	162.2	136.3	108.6	102.2	100.1
1978	78.2	69.6	103.8	107.4	112.3	75.6	61.6	83.1	158.7	137.6	105.6	107.1	100.0
1979	79.1	68.8	102.9	106.6	114.4	73.9	*******	*******	*******	*******	*******	*******	91.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	61.3	82.7	157.0	138.3	104.1	109.6	108.8
1980	79.6	68.4	102.5	106.2	115.5	73.0	*******	*******	*******	*******	*******	*******	90.9

TABLE A71. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	86.9	61.0	108.0	104.4	139.2	113.0	102.1
1974	112.1	70.7	115.2	108.4	16.1	21.9	49.0	65.0	250.0	246.6	144.6	81.2	108.7
1975	101.1	86.7	135.1	87.7	83.3	71.0	50.3	121.6	173.8	92.6	97.2	94.2	99.6
1976	84.3	115.6	115.2	64.0	93.6	101.7	93.6	145.5	95.8	70.5	105.0	93.8	96.6
1977	72.7	163.0	105.0	127.8	105.3	96.3	93.2	210.4	118.6	77.2	76.4	76.1	110.2
1978	92.6	60.0	128.3	106.0	109.8	116.9	123.4	115.1	110.5	79.9	65.1	85.9	99.4
1979	91.4	72.1	113.5	121.7	112.7	88.6	*******	*******	*******	*******	*******	*******	100.0
AVGE	92.4	94.7	118.7	102.6	87.6	82.7	82.7	119.8	142.8	111.9	104.6	90.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	21511.438	11	1955.585	1.311
RESIDUAL	89514.938	60	1491.915	
TOTAL	111026.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	67.8	100.2	144.8	96.4	123.2	95.4	104.6
1974	94.8	89.9	118.3	94.5	88.8	83.9	71.1	106.6	141.5	94.4	119.6	94.2	99.8
1975	93.4	87.5	117.6	96.5	90.9	86.9	76.7	115.7	137.9	90.4	110.8	91.0	99.6
1976	90.6	85.4	117.2	99.7	95.5	90.9	83.5	125.2	133.0	85.9	99.0	88.4	99.5
1977	88.2	83.3	116.8	102.6	100.9	96.2	91.2	132.1	126.1	81.6	89.4	86.6	99.6
1978	86.0	81.6	116.1	107.7	105.7	99.1	96.3	135.9	118.8	78.8	84.6	86.7	99.8
1979	85.4	80.0	115.7	111.6	107.8	100.9	*******	*******	*******	*******	*******	*******	100.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	98.9	137.8	115.2	77.4	82.3	86.7	99.7
1980	85.1	79.2	115.4	113.5	108.8	101.7	*******	*******	*******	*******	*******	*******	100.6

TABLE A72. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	178.0	111.7	122.4	120.3	111.0	52.9	122.7
1974	87.0	66.8	110.6	95.8	39.8	75.4	41.0	114.9	161.9	207.7	144.7	68.4	101.2
1975	75.8	77.3	92.1	107.0	83.4	82.2	123.3	114.2	182.8	99.7	95.8	73.6	100.0
1976	74.6	105.6	98.7	79.3	108.9	142.6	78.2	157.2	129.9	86.0	83.1	104.6	104.1
1977	74.0	170.7	95.6	111.1	97.3	90.4	75.2	139.3	126.9	112.9	115.9	75.3	107.1
1978	75.4	47.4	92.8	98.1	104.9	98.5	99.3	111.6	128.2	102.8	98.1	90.0	95.6
1979	85.5	60.2	124.9	97.9	106.2	76.4	*******	*******	*******	*******	*******	*******	91.9
AVGE	78.7	88.0	102.5	98.2	90.1	94.3	99.2	124.8	142.0	121.5	108.1	84.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	22919.250	11	2083.568	2.645**
RESIDUAL	47261.000	60	787.683	
TOTAL	70180.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.8	119.9	151.6	107.2	111.9	82.1	110.8
1974	78.2	84.2	99.5	96.5	92.3	85.8	90.2	123.3	145.1	106.7	110.8	82.8	100.0
1975	77.9	84.4	98.9	97.4	93.6	87.0	88.5	126.8	147.0	105.0	108.8	83.3	99.9
1976	77.3	84.5	99.2	98.4	96.3	88.3	87.7	128.9	144.5	103.5	105.3	83.6	99.8
1977	77.1	84.9	100.4	97.9	100.2	89.8	87.1	131.0	140.9	101.4	101.5	85.4	99.8
1978	77.4	84.2	102.5	98.6	102.9	90.0	86.6	133.0	136.8	100.6	98.6	87.6	99.9
1979	77.8	83.7	103.6	98.9	103.7	89.8	*******	*******	*******	*******	*******	*******	92.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	86.3	134.1	134.7	100.1	97.2	88.6	106.8
1980	78.0	83.4	104.2	99.1	104.1	89.7	*******	*******	*******	*******	*******	*******	93.1

TABLE A73. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	120.6	123.8	159.4	99.3	90.3	68.5	110.3
1974	57.6	60.1	59.3	72.4	50.9	122.7	52.5	265.1	126.6	221.5	137.8	32.1	106.9
1975	49.6	38.6	33.1	98.1	73.5	72.4	109.3	215.9	257.8	106.3	53.3	74.5	98.5
1976	46.1	63.2	44.3	33.7	126.5	112.6	48.4	385.7	191.2	53.7	63.4	83.0	104.3
1977	25.3	92.4	90.5	95.1	37.3	73.2	73.4	214.2	253.4	176.7	142.9	52.0	110.5
1978	34.6	7.2	3.4	44.6	61.8	93.6	106.5	204.1	210.7	175.4	162.0	62.7	97.3
1979	30.1	11.7	23.6	46.5	106.2	88.3	*******	*******	*******	*******	*******	*******	51.1
AVGE	40.5	45.5	42.4	65.1	76.0	93.8	85.1	234.8	199.9	139.0	108.3	62.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	258215.250	11	23474.113	12.812**
RESIDUAL	109934.000	60	1832.233	
TOTAL	368149.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	90.4	237.4	189.3	122.8	92.4	64.2	132.7
1974	48.9	59.6	46.5	73.9	72.4	100.3	86.4	242.0	192.7	123.0	94.0	64.2	100.3
1975	46.7	58.8	45.0	72.3	68.9	96.8	80.9	250.5	198.5	127.9	99.8	63.3	100.8
1976	42.1	55.6	41.1	68.9	69.4	91.7	80.3	249.2	210.4	132.6	105.0	63.6	100.8
1977	37.9	51.8	37.4	61.6	72.3	89.8	78.9	253.6	216.0	134.7	109.6	64.3	100.7
1978	33.8	49.4	34.4	58.3	74.4	87.6	79.5	255.4	220.3	132.9	110.5	66.1	100.2
1979	31.9	49.4	34.0	56.9	73.0	87.3	*******	*******	*******	*******	*******	*******	55.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	79.8	256.3	222.5	132.0	111.0	67.0	144.8
1980	31.0	49.4	33.8	56.2	72.4	87.9	*******	*******	*******	*******	*******	*******	55.1

TABLE A74. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	120.8	118.3	45.4	74.0	58.7	94.5	85.3
1974	154.7	65.4	84.2	65.6	34.9	80.6	24.3	94.1	265.5	224.2	118.7	87.1	106.3
1975	38.6	63.3	85.4	70.2	50.3	88.1	77.7	67.9	303.8	144.0	155.5	79.3	102.0
1976	50.6	67.6	106.4	43.8	78.6	90.9	49.2	125.0	146.2	196.3	147.4	86.8	99.1
1977	57.9	131.0	83.2	78.0	92.6	55.1	70.1	52.9	155.6	211.3	236.2	117.1	111.7
1978	73.5	35.1	25.9	125.9	63.7	78.0	93.9	124.3	178.5	122.6	111.1	113.5	95.5
1979	99.8	49.2	54.3	55.2	107.7	65.4	*******	*******	*******	*******	*******	*******	71.9
AVGE	79.2	68.6	73.2	73.1	71.3	76.3	72.7	97.1	182.5	162.1	137.9	96.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	102639.438	11	9330.855	4.831**
RESIDUAL	115889.563	60	1931.493	
TOTAL	218529.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	67.0	97.8	240.9	173.3	127.0	86.7	132.1
1974	48.0	64.4	90.9	62.9	61.2	81.6	66.3	96.9	230.5	177.2	133.0	88.7	100.1
1975	50.2	62.1	89.5	63.7	63.2	80.2	67.1	96.4	215.5	179.9	139.9	91.8	100.0
1976	55.6	58.8	85.9	63.7	69.8	77.7	69.7	94.4	202.7	177.3	148.2	95.9	100.0
1977	62.6	55.0	82.4	61.8	76.9	75.8	71.7	97.1	188.7	174.5	151.7	99.5	99.8
1978	69.6	52.5	78.5	61.5	84.5	72.6	72.3	99.4	178.4	172.7	154.6	102.2	99.9
1979	73.4	51.1	76.4	61.5	86.9	70.1	*******	*******	*******	*******	*******	*******	69.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	72.6	100.6	173.2	171.9	156.0	103.5	129.6
1980	75.2	50.4	75.3	61.5	88.1	68.9	*******	*******	*******	*******	*******	*******	69.9

TABLE A75. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	60.8	72.3	146.5	106.2	147.2	147.4	113.4
1974	138.7	66.6	76.3	102.9	60.2	0.7	19.1	72.1	164.9	140.3	145.7	128.5	93.0
1975	67.2	25.4	345.5	13.1	81.3	69.7	64.6	63.2	71.5	97.1	92.5	195.4	98.9
1976	168.3	247.2	131.3	36.1	61.3	40.7	118.3	203.8	79.1	26.3	79.5	119.5	109.3
1977	126.3	251.2	151.4	131.7	83.2	56.7	95.5	191.3	68.4	26.1	28.7	132.1	111.9
1978	175.7	90.5	152.8	112.1	94.9	80.0	110.1	113.5	67.0	33.3	52.1	111.5	99.5
1979	114.5	63.8	184.3	121.0	62.3	99.2	*******	*******	*******	*******	*******	*******	107.5
AVGE	131.8	124.1	173.6	86.2	73.9	57.8	78.1	119.4	99.6	71.6	91.0	139.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	76550.438	11	6959.129	2.285
RESIDUAL	182760.188	60	3046.003	
TOTAL	259310.625	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	64.7	90.5	121.9	103.8	122.6	153.3	109.5
1974	126.5	77.8	119.3	90.3	71.0	54.1	70.1	103.8	116.5	95.1	114.2	149.6	99.0
1975	128.8	78.6	121.9	93.4	73.2	56.2	78.8	119.9	105.7	81.4	99.4	143.7	98.4
1976	129.8	79.6	132.5	98.2	75.9	61.9	87.8	133.1	90.4	65.4	81.8	140.8	98.1
1977	136.7	81.3	142.7	101.1	76.7	66.8	97.0	145.9	78.7	51.0	68.0	135.2	98.4
1978	138.8	82.1	153.1	106.3	76.8	71.5	101.9	153.9	71.6	41.2	60.3	131.5	99.1
1979	142.5	83.4	157.3	110.7	76.9	72.6	*******	*******	*******	*******	*******	*******	107.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.3	157.9	68.0	36.3	56.4	129.7	92.1
1980	144.4	84.0	159.4	112.9	76.9	73.1	*******	*******	*******	*******	*******	*******	108.4

TABLE A 76. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	160.4	150.4	144.5	112.6	106.1	94.6	128.1
1974	104.9	69.5	81.9	88.8	55.4	85.0	35.3	162.4	171.2	198.8	168.9	74.3	108.0
1975	59.6	67.8	81.9	106.6	69.3	82.0	84.7	134.9	215.5	108.6	87.3	93.6	99.3
1976	73.3	86.4	75.9	39.3	94.4	87.3	61.1	251.6	156.4	113.7	101.9	94.4	103.0
1977	69.0	155.0	105.0	104.7	82.9	61.4	86.3	136.4	140.7	122.9	130.2	99.6	107.8
1978	92.2	49.5	69.1	109.8	73.3	80.2	95.2	140.6	146.0	107.9	122.4	102.0	99.0
1979	93.1	48.3	92.3	82.3	93.2	84.2	*******	*******	*******	*******	*******	*******	82.2
AVGE	82.0	79.4	84.4	88.6	78.1	80.0	87.2	162.7	162.4	127.4	119.5	93.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	66072.813	11	6006.617	7.370**
RESIDUAL	48899.188	60	814.986	
TOTAL	114972.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.6	150.1	171.6	113.6	109.2	85.5	119.3
1974	72.6	74.7	83.8	98.4	74.6	81.3	81.8	149.5	169.0	114.4	110.3	89.6	100.0
1975	73.8	73.2	84.1	99.7	75.1	80.3	81.1	148.4	166.5	114.8	112.4	91.1	100.0
1976	75.3	70.1	84.9	100.4	78.0	79.3	81.6	145.1	163.9	114.7	113.1	93.8	100.0
1977	78.5	66.8	84.6	100.1	81.5	79.0	81.5	143.5	160.3	114.1	113.8	96.0	100.0
1978	80.9	63.7	86.2	99.2	84.6	78.2	81.5	142.6	156.8	114.0	113.6	98.0	99.9
1979	83.1	62.2	87.0	98.5	84.9	77.1	*******	*******	*******	*******	*******	*******	82.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	81.5	142.2	155.0	113.9	113.5	99.0	117.5
1980	84.2	61.4	87.4	98.2	85.1	76.6	*******	*******	*******	*******	*******	*******	82.2

TABLE A77. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	111.4	188.0	170.0	113.9	76.4	75.6	123.6
1974	72.5	50.7	74.5	66.9	49.2	133.6	87.4	251.4	94.0	157.3	136.5	79.6	104.5
1975	38.2	36.8	58.5	84.4	80.4	124.4	120.2	245.2	283.2	88.8	67.9	59.8	107.3
1976	64.8	99.3	71.3	33.6	105.3	94.9	176.5	517.5	141.8	68.0	75.1	76.5	127.0
1977	27.0	54.5	55.5	56.3	75.5	175.3	162.4	256.6	128.5	63.6	104.5	203.4	113.6
1978	22.0	38.1	30.1	67.7	89.3	143.0	181.0	215.7	165.4	95.6	157.9	54.0	105.0
1979	28.1	16.9	30.1	70.4	107.5	132.4	*******	*******	*******	*******	*******	*******	64.2
AVGE	42.1	49.4	53.3	63.2	84.5	133.9	139.8	279.0	163.8	97.9	103.1	91.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	286695.000	11	26063.180	10.893**
RESIDUAL	143556.000	60	2392.600	
TOTAL	430251.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	116.9	231.6	141.3	110.5	88.0	72.4	126.8
1974	53.8	46.5	65.9	65.0	77.9	126.2	123.2	234.9	141.1	105.8	88.9	73.2	100.2
1975	50.3	46.1	62.6	64.4	78.2	129.2	133.5	239.2	140.0	99.4	89.7	72.1	100.4
1976	43.8	44.6	56.6	64.2	82.6	132.8	145.5	241.7	142.4	90.5	88.4	70.0	100.3
1977	38.9	43.2	50.8	63.2	88.3	134.5	157.7	242.8	145.1	83.8	86.8	68.2	100.3
1978	33.9	42.2	45.6	62.9	92.7	138.4	165.4	241.8	147.7	78.0	84.6	67.8	100.1
1979	31.9	42.6	43.6	62.5	93.2	142.3	*******	*******	*******	*******	*******	*******	69.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	169.2	241.3	149.0	75.1	83.5	67.6	130.9
1980	31.0	42.8	42.5	62.3	93.4	144.2	*******	*******	*******	*******	*******	*******	69.4

TABLE A78. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	87.7	315.4	122.2	103.0	93.7	170.8	149.8
1974	131.2	86.5	61.2	72.9	52.9	85.0	70.6	170.2	245.8	191.0	111.7	86.9	113.8
1975	58.5	69.8	104.4	81.1	58.2	135.8	97.4	131.7	215.3	115.8	101.2	85.5	104.6
1976	61.3	76.5	122.6	58.4	93.6	93.5	107.7	180.6	114.1	103.8	122.6	71.3	100.5
1977	58.8	152.0	108.6	73.3	85.9	119.1	118.7	112.9	132.4	119.5	126.1	73.0	106.8
1978	69.0	56.6	95.7	82.6	76.2	96.0	120.0	178.5	122.6	115.8	109.9	83.9	100.2
1979	76.1	51.5	73.4	80.1	94.0	113.4	*******	*******	*******	*******	*******	*******	81.4
AVGE	75.8	82.2	94.3	74.7	76.8	107.1	100.3	181.5	158.9	124.9	110.2	95.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	74791.875	11	6799.258	5.553**
RESIDUAL	73466.813	60	1224.447	
TOTAL	148258.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	88.2	161.4	134.1	120.1	105.2	83.4	115.2
1974	62.9	76.2	114.3	71.0	70.7	106.5	91.4	159.5	133.5	119.8	107.8	86.7	100.0
1975	63.1	74.5	112.7	71.8	71.7	103.4	96.5	157.7	132.8	119.5	111.1	83.6	100.1
1976	63.5	70.6	108.1	73.3	75.8	108.5	103.4	153.4	131.4	118.0	113.4	81.1	100.1
1977	65.0	66.8	103.7	74.2	80.9	107.8	109.2	153.8	129.1	116.3	115.2	78.8	100.1
1978	66.2	63.3	99.0	75.4	85.4	108.7	113.1	154.0	126.4	114.1	116.1	77.9	100.0
1979	67.2	62.3	97.5	76.0	87.0	107.6	*******	*******	*******	*******	*******	*******	82.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	115.0	154.1	125.1	113.0	116.6	77.4	116.9
1980	67.7	61.8	96.7	76.3	87.8	107.0	*******	*******	*******	*******	*******	*******	82.9

TABLE A79. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	63.7	114.7	115.6	82.4	123.5	161.3	110.3
1974	97.5	80.9	80.5	136.9	39.1	40.7	97.5	66.1	414.1	225.3	98.2	100.6	123.1
1975	111.5	90.6	151.1	76.0	69.6	60.2	54.8	35.1	146.9	129.4	72.8	123.6	93.5
1976	166.2	126.0	94.6	64.3	59.1	40.5	246.7	184.6	64.0	55.4	67.6	59.2	102.4
1977	163.7	499.3	279.6	50.0	58.0	51.3	80.3	90.5	58.2	57.4	45.8	63.6	124.8
1978	113.8	331.9	243.1	81.4	51.4	57.4	46.9	27.3	22.9	31.4	54.4	182.1	103.7
1979	177.6	66.4	126.5	76.2	27.4	87.2	*******	*******	*******	*******	*******	*******	93.5
AVGE	138.4	199.2	162.6	80.8	50.8	56.2	93.3	86.4	137.0	96.9	77.0	115.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DEGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	128711.313	11	11701.027	1.793
RESIDUAL	391557.375	60	6525.953	
TOTAL	520268.688	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	78.5	84.5	123.7	122.1	94.6	119.5	103.8
1974	132.3	115.6	135.8	87.4	57.4	49.0	81.8	89.2	115.9	113.4	89.2	111.8	98.2
1975	131.5	133.7	150.0	95.3	57.4	50.1	82.7	88.2	103.6	102.0	80.0	105.5	97.5
1976	137.1	156.3	168.1	79.2	56.7	54.4	79.9	84.5	91.7	87.5	70.2	103.6	97.4
1977	144.6	191.7	180.0	74.7	54.2	58.2	78.2	84.0	75.4	72.7	62.5	103.8	97.8
1978	152.9	198.1	191.4	70.0	50.9	62.0	77.2	87.7	71.0	60.7	55.9	102.6	98.5
1979	155.1	210.5	199.8	59.0	48.0	62.1	*******	*******	*******	*******	*******	*******	124.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	76.7	80.6	66.9	54.7	57.2	102.0	74.5
1980	156.2	216.8	203.9	68.6	46.6	62.1	*******	*******	*******	*******	*******	*******	125.7

TABLE A80. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR HARD RED SPRING WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.9	202.6	139.2	101.4	85.7	131.7	125.4
1974	117.6	79.7	83.3	78.4	51.6	102.6	81.3	194.3	165.2	161.7	118.4	81.0	109.6
1975	68.5	53.4	82.9	84.6	68.9	125.8	107.5	178.9	232.8	98.1	80.6	75.3	104.8
1976	69.2	92.8	94.6	45.0	91.9	82.4	144.1	312.3	111.0	82.1	94.5	70.2	107.5
1977	63.5	144.5	104.1	62.9	76.9	137.7	136.7	173.2	116.9	85.6	105.5	120.1	110.6
1978	52.3	68.0	88.7	74.7	74.2	114.2	145.9	186.9	130.5	85.4	111.6	68.6	100.0
1979	58.2	40.5	59.7	70.7	92.5	125.8	*******	*******	*******	*******	*******	*******	74.6
AVGE	71.6	79.8	85.5	69.4	76.0	114.7	117.7	208.0	149.3	102.4	99.4	91.1	

STABLE SEASONALITY TES:

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	103798.000	11	9436.180	10.925**
RESIDUAL	51823.188	60	863.720	
TOTAL	155621.188	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	100.6	190.7	141.0	95.6	93.6	80.4	117.0
1974	72.0	77.9	89.0	72.8	72.5	112.0	105.6	190.4	138.5	94.7	94.8	80.1	100.0
1975	70.2	77.1	89.7	72.4	72.8	113.4	113.8	188.5	135.1	92.5	97.6	78.0	100.1
1976	66.7	76.0	89.2	71.6	75.8	116.6	123.0	185.6	130.5	90.4	99.0	76.1	100.0
1977	63.4	76.0	88.2	70.3	79.4	117.8	131.8	184.1	126.4	88.2	100.9	74.0	100.0
1978	60.7	75.8	87.0	69.1	82.5	120.6	137.1	183.5	122.5	86.7	100.7	73.4	100.0
1979	59.9	76.2	87.1	68.5	83.1	121.7	*******	*******	*******	*******	*******	*******	82.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	139.7	183.2	120.6	86.0	100.7	73.1	117.2
1980	59.5	76.5	87.2	68.1	83.3	122.2	*******	*******	*******	*******	*******	*******	82.8

TABLE A81. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	158.9	151.2	140.6	113.5	109.1	118.5	132.0
1974	89.3	70.1	80.7	103.7	81.8	54.6	120.7	107.1	136.5	167.6	149.0	46.0	100.6
1975	35.3	73.7	73.1	134.3	80.4	46.9	52.9	161.2	310.4	163.1	105.9	45.2	100.9
1976	37.4	70.0	146.6	97.6	61.5	76.9	134.4	229.3	234.1	67.2	69.2	36.3	105.0
1977	42.1	69.4	70.5	97.1	60.1	92.2	164.2	161.3	81.2	98.0	115.3	68.5	95.0
1978	59.3	46.0	51.5	60.3	98.7	113.4	114.9	147.2	184.9	146.2	120.7	50.9	99.4
1979	47.4	47.9	69.2	61.1	88.4	105.8	*******	*******	*******	*******	*******	*******	70.1
AVGE	51.6	66.2	81.9	92.3	78.5	81.8	124.3	159.6	181.3	125.9	111.5	60.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	106376.688	11	9670.605	7.028**
RESIDUAL	82557.625	60	1375.960	
TOTAL	188934.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	137.3	154.0	164.5	140.9	114.3	47.3	126.4
1974	44.6	72.5	74.9	109.8	72.7	64.7	138.8	158.2	167.6	136.0	112.5	48.3	100.1
1975	45.4	71.1	73.1	105.6	73.6	69.1	137.1	161.9	173.5	133.0	111.2	48.8	100.3
1976	45.1	67.9	70.4	95.6	75.0	77.1	136.6	165.5	178.5	129.7	109.3	50.3	100.3
1977	45.9	63.7	67.5	88.7	76.9	87.0	134.9	170.3	185.2	126.1	106.4	50.4	100.2
1978	46.1	60.4	65.6	80.9	78.2	95.1	136.1	175.3	188.9	120.2	102.5	50.9	100.0
1979	47.4	59.1	65.1	76.5	79.2	100.0	*******	*******	*******	*******	*******	*******	71.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	136.8	177.9	199.8	117.3	100.6	51.1	129.1
1980	48.1	58.4	64.8	74.3	79.7	102.4	*******	*******	*******	*******	*******	*******	71.3

TABLE A82. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	89.3	147.7	95.4	103.6	82.3	96.1	102.6
1974	102.6	101.4	80.0	87.9	50.0	38.1	75.0	74.3	264.3	189.1	86.9	86.3	103.0
1975	83.9	95.3	98.0	86.4	68.2	65.2	85.9	130.6	189.8	108.7	101.2	84.2	100.1
1976	81.2	87.6	185.3	76.3	53.8	96.8	102.6	156.4	175.3	100.1	91.9	53.7	103.4
1977	69.7	161.7	113.8	105.2	71.5	80.3	90.8	113.1	144.9	132.4	104.2	78.4	105.5
1978	79.1	87.1	123.3	69.9	79.0	86.3	87.8	139.7	132.5	138.9	87.3	85.2	99.7
1979	97.4	74.0	86.8	131.3	70.8	103.2	*******	*******	*******	*******	*******	*******	93.9
AVGE	85.7	101.7	114.5	92.8	65.5	78.3	88.7	123.7	167.2	128.8	92.3	80.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	51395.313	11	4672.301	6.032**
RESIDUAL	46477.313	60	774.622	
TOTAL	97872.625	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.8	137.4	191.4	107.6	89.6	86.9	116.5
1974	85.6	94.3	97.9	86.4	59.1	78.3	87.3	136.3	188.2	109.1	90.9	86.0	100.0
1975	84.3	93.6	100.6	85.5	61.2	79.1	88.5	134.5	181.2	113.0	92.5	84.5	100.0
1976	82.8	91.2	104.1	86.7	64.6	81.9	89.9	131.9	171.4	117.5	94.6	83.2	100.0
1977	82.1	88.2	107.3	85.4	67.3	86.2	91.3	130.8	162.5	120.8	95.3	82.1	99.9
1978	81.8	85.3	108.9	85.9	69.7	89.6	92.7	129.9	156.8	121.5	95.4	81.7	99.9
1979	81.8	84.5	109.0	86.2	70.6	90.8	*******	*******	*******	*******	*******	*******	87.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	93.4	129.5	154.0	121.8	95.5	81.5	112.6
1980	81.9	84.0	110.0	86.3	71.1	91.5	*******	*******	*******	*******	*******	*******	87.5

TABLE A83. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	72.6	50.8	91.0	80.2	123.0	181.2	99.8
1974	199.0	100.7	68.9	149.9	36.5	8.4	4.2	3.5	241.4	176.8	198.2	143.4	110.9
1975	127.6	93.0	83.4	83.0	33.6	72.7	39.9	43.9	167.6	166.1	116.9	108.3	94.7
1976	135.4	129.0	133.7	59.7	28.8	133.3	73.6	83.4	104.3	73.3	92.1	95.7	95.2
1977	97.6	220.0	150.9	60.0	63.2	151.1	72.1	145.4	64.5	21.7	52.3	128.0	102.2
1978	133.7	147.5	157.9	164.5	119.8	120.4	62.8	37.1	48.0	123.4	64.4	131.7	109.3
1979	109.4	202.3	153.2	32.0	207.9	212.2	*******	*******	*******	*******	*******	*******	152.8
AVGE	133.8	148.7	124.6	91.5	81.6	116.4	54.2	60.7	119.5	106.9	107.8	131.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	56513.438	11	5137.582	1.825
RESIDUAL	169912.875	60	2815.214	
TOTAL	225426.313	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	54.1	50.8	116.9	129.1	136.0	135.1	103.7
1974	143.5	122.5	102.1	68.6	37.3	104.5	57.1	53.8	113.8	123.7	128.8	132.6	99.0
1975	140.2	128.7	108.2	68.1	44.2	103.4	59.1	55.6	106.9	120.3	117.1	126.2	98.6
1976	130.2	140.8	118.9	64.6	53.9	120.4	60.6	55.8	99.5	115.1	99.7	120.2	93.5
1977	122.5	152.3	130.9	59.9	64.6	133.9	62.1	56.0	90.4	108.9	85.2	114.8	96.5
1978	114.2	165.8	140.2	54.7	72.6	147.3	63.8	56.8	84.2	99.8	74.4	113.0	98.9
1979	112.8	174.6	145.8	52.4	77.3	151.7	*******	*******	*******	*******	*******	*******	119.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	64.7	57.1	81.1	95.3	69.1	112.0	79.9
1980	112.1	179.0	148.5	51.2	79.7	153.9	*******	*******	*******	*******	*******	*******	120.7

TABLE A84. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	135.3	153.3	135.0	116.0	108.0	117.3	127.6
1974	104.2	89.0	90.1	100.6	69.1	48.2	107.5	103.2	180.1	160.4	115.8	60.4	102.5
1975	51.0	79.5	79.6	115.9	75.8	50.4	58.2	145.2	254.3	145.3	97.6	57.1	101.7
1976	54.5	76.3	146.2	84.0	61.5	84.9	123.7	193.2	208.7	86.8	83.1	48.8	104.3
1977	60.6	125.9	93.1	96.9	65.4	85.9	140.2	140.1	102.6	102.8	111.0	74.8	99.9
1978	66.4	57.4	73.1	67.1	93.0	106.1	106.2	144.1	166.4	139.1	105.0	62.8	98.9
1979	67.6	58.8	74.6	75.7	83.3	105.1	*******	*******	*******	*******	*******	*******	77.5
AVGE	67.4	81.2	92.8	90.0	74.7	80.1	111.8	146.5	176.4	125.1	103.6	70.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	73441.813	11	6676.527	8.621**
RESIDUAL	46464.813	60	774.413	
TOTAL	119906.625	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	121.4	145.1	178.5	134.0	103.9	59.2	123.7
1974	57.4	80.0	86.1	99.7	68.4	65.0	122.8	147.2	179.6	130.4	103.7	59.8	100.0
1975	58.1	78.1	85.6	97.2	69.8	68.7	122.1	148.6	182.0	128.2	103.2	60.2	100.2
1976	59.0	74.0	84.0	93.3	72.2	76.3	122.3	149.8	182.4	125.2	102.5	61.1	100.2
1977	60.5	69.6	82.1	87.0	74.8	85.7	121.4	152.5	183.1	122.2	100.9	61.1	100.1
1978	61.9	65.8	80.7	82.8	76.7	93.1	122.5	155.7	182.2	117.4	99.4	61.3	100.0
1979	63.2	64.4	80.9	80.4	77.6	96.8	*******	*******	*******	*******	*******	*******	77.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	123.0	157.3	181.8	115.0	98.7	61.3	122.9
1980	63.9	63.7	81.0	79.2	78.1	98.6	*******	*******	*******	*******	*******	*******	77.4

TABLE A85. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	152.7	132.5	126.0	107.0	111.6	126.1	125.0
1974	63.3	59.0	76.1	121.9	103.6	52.6	103.0	104.4	160.3	166.3	142.0	44.2	99.7
1975	33.3	71.8	74.7	124.5	98.5	50.3	58.1	152.9	245.8	147.1	77.8	51.0	98.8
1976	38.5	71.8	138.8	86.3	57.3	82.8	145.1	203.9	241.2	67.3	52.9	39.3	102.1
1977	46.0	112.0	58.5	103.6	54.8	86.1	163.0	168.9	112.0	122.8	123.3	73.7	102.5
1978	48.9	33.1	48.4	55.0	97.7	110.8	107.3	143.5	192.0	157.5	117.1	58.0	97.4
1979	53.0	51.2	53.8	43.8	77.5	114.2	*******	*******	*******	*******	*******	*******	65.6
AVGE	47.2	66.5	75.1	89.2	81.6	82.8	121.5	151.0	179.5	128.0	105.0	65.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	100119.313	11	9101.754	7.945**
RESIDUAL	68701.125	60	1145.019	
TOTAL	168820.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	126.2	143.1	195.3	136.1	103.4	45.8	125.5
1974	45.8	67.0	71.1	110.8	82.5	66.1	129.3	147.6	194.6	133.6	104.1	50.1	100.2
1975	46.1	64.7	68.8	106.3	81.7	69.8	129.0	152.6	196.4	134.2	104.9	51.6	100.5
1976	45.5	61.7	65.1	97.0	79.5	77.8	129.7	158.2	198.6	134.4	105.2	54.4	100.6
1977	45.9	59.0	60.9	84.7	77.2	88.0	130.0	163.9	202.0	134.2	104.6	55.6	100.4
1978	46.5	55.0	57.4	75.3	74.8	96.5	133.7	169.3	202.8	130.6	103.5	56.4	100.1
1979	47.9	53.0	55.9	71.3	74.2	101.1	*******	*******	*******	*******	*******	*******	67.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	135.5	172.0	203.1	128.8	103.0	56.8	133.2
1980	48.7	52.0	55.2	69.3	73.9	103.5	*******	*******	*******	*******	*******	*******	67.1

TABLE A86. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	115.1	181.7	128.3	111.6	98.6	135.8	128.5
1974	91.9	91.9	80.9	107.8	45.8	64.2	99.1	81.1	205.3	159.9	57.6	103.5	99.1
1975	82.9	78.1	94.6	83.6	81.3	65.0	89.1	113.9	138.5	145.8	115.4	76.7	97.1
1976	92.9	85.8	170.0	76.3	48.3	127.6	108.3	107.3	179.7	131.6	125.4	59.6	109.4
1977	65.2	152.3	107.2	90.9	77.7	54.4	55.1	118.9	189.9	131.7	125.0	75.6	103.7
1978	68.0	86.1	119.5	79.3	68.1	56.0	102.4	143.2	139.9	143.0	78.8	85.7	97.5
1979	89.8	47.7	56.5	162.8	36.1	61.3	*******	*******	*******	*******	*******	*******	75.7
AVGE	81.8	90.3	104.8	100.1	59.5	71.4	94.9	124.4	163.7	137.3	100.1	89.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	54322.438	11	4938.402	6.285**
RESIDUAL	47144.625	60	785.744	
TOTAL	101467.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.9	104.1	152.2	139.6	111.3	95.3	113.1
1974	86.2	86.3	96.5	89.8	67.9	63.9	102.1	105.3	156.0	138.5	112.8	95.4	100.1
1975	83.9	86.3	98.3	88.8	68.1	62.7	100.4	108.5	160.6	139.4	113.3	89.9	100.0
1976	81.4	85.5	102.0	86.3	69.9	61.6	98.3	114.1	162.9	139.3	113.3	84.2	99.9
1977	80.0	85.3	106.2	83.7	70.3	60.5	97.7	119.1	164.7	139.3	112.2	79.9	99.9
1978	78.6	85.0	109.3	82.2	71.3	59.6	98.0	122.2	165.6	137.3	112.1	78.3	99.9
1979	77.3	85.5	110.9	82.6	71.0	58.8	*******	*******	*******	*******	*******	*******	81.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	98.2	123.7	166.0	136.3	112.0	77.4	118.9
1980	76.7	85.7	111.7	82.8	70.8	58.4	*******	*******	*******	*******	*******	*******	81.0

TABLE A87. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.3	65.4	121.2	105.5	128.9	141.8	109.0
1974	189.1	74.0	46.3	203.7	47.5	9.9	5.5	1.9	143.5	189.9	178.9	144.2	102.9
1975	104.3	91.9	50.7	39.8	14.9	223.6	82.9	101.0	415.7	208.9	114.6	40.0	124.0
1976	136.5	78.5	126.9	69.3	29.5	164.6	99.4	100.2	112.8	55.0	92.2	72.7	94.5
1977	97.8	232.1	145.1	50.8	74.0	117.8	86.3	128.7	58.4	10.8	37.1	132.0	97.7
1978	125.8	129.2	171.3	212.2	160.5	154.4	34.4	20.4	60.6	136.7	48.1	121.5	114.6
1979	115.3	194.5	130.3	34.4	148.5	115.6	*******	*******	*******	*******	*******	*******	123.1
AVGE	128.[illegible]	133.4	111.9	101.7	79.1	131.0	66.6	69.6	152.0	117.8	100.0	108.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	46506.625	11	4227.875	0.904
RESIDUAL	280662.500	60	4677.707	
TOTAL	327169.125	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	72.9	73.0	126.2	146.5	129.4	100.1	108.0
1974	132.3	99.2	82.5	52.7	37.1	149.7	76.1	78.8	121.6	136.5	121.1	100.1	99.0
1975	129.5	106.8	91.3	52.7	47.2	149.3	75.0	82.4	112.5	128.2	107.6	98.7	98.4
1976	121.5	121.5	104.7	50.8	63.4	149.6	74.2	86.7	100.4	119.7	89.1	95.7	98.1
1977	116.9	134.0	121.2	50.2	83.4	145.8	72.1	86.6	89.8	110.6	74.4	94.4	98.3
1978	112.0	150.4	132.9	48.2	99.7	139.1	73.2	88.1	83.2	99.4	64.8	94.5	95.8
1979	111.9	159.8	140.1	47.5	108.5	129.2	*******	*******	*******	*******	*******	*******	116.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	73.7	88.8	79.9	93.8	60.1	94.5	81.8
1980	111.8	164.5	143.7	47.2	112.8	124.3	*******	*******	*******	*******	*******	*******	117.4

TABLE A 88. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	133.1	134.5	122.6	102.6	100.3	116.9	118.3
1974	80.4	74.0	82.4	117.0	76.5	55.7	109.3	102.4	173.5	158.2	105.8	68.3	100.3
1975	52.8	73.2	80.4	109.7	91.5	54.1	63.3	135.6	215.2	142.4	81.0	60.9	96.7
1976	56.8	79.3	138.8	77.4	56.0	92.8	129.4	167.9	216.6	87.4	75.7	45.6	102.0
1977	61.8	136.5	115.4	69.0	67.0	81.1	134.0	161.0	134.3	125.2	127.6	80.3	107.8
1978	60.2	49.5	74.8	71.6	91.3	98.6	97.6	136.0	169.3	150.6	104.1	69.4	97.8
1979	74.7	61.0	60.2	80.2	69.7	101.5	*******	*******	*******	*******	*******	*******	74.6
AVGE	64.5	78.9	92.0	87.5	75.3	80.6	111.1	139.6	171.9	127.7	99.1	73.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	67425.688	11	6129.605	9.797**
RESIDUAL	37539.313	60	625.655	
TOTAL	104965.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	121.0	131.3	191.5	130.3	93.1	64.5	121.9
1974	63.4	74.9	87.7	96.7	74.2	69.7	122.4	135.1	189.4	128.7	94.5	65.1	100.1
1975	63.1	73.1	88.0	93.6	74.8	72.0	120.8	138.9	187.2	130.4	96.1	65.8	100.3
1976	62.4	70.3	86.8	88.0	75.1	77.6	119.7	143.6	184.2	131.6	98.0	66.9	100.4
1977	62.5	67.2	84.7	81.8	74.6	85.2	118.4	147.8	182.8	132.0	98.4	67.1	100.2
1978	63.2	64.7	83.0	76.8	73.8	91.0	119.4	152.1	181.6	129.0	98.5	67.2	100.0
1979	64.4	63.4	83.2	74.4	73.4	93.8	*******	*******	*******	*******	*******	*******	75.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	119.9	154.2	180.9	127.6	98.5	67.3	124.7
1980	65.0	62.8	83.3	73.2	73.2	95.2	*******	*******	*******	*******	*******	*******	75.4

TABLE A 89. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	144.3	144.5	134.9	100.3	97.1	122.5	123.9
1974	124.1	70.0	97.2	102.8	83.5	58.7	144.0	82.0	105.1	163.6	142.5	49.0	101.9
1975	29.7	76.5	96.5	147.0	91.8	54.4	67.0	167.7	327.7	145.2	108.2	36.4	112.3
1976	34.3	69.1	124.3	107.2	65.8	72.5	131.3	215.0	243.2	53.5	61.5	20.4	99.8
1977	51.0	88.8	89.0	106.4	65.9	85.7	167.7	161.0	99.7	98.2	134.3	92.3	103.3
1978	71.1	68.2	57.2	56.3	101.5	108.8	102.8	143.1	169.9	139.2	133.7	46.3	99.8
1979	59.7	50.3	69.2	65.9	89.8	112.6	*******	*******	*******	*******	*******	*******	74.6
AVGE	61.6	70.5	88.9	97.6	83.1	82.1	126.2	152.2	180.1	116.7	112.9	61.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	88619.688	11	8056.332	5.096**
RESIDUAL	94851.313	60	1580.855	
TOTAL	183471.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	129.8	149.1	151.6	126.7	109.0	47.5	119.0
1974	41.1	75.0	104.1	118.0	79.0	66.1	132.4	153.1	152.4	122.3	108.8	47.0	99.9
1975	43.7	75.4	100.2	113.1	79.5	69.8	131.8	156.8	155.5	120.1	110.7	45.2	100.1
1976	46.6	74.2	94.3	105.7	80.7	77.1	129.8	161.6	158.1	117.9	113.0	43.7	100.2
1977	50.7	71.8	88.5	94.8	81.9	86.1	127.4	165.6	164.2	114.9	113.0	42.3	100.2
1978	53.9	69.7	82.9	86.4	82.6	94.0	128.1	172.2	168.2	109.3	110.4	42.0	100.0
1979	57.0	69.5	80.1	81.3	83.2	98.5	*******	*******	*******	*******	*******	*******	78.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	128.5	174.9	170.2	106.5	109.2	41.8	121.8
1980	58.5	69.4	78.8	78.7	83.5	100.7	*******	*******	*******	*******	*******	*******	78.3

TABLE A90. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	87.5	124.8	111.2	138.2	107.8	83.2	108.8
1974	104.2	108.2	78.4	133.6	54.1	15.7	59.9	80.8	323.7	201.3	112.1	76.0	112.3
1975	79.1	90.0	139.6	83.9	65.3	41.9	76.1	141.4	133.4	105.4	117.0	59.0	98.5
1976	91.5	78.0	140.8	74.2	70.5	101.8	151.4	106.9	145.9	93.9	110.6	63.6	102.4
1977	64.5	180.1	148.9	151.4	71.8	78.1	80.0	96.4	113.9	181.0	99.0	73.3	111.5
1978	88.4	72.7	131.0	75.8	89.3	87.0	76.9	139.2	106.0	164.4	70.5	88.8	99.2
1979	103.2	65.1	118.4	76.4	80.7	115.5	*******	*******	*******	*******	*******	*******	93.2
AVGE	88.5	99.0	126.2	99.2	72.0	73.3	88.6	114.9	164.0	147.4	102.8	74.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	56970.438	11	5179.129	3.827**
RESIDUAL	81205.250	60	1353.421	
TOTAL	138175.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	76.1	116.1	150.8	138.5	112.1	71.4	110.8
1974	88.7	92.3	129.1	86.0	64.7	74.5	77.1	114.9	148.8	140.6	111.4	71.2	100.0
1975	88.0	91.2	130.4	86.4	66.8	75.7	77.3	114.4	146.2	144.1	108.3	71.3	100.0
1976	86.9	86.8	132.7	85.7	70.5	79.9	77.9	116.1	141.7	145.8	104.1	71.5	100.0
1977	87.4	81.7	133.7	84.0	74.7	86.8	78.6	117.7	136.4	146.5	99.3	72.3	99.9
1978	87.7	77.8	134.4	83.6	77.8	92.4	80.0	118.4	131.4	145.4	97.0	72.7	99.9
1979	88.4	77.2	133.9	84.1	79.0	94.7	*******	*******	*******	*******	*******	*******	92.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	80.8	118.7	128.8	144.8	95.9	72.9	107.0
1980	88.7	76.9	133.7	84.4	79.6	95.9	*******	*******	*******	*******	*******	*******	93.2

TABLE A91. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.2	9.6	140.2	55.5	49.1	161.1	86.4
1974	176.6	296.6	245.1	22.2	13.4	52.3	24.0	35.3	3400.3	140.2	78.7	75.9	380.0
1975	280.1	66.8	865.0	67.5	67.9	69.0	71.6	75.8	82.7	91.9	306.6	110.6	179.6
1976	115.3	113.3	104.6	91.3	77.0	64.5	54.6	47.6	127.9	39.6	113.6	1011.0	163.4
1977	153.2	280.0	43.2	94.8	53.0	59.2	64.6	67.0	65.3	60.4	432.2	48.5	118.5
1978	218.8	121.6	152.2	183.3	72.4	36.8	39.8	91.6	55.5	132.2	71.1	262.4	119.8
1979	53.3	39.8	30.4	23.5	18.8	154.8	*******	*******	*******	*******	*******	*******	53.4
AVGE	166.2	153.0	240.1	80.4	50.4	72.7	59.5	54.5	645.3	86.8	175.2	278.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	1842777.000	11	167525.125	0.953
RESIDUAL	10547080.000	60	175784.625	
TOTAL	12389857.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	60.3	38.8	169.6	82.3	76.0	121.2	91.4
1974	173.8	166.2	143.3	62.0	50.0	55.2	60.4	41.0	161.4	79.0	79.5	120.1	99.6
1975	175.5	168.5	139.0	71.3	51.4	56.5	56.0	48.7	149.7	82.1	86.6	128.4	101.1
1976	172.0	157.0	123.1	82.9	54.8	63.4	56.3	60.0	124.8	84.9	94.4	139.6	101.1
1977	163.5	146.8	109.0	95.9	57.7	71.4	55.0	69.3	104.2	88.0	100.6	160.3	101.8
1978	151.6	140.5	90.4	101.8	57.7	83.1	58.6	73.3	87.1	83.8	102.7	171.0	100.1
1979	145.2	149.7	84.0	104.5	55.2	85.0	*******	*******	*******	*******	*******	*******	103.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	60.3	75.4	78.6	81.7	103.8	176.4	96.0
1980	141.9	154.3	80.7	105.8	54.0	86.0	*******	*******	*******	*******	*******	*******	103.8

TABLE A92. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	134.3	153.5	139.8	112.8	100.4	112.5	125.5
1974	116.7	91.7	95.0	99.6	72.8	46.0	113.2	81.9	155.2	152.3	121.3	58.9	100.4
1975	42.4	78.0	100.2	124.2	81.3	49.6	68.9	146.8	282.3	141.1	104.4	44.1	105.4
1976	51.4	69.2	117.4	93.1	65.9	77.2	133.7	175.2	199.6	76.7	81.5	46.1	98.9
1977	59.0	128.5	106.1	112.9	65.2	76.2	135.5	143.2	95.5	105.2	122.4	89.4	103.3
1978	75.2	69.1	72.2	61.2	93.1	103.8	100.7	142.9	159.1	142.5	117.9	53.2	99.2
1979	75.2	53.8	75.8	67.9	86.0	109.4	*******	*******	*******	*******	*******	*******	78.0
AVGE	70.0	81.7	94.4	93.1	77.4	77.1	114.4	140.9	171.9	121.9	108.0	67.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	65930.813	11	5993.707	6.743**
RESIDUAL	53331.500	60	888.858	
TOTAL	119262.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	123.1	146.7	164.1	128.6	104.9	54.9	120.4
1974	53.5	78.5	104.5	105.9	72.3	60.6	124.6	147.9	165.6	125.4	105.4	54.5	100.0
1975	55.3	77.6	102.6	104.1	73.3	64.2	123.6	148.4	168.4	124.2	106.8	53.2	100.1
1976	57.8	74.0	99.2	99.3	75.2	72.1	122.4	149.1	169.7	122.8	108.5	51.7	100.2
1977	61.5	70.1	95.2	91.3	77.3	82.0	121.1	150.7	171.8	120.9	102.6	50.5	100.1
1978	64.7	66.4	91.6	85.9	78.7	90.0	122.1	153.1	172.4	116.9	107.4	50.2	100.0
1979	67.3	65.6	89.0	82.8	79.4	93.9	*******	*******	*******	*******	*******	*******	79.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	122.7	154.2	172.7	114.9	106.8	50.0	120.2
1980	68.6	65.2	89.0	81.3	79.7	95.8	*******	*******	*******	*******	*******	*******	79.9

TABLE A93. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	146.9	183.3	156.9	120.3	102.5	103.6	132.3
1974	84.9	71.9	78.0	95.5	64.8	50.2	147.0	102.4	161.1	200.5	202.8	48.8	109.0
1975	29.3	67.7	72.9	196.3	70.1	47.0	50.5	150.1	320.3	187.4	102.1	33.3	110.6
1976	23.2	54.4	112.5	111.1	55.6	75.8	151.7	269.3	264.3	67.1	74.4	25.7	107.1
1977	36.2	72.2	69.1	108.8	64.3	103.5	183.3	167.3	100.5	112.7	109.8	68.5	99.7
1978	67.5	53.5	54.5	64.6	114.8	119.7	130.8	126.8	177.6	153.8	118.0	42.2	102.0
1979	33.5	40.1	83.3	75.7	100.2	108.0	*******	*******	*******	*******	*******	*******	73.5
AVGE	45.8	60.0	78.4	108.7	78.3	84.0	135.0	163.2	196.8	140.3	118.3	53.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	145104.375	11	13191.305	7.240**
RESIDUAL	109318.438	60	1821.974	
TOTAL	254422.813	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	139.3	149.0	196.8	156.3	96.5	42.5	130.1
1974	31.8	65.5	80.4	111.5	63.7	64.6	143.3	153.6	194.7	150.6	96.8	43.2	100.0
1975	32.4	65.0	78.1	108.1	67.0	70.1	145.4	155.3	193.4	146.2	97.6	42.8	100.1
1976	32.4	62.2	75.8	103.3	72.6	79.3	146.4	157.0	189.5	141.1	99.7	42.8	100.2
1977	32.4	58.2	74.4	95.7	78.9	89.8	145.5	158.7	189.5	134.6	100.4	41.9	100.1
1978	32.7	55.0	73.1	90.0	83.7	98.7	147.7	162.9	188.0	125.9	100.0	41.8	100.0
1979	33.6	54.4	72.4	86.2	86.4	103.9	*******	*******	*******	*******	*******	*******	72.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	148.3	164.9	187.3	121.6	99.9	41.7	127.3
1980	34.1	54.2	72.0	84.3	87.7	106.5	*******	*******	*******	*******	*******	*******	73.1

TABLE A94. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	89.6	221.9	109.9	99.9	104.5	70.1	116.0
1974	135.1	113.6	60.5	86.5	74.1	27.8	67.4	40.2	305.3	235.1	83.3	60.0	107.4
1975	69.9	88.9	98.5	104.4	63.9	63.8	118.4	98.2	228.2	85.1	109.0	66.8	99.6
1976	44.9	96.1	161.6	76.8	43.3	102.1	116.0	125.8	212.6	87.2	91.2	41.1	99.9
1977	64.4	138.4	94.4	110.9	52.7	99.9	136.2	96.9	113.6	99.3	98.0	96.5	100.1
1978	82.3	94.3	133.3	58.8	103.0	90.1	105.0	122.4	120.4	138.3	114.0	95.3	104.8
1979	76.6	68.1	114.8	60.2	57.7	129.3	*******	*******	*******	*******	*******	*******	84.4
AVGE	78.9	99.9	110.5	82.9	65.8	85.5	105.5	117.6	181.7	124.2	100.0	71.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	63506.875	11	5773.352	3.590**
RESIDUAL	96480.250	60	1608.004	
TOTAL	159987.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	94.9	114.9	239.3	93.8	97.2	62.5	116.9
1974	60.1	104.7	107.1	92.6	53.1	80.5	99.3	114.8	229.4	94.2	97.3	64.1	99.8
1975	61.8	105.6	108.5	91.6	53.5	82.3	104.1	114.1	214.8	96.8	97.8	67.2	99.8
1976	64.1	103.2	112.2	88.9	54.2	88.3	111.1	112.2	192.2	99.8	100.0	72.4	99.9
1977	66.2	100.2	118.2	82.6	53.9	95.8	115.4	112.2	173.8	103.6	101.5	75.8	99.9
1978	68.3	98.0	120.2	78.7	54.0	102.9	118.9	112.3	160.5	104.7	102.2	77.5	99.9
1979	69.9	99.5	120.0	76.5	53.7	105.6	*******	*******	*******	*******	*******	*******	87.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	120.6	112.3	153.8	105.2	102.6	78.4	112.2
1980	70.7	100.3	119.9	75.5	53.5	107.0	*******	*******	*******	*******	*******	*******	87.8

TABLE A95. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	50.4	31.8	7.4	4.1	51.5	179.0	54.0
1974	160.6	119.3	72.7	139.7	32.5	7.4	11.2	80.1	1199.0	460.2	83.1	72.2	203.2
1975	65.2	56.9	147.7	130.7	80.1	37.9	37.1	38.0	40.4	701.9	48.6	105.1	124.1
1976	53.9	50.4	174.2	35.8	62.2	27.1	24.5	23.0	133.6	584.3	209.9	74.3	121.2
1977	26.7	29.1	191.0	34.4	35.4	34.3	63.0	84.9	25.5	164.4	132.5	211.3	86.0
1978	290.6	626.4	43.4	23.0	25.1	28.1	34.4	883.8	68.8	83.6	1118.4	1351.3	381.4
1979	28.5	18.4	25.7	9.5	7.4	89.6	*******	*******	*******	*******	*******	*******	29.9
AVGE	104.2	150.1	109.1	62.3	40.5	37.4	36.7	190.3	245.8	333.1	274.0	332.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	844360.000	11	76760.000	0.998
RESIDUAL	4613665.000	60	76894.375	
TOTAL	5458025.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	31.6	45.9	69.4	392.3	83.3	112.0	122.4
1974	83.2	68.4	140.1	92.1	54.7	25.4	33.0	46.8	68.9	384.1	92.8	116.6	100.5
1975	84.2	71.1	134.1	83.0	49.6	24.5	31.9	59.3	70.2	369.3	146.1	114.4	103.1
1976	73.5	64.6	122.4	65.1	44.2	29.4	33.6	73.6	64.8	341.4	202.8	119.4	102.9
1977	67.5	62.1	107.3	44.9	36.6	33.6	33.3	88.3	64.6	314.0	267.4	118.5	103.2
1978	57.6	55.0	95.7	29.2	30.4	40.5	35.6	93.4	62.8	293.0	293.5	123.5	100.9
1979	58.1	56.0	89.0	22.0	25.7	42.4	*******	*******	*******	*******	*******	*******	49.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	36.7	96.0	62.0	282.5	306.6	126.0	151.6
1980	58.3	56.5	86.9	18.5	23.3	43.3	*******	*******	*******	*******	*******	*******	47.8

TABLE A96. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	126.6	169.4	157.1	112.2	99.6	93.5	126.4
1974	94.9	79.1	79.7	87.1	58.5	39.5	119.6	97.6	202.5	173.0	134.0	53.1	101.6
1975	41.6	74.2	80.2	164.8	72.9	52.0	64.1	148.9	304.0	176.3	98.8	46.3	110.3
1976	39.8	67.3	116.3	84.1	56.1	81.9	128.8	199.9	224.5	82.1	92.4	37.1	100.9
1977	54.0	106.9	90.7	101.2	63.7	91.4	159.0	150.6	94.1	100.6	95.5	73.0	98.4
1978	66.7	57.6	66.9	62.8	105.1	104.9	120.1	132.6	167.0	142.9	108.1	61.0	99.7
1979	53.1	50.3	87.6	72.4	90.0	108.0	*******	*******	*******	*******	*******	*******	76.9
AVGE	58.4	72.6	86.9	95.4	74.4	79.6	119.7	149.8	191.5	131.2	104.7	60.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	104919.438	11	9538.129	8.863**
RESIDUAL	64573.500	60	1076.225	
TOTAL	169492.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	119.3	150.0	198.5	144.3	108.2	56.0	129.4
1974	45.4	72.3	87.6	90.2	63.0	63.7	122.9	153.2	197.4	139.3	107.0	56.3	99.9
1975	47.2	71.0	86.4	88.8	65.8	67.8	125.5	153.3	196.1	135.7	106.0	55.2	99.9
1976	49.1	67.5	85.4	86.4	70.6	76.3	127.8	153.6	191.8	131.9	103.2	55.3	99.9
1977	51.3	63.5	84.6	82.4	75.7	86.0	129.0	154.7	188.8	127.0	101.0	54.6	99.9
1978	53.0	60.0	84.2	80.0	79.4	94.1	130.7	158.2	185.1	120.1	98.2	55.2	99.8
1979	54.8	58.9	84.1	79.0	81.1	97.8	*******	*******	*******	*******	*******	*******	76.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	131.5	159.9	183.2	116.6	96.8	55.5	123.9
1980	55.7	58.4	84.0	78.5	82.0	99.6	*******	*******	*******	*******	*******	*******	76.4

TABLE A97. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	126.7	73.5	105.8	109.0	66.8	57.3	89.9
1974	83.5	63.0	195.6	231.3	21.9	7.8	62.1	100.4	68.5	204.1	87.2	114.4	103.3
1975	80.2	100.8	58.4	127.7	76.5	67.2	51.6	132.5	328.2	235.8	77.2	65.0	115.8
1976	57.3	82.5	161.4	97.6	30.1	61.1	86.8	189.7	213.4	119.2	91.0	68.6	104.9
1977	37.6	132.5	90.3	76.8	108.7	115.7	177.1	174.7	129.9	88.2	349.8	35.0	126.4
1978	21.6	43.9	128.9	108.6	100.8	211.9	124.5	73.3	84.2	154.8	140.9	103.0	108.0
1979	33.4	29.3	44.3	19.4	154.7	192.6	*******	*******	*******	*******	*******	*******	79.0
AVGE	52.3	75.3	113.2	110.2	82.1	109.4	104.8	124.0	155.0	151.9	135.5	73.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	67145.750	11	6104.156	1.468
RESIDUAL	249421.500	60	4157.023	
TOTAL	316567.250	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.0	116.5	121.0	175.2	79.9	78.1	103.8
1974	69.0	79.7	131.1	137.8	53.3	68.7	88.0	124.2	126.7	167.4	83.1	74.6	100.3
1975	63.5	75.7	127.5	131.3	58.5	79.4	92.5	130.2	129.6	182.1	91.0	72.6	101.2
1976	54.9	69.6	114.1	113.4	72.4	99.5	100.5	135.5	131.9	154.4	98.3	67.4	101.0
1977	45.5	61.7	106.9	96.9	84.5	121.8	106.1	137.4	134.3	146.9	105.4	65.1	101.0
1978	37.9	54.4	95.9	80.8	98.6	141.4	112.6	140.4	138.3	135.2	106.5	60.9	100.2
1979	33.9	49.8	96.2	77.3	104.7	152.3	*******	*******	*******	*******	*******	*******	85.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	115.9	141.9	140.3	129.4	107.0	58.8	115.5
1980	31.9	47.6	96.3	75.5	107.8	157.7	*******	*******	*******	*******	*******	*******	86.1

TABLE A98. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	57.7	184.7	115.1	84.5	73.2	121.8	108.2
1974	108.9	116.0	113.5	38.7	43.4	41.5	94.4	32.4	303.6	78.7	187.5	109.7	105.7
1975	59.8	101.0	59.7	156.0	86.7	58.8	64.7	180.1	222.7	76.0	98.7	96.6	105.1
1976	73.7	37.8	90.2	63.4	64.2	124.3	120.2	143.2	212.9	54.9	65.6	55.8	92.2
1977	103.2	265.0	93.4	86.7	72.0	70.8	86.0	177.2	234.2	215.0	81.4	42.8	127.3
1978	47.3	101.3	120.4	69.6	89.2	97.0	76.4	134.9	164.8	158.1	53.5	61.4	97.8
1979	104.9	101.3	56.8	78.8	66.5	90.7	*******	*******	*******	*******	*******	*******	83.2
AVGE	83.0	120.4	89.0	82.2	70.3	80.5	83.2	142.1	208.9	111.2	93.3	81.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	99957.938	11	9087.082	4.351**
RESIDUAL	125323.000	60	2088.717	
TOTAL	225280.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	79.8	171.7	216.3	76.4	83.2	101.7	121.5
1974	84.5	98.6	88.9	61.5	65.9	69.7	82.7	171.6	218.3	77.8	82.3	95.4	99.8
1975	82.7	98.9	91.0	63.0	67.3	71.3	86.2	166.7	222.1	83.9	79.6	84.7	99.8
1976	80.6	98.2	89.5	67.5	70.7	76.5	86.9	163.5	219.5	92.5	77.7	74.1	99.8
1977	79.0	96.8	89.8	71.0	72.9	83.9	89.1	158.1	214.8	100.3	74.0	64.9	99.6
1978	81.0	97.0	88.2	75.2	74.6	88.7	90.3	156.7	207.5	103.3	71.7	59.9	99.5
1979	83.5	98.6	90.4	76.2	74.2	89.5	*******	*******	*******	*******	*******	*******	85.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	90.9	156.0	203.8	104.7	70.6	57.4	113.9
1980	84.8	99.3	91.4	76.8	74.0	89.9	*******	*******	*******	*******	*******	*******	86.0

TABLE A99. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	211.3	11.8	59.5	119.0	28.1	44.8	79.1
1974	312.7	154.2	261.6	211.4	111.4	69.2	49.3	39.2	98.4	202.5	347.6	153.4	167.6
1975	178.7	264.1	28.3	61.7	136.5	37.7	40.6	42.4	42.8	42.2	163.3	516.2	129.5
1976	116.4	306.3	153.5	39.4	41.4	129.2	44.0	87.2	83.3	270.7	35.9	33.2	111.7
1977	92.4	174.6	388.9	27.2	27.0	273.1	28.5	119.4	219.1	32.5	32.4	30.9	120.5
1978	115.1	79.9	24.9	140.5	202.8	112.5	70.0	251.6	27.6	29.8	30.5	29.1	92.9
1979	25.8	174.6	73.9	15.7	213.9	283.5	*******	*******	*******	*******	*******	*******	131.2
AVGE	140.2	192.3	155.2	82.6	122.1	150.9	73.9	92.0	88.5	116.1	106.3	134.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	81140.000	11	7376.363	0.626
RESIDUAL	707372.000	60	11789.531	
TOTAL	788512.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	68.6	40.4	70.8	128.2	75.7	98.7	80.4
1974	113.0	235.8	124.7	46.2	87.1	109.9	64.9	48.7	81.2	123.8	71.0	90.5	99.7
1975	111.8	220.3	129.6	50.2	91.1	117.6	56.9	72.6	87.8	111.7	65.6	80.2	99.6
1976	105.6	203.0	134.7	51.5	100.7	138.2	49.7	98.3	92.6	88.9	63.6	67.9	99.6
1977	97.4	187.0	135.0	53.9	112.9	160.0	45.7	124.2	91.4	73.8	57.3	54.9	99.5
1978	86.6	172.9	144.3	51.6	122.2	186.5	45.1	133.2	92.3	65.0	51.2	43.8	99.6
1979	80.8	162.0	155.8	52.7	127.5	202.0	*******	*******	*******	*******	*******	*******	130.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	44.8	137.7	92.7	60.6	48.1	38.2	70.4
1980	77.9	156.5	161.6	53.2	130.2	209.8	*******	*******	*******	*******	*******	*******	131.5

TABLE A 100. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	122.0	110.5	109.6	98.7	84.2	108.3	105.5
1974	102.7	96.1	136.8	85.5	37.3	26.7	72.7	66.4	168.5	148.7	114.3	100.7	96.4
1975	68.3	92.0	60.9	110.8	72.0	53.2	49.5	127.5	256.0	149.9	78.6	76.0	99.6
1976	72.0	71.7	129.8	76.4	46.3	100.4	104.9	159.6	198.8	96.2	76.4	63.5	99.7
1977	69.7	186.0	96.2	80.0	85.1	89.6	123.0	155.1	165.2	130.3	202.0	43.2	118.8
1978	38.4	72.3	109.1	76.2	86.7	157.3	92.8	114.9	120.6	147.6	90.9	81.9	99.1
1979	76.7	71.5	59.2	58.1	94.9	126.1	*******	*******	*******	*******	*******	*******	81.1
AVGE	71.3	98.3	98.7	81.2	70.4	92.2	94.2	122.3	169.8	128.6	107.7	78.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	52987.313	11	4817.027	3.857**
RESIDUAL	74926.813	60	1248.763	
TOTAL	127913.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	94.7	114.2	174.3	128.3	90.9	91.1	115.6
1974	80.1	86.8	112.6	89.6	57.1	76.9	97.3	119.7	175.6	127.4	90.5	87.0	100.0
1975	77.2	85.4	111.2	87.8	60.2	82.4	97.4	124.8	176.8	129.6	90.4	81.0	100.3
1976	72.6	82.3	104.5	84.2	67.1	91.8	98.7	131.2	176.3	131.6	88.7	74.3	100.3
1977	68.5	78.3	100.4	79.1	73.1	105.0	99.6	135.9	173.6	132.0	87.3	69.7	100.2
1978	66.2	75.7	94.4	74.5	79.6	114.4	102.8	140.7	170.4	128.6	85.0	66.7	99.9
1979	65.9	75.1	94.3	72.0	82.3	119.9	*******	*******	*******	*******	*******	*******	84.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.3	143.0	168.8	126.9	83.9	65.2	115.4
1980	65.7	74.9	94.3	70.8	83.7	122.6	*******	*******	*******	*******	*******	*******	85.3

TABLE A101. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	146.9	131.0	113.3	79.3	103.8	114.1	114.7
1974	91.7	98.0	59.1	69.0	70.7	52.7	93.4	151.7	185.5	232.8	192.7	49.4	112.2
1975	37.6	83.5	63.6	113.2	73.8	46.2	36.3	124.4	300.8	127.8	136.2	49.9	99.4
1976	50.7	60.5	194.7	75.5	66.7	75.9	113.0	321.7	258.4	87.4	58.8	47.5	120.1
1977	48.3	91.7	104.4	81.1	65.6	86.9	186.3	103.8	82.3	80.5	143.4	77.4	95.0
1978	81.3	49.0	53.3	76.3	86.5	79.3	92.6	184.8	226.2	117.6	96.7	34.3	98.2
1979	44.8	44.3	89.3	75.5	93.7	78.1	*******	*******	*******	*******	*******	*******	70.9
AVGE	59.1	71.2	94.1	81.8	76.1	69.8	111.4	169.6	194.4	120.9	126.9	62.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	124309.063	11	11300.820	5.153**
RESIDUAL	131583.563	60	2193.059	
TOTAL	255892.625	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	112.7	140.8	216.4	104.5	138.2	51.6	127.4
1974	55.0	83.9	76.2	86.8	71.1	63.8	111.9	139.6	219.1	102.6	136.8	52.9	100.0
1975	56.5	82.3	76.2	85.6	71.7	66.0	106.9	141.7	226.3	102.9	134.1	52.5	100.2
1976	55.3	76.7	78.3	85.0	74.0	70.0	102.0	141.8	234.1	103.6	129.4	52.6	100.2
1977	55.9	69.0	79.8	82.2	76.8	74.9	99.0	145.8	240.2	103.9	122.1	51.3	100.1
1978	55.0	63.7	83.0	80.6	79.8	79.5	99.9	146.2	241.4	101.8	115.6	51.5	99.3
1979	56.7	62.5	84.6	78.6	80.9	81.9	*******	*******	*******	*******	*******	*******	74.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	100.3	146.4	242.1	100.7	112.4	51.6	125.6
1980	57.6	61.9	85.4	77.6	81.5	83.1	*******	*******	*******	*******	*******	*******	74.5

TABLE A102. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	67.4	112.0	55.5	88.7	41.0	134.1	83.1
1974	114.3	117.5	91.0	88.8	51.2	15.8	60.0	61.8	245.2	154.4	96.9	57.4	96.2
1975	98.6	146.0	105.3	40.9	56.4	52.8	63.8	87.0	212.0	105.9	83.8	147.1	100.0
1976	84.7	93.3	232.1	90.5	71.4	30.3	47.6	298.4	182.4	145.3	69.1	69.2	117.9
1977	87.7	168.0	108.8	128.0	66.5	59.2	79.4	55.5	98.2	105.8	112.6	112.3	98.5
1978	85.7	121.6	122.9	69.5	83.1	98.6	53.5	140.4	109.5	104.7	88.6	92.6	97.5
1979	110.6	100.0	115.5	93.5	71.3	104.9	*******	*******	*******	*******	*******	*******	99.3
AVGE	96.9	124.4	129.3	85.2	66.6	60.3	62.0	125.8	150.5	117.5	82.0	102.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	58006.188	11	5273.289	2.860**
RESIDUAL	110642.313	60	1844.038	
TOTAL	168648.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	61.4	91.1	204.9	120.7	74.0	112.9	110.8
1974	97.5	126.2	104.7	89.2	61.0	57.4	62.3	92.5	197.6	121.5	76.5	110.7	99.8
1975	96.2	128.0	106.2	89.8	62.8	60.3	61.9	95.4	185.4	122.9	81.9	105.5	99.7
1976	94.4	128.1	108.9	90.8	66.1	66.6	62.3	99.8	168.3	120.4	87.1	104.8	99.9
1977	93.0	124.6	112.3	91.0	69.8	74.6	61.2	105.9	153.4	119.1	89.6	100.7	99.6
1978	92.7	123.5	114.4	93.0	72.3	81.0	60.9	109.8	142.7	116.9	89.2	99.6	99.7
1979	93.1	124.2	115.4	94.7	73.2	83.7	*******	*******	*******	*******	*******	*******	97.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	60.8	111.8	137.4	115.7	89.0	99.0	102.3
1980	93.2	124.5	115.9	95.6	73.7	85.1	*******	*******	*******	*******	*******	*******	98.0

TABLE A103. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	88.1	205.4	13.6	16.7	274.7	112.3	118.5
1974	39.3	56.0	637.3	412.8	108.9	103.5	93.1	89.2	1171.3	90.0	90.8	93.5	248.8
1975	97.1	99.3	100.3	99.5	95.1	87.4	78.1	69.1	61.7	56.3	52.8	50.9	79.0
1976	752.5	556.8	52.4	54.8	57.6	60.4	62.7	63.8	64.0	63.8	63.4	63.1	159.6
1977	256.1	267.9	71.2	76.4	81.8	82.6	75.4	63.0	47.7	33.6	23.7	225.1	109.0
1978	163.7	209.9	299.2	107.7	30.8	157.2	353.3	8.3	9.2	144.3	68.8	12.5	130.4
1979	12.6	208.5	34.9	10.7	184.4	64.6	*******	*******	*******	*******	*******	*******	86.0
AVGE	220.2	233.1	199.2	127.0	93.1	92.6	125.1	83.1	227.9	67.5	95.7	93.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	262582.000	11	23871.090	0.660
RESIDUAL	2170508.000	60	36175.133	
TOTAL	2433090.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	81.8	111.2	60.9	55.1	66.6	81.2	76.1
1974	157.2	239.7	93.4	87.5	86.0	83.5	81.2	106.5	60.7	54.6	64.3	78.6	99.4
1975	162.8	239.1	91.7	88.5	82.0	88.5	98.0	87.7	59.6	62.5	62.2	68.7	99.3
1976	167.2	249.3	82.7	82.8	83.9	91.8	120.0	69.7	54.3	68.6	57.4	56.4	98.7
1977	171.0	271.1	71.7	74.6	84.4	93.8	144.9	52.9	49.3	78.1	55.8	45.9	99.5
1978	169.9	283.4	62.9	66.6	92.9	95.1	154.5	49.9	44.7	79.2	53.6	42.4	99.6
1979	170.7	285.8	61.2	65.2	95.4	98.0	*******	*******	*******	*******	*******	*******	129.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	159.3	48.4	42.4	79.7	52.6	40.6	70.5
1980	171.1	287.0	60.4	64.5	96.6	99.4	*******	*******	*******	*******	*******	*******	129.8

TABLE A104. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	114.8	124.5	86.0	77.0	82.2	108.6	98.9
1974	94.1	98.3	82.7	80.3	64.8	37.5	85.2	120.6	255.4	210.6	142.3	56.1	110.7
1975	63.7	104.1	76.3	86.6	66.5	47.9	37.5	112.7	255.6	121.8	123.2	69.4	97.9
1976	65.1	72.2	186.5	72.3	72.6	62.7	97.2	307.7	222.4	107.3	68.4	57.9	116.0
1977	68.9	120.8	103.8	89.2	71.6	76.0	150.7	90.2	79.9	82.7	137.0	85.5	96.3
1978	83.0	65.4	74.2	73.6	83.0	83.1	89.2	165.0	190.1	112.2	92.0	59.1	97.5
1979	60.8	65.8	98.1	77.0	89.3	82.9	*******	*******	*******	*******	*******	*******	79.0
AVGE	72.6	87.7	103.6	79.9	74.6	65.0	95.8	153.5	183.2	118.6	107.5	72.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	84705.188	11	7700.469	4.372**
RESIDUAL	105688.563	60	1761.476	
TOTAL	190393.750	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.2	122.3	247.3	104.6	112.9	61.5	124.0
1974	73.6	92.4	87.5	81.6	68.9	53.6	95.1	121.5	244.8	103.8	114.1	63.1	100.0
1975	74.1	90.9	87.6	81.6	70.1	56.8	93.1	123.4	239.0	105.2	115.8	64.5	100.2
1976	72.3	87.2	88.7	81.5	73.0	63.1	91.1	124.4	232.0	105.9	116.6	67.0	100.2
1977	71.3	81.3	89.8	80.0	76.5	70.1	90.2	128.7	224.0	106.7	114.4	67.6	100.0
1978	69.7	77.4	91.8	79.7	79.6	78.1	90.9	129.9	218.5	105.0	111.5	68.4	99.9
1979	70.6	76.0	93.1	79.5	80.7	78.7	*******	*******	*******	*******	*******	*******	79.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	91.2	130.5	215.7	104.1	110.1	69.8	120.1
1980	71.1	75.3	93.7	79.4	81.2	79.9	*******	*******	*******	*******	*******	*******	50.1

TABLE A105. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	183.4	155.1	106.7	125.6	119.4	95.5	131.0
1974	114.5	102.9	66.6	72.2	86.7	56.6	132.3	168.2	146.9	131.2	130.7	37.2	103.8
1975	51.3	92.4	53.7	115.9	76.0	25.9	37.0	196.9	363.6	118.9	122.2	54.1	109.0
1976	30.5	87.1	153.0	121.5	79.4	73.8	135.8	557.0	159.4	47.9	164.8	34.1	137.0
1977	35.7	82.7	59.0	99.9	87.3	172.1	214.2	126.6	93.9	107.0	72.0	66.0	101.4
1978	64.0	52.9	56.1	82.6	93.5	143.1	145.3	208.8	184.2	69.2	81.6	37.2	101.6
1979	19.1	63.4	75.2	98.1	98.1	113.6	*******	*******	*******	*******	*******	*******	77.9
AVGE	52.5	80.2	77.3	98.4	86.8	97.5	141.3	235.4	175.8	100.0	115.1	54.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	182377.125	11	16579.738	4.130**
RESIDUAL	240882.813	60	4014.713	
TOTAL	423259.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	145.1	174.8	133.9	117.5	128.2	45.0	124.1
1974	41.6	91.5	60.3	102.1	81.3	77.7	149.7	173.6	133.5	115.8	127.1	45.0	100.0
1975	41.8	88.6	59.8	100.3	82.4	85.2	151.0	175.4	137.8	109.8	122.6	45.9	100.1
1976	40.5	82.7	59.9	100.5	84.3	96.6	154.5	176.6	140.0	103.2	114.7	47.3	100.0
1977	38.6	76.4	60.8	99.9	85.7	107.2	155.0	179.7	145.1	95.0	109.6	46.6	100.0
1978	36.3	71.2	62.1	99.4	89.0	116.8	157.8	178.8	144.5	90.5	106.8	46.8	100.0
1979	35.7	69.2	63.1	97.3	90.6	122.7	*******	*******	*******	*******	*******	*******	79.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	159.2	178.4	144.2	88.2	105.5	46.9	120.4
1980	35.4	68.1	63.6	96.3	91.4	125.7	*******	*******	*******	*******	*******	*******	80.1

TABLE A106. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	93.3	131.8	60.8	310.4	29.5	150.8	129.4
1974	85.7	34.8	128.5	12.7	140.6	7.7	80.7	93.0	253.6	123.5	36.3	117.5	93.3
1975	81.1	133.7	133.9	54.4	25.7	85.7	71.2	242.1	243.1	21.3	55.5	61.0	101.0
1976	78.7	135.6	206.9	50.1	73.9	32.2	80.4	77.4	277.7	134.1	47.2	50.2	103.7
1977	76.3	173.1	125.8	81.1	77.9	107.4	79.4	45.6	43.0	104.8	47.7	234.9	99.7
1978	163.3	99.2	218.0	81.1	48.0	14.4	96.6	108.8	95.2	89.0	62.2	81.3	96.4
1979	138.5	161.9	156.6	40.5	43.9	157.2	*******	*******	*******	*******	*******	*******	116.4
AVGE	103.9	123.0	161.6	53.3	68.3	67.4	83.6	116.5	163.1	130.5	46.9	115.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	102064.500	11	9278.590	2.646**
RESIDUAL	210390.063	60	3506.501	
TOTAL	312454.563	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	81.6	107.6	218.4	120.5	42.3	100.9	111.9
1974	81.0	124.1	152.9	50.2	59.1	64.1	82.2	102.7	215.2	120.4	43.0	97.1	99.3
1975	86.2	124.9	156.2	54.1	59.5	66.1	82.6	95.5	208.7	116.4	45.6	88.2	98.7
1976	94.2	130.4	160.2	58.6	58.6	74.5	82.6	89.4	193.3	110.4	49.1	79.3	98.4
1977	105.1	134.2	168.6	61.3	58.1	79.4	82.8	84.8	181.0	106.4	51.9	71.7	98.8
1978	112.4	139.9	169.8	62.9	57.4	88.5	82.6	81.8	170.8	105.5	52.5	68.9	99.4
1979	117.1	141.1	170.1	63.9	58.2	91.2	*******	*******	*******	*******	*******	*******	106.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	82.5	80.3	165.7	105.1	52.9	67.4	92.3
1980	119.4	141.7	170.2	64.4	58.7	92.5	*******	*******	*******	*******	*******	*******	107.8

TABLE A107. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	117.0	102.4	87.2	73.3	62.4	112.4	92.5
1974	217.0	55.5	57.8	60.2	256.6	71.4	80.7	89.5	94.7	96.6	98.3	101.6	106.7
1975	104.5	106.2	106.2	104.4	101.5	98.5	96.1	95.0	95.5	97.1	99.2	101.0	100.4
1976	102.4	103.0	102.9	102.0	100.8	99.4	98.4	98.0	98.3	99.1	99.9	100.4	100.4
1977	100.6	100.6	100.4	10[illegible].3	100.2	100.1	100.0	99.9	99.8	99.8	99.8	99.9	100.1
1978	100.0	100.1	100.2	100.2	100.2	100.1	100.0	99.8	100.3	99.8	98.1	96.2	99.6
1979	191.0	96.4	98.5	100.2	100.9	100.2	*******	*******	*******	*******	*******	*******	114.5
AVGE	135.9	93.7	94.3	94.6	126.7	95.0	98.7	97.4	96.0	94.3	93.0	101.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	13233.500	11	1203.045	1.689
RESIDUAL	42745.188	60	712.420	
TOTAL	55978.688	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	91.0	96.2	93.5	93.9	99.6	104.5	96.4
1974	103.4	104.8	104.9	103.8	102.2	100.9	91.9	96.5	94.2	94.5	99.7	104.1	100.1
1975	103.0	104.2	104.3	103.2	101.7	100.6	93.5	96.6	95.7	96.2	99.6	102.5	100.1
1976	103.1	103.0	103.1	102.3	101.2	100.2	95.8	97.2	97.2	97.8	99.5	101.0	100.1
1977	103.1	101.7	101.9	101.5	100.8	100.0	97.7	97.8	98.5	99.1	99.4	99.6	100.1
1978	103.4	100.4	100.8	100.9	100.6	100.0	98.9	98.6	99.0	99.3	99.4	99.3	100.1
1979	103.3	99.8	100.4	100.7	100.6	100.2	*******	*******	*******	*******	*******	*******	100.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	99.6	99.1	99.2	99.5	99.4	99.2	99.3
1980	103.3	99.5	100.1	100.6	100.7	100.3	*******	*******	*******	*******	*******	*******	100.7

TABLE A108. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	119.2	116.5	70.1	147.2	69.2	83.5	100.9
1974	89.3	64.4	68.8	61.4	111.3	49.6	89.5	145.3	168.6	126.4	101.1	63.1	94.9
1975	64.8	105.6	73.9	107.3	72.6	43.4	52.5	232.1	373.3	108.5	115.9	60.6	117.5
1976	48.3	104.6	177.2	96.7	80.8	46.4	85.4	230.3	187.4	96.4	93.1	49.3	108.0
1977	50.7	118.4	85.5	91.7	84.5	157.7	197.9	112.1	79.7	95.6	68.8	93.7	103.0
1978	86.0	61.8	92.9	74.9	82.3	124.8	123.5	192.4	167.2	68.9	76.4	48.2	100.1
1979	54.4	86.7	91.8	91.3	89.4	117.8	*******	*******	*******	*******	*******	*******	88.6
AVGE	65.6	90.3	98.3	87.2	86.8	89.9	111.3	171.4	174.4	107.1	87.8	66.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	82220.313	11	7474.570	3.715**
RESIDUAL	120728.125	60	2012.135	
TOTAL	202948.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	93.0	175.8	172.3	123.6	95.7	66.6	121.2
1974	60.3	96.3	77.6	89.7	88.6	60.8	93.9	176.9	172.4	121.0	94.4	65.9	99.3
1975	61.4	94.8	78.6	88.5	87.9	67.9	94.7	182.3	172.2	112.2	92.8	62.3	99.6
1976	60.9	94.6	81.1	89.3	85.5	79.2	95.8	186.8	170.6	102.6	90.8	59.4	99.7
1977	60.7	92.3	84.1	88.5	83.9	90.9	97.5	191.7	169.6	93.3	87.9	55.8	99.7
1978	59.5	91.7	86.7	88.4	82.9	101.7	98.8	191.4	168.0	89.5	84.9	54.8	99.9
1979	59.9	90.4	88.3	86.7	83.9	106.3	*******	*******	*******	*******	*******	*******	86.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	99.4	191.2	167.2	87.6	83.4	54.3	113.9
1980	60.1	89.7	89.0	85.9	84.3	111.6	*******	*******	*******	*******	*******	*******	86.8

TABLE A109. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	133.1	69.1	88.1	75.1	101.0	83.2	91.6
1974	102.8	152.1	80.6	68.3	49.6	40.1	17.3	225.1	58.7	167.7	143.5	32.8	94.9
1975	113.6	92.9	93.1	69.4	71.2	50.0	60.8	203.4	435.6	192.0	244.0	7.6	136.1
1976	17.4	30.1	123.9	79.8	86.9	67.9	165.3	206.5	144.4	32.6	123.4	84.4	92.7
1977	33.5	104.2	88.7	144.7	37.6	48.0	139.7	151.3	49.2	126.3	215.5	82.1	101.7
1978	135.8	30.4	62.0	84.7	41.9	73.0	79.6	133.6	237.1	227.7	136.2	31.4	106.1
1979	82.6	38.2	55.9	41.9	54.9	118.2	*******	*******	*******	*******	*******	*******	65.3
AVGE	81.0	74.6	84.0	73.1	57.0	66.2	99.3	164.8	168.8	136.9	160.6	53.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	126465.625	11	11496.875	2.986**
RESIDUAL	231009.375	60	3850.156	
TOTAL	357475.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	97.6	177.9	105.9	136.1	162.3	56.4	122.7
1974	78.9	96.5	98.3	65.6	66.7	53.6	104.0	177.8	104.9	131.7	164.5	59.8	100.2
1975	80.0	92.5	94.8	68.1	62.3	53.7	104.9	179.8	112.9	136.4	167.4	59.0	101.0
1976	78.6	79.9	89.6	69.1	58.8	59.0	105.8	175.9	123.3	143.8	174.3	58.0	101.3
1977	76.9	64.0	83.5	67.1	56.1	66.8	108.5	173.0	137.6	148.2	172.4	57.2	100.9
1978	73.9	54.3	78.1	67.5	53.7	74.7	116.0	167.7	143.1	143.5	169.6	60.3	100.2
1979	73.5	53.0	75.2	69.9	50.7	77.2	*******	*******	*******	*******	*******	*******	66.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	119.8	165.0	145.8	141.2	168.2	61.8	133.7
1980	73.2	52.3	73.8	71.1	49.1	78.5	*******	*******	*******	*******	*******	*******	66.4

TABLE A110. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	70.5	98.1	90.3	145.8	100.1	54.2	93.2
1974	238.2	184.1	113.9	19.2	49.7	38.6	37.0	194.7	229.4	162.5	38.7	66.1	114.4
1975	116.3	120.5	37.3	91.6	63.4	93.7	36.1	45.4	157.0	155.9	90.7	86.8	91.2
1976	78.7	93.9	283.2	75.4	42.8	103.5	72.0	352.2	153.2	109.2	87.6	42.1	124.9
1977	57.1	141.3	166.4	72.8	69.1	100.3	142.5	153.1	79.2	107.7	146.6	40.2	107.2
1978	145.6	60.1	105.0	85.2	61.7	121.5	56.8	122.9	159.2	140.1	128.4	38.4	102.2
1979	75.5	46.9	64.4	93.4	117.8	57.0	*******	*******	*******	*******	*******	*******	75.8
AVGE	118.6	108.6	128.4	73.1	67.4	85.7	69.2	162.7	144.7	136.9	98.7	54.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	79915.875	11	7265.078	2.466**
RESIDUAL	176754.375	60	2945.906	
TOTAL	256670.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	51.7	133.5	158.4	148.4	79.4	65.2	106.1
1974	92.6	135.7	122.3	74.3	54.9	82.9	53.6	137.0	153.9	144.5	84.8	62.5	99.9
1975	94.0	130.9	123.1	74.8	55.8	86.0	54.2	141.7	153.9	140.3	91.9	58.7	100.4
1976	93.6	117.3	121.9	78.9	62.1	91.1	55.4	141.9	148.1	136.3	104.0	55.7	100.5
1977	94.3	101.7	119.8	82.1	68.1	95.6	57.7	143.1	146.2	132.6	113.0	51.6	100.5
1978	92.0	90.1	118.2	85.6	76.4	97.6	61.2	142.4	138.9	128.6	120.0	48.7	100.0
1979	91.5	87.8	119.4	85.4	79.2	97.4	*******	*******	*******	*******	*******	*******	93.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	62.9	142.1	135.2	126.6	123.5	47.2	100.3
1980	91.2	85.6	120.0	85.3	80.6	97.3	*******	*******	*******	*******	*******	*******	93.5

TABLE A111. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	52.6	45.5	40.5	37.3	67.8	246.6	81.7
1974	114.5	212.8	151.2	23.9	68.3	21.7	20.8	19.9	75.6	71.6	406.7	98.0	107.1
1975	319.6	64.4	82.4	240.6	36.9	20.0	44.0	24.4	27.3	124.6	472.9	209.3	138.9
1976	46.0	229.7	166.7	35.2	28.0	21.4	16.1	148.1	165.8	40.3	96.8	105.1	91.6
1977	86.5	218.8	216.5	84.8	67.3	468.0	9.6	234.3	51.3	25.0	37.5	54.3	129.5
1978	483.9	224.8	141.0	125.5	219.8	50.6	49.5	50.9	215.9	55.3	53.5	48.6	143.3
1979	41.6	34.6	144.9	24.4	249.2	90.4	*******	*******	*******	*******	*******	*******	97.5
AVGE	182.0	164.2	150.4	89.1	111.6	112.0	32.1	87.2	96.1	59.0	189.2	127.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	153578.500	11	13970.770	1.117
RESIDUAL	750764.000	60	12512.730	
TOTAL	904442.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	34.9	46.6	64.1	63.3	254.5	168.8	105.3
1974	119.0	171.5	140.6	60.3	46.6	27.5	32.8	64.4	68.9	60.0	232.3	157.0	96.4
1975	114.8	175.8	142.3	64.3	57.9	30.6	29.8	82.1	85.6	57.9	209.7	132.9	98.6
1976	106.0	168.6	144.5	68.9	81.4	38.6	28.7	100.5	98.3	55.7	178.6	113.4	98.6
1977	89.5	167.7	148.8	69.3	110.5	46.7	28.1	112.9	118.8	53.0	145.0	94.7	98.8
1978	76.6	160.9	155.4	69.3	138.1	56.5	27.8	124.6	126.2	48.6	110.9	88.5	98.6
1979	68.1	166.6	164.1	69.4	153.1	60.7	*******	*******	*******	*******	*******	*******	113.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	27.7	130.4	129.8	46.3	93.8	85.5	85.6
1980	63.9	169.5	168.4	69.5	160.5	62.7	*******	*******	*******	*******	*******	*******	115.8

TABLE A112. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	109.5	102.5	86.3	107.5	97.8	69.7	95.6
1974	192.5	184.8	108.8	39.9	47.0	37.0	32.9	210.4	170.4	171.0	96.5	47.3	111.5
1975	126.9	106.7	66.1	94.4	70.2	69.4	43.0	109.7	248.7	169.4	152.4	74.2	110.9
1976	68.4	86.7	226.6	58.1	53.8	89.9	108.0	310.4	140.9	93.1	97.3	66.3	115.6
1977	48.0	122.1	140.7	85.5	62.1	93.7	108.9	144.3	78.9	109.0	151.6	49.6	99.6
1978	139.6	49.4	83.7	87.4	78.2	107.9	81.3	119.8	164.4	159.5	120.5	40.4	102.6
1979	80.3	61.4	86.3	89.8	110.7	83.2	*******	*******	*******	*******	*******	*******	85.3
AVGE	109.3	101.9	118.7	75.8	70.3	80.2	80.3	166.2	148.2	133.1	119.3	57.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	73927.938	11	6720.719	3.321**
RESIDUAL	121432.313	60	2023.872	
TOTAL	195360.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	69.3	143.8	148.2	139.7	113.1	64.3	113.1
1974	97.9	125.5	100.1	67.7	58.2	70.4	74.2	145.6	144.5	135.8	115.6	63.6	99.9
1975	98.3	120.3	100.9	69.6	59.3	73.6	76.9	147.5	145.0	134.7	118.8	60.6	100.5
1976	95.4	106.5	100.4	75.3	65.1	80.2	80.5	143.0	143.3	133.6	125.4	58.4	100.6
1977	92.8	91.5	99.8	78.6	71.1	87.3	84.8	140.7	143.3	131.3	127.3	55.9	100.4
1978	88.4	80.9	100.9	82.9	77.7	92.8	90.8	137.0	137.9	125.4	128.1	55.6	99.9
1979	87.3	79.3	103.9	83.4	79.5	94.5	*******	*******	*******	*******	*******	*******	88.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	93.8	135.1	135.2	122.5	128.5	55.5	111.8
1980	86.7	78.5	105.3	83.6	80.3	95.3	*******	*******	*******	*******	*******	*******	88.3

TABLE A113. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	151.0	170.2	144.7	22.7	144.7	47.1	113.4
1974	97.7	160.0	54.1	47.1	48.0	33.1	162.2	130.4	104.3	149.9	219.4	54.8	105.1
1975	42.7	54.0	65.5	84.3	92.0	42.7	27.7	253.7	258.0	109.2	154.4	38.5	101.9
1976	61.6	54.9	256.4	69.3	85.7	54.9	118.8	298.7	225.5	39.3	26.4	52.7	112.0
1977	92.7	151.8	55.2	119.1	19.7	137.5	297.8	214.8	99.0	127.7	112.0	128.8	129.3
1978	125.2	6.6	47.2	53.9	114.5	150.3	84.9	138.7	180.9	171.9	119.2	17.3	100.9
1979	3.8	48.9	85.5	30.0	114.7	115.9	*******	*******	*******	*******	*******	*******	66.5
AVGE	70.6	79.4	94.0	66.6	79.1	89.1	140.4	201.1	168.7	103.4	129.3	56.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	130947.000	11	11904.270	3.300**
RESIDUAL	216456.250	60	3607.604	
TOTAL	347403.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	118.7	203.6	179.0	85.2	154.8	48.1	131.6
1974	71.8	74.6	61.8	74.6	68.7	58.4	119.3	210.0	177.0	86.3	147.0	47.7	99.8
1975	75.7	70.6	60.5	74.8	69.2	68.2	114.5	213.5	176.7	96.8	136.5	45.1	100.2
1976	74.9	61.7	61.0	73.9	74.1	83.5	104.9	216.5	178.0	107.2	124.6	41.1	100.1
1977	75.1	52.9	61.6	69.6	81.2	99.0	98.8	217.9	180.6	114.5	111.7	37.6	100.0
1978	73.4	47.1	62.8	67.0	85.3	113.2	97.2	221.1	180.6	111.6	100.4	36.3	99.7
1979	76.8	46.4	62.9	66.1	85.0	121.5	*******	*******	*******	*******	*******	*******	76.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	96.4	222.6	180.5	110.2	94.8	35.6	123.3
1980	78.4	46.1	62.9	65.7	84.3	125.6	*******	*******	*******	*******	*******	*******	77.3

TABLE A114. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	104.9	70.8	124.8	95.6	110.5	117.1	103.9
1974	170.3	48.5	20.1	77.2	157.6	57.7	7.8	120.5	146.3	114.9	218.8	82.7	101.9
1975	9.5	125.7	136.2	86.1	30.5	51.7	56.6	83.0	128.7	111.3	132.7	141.0	91.1
1976	114.8	55.0	199.7	67.0	25.9	38.8	80.9	76.1	186.3	79.8	32.7	34.3	85.1
1977	146.3	252.6	171.0	103.9	140.7	18.7	71.4	22.0	151.5	56.8	183.0	148.2	122.2
1978	74.7	133.1	437.9	136.4	23.9	41.2	72.3	66.3	88.4	49.9	126.9	110.2	113.6
1979	209.2	125.2	23.3	49.5	33.8	58.5	*******	*******	*******	*******	*******	*******	83.2
AVGE	120.8	128.3	164.7	87.0	68.7	44.4	65.6	73.1	137.6	84.7	134.1	105.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	86330.625	11	7848.238	1.954
RESIDUAL	240955.313	60	4015.922	
TOTAL	327285.938	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	72.7	90.1	142.8	104.4	141.7	104.7	109.4
1974	124.7	109.3	150.8	82.0	32.0	45.6	73.6	86.1	145.8	99.7	140.1	104.3	99.5
1975	122.1	116.9	153.1	87.2	31.8	44.0	71.9	81.2	145.6	91.9	139.8	103.5	99.1
1976	122.3	129.7	155.3	90.5	31.6	42.6	70.9	73.4	143.3	83.4	135.8	108.7	99.2
1977	126.0	136.9	157.6	92.6	30.9	42.3	71.3	68.2	141.2	75.5	134.4	108.6	98.8
1978	134.7	147.5	156.1	92.4	31.0	41.2	73.6	63.4	142.0	70.5	128.4	108.9	99.1
1979	141.0	152.9	154.8	94.0	31.0	39.9	*******	*******	*******	*******	*******	*******	102.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	74.7	61.0	142.4	68.0	125.4	109.0	96.8
1980	144.1	155.6	154.2	94.7	31.0	39.3	*******	*******	*******	*******	*******	*******	103.2

TABLE A115. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.7	99.2	197.6	98.5	98.5	98.7	115.4
1974	99.3	99.9	100.4	100.7	100.8	100.7	100.4	100.1	99.4	98.3	97.7	98.0	99.6
1975	99.3	101.1	102.7	103.5	103.2	101.9	99.5	96.9	94.3	92.2	182.9	92.9	105.9
1976	96.7	101.7	105.8	107.0	105.0	202.5	97.5	94.6	93.3	93.8	92.8	88.5	106.6
1977	82.6	77.2	73.9	1022.7	75.1	79.8	85.9	91.0	92.6	90.5	87.9	87.0	162.2
1978	87.4	88.7	271.2	92.6	93.1	90.3	85.0	79.5	76.0	151.6	78.5	78.4	106.0
1979	72.8	63.4	269.9	47.0	127.0	39.5	*******	*******	*******	*******	*******	*******	103.3
AVGE	89.7	88.7	154.0	245.6	100.7	102.4	94.7	93.5	108.9	104.1	106.4	90.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	131838.500	11	11985.316	0.891
RESIDUAL	807075.000	60	13451.250	
TOTAL	938913.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.1	97.6	97.1	95.5	98.5	94.9	97.1
1974	95.6	97.0	107.1	120.9	99.8	98.1	98.5	97.5	97.0	95.0	97.2	93.9	99.8
1975	94.4	95.5	111.3	128.1	98.6	96.8	96.8	96.0	95.2	93.2	94.6	91.4	99.7
1976	91.2	91.4	118.0	141.2	99.0	92.6	94.3	93.5	92.5	101.9	92.2	88.8	99.7
1977	88.1	87.3	125.2	152.7	100.2	88.2	92.1	91.1	89.7	106.9	89.3	86.2	99.8
1978	84.4	82.2	131.1	166.5	101.5	82.7	90.6	89.4	88.2	108.2	88.1	85.1	99.8
1979	82.5	79.5	134.2	174.1	100.9	79.7	*******	*******	*******	*******	*******	*******	108.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	89.9	88.6	87.4	108.9	87.5	84.5	91.1
1980	81.6	78.1	135.8	177.9	100.5	73.3	*******	*******	*******	*******	*******	*******	108.7

TABLE A116. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	116.5	112.8	132.0	48.1	147.1	66.2	103.8
1974	123.5	136.6	51.7	55.5	94.2	37.9	75.5	159.6	136.1	162.5	210.6	68.4	109.3
1975	24.5	81.5	105.9	83.1	77.6	43.0	35.4	151.4	175.3	108.5	131.6	83.1	91.7
1976	84.3	66.7	201.3	56.1	85.1	55.0	94.5	138.6	211.3	60.0	40.4	52.9	95.5
1977	129.9	207.4	121.7	110.9	63.9	66.3	132.7	97.4	109.6	89.4	117.2	155.8	116.9
1978	116.7	54.7	161.1	84.2	76.4	109.7	86.2	107.1	131.8	114.1	104.3	51.0	99.8
1979	85.0	95.8	85.8	68.0	99.7	104.1	*******	*******	*******	*******	*******	*******	89.9
AVGE	94.0	107.3	121.2	76.3	82.5	69.3	90.1	127.8	149.3	97.1	125.2	79.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	40035.750	11	3639.614	2.337
RESIDUAL	93453.625	60	1557.560	
TOTAL	133489.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.9	140.8	157.3	80.7	149.0	69.6	113.9
1974	105.6	94.0	112.9	71.9	82.6	48.7	90.0	136.6	157.7	80.5	144.8	68.6	99.7
1975	107.3	91.0	116.5	74.5	81.0	53.7	91.5	135.6	157.8	84.3	137.7	66.5	99.8
1976	106.5	85.4	121.1	78.2	80.1	63.2	94.0	130.1	155.8	89.4	128.1	65.3	99.7
1977	105.1	79.9	126.9	79.3	80.5	74.4	95.3	125.2	155.7	92.6	118.8	62.7	99.7
1978	104.5	77.7	127.8	81.6	81.0	83.6	98.6	120.5	155.3	91.3	112.0	61.0	99.6
1979	106.8	78.3	128.2	83.1	80.9	87.8	*******	*******	*******	*******	*******	*******	94.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	100.2	118.2	155.1	90.7	108.6	60.2	105.5
1980	108.0	78.7	128.3	83.9	80.9	89.9	*******	*******	*******	*******	*******	*******	94.9

TABLE A117. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	136.8	203.4	115.9	115.5	89.8	51.2	118.8
1974	67.8	77.4	54.8	56.1	84.1	129.7	125.4	164.6	108.5	114.1	126.2	28.9	94.8
1975	52.8	113.1	90.5	100.1	65.5	51.3	65.1	275.3	347.9	138.2	72.7	42.4	117.9
1976	44.4	106.2	215.0	65.6	94.6	97.3	132.4	399.6	161.8	57.4	18.4	64.9	121.5
1977	29.0	85.0	101.7	93.8	51.1	167.1	264.9	169.1	103.1	75.0	112.6	76.4	110.7
1978	86.1	56.3	63.7	77.4	90.2	129.6	139.9	186.2	165.8	95.7	95.1	45.7	102.8
1979	28.5	39.0	98.4	90.6	90.0	120.7	*******	*******	*******	*******	*******	*******	77.9
AVGE	51.8	79.5	104.0	80.6	79.2	115.9	144.1	233.0	167.2	99.3	85.8	51.6	

STABLE SEASONALITY :EST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	178907.625	11	16264.328	6.404**
RESIDUAL	152391.625	60	2539.860	
TOTAL	331299.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	116.4	213.0	129.0	112.2	94.5	44.2	118.2
1974	50.8	96.3	81.5	76.8	76.8	108.0	119.8	211.2	129.8	107.7	95.9	47.6	100.2
1975	49.0	93.2	81.4	77.7	76.5	112.5	123.2	207.8	133.6	101.2	97.2	50.4	100.3
1976	44.5	87.4	84.0	80.7	76.3	116.2	125.3	206.4	137.3	96.4	96.6	54.0	100.4
1977	40.2	79.5	85.4	81.7	78.9	120.8	128.5	204.0	142.8	90.3	95.9	56.4	100.4
1978	35.7	71.8	88.0	83.9	79.4	126.4	131.3	202.1	144.5	85.6	94.9	59.3	100.3
1979	34.1	67.0	88.2	84.0	79.7	132.8	*******	*******	*******	*******	*******	*******	81.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	132.8	201.1	145.4	83.2	94.4	60.7	119.6
1980	33.3	64.6	88.2	84.1	79.8	136.0	*******	*******	*******	*******	*******	*******	81.0

TABLE A118. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	121.4	178.8	92.5	92.1	63.7	94.3	107.1
1974	90.2	138.2	113.5	55.9	37.2	27.0	89.7	148.5	275.4	217.1	63.6	67.6	110.3
1975	106.5	127.8	76.1	87.5	71.5	69.8	75.4	243.3	222.6	81.7	71.1	80.8	109.5
1976	76.2	65.1	254.8	88.5	67.0	91.4	92.2	252.9	88.9	74.5	86.8	66.1	108.7
1977	62.1	134.2	94.7	88.9	95.5	124.4	102.2	122.1	92.7	119.8	58.0	63.7	96.5
1978	74.0	109.6	125.7	57.6	92.1	142.2	108.8	201.0	97.7	79.6	52.7	139.5	106.7
1979	83.8	80.6	93.6	89.0	109.5	120.3	*******	*******	*******	*******	*******	*******	96.1
AVGE	82.1	109.3	126.4	77.9	78.8	95.9	98.3	191.1	145.0	110.8	66.0	85.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	81031.625	11	7366.508	4.054**
RESIDUAL	109033.813	60	1817.230	
TOTAL	190065.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	94.3	198.1	128.4	90.3	68.7	78.0	109.6
1974	86.0	125.3	99.7	78.3	65.0	88.6	95.3	197.8	124.9	92.1	69.3	76.6	99.9
1975	83.9	124.6	101.1	77.8	68.3	94.1	95.0	198.2	121.1	92.9	68.9	73.5	99.9
1976	81.4	119.9	101.1	79.2	76.3	101.8	95.0	198.7	114.6	92.8	67.6	71.3	100.0
1977	78.1	113.5	103.3	79.3	83.6	110.5	95.6	201.0	107.5	91.1	66.7	69.2	100.0
1978	75.4	108.3	103.5	80.5	90.9	117.6	96.9	201.5	100.1	89.6	66.4	68.6	100.0
1979	73.2	107.4	105.3	79.5	93.6	122.5	*******	*******	*******	*******	*******	*******	96.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	97.5	201.8	96.3	89.9	66.2	68.3	103.2
1980	72.2	107.0	106.2	78.9	95.0	125.0	*******	*******	*******	*******	*******	*******	97.4

TABLE A119. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	99.3	99.5	100.2	99.9	97.2	94.0	98.4
1974	369.8	93.3	95.9	98.4	99.2	98.6	99.0	99.5	99.4	99.8	100.8	101.9	121.3
1975	102.2	101.3	99.8	98.6	98.4	99.0	99.4	99.8	99.9	100.3	101.1	102.1	100.2
1976	102.5	101.8	100.1	97.9	95.9	95.0	95.6	98.0	101.6	105.0	106.7	106.3	100.5
1977	104.6	102.1	99.0	95.1	91.2	89.0	90.0	94.8	102.9	110.8	114.4	112.6	100.5
1978	107.9	102.6	97.3	94.8	92.7	83.3	65.5	47.7	35.5	29.0	440.2	73.9	105.9
1979	96.9	24.5	277.0	26.1	27.2	85.1	*******	*******	*******	*******	*******	*******	89.5
AVGE	147.3	87.6	128.2	85.2	84.1	91.7	91.5	89.9	89.9	90.8	160.1	98.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	45220.000	11	4110.906	1.199
RESIDUAL	205751.625	60	3429.194	
TOTAL	250971.625	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	98.8	99.4	100.2	100.8	100.9	100.5	100.1
1974	110.4	99.4	98.8	97.9	96.8	96.1	97.9	98.9	100.3	101.6	101.9	101.5	100.1
1975	110.0	100.0	98.9	97.7	96.2	94.7	94.7	97.8	101.0	103.7	105.1	104.4	100.4
1976	107.5	101.5	99.1	96.9	94.7	92.6	91.1	96.6	102.0	106.3	108.7	107.6	100.4
1977	105.3	103.0	99.1	96.0	93.0	90.3	87.3	95.5	103.2	109.0	112.3	110.6	100.4
1978	103.1	104.3	98.8	94.9	91.1	88.3	85.9	95.1	103.9	110.4	113.9	111.8	100.1
1979	103.0	104.4	98.4	94.2	90.3	87.2	*******	*******	*******	*******	*******	*******	96.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	85.2	95.0	104.2	111.1	114.8	112.4	103.8
1980	103.0	104.4	98.2	93.9	89.8	86.6	*******	*******	*******	*******	*******	*******	96.0

TABLE A120. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR DURUM WHEAT SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	144.7	208.1	104.5	111.9	83.6	63.7	119.4
1974	89.6	103.7	83.2	68.5	68.9	89.1	110.2	149.9	159.7	131.0	82.9	47.6	98.7
1975	65.3	121.0	92.5	84.1	58.1	52.7	57.2	222.4	261.5	109.1	75.3	58.1	104.8
1976	62.0	96.8	225.8	78.4	86.3	99.1	129.5	349.8	129.7	71.7	64.0	71.1	122.0
1977	52.3	111.1	119.3	81.7	79.0	145.6	202.8	147.6	93.8	83.7	85.9	68.2	105.9
1978	78.6	84.3	90.0	76.2	89.8	135.1	120.7	174.2	130.5	77.6	74.6	73.5	100.4
1979	53.3	48.1	97.3	88.7	96.1	132.6	*******	*******	*******	*******	*******	*******	86.0
AVGE	66.8	94.2	118.0	79.6	79.7	109.0	127.5	208.7	146.6	97.5	77.7	63.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	111195.500	11	10108.680	6.867**
RESIDUAL	88317.750	60	1471.962	
TOTAL	199513.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	122.8	191.2	130.0	109.0	77.1	57.9	114.7
1974	62.3	106.5	98.6	77.1	71.9	99.6	123.9	189.6	128.4	106.1	77.4	59.3	99.9
1975	62.9	105.5	97.6	77.5	73.8	104.8	123.2	185.6	128.4	100.6	76.9	61.4	99.9
1976	62.5	103.0	99.2	79.1	77.3	112.5	122.4	182.8	125.3	94.1	76.5	64.0	99.9
1977	62.5	98.6	100.2	80.1	82.2	120.1	122.1	180.3	123.7	87.1	75.4	66.6	99.9
1978	61.2	95.4	101.4	81.3	85.8	127.1	122.8	179.3	119.8	82.1	74.6	68.6	99.9
1979	61.1	93.7	102.1	81.1	87.5	131.1	*******	*******	*******	*******	*******	*******	92.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	123.2	178.7	117.9	79.7	74.2	69.5	107.2
1980	61.0	92.9	102.4	81.0	88.3	133.2	*******	*******	*******	*******	*******	*******	93.2

TABLE A121. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	175.6	144.2	116.5	126.9	76.3	76.5	119.3
1974	70.5	45.9	116.4	81.5	79.9	88.8	152.1	181.3	70.1	68.8	154.4	85.6	99.6
1975	88.7	59.0	57.1	106.0	51.8	90.2	94.4	243.4	168.2	150.7	72.5	55.8	103.2
1976	48.8	47.3	112.3	73.0	86.5	98.1	109.9	158.7	192.2	146.4	72.5	16.2	96.8
1977	26.7	105.0	84.6	56.3	76.3	122.8	180.1	275.2	86.4	80.1	84.9	89.3	105.7
1978	46.2	36.5	39.6	90.0	118.6	112.4	151.2	220.2	134.4	40.6	47.6	88.4	93.8
1979	62.5	39.3	50.3	53.3	99.1	146.8	*******	*******	*******	*******	*******	*******	75.2
AVGE	57.2	55.5	76.7	76.7	85.4	109.8	143.9	203.8	128.0	102.2	84.7	68.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	119517.125	11	10865.191	9.438**
RESIDUAL	69071.375	60	1151.189	
TOTAL	188588.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	137.6	187.0	137.4	123.9	77.4	74.0	122.9
1974	64.9	50.2	90.8	82.8	73.8	97.6	138.9	191.6	137.1	122.6	77.9	75.1	100.3
1975	62.1	48.9	86.6	81.6	76.8	99.7	138.4	200.9	137.8	118.4	76.5	77.2	100.4
1976	58.8	47.2	78.1	78.5	80.8	105.4	138.0	214.2	138.1	114.6	73.8	78.0	100.5
1977	54.2	44.6	71.2	74.7	87.8	111.9	137.5	220.2	140.7	111.5	70.6	79.6	100.4
1978	50.8	42.7	65.5	70.1	92.5	119.1	138.7	221.4	142.2	111.0	69.0	80.1	100.3
1979	48.0	41.2	64.3	67.4	96.1	122.7	*******	*******	*******	*******	*******	*******	73.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	139.3	222.0	142.9	110.8	68.2	80.4	127.3
1980	46.6	40.4	63.7	66.0	97.9	124.5	*******	*******	*******	*******	*******	*******	73.2

TABLE A122. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO MINNEAPOLIS/ ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.8	119.8	117.7	151.3	105.2	59.6	117.1
1974	52.4	62.8	116.7	100.7	67.3	75.8	164.4	154.4	120.9	114.3	145.5	63.6	103.2
1975	99.1	67.3	57.9	102.1	64.2	89.7	105.0	192.1	192.7	123.0	85.6	82.3	105.1
1976	62.5	58.0	104.4	63.3	88.5	126.6	136.7	178.1	104.4	101.2	77.2	69.9	97.6
1977	57.9	116.4	130.4	96.0	71.5	118.3	107.3	183.2	71.1	128.4	63.8	83.5	102.3
1978	60.3	84.4	115.3	79.0	83.4	122.3	107.1	144.9	156.0	56.0	56.7	150.4	101.3
1979	106.9	52.4	62.7	79.8	137.2	143.6	*******	*******	*******	*******	*******	*******	97.1
AVGE	73.2	73.6	97.9	86.8	85.4	112.7	128.2	162.1	127.1	112.4	89.0	84.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	46645.875	11	4240.531	5.075**
RESIDUAL	50136.063	60	835.601	
TOTAL	96781.938	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	138.6	158.4	118.0	124.9	95.6	68.5	117.3
1974	58.3	64.4	111.6	89.6	73.0	100.6	136.9	161.5	115.6	124.1	92.6	69.6	99.8
1975	58.4	66.3	112.7	89.2	73.8	103.3	132.2	166.1	114.9	121.0	86.5	72.2	99.7
1976	59.5	67.9	114.4	87.5	75.5	110.2	123.7	170.4	114.3	119.2	78.9	75.9	99.8
1977	60.5	68.9	115.6	83.7	78.3	118.4	118.0	172.0	114.8	116.3	72.1	78.4	99.8
1978	61.4	69.3	117.7	81.8	79.7	125.0	114.9	171.6	113.5	115.7	68.5	79.2	99.8
1979	61.4	70.1	119.3	81.2	80.1	127.0	*******	*******	*******	*******	*******	*******	69.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	113.3	171.5	112.8	115.4	66.7	79.6	109.9
1980	61.4	70.5	120.2	80.9	80.3	128.0	*******	*******	*******	*******	*******	*******	90.2

TABLE A123. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	134.7	95.6	67.2	64.1	43.4	37.3	73.7
1974	61.1	109.2	130.5	149.5	53.8	70.0	145.5	104.6	84.9	41.2	57.2	73.7	90.1
1975	117.5	34.5	41.1	86.2	72.6	173.7	320.6	190.0	38.0	6.0	35.8	331.2	120.7
1976	73.3	117.5	76.8	29.6	63.8	291.4	434.3	159.4	21.3	63.7	55.7	59.0	120.5
1977	81.9	166.8	9.9	228.7	58.8	134.7	82.8	314.1	133.1	98.3	35.9	130.9	123.0
1978	52.1	62.7	82.1	64.7	84.6	171.1	130.5	127.0	58.9	191.2	48.2	216.5	107.5
1979	60.2	57.5	84.9	79.0	73.1	38.8	*******	*******	*******	*******	*******	*******	65.6
AVGE	74.3	91.4	70.9	106.3	67.8	146.6	208.1	165.1	67.2	77.4	46.2	141.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	159724.188	11	14520.379	2.817**
RESIDUAL	309257.188	60	5154.285	
TOTAL	468981.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	237.9	142.1	60.3	51.5	50.0	71.5	102.2
1974	88.4	98.6	78.8	92.0	65.5	159.3	232.2	154.2	57.1	55.2	49.1	74.6	100.4
1975	85.2	97.3	76.3	89.1	65.9	156.7	224.4	166.5	53.1	59.9	48.4	89.8	101.1
1976	81.9	92.5	70.6	81.4	67.6	152.7	215.3	184.3	48.4	65.4	46.1	108.1	101.2
1977	74.7	89.1	69.7	72.9	69.5	148.5	211.5	190.8	44.7	70.3	45.4	124.4	101.0
1978	70.3	87.2	67.7	68.6	70.7	138.9	211.5	198.2	42.1	74.4	44.9	129.3	100.3
1979	65.9	88.8	68.8	69.2	70.8	131.4	*******	*******	*******	*******	*******	*******	82.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	211.6	201.9	40.8	76.5	44.6	131.8	117.9
1980	53.7	89.6	69.4	69.5	70.8	127.6	*******	*******	*******	*******	*******	*******	81.8

TABLE A124. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	161.0	132.2	114.4	133.4	97.3	69.7	113.0
1974	60.3	69.3	115.7	104.2	67.8	72.0	150.1	156.6	110.7	108.6	121.4	65.8	100.2
1975	88.6	67.6	64.9	104.0	60.1	88.4	103.8	194.5	160.3	124.9	80.0	77.8	102.9
1976	59.7	55.7	102.2	66.6	86.6	113.6	125.8	174.3	142.0	124.2	81.1	54.8	93.9
1977	50.4	119.4	112.9	80.0	72.3	114.2	133.7	202.1	70.4	83.4	67.9	83.3	99.6
1978	62.3	66.5	90.0	71.6	95.2	129.1	119.0	156.6	136.9	60.2	66.4	122.3	98.0
1979	77.5	54.2	71.9	74.0	109.6	118.3	*******	*******	*******	*******	*******	*******	84.3
AVGE	66.5	72.2	93.0	83.4	81.9	105.9	132.2	169.4	125.8	106.6	85.7	78.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	58782.750	11	5343.883	9.829**
RESIDUAL	32621.125	60	543.685	
TOTAL	91403.875	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	136.2	162.9	128.2	122.4	95.6	69.4	119.1
1974	60.7	64.3	104.4	89.5	71.5	94.6	135.6	166.2	129.4	120.4	93.2	69.9	100.0
1975	60.3	64.5	103.7	87.7	73.1	98.0	132.2	171.0	132.3	117.2	88.9	70.9	100.0
1976	61.0	63.8	100.2	84.0	77.6	104.5	127.3	176.8	136.2	113.6	82.2	73.0	100.0
1977	61.9	62.4	96.6	78.9	84.0	111.9	123.7	179.3	139.0	111.3	76.7	73.9	100.0
1978	62.9	61.2	93.4	75.4	89.1	117.2	122.8	180.1	140.1	110.2	73.1	74.2	100.0
1979	62.8	61.1	93.1	73.8	91.4	119.4	*******	*******	*******	*******	*******	*******	83.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	122.3	180.5	140.6	109.6	71.3	74.3	116.4
1980	62.7	61.0	92.9	73.1	92.6	120.4	*******	*******	*******	*******	*******	*******	83.8

TABLE A125. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	199.7	178.0	122.8	122.8	153.2	90.4	144.5
1974	36.0	38.9	63.4	73.2	73.4	61.0	138.5	209.1	136.8	101.3	141.3	64.4	94.8
1975	53.2	56.7	47.5	62.2	70.2	299.4	181.4	173.0	143.0	120.5	100.5	111.3	118.2
1976	40.6	20.0	78.5	84.4	75.6	119.7	161.5	356.8	92.7	87.2	85.9	131.6	111.2
1977	15.8	79.1	96.6	77.7	63.0	23.1	112.9	531.9	111.8	68.7	73.5	68.9	110.2
1978	48.0	109.0	50.7	69.5	227.1	337.8	397.5	430.0	165.5	27.1	63.3	248.5	181.2
1979	40.7	93.2	48.0	13.7	424.2	-794.1	*******	*******	*******	*******	*******	*******	-29.1
AVGE	39.0	66.1	64.1	63.5	155.6	7.8	198.6	313.1	128.8	87.9	103.0	119.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	442674.563	11	40243.141	2.055
RESIDUAL	1174758.000	60	19579.297	
TOTAL	1617433.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	176.1	218.0	131.5	113.7	128.2	97.7	144.2
1974	40.2	45.5	68.7	74.8	72.6	35.2	162.1	244.9	126.8	108.1	120.5	95.8	99.6
1975	39.2	51.1	67.7	73.4	81.7	31.6	135.1	285.0	124.1	95.7	106.0	102.9	99.5
1976	37.7	58.9	64.8	67.0	111.4	23.1	104.6	321.4	121.3	82.3	89.7	111.5	99.5
1977	36.1	64.9	61.5	60.6	146.7	14.1	80.7	346.3	117.6	68.8	76.0	123.0	99.7
1978	33.6	69.9	59.2	53.5	176.8	7.5	69.7	356.8	112.5	62.3	69.3	126.9	99.8
1979	31.5	72.9	59.2	51.4	188.5	5.3	*******	*******	*******	*******	*******	*******	68.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	64.2	362.1	110.0	59.1	66.0	128.9	131.7
1980	30.5	74.4	59.2	50.3	194.3	4.2	*******	*******	*******	*******	*******	*******	68.8

TABLE A126. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.4	214.0	110.5	170.0	99.5	57.3	133.3
1974	54.0	39.5	92.3	143.4	75.3	109.7	164.7	132.9	143.0	110.3	106.3	66.2	103.1
1975	112.2	75.5	68.3	53.2	67.9	82.8	108.2	133.1	287.9	114.3	100.4	128.8	111.1
1976	66.3	33.7	95.7	57.0	46.7	163.4	77.9	383.3	97.4	125.0	84.6	71.6	108.5
1977	69.4	133.3	97.2	76.0	32.3	87.4	56.5	357.1	150.3	97.9	71.4	115.7	112.0
1978	49.0	46.2	73.0	46.7	54.4	106.2	130.8	261.4	113.7	47.9	48.2	169.9	96.5
1979	144.6	43.7	78.8	56.9	68.2	31.3	*******	*******	*******	*******	*******	*******	70.6
AVGE	82.6	62.0	84.2	72.2	59.1	96.8	114.4	247.0	150.5	110.9	85.1	101.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	172717.063	11	15701.551	6.564**
RESIDUAL	143533.063	60	2392.218	
TOTAL	316250.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	131.9	212.4	124.8	131.4	100.1	82.7	130.5
1974	63.3	49.5	86.7	61.2	58.8	97.4	123.0	229.0	124.1	127.8	96.6	83.8	100.1
1975	62.4	49.2	85.7	60.7	58.0	97.4	113.3	249.4	124.1	118.2	90.3	92.8	100.1
1976	62.7	49.5	84.5	59.9	56.8	94.5	102.2	270.4	125.0	108.9	83.2	106.2	100.3
1977	62.2	47.3	83.6	58.5	55.8	92.7	94.7	290.5	123.2	100.5	76.0	116.6	100.1
1978	62.6	46.3	83.3	58.3	54.4	88.7	88.6	307.5	121.1	98.9	72.2	119.4	100.1
1979	61.7	44.8	84.1	58.9	53.9	88.2	*******	*******	*******	*******	*******	*******	65.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	85.6	316.0	120.1	98.1	70.3	120.8	135.1
1980	61.3	44.1	84.5	59.2	53.6	88.0	*******	*******	*******	*******	*******	*******	65.1

TABLE A127. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	169.2	128.0	72.0	94.2	76.8	43.9	97.4
1974	103.4	99.3	222.9	217.7	57.2	77.9	104.7	122.4	144.9	48.3	119.8	50.8	114.1
1975	142.3	54.2	19.9	199.5	27.1	186.6	224.3	165.9	44.6	58.5	64.7	59.9	104.0
1976	308.8	144.4	50.2	57.9	71.1	89.0	314.1	108.5	103.8	105.9	102.4	84.4	128.4
1977	59.4	42.0	32.3	562.0	75.9	121.0	99.4	127.3	175.5	224.6	65.0	40.4	135.4
1978	60.8	41.1	41.0	67.2	130.3	404.4	216.5	160.7	61.9	63.0	61.1	67.4	114.6
1979	60.3	110.6	36.4	37.0	23.9	25.8	*******	*******	*******	*******	*******	*******	49.0
AVGE	122.5	81.9	67.1	190.2	64.3	150.8	188.0	135.5	100.5	99.1	81.6	57.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	140553.500	11	12778.500	1.688
RESIDUAL	454194.875	60	7569.914	
TOTAL	594758.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	185.4	135.0	90.2	73.3	89.9	56.8	105.1
1974	109.2	91.3	35.4	157.6	55.1	117.6	183.3	132.7	96.5	83.5	89.0	57.0	100.7
1975	102.9	84.8	35.4	150.4	60.8	119.2	185.2	132.5	101.8	91.4	87.5	59.3	100.9
1976	95.0	80.3	35.8	133.3	65.0	123.1	190.5	136.8	104.2	102.4	82.5	61.2	100.8
1977	85.6	81.0	37.9	109.2	72.1	122.5	202.1	140.5	105.4	108.9	79.8	64.7	100.8
1978	76.8	81.2	39.2	92.1	74.6	121.2	211.2	142.2	107.2	117.3	77.5	66.0	100.5
1979	69.8	79.7	40.2	86.1	79.0	118.8	*******	*******	*******	*******	*******	*******	78.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	215.7	143.0	108.1	121.6	76.3	66.7	121.9
1980	66.3	79.0	40.7	83.1	81.3	117.5	*******	*******	*******	*******	*******	*******	78.0

TABLE A128. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	147.8	157.4	102.7	146.8	111.3	61.6	121.3
1974	62.3	51.6	100.8	118.0	66.3	82.7	133.7	158.4	142.0	104.5	113.8	68.8	100.7
1975	107.6	80.4	80.1	54.7	71.4	109.0	126.4	138.8	244.2	115.6	100.0	109.5	111.5
1976	64.5	31.8	85.0	61.1	58.0	137.0	102.9	366.4	120.5	133.5	77.0	70.3	109.0
1977	67.0	119.2	91.2	96.7	34.2	85.1	83.8	408.3	162.6	109.0	70.9	114.3	120.2
1978	49.6	83.7	94.7	60.0	69.8	126.3	125.0	183.4	113.8	62.3	74.6	139.0	98.5
1979	74.3	69.3	67.7	80.5	83.3	90.2	*******	*******	*******	*******	*******	*******	77.6
AVGE	70.9	72.7	86.6	78.5	63.8	105.0	120.8	235.4	147.6	111.9	91.3	93.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	146166.750	11	13287.883	7.080**
RESIDUAL	112605.250	60	1876.754	
TOTAL	258772.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	133.1	161.3	127.9	124.6	104.2	78.9	121.7
1974	68.4	67.3	89.1	76.0	64.1	106.1	128.1	166.9	129.6	123.7	100.3	80.6	100.0
1975	67.0	69.0	89.4	75.9	64.2	106.6	121.7	174.2	132.1	118.1	94.3	87.7	100.0
1976	66.5	71.9	87.7	74.6	65.5	107.4	115.0	180.7	134.7	112.3	87.6	97.9	100.1
1977	65.0	73.4	86.0	73.3	66.7	109.5	110.4	187.3	134.5	106.8	81.5	105.5	100.0
1978	64.9	74.9	84.3	74.2	68.0	108.0	107.4	192.5	133.7	106.3	78.0	108.1	100.0
1979	63.7	75.1	84.5	76.3	68.1	105.9	*******	*******	*******	*******	*******	*******	79.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	105.8	195.1	133.3	106.1	76.2	109.3	121.0
1980	63.2	75.1	84.7	77.4	68.2	104.9	*******	*******	*******	*******	*******	*******	78.9

TABLE A129. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	185.6	106.4	36.9	136.7	88.5	85.1	106.6
1974	25.8	42.5	110.7	67.0	73.2	89.0	164.7	137.7	93.4	79.1	172.6	63.9	95.0
1975	63.5	40.1	47.0	3.6	49.3	159.7	104.5	277.1	215.7	85.0	164.8	56.2	105.5
1976	44.6	34.1	55.6	100.0	72.7	84.3	138.6	252.6	155.5	119.3	89.3	61.5	100.7
1977	42.2	118.3	91.6	49.5	77.7	45.7	110.9	359.0	141.8	106.1	99.4	83.1	110.4
1978	50.1	27.1	74.3	172.8	108.2	79.2	91.5	215.3	231.4	67.4	76.7	88.2	106.9
1979	76.8	48.8	58.5	40.5	78.6	85.6	*******	*******	*******	*******	*******	*******	64.8
AVGE	50.5	51.8	72.9	72.2	76.6	90.6	132.6	22[illegible].7	145.8	98.9	115.2	76.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	158459.438	11	14405.402	6.845**
RESIDUAL	126268.875	60	2104.481	
TOTAL	284728.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	155.3	192.6	156.4	107.0	139.1	75.8	137.7
1974	45.9	40.6	76.1	59.6	68.8	81.0	150.8	235.6	154.8	107.2	133.1	75.1	100.0
1975	46.0	39.6	76.1	58.2	71.5	78.6	139.7	226.8	159.1	102.7	126.7	74.9	100.0
1976	48.0	39.0	72.7	54.9	74.2	75.7	125.5	251.8	168.9	97.9	117.9	74.0	100.0
1977	48.5	38.0	70.1	52.2	79.1	75.0	115.4	266.5	177.8	94.2	108.1	74.1	99.9
1978	49.3	38.2	69.0	49.6	82.3	73.3	112.0	275.2	181.5	95.3	99.4	74.0	99.9
1979	48.1	38.1	71.5	48.9	85.4	71.9	*******	*******	*******	*******	*******	*******	60.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	110.3	279.5	183.4	95.9	95.1	73.9	139.7
1980	47.5	38.1	72.7	48.6	86.9	71.2	*******	*******	*******	*******	*******	*******	60.8

TABLE A130. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	112.3	136.7	127.7	201.6	117.6	58.1	125.7
1974	37.5	59.4	68.6	93.4	81.0	59.6	159.7	167.8	149.8	115.5	141.3	64.5	99.8
1975	111.0	43.9	63.6	81.9	82.4	94.2	113.1	152.7	253.6	138.8	104.9	82.2	110.2
1976	64.1	34.1	89.3	81.3	57.0	163.2	120.5	211.2	111.2	133.3	91.3	74.1	102.6
1977	57.6	116.9	113.0	111.5	62.3	78.5	94.3	402.2	171.9	84.0	64.9	149.7	125.6
1978	53.7	69.1	188.1	109.7	57.3	117.2	122.2	129.1	134.7	60.7	40.1	173.7	104.6
1979	119.2	62.4	58.6	69.8	91.2	116.6	*******	*******	*******	*******	*******	*******	86.3
AVGE	73.9	64.3	96.9	91.2	71.9	104.9	120.3	199.9	158.2	122.3	93.3	100.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	98390.375	11	8944.578	4.128**
RESIDUAL	130008.000	60	2166.800	
TOTAL	228398.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.7	162.0	143.8	148.9	117.3	69.5	128.2
1974	53.7	47.3	79.9	89.7	72.3	89.4	125.4	165.8	143.9	143.3	112.1	74.8	99.8
1975	53.7	49.0	82.0	92.2	71.2	91.0	123.3	168.5	144.2	129.4	104.2	87.8	99.7
1976	56.0	50.9	84.4	92.9	70.2	95.9	118.2	168.3	146.2	115.9	94.0	104.2	99.8
1977	58.2	53.0	86.4	93.1	68.5	101.9	115.3	168.3	144.5	104.3	85.6	117.7	99.7
1978	60.5	55.3	88.1	92.6	68.0	105.1	111.8	168.9	142.5	101.4	80.2	123.7	99.8
1979	60.6	57.3	89.8	93.7	67.0	104.6	*******	*******	*******	*******	*******	*******	78.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	110.0	169.3	141.5	99.9	77.4	126.7	120.8
1980	60.7	58.3	90.6	94.2	66.5	104.3	*******	*******	*******	*******	*******	*******	79.1

TABLE A131. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	152.4	107.1	93.0	70.3	33.0	40.3	82.7
1974	57.6	43.8	195.7	227.7	79.9	162.1	132.0	142.7	148.6	38.3	34.5	76.3	111.6
1975	41.8	46.2	13.6	175.0	130.4	191.3	134.2	351.8	21.1	30.2	171.5	56.3	113.6
1976	196.9	70.9	78.2	95.9	123.0	439.8	146.4	120.2	92.1	72.5	61.0	55.6	129.4
1977	56.0	62.4	75.0	89.6	92.4	78.3	180.1	242.7	134.3	89.8	43.8	35.9	98.4
1978	23.6	43.8	78.0	7.4	127.8	219.7	211.0	207.1	77.4	56.3	21.3	16.3	90.8
1979	56.0	58.2	82.0	91.2	113.1	5.5	*******	*******	*******	*******	*******	*******	67.6
AVGE	72.0	54.2	87.1	114.5	111.1	182.8	159.4	195.3	94.4	59.6	60.8	46.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	172447.625	11	15677.055	3.649**
RESIDUAL	257811.063	60	4296.843	
TOTAL	430258.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	145.5	160.4	108.4	52.0	45.2	59.4	95.1
1974	56.7	56.7	75.3	158.9	111.0	164.3	147.5	163.6	109.1	55.7	46.1	57.8	100.2
1975	54.4	55.9	75.0	148.8	110.6	163.0	153.6	173.5	108.6	58.4	46.3	54.6	100.2
1976	52.2	56.3	74.7	130.2	112.9	161.2	162.1	189.8	105.6	61.4	45.9	49.0	100.1
1977	50.3	57.3	76.7	110.7	116.0	163.1	171.3	198.8	102.4	64.3	45.2	44.1	100.0
1978	50.1	59.0	79.1	96.3	118.0	160.4	178.0	202.9	101.0	68.7	45.5	40.9	100.0
1979	50.0	59.5	81.5	90.5	117.4	157.9	*******	*******	*******	*******	*******	*******	92.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	181.4	205.0	100.4	70.9	45.7	39.3	107.1
1980	49.9	59.8	82.6	87.6	117.1	156.7	*******	*******	*******	*******	*******	*******	92.3

TABLE A132. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	159.0	151.2	127.1	196.2	117.8	67.6	136.5
1974	45.0	66.8	89.3	105.4	72.2	68.5	159.5	159.6	134.5	97.0	128.0	66.1	99.3
1975	87.5	61.7	68.5	73.8	71.8	113.0	125.6	166.5	235.1	123.1	107.5	83.8	109.8
1976	61.6	33.4	77.1	81.3	62.9	139.4	118.0	207.0	111.2	111.9	92.1	76.7	97.7
1977	59.9	135.7	105.5	98.9	76.1	84.5	107.1	365.4	141.3	92.6	77.8	119.7	122.0
1978	56.1	54.2	154.1	119.2	91.2	103.5	115.1	145.6	138.5	67.9	65.6	132.1	103.6
1979	83.6	58.1	83.8	69.1	101.5	116.3	*******	*******	*******	*******	*******	*******	65.4
AVGE	65.6	68.3	96.4	91.3	79.3	104.2	130.7	199.2	147.9	114.8	98.1	91.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	92893.625	11	8444.875	6.131**
RESIDUAL	82639.438	60	1377.324	
TOTAL	175533.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	143.5	166.3	129.6	112.2	113.9	73.2	123.1
1974	58.8	58.7	82.2	88.6	70.1	104.6	139.9	169.3	129.4	110.6	110.0	76.1	99.9
1975	58.6	58.5	84.1	91.3	72.2	103.9	133.4	172.9	130.1	106.2	103.2	83.7	99.8
1976	61.0	57.7	85.6	91.4	75.9	105.8	125.2	174.6	131.6	101.8	94.6	93.3	99.9
1977	63.0	56.2	87.0	92.1	79.9	108.4	118.7	175.7	131.6	96.9	86.8	101.3	99.8
1978	65.5	55.6	88.7	91.3	83.5	108.7	114.9	177.2	130.8	95.1	82.3	104.9	99.9
1979	65.3	55.5	90.7	92.9	85.0	106.1	*******	*******	*******	*******	*******	*******	82.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	113.0	177.9	130.5	94.2	80.0	106.7	117.1
1980	65.3	55.4	91.7	93.7	85.8	104.7	*******	*******	*******	*******	*******	*******	82.8

TABLE A133. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	186.0	156.0	125.9	148.8	64.4	74.4	125.9
1974	70.7	43.1	94.7	58.7	75.0	96.2	162.4	183.7	65.0	61.5	158.3	86.7	96.3
1975	106.0	36.8	58.3	186.8	69.8	76.0	84.7	278.7	164.8	188.4	65.1	57.9	114.4
1976	44.3	47.6	89.4	60.3	77.1	113.8	118.1	142.2	196.1	151.5	71.3	21.1	94.4
1977	36.3	137.7	95.1	50.1	69.4	119.3	145.0	268.6	98.9	96.9	93.9	96.1	109.0
1978	46.3	37.2	50.4	90.3	114.3	93.0	125.0	203.4	168.5	74.4	66.9	118.4	99.0
1979	110.8	48.0	63.8	53.0	96.3	137.7	*******	*******	*******	*******	*******	*******	84.9
AVGE	69.1	58.4	75.3	83.2	83.6	106.0	136.9	205.4	136.5	120.2	86.7	75.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	112526.563	11	10229.688	6.633**
RESIDUAL	92533.750	60	1542.229	
TOTAL	205060.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	141.4	198.0	137.2	152.7	69.8	75.3	129.1
1974	64.7	43.2	83.4	60.9	73.8	99.5	140.5	200.2	138.0	149.2	71.5	77.2	100.2
1975	62.1	43.0	81.6	62.3	76.4	100.1	135.4	205.3	141.5	140.7	73.5	82.0	100.3
1976	57.8	42.9	77.6	63.0	79.9	102.9	128.1	215.2	145.2	131.9	74.6	85.7	100.4
1977	51.4	43.1	74.1	64.1	85.1	107.4	122.8	216.1	151.4	122.8	74.9	90.7	100.3
1978	46.3	43.5	71.9	63.4	88.1	112.4	121.5	214.1	154.7	118.7	74.8	92.5	100.2
1979	42.9	43.7	71.9	63.1	89.9	115.0	*******	*******	*******	*******	*******	*******	71.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	120.9	213.1	156.4	116.7	74.8	93.4	129.2
1980	41.2	43.8	71.9	63.0	90.8	116.3	*******	*******	*******	*******	*******	*******	71.2

TABLE A 134. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	143.0	123.9	135.4	193.8	105.4	58.3	126.6
1974	41.7	50.6	94.6	81.1	72.2	71.9	194.9	168.9	156.3	117.7	134.2	45.4	102.5
1975	67.2	50.6	37.9	111.6	61.0	87.7	99.6	176.6	180.1	145.6	83.2	74.0	97.9
1976	52.4	45.4	88.6	70.7	86.3	137.6	129.7	174.0	122.0	111.5	81.9	53.4	96.1
1977	56.3	109.3	130.2	91.6	71.9	145.5	89.6	193.1	70.7	86.0	75.7	71.2	99.3
1978	52.4	80.5	112.3	79.9	97.2	116.5	107.7	139.8	197.5	82.8	55.9	143.7	105.5
1979	118.9	56.4	58.2	83.5	167.2	159.1	*******	*******	*******	*******	*******	*******	107.2
AVGE	64.8	65.5	87.0	86.4	92.6	119.7	127.4	162.7	143.7	122.9	89.4	74.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	66036.688	11	6003.332	5.402**
RESIDUAL	66683.375	60	1111.389	
TOTAL	132720.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	126.1	158.1	151.0	144.2	102.4	58.0	123.3
1974	53.8	50.7	97.6	79.0	73.0	108.7	124.7	162.3	148.5	139.1	99.7	58.6	99.6
1975	53.9	53.4	100.1	79.8	75.0	111.8	120.7	167.1	150.0	126.8	93.3	60.3	99.4
1976	55.1	56.3	104.1	80.5	77.8	119.5	113.6	170.3	152.5	115.2	85.0	63.6	99.5
1977	55.2	59.1	107.1	80.6	82.2	128.1	109.4	170.6	154.5	104.3	77.1	65.6	99.5
1978	55.7	61.0	110.9	81.3	84.5	135.8	107.0	169.2	152.0	100.4	72.3	66.6	99.7
1979	55.2	62.7	113.4	81.9	85.7	138.3	*******	*******	*******	*******	*******	*******	89.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	105.8	168.4	150.7	98.4	69.9	67.1	110.1
1980	54.9	63.6	114.7	82.2	86.3	139.6	*******	*******	*******	*******	*******	*******	90.2

TABLE A135. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	61.5	40.9	22.2	37.4	20.7	26.1	34.8
1974	22.7	40.0	60.2	99.6	67.5	30.6	236.4	4.1	11.4	4.8	86.7	389.2	87.8
1975	137.6	94.9	34.1	7.3	128.6	622.3	903.8	750.7	231.5	11.3	28.0	36.6	248.9
1976	25.8	38.1	55.1	68.1	67.7	772.4	883.8	51.2	52.0	51.7	45.6	37.5	179.1
1977	29.2	23.0	18.4	15.1	13.0	193.6	10.6	632.1	9.9	10.2	44.1	371.0	114.2
1978	15.5	55.3	19.3	33.4	12.8	9.7	7.5	6.2	16.4	853.2	5.0	954.1	165.7
1979	5.9	6.9	8.6	11.3	15.7	28.6	*******	*******	*******	*******	*******	*******	12.8
AVGE	39.4	43.0	32.6	39.1	50.9	276.2	350.6	247.5	57.2	161.4	38.4	302.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	1005116.000	11	91374.125	1.616
RESIDUAL	3393128.000	60	56552.133	
TOTAL	4398244.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	459.0	226.2	14.1	22.2	43.9	129.7	149.2
1974	55.4	50.7	43.2	49.7	73.5	34.3	440.9	239.3	15.4	22.5	43.5	139.4	100.7
1975	51.1	49.3	40.2	45.7	63.5	37.6	392.3	232.1	15.3	69.5	39.2	193.8	102.5
1976	42.7	42.3	30.9	33.8	48.4	39.3	339.0	252.0	14.2	118.3	31.8	238.5	102.6
1977	29.5	34.3	24.8	27.8	34.6	38.3	303.6	232.6	15.0	174.8	26.3	284.6	102.2
1978	20.3	26.6	18.4	21.2	23.7	43.8	292.7	231.4	16.9	196.7	23.5	296.2	100.9
1979	13.8	22.6	16.2	20.6	16.6	50.5	*******	*******	*******	*******	*******	*******	23.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	287.3	230.8	17.9	207.6	22.0	302.0	177.9
1980	10.5	20.6	15.1	20.2	13.0	53.8	*******	*******	*******	*******	*******	*******	22.2

TABLE A136. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	186.1	143.9	119.3	153.2	88.3	70.3	126.8
1974	49.8	58.2	91.5	75.2	69.5	76.0	182.4	170.9	139.0	109.5	146.6	61.3	102.5
1975	84.2	64.2	55.1	120.6	59.1	97.7	102.8	195.3	171.6	151.3	78.3	70.3	104.2
1976	51.0	47.2	89.1	68.0	83.2	130.8	128.1	163.7	150.1	126.4	78.6	42.4	96.5
1977	49.6	120.8	117.2	76.8	69.1	128.7	114.4	232.3	82.8	84.0	79.3	83.2	103.2
1978	58.0	65.6	88.6	74.7	108.3	112.2	113.9	163.0	161.9	82.9	68.9	143.9	103.5
1979	107.2	59.3	66.9	69.4	133.0	135.0	*******	*******	*******	*******	*******	*******	95.1
AVGE	66.6	69.2	84.7	80.8	87.0	113.4	137.9	178.2	137.5	117.9	90.0	78.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	76216.938	11	6928.813	8.482**
RESIDUAL	49010.563	60	816.843	
TOTAL	125227.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	152.3	168.6	143.9	135.9	84.6	66.1	125.2
1974	55.2	56.9	89.2	73.5	70.4	105.6	149.0	173.1	142.6	132.1	83.9	66.9	99.9
1975	55.2	57.8	90.6	73.8	73.2	107.6	140.8	178.8	144.3	124.0	82.2	69.0	99.8
1976	56.1	58.7	90.3	73.7	78.9	113.2	128.9	185.3	145.7	115.9	79.5	72.4	99.9
1977	56.2	58.7	89.5	73.0	88.9	119.1	120.1	186.8	147.4	108.4	76.9	75.0	99.8
1978	56.6	58.9	88.9	72.4	92.8	124.0	115.8	186.9	146.0	105.2	75.5	76.3	99.9
1979	56.0	59.1	89.9	72.1	95.4	125.0	*******	*******	*******	*******	*******	*******	82.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	113.7	186.8	145.3	103.6	74.8	76.9	116.8
1980	55.7	59.2	90.4	72.0	96.7	125.5	*******	*******	*******	*******	*******	*******	83.2

TABLE A137. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	198.8	18.3	436.4	18.4	55.2	17.6	124.1
1974	16.0	14.4	78.2	225.2	55.0	281.0	153.2	93.4	54.7	47.9	53.9	139.4	101.0
1975	161.9	249.0	47.1	52.7	28.8	90.1	29.4	293.2	92.3	428.2	83.7	73.4	135.8
1976	13.1	178.1	207.4	71.4	29.0	84.1	220.6	28.1	320.4	323.6	46.1	13.0	127.9
1977	44.9	52.7	103.6	239.5	26.8	85.6	146.6	317.4	28.1	27.2	104.5	50.2	102.3
1978	24.2	23.7	234.0	260.4	73.0	51.2	109.8	90.2	232.3	36.8	41.1	46.3	101.9
1979	51.3	56.4	63.2	71.6	230.5	87.6	******	******	******	******	******	******	93.4
AVGE	51.9	95.7	122.2	153.5	73.8	113.3	143.1	140.1	194.0	147.0	64.1	56.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	133345.938	11	12122.355	1.161
RESIDUAL	626437.000	60	10440.613	
TOTAL	759782.938	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	139.6	116.8	209.5	59.4	60.4	65.9	103.4
1974	32.3	100.0	107.2	132.1	35.2	138.2	142.8	124.9	203.1	59.1	61.7	61.5	99.8
1975	32.2	91.9	114.8	145.9	37.2	129.9	141.4	136.9	182.6	60.6	63.1	60.2	99.7
1976	35.2	88.6	122.9	151.1	40.4	110.1	135.5	163.1	166.6	61.2	66.9	55.8	99.8
1977	35.0	79.9	139.1	156.7	45.2	92.0	135.4	167.1	167.5	63.0	67.3	50.7	99.9
1978	37.3	71.5	142.6	160.2	48.8	78.2	141.0	166.8	182.0	62.8	67.3	42.3	100.1
1979	36.3	58.6	145.6	173.7	51.5	76.7	******	******	******	******	******	******	90.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	143.8	166.6	189.3	62.7	67.4	38.1	111.3
1980	35.8	52.1	147.0	180.5	52.8	75.9	******	******	******	******	******	******	90.7

TABLE A138. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	214.4	71.2	80.4	286.2	66.1	26.9	124.2
1974	29.7	78.5	113.7	110.8	69.4	227.2	147.1	106.5	7.2	87.1	68.5	59.7	92.1
1975	76.7	117.9	117.7	35.7	111.7	39.4	155.9	91.0	126.9	288.8	164.4	9.0	111.2
1976	186.0	53.1	111.0	43.7	130.2	174.8	75.4	45.9	134.7	152.1	187.8	26.0	110.1
1977	64.3	85.9	107.9	50.8	196.9	41.7	128.5	393.9	112.9	43.2	187.6	97.3	125.9
1978	24.5	24.4	196.4	174.3	153.8	156.2	463.0	97.3	66.5	58.5	33.6	14.4	121.9
1979	62.9	99.5	89.3	172.0	57.2	124.8	*******	*******	*******	*******	*******	*******	102.6
AVGE	74.0	76.6	122.7	97.9	121.5	127.4	197.4	134.3	88.1	152.6	118.0	38.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	112396.688	11	10217.879	1.650
RESIDUAL	371568.313	60	6192.805	
TOTAL	483965.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	153.3	80.6	90.1	204.3	109.6	27.4	110.9
1974	54.0	81.4	110.0	55.3	115.1	123.5	148.1	80.9	94.1	191.5	117.6	27.3	99.9
1975	52.3	77.7	115.2	63.1	123.1	123.0	138.6	83.2	97.8	165.7	125.8	26.8	99.4
1976	53.6	76.2	119.9	76.1	129.8	115.4	130.9	86.0	102.8	145.4	134.5	24.5	99.6
1977	51.9	70.1	124.6	94.3	133.8	118.8	122.3	86.1	105.1	124.4	137.9	22.8	99.3
1978	52.8	69.7	125.8	109.2	135.3	114.8	118.1	84.1	107.8	117.9	142.0	21.5	99.9
1979	50.7	66.6	126.5	117.6	136.2	116.2	*******	*******	*******	*******	*******	*******	102.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	116.0	83.1	109.2	114.6	144.1	20.9	98.0
1980	49.6	65.0	126.9	121.8	136.6	116.9	*******	*******	*******	*******	*******	*******	102.8

TABLE A139. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	81.3	44.5	78.3	60.1	87.4	29.0	63.4
1974	170.9	144.9	96.9	128.7	76.5	53.4	64.0	34.2	48.7	84.6	103.8	81.9	91.1
1975	716.7	90.1	95.2	84.2	100.0	55.6	59.9	316.2	69.3	76.0	81.3	503.6	187.3
1976	84.4	82.0	235.0	74.8	72.4	71.4	73.1	544.7	84.0	90.2	94.4	94.0	133.4
1977	89.9	84.9	81.5	79.7	75.7	69.1	61.3	54.4	550.3	194.7	50.4	165.7	129.8
1978	62.6	70.1	74.3	74.9	75.5	314.9	84.4	184.6	98.2	98.2	184.7	169.0	124.3
1979	78.3	75.2	74.6	75.1	75.8	76.3	*******	*******	*******	*******	*******	*******	75.9
AVGE	200.5	91.2	109.6	86.2	79.3	106.8	70.7	196.4	154.8	100.6	101.2	173.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	140577.000	11	12779.727	0.793
RESIDUAL	966503.000	60	16108.383	
TOTAL	1107080.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	70.3	219.8	69.4	77.4	94.4	89.6	103.5
1974	131.5	104.3	102.2	94.4	82.5	61.8	69.3	219.9	72.7	85.7	91.5	95.0	100.9
1975	124.6	100.8	98.8	91.8	81.1	63.3	68.4	222.7	77.1	96.4	87.9	108.5	101.3
1976	111.5	92.7	94.1	85.7	79.8	66.7	67.9	227.9	83.3	107.8	81.6	125.0	102.0
1977	95.4	84.7	90.2	80.5	77.8	71.4	69.2	230.4	88.6	114.6	78.1	137.3	101.5
1978	83.8	78.9	86.1	76.7	76.5	75.1	70.7	231.2	92.8	118.8	75.2	141.5	100.6
1979	78.3	77.8	83.6	76.6	75.4	77.3	*******	*******	*******	*******	*******	*******	78.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	71.5	231.6	94.8	120.9	73.8	143.6	122.7
1980	75.6	77.3	82.3	76.5	74.9	78.4	*******	*******	*******	*******	*******	*******	77.5

TABLE A140. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	151.0	86.1	108.1	122.7	79.9	26.2	95.7
1974	133.0	134.4	113.8	144.4	78.1	140.3	103.2	68.4	24.9	74.9	88.6	86.6	99.2
1975	255.6	151.9	117.9	43.1	84.9	38.0	125.3	120.2	89.0	243.5	102.6	50.7	118.6
1976	73.8	88.1	123.4	39.8	113.8	118.5	126.4	49.2	184.9	189.8	126.6	23.5	104.8
1977	54.3	83.7	129.4	100.7	148.3	51.7	100.9	298.5	158.9	52.2	122.5	93.9	116.3
1978	8.2	7.8	136.1	134.7	83.9	206.1	185.7	99.8	96.7	70.0	49.5	28.3	92.2
1979	43.2	77.4	76.4	118.6	201.0	134.4	*******	*******	*******	*******	*******	*******	108.5
AVGE	94.7	90.6	116.2	96.9	118.3	114.8	132.1	120.4	110.4	125.5	94.9	51.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	30937.313	11	2812.483	0.860
RESIDUAL	196114.125	60	3268.569	
TOTAL	227051.438	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	124.3	83.8	93.3	150.9	94.2	46.6	98.8
1974	113.8	116.7	117.7	69.7	98.5	89.8	122.6	83.9	102.8	147.1	97.6	45.1	100.4
1975	105.4	110.0	118.6	75.1	99.6	94.8	123.4	85.0	111.7	140.7	99.5	44.0	100.6
1976	91.7	100.1	117.4	80.6	108.6	99.1	125.9	89.6	121.1	135.5	100.0	41.4	100.9
1977	73.0	86.8	115.5	88.1	118.2	111.8	130.5	89.9	128.6	128.8	98.0	37.8	100.6
1978	58.0	77.4	112.5	95.5	130.6	117.0	132.3	89.0	135.8	124.6	97.6	33.9	100.4
1979	48.6	71.3	112.1	103.2	135.8	123.4	*******	*******	*******	*******	*******	*******	99.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	133.2	88.5	139.4	122.5	97.4	32.0	102.2
1980	43.9	68.3	111.8	107.1	138.4	126.6	*******	*******	*******	*******	*******	*******	99.3

TABLE A141. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	244.7	170.5	110.8	80.5	52.1	71.1	121.6
1974	55.4	30.2	71.4	121.7	128.2	122.7	194.2	135.3	37.7	39.8	129.3	71.1	94.8
1975	94.1	79.8	57.6	35.4	43.3	130.4	121.6	269.8	173.5	140.4	38.3	30.7	101.2
1976	71.0	57.4	104.1	88.4	148.4	36.2	112.0	175.3	256.6	196.6	88.6	13.0	112.3
1977	32.7	136.5	123.0	153.1	87.2	56.7	163.7	234.7	81.3	113.2	77.6	22.4	106.8
1978	87.5	29.1	18.8	104.8	137.2	137.2	94.4	293.9	109.0	19.4	77.4	74.9	98.6
1979	48.1	10.8	49.2	132.3	39.3	409.0	*******	*******	*******	*******	*******	*******	114.8
AVGE	64.8	57.3	70.7	106.0	97.2	148.7	155.1	213.3	128.1	98.3	77.2	47.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	155772.063	11	14161.094	3.753**
RESIDUAL	226392.938	60	3773.216	
TOTAL	382165.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	175.4	189.1	117.0	103.2	73.0	51.4	118.2
1974	67.3	55.0	84.3	92.2	103.0	90.0	171.1	191.3	116.7	103.6	73.9	47.5	100.1
1975	67.0	53.2	82.5	95.9	104.1	91.1	156.7	201.4	116.2	114.3	76.8	43.3	100.2
1976	66.2	50.6	79.0	99.9	100.1	93.4	141.3	219.5	119.0	120.9	75.0	38.1	100.2
1977	64.7	45.4	74.8	106.4	101.6	95.1	126.2	232.3	121.1	126.4	75.2	35.0	100.4
1978	60.8	40.7	72.4	11 .3	97.8	97.3	121.3	237.1	123.4	131.6	73.5	32.3	100.2
1979	57.3	36.6	71.5	121.7	99.3	98.3	*******	*******	*******	*******	*******	*******	80.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	118.8	239.4	124.6	134.3	72.7	31.0	120.1
1980	55.5	34.5	71.0	125.3	100.0	98.8	*******	*******	*******	*******	*******	*******	80.9

TABLE A142. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.7	116.1	142.3	187.3	120.3	49.2	127.3
1974	50.9	59.4	188.8	98.8	47.8	77.4	143.6	122.4	104.0	117.1	133.5	94.4	103.2
1975	118.1	61.4	64.4	110.7	54.1	50.0	74.0	249.9	191.2	83.9	116.7	96.8	105.9
1976	62.6	52.9	100.8	66.1	83.6	93.7	148.2	174.9	108.0	97.2	79.7	75.3	95.3
1977	46.7	108.0	155.0	83.6	67.1	107.2	57.8	220.3	94.6	102.8	59.7	142.9	103.8
1978	17.7	69.7	203.5	55.9	56.9	107.4	174.4	151.0	109.3	43.8	127.8	155.8	106.1
1979	71.5	36.2	56.8	79.4	107.1	69.7	*******	*******	*******	*******	*******	*******	70.1
AVGE	61.2	64.6	128.2	82.4	69.4	84.2	124.4	172.4	124.9	105.3	106.3	102.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	69163.063	11	6287.551	4.133**
RESIDUAL	91270.250	60	1521.171	
TOTAL	160433.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.6	164.0	136.7	107.8	116.5	79.1	121.6
1974	56.0	62.4	121.9	90.4	62.7	78.8	123.3	168.9	132.7	107.2	111.3	83.4	99.9
1975	55.1	64.2	122.9	88.0	62.8	82.3	121.8	175.2	126.5	101.9	106.6	94.9	100.2
1976	55.8	65.0	117.4	84.2	65.4	85.3	117.2	186.4	123.1	94.7	101.3	108.0	100.3
1977	56.5	63.9	112.3	78.2	68.9	89.7	119.7	190.7	118.4	87.7	97.8	118.1	100.2
1978	57.5	63.5	108.4	74.5	71.9	92.3	121.1	193.4	116.0	85.4	93.7	120.9	99.9
1979	57.0	64.3	111.4	72.2	72.2	95.0	*******	*******	*******	*******	*******	*******	78.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	121.7	194.8	114.8	84.2	91.7	122.3	121.6
1980	56.7	64.7	112.8	71.0	72.4	96.3	*******	*******	*******	*******	*******	*******	79.0

TABLE A143. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	116.7	121.0	82.6	67.1	59.2	21.5	78.0
1974	49.0	388.0	126.1	178.3	25.4	21.1	345.3	200.3	114.8	34.4	56.6	106.5	137.2
1975	512.4	48.6	43.5	33.1	180.8	630.7	289.4	111.2	26.9	70.8	47.4	119.9	176.2
1976	72.0	84.4	101.0	119.3	126.9	123.1	107.4	89.9	76.8	69.7	204.8	144.2	110.0
1977	80.8	92.7	105.7	118.5	127.2	154.1	252.3	2336.3	131.5	39.1	16.5	139.0	299.5
1978	100.5	121.2	197.7	89.7	84.5	115.4	79.0	116.8	82.9	33.8	68.0	143.5	102.7
1979	158.9	20.6	83.9	139.9	124.2	152.6	*******	*******	*******	*******	*******	*******	113.3
AVGE	162.3	125.9	109.6	113.1	111.5	199.5	198.5	495.9	85.9	52.5	75.4	112.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	900703.000	11	81882.063	1.047
RESIDUAL	4691071.000	60	78184.500	
TOTAL	5591774.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	220.3	135.6	74.8	59.1	54.0	91.6	105.9
1974	69.7	74.5	91.9	110.6	112.9	105.0	215.2	137.6	77.6	57.3	50.5	95.7	99.9
1975	71.2	77.3	98.2	108.0	110.1	106.3	204.2	137.2	79.6	53.3	47.6	106.5	100.0
1976	78.6	75.1	100.2	101.9	112.5	115.1	191.1	135.0	78.8	49.5	43.7	115.5	99.7
1977	86.7	74.9	107.7	101.9	110.9	121.0	170.8	130.3	79.1	47.0	43.1	124.7	99.8
1978	95.6	71.8	109.8	103.1	110.8	128.0	155.1	127.2	79.6	46.7	42.1	127.4	99.8
1979	98.3	72.6	114.6	106.9	104.8	126.7	*******	*******	*******	*******	*******	*******	104.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	147.2	125.7	79.9	46.6	41.5	128.8	94.9
1980	99.7	73.0	117.0	108.8	101.8	125.0	*******	*******	*******	*******	*******	*******	104.4

TABLE A144. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	142.8	107.9	92.5	123.5	94.9	67.9	104.9
1974	71.8	81.4	147.9	144.5	83.2	60.2	120.6	130.7	74.3	118.6	108.1	83.2	102.0
1975	71.4	69.2	118.7	205.1	95.8	62.9	59.0	232.1	167.6	91.7	86.2	79.9	111.6
1976	73.5	74.7	104.8	91.5	109.0	69.0	117.9	155.9	139.1	123.7	91.8	57.3	100.7
1977	46.3	128.4	139.0	100.7	62.0	96.9	136.0	171.3	56.5	97.5	86.2	93.6	101.2
1978	94.0	46.7	93.4	61.8	94.7	127.2	109.4	156.8	127.2	107.0	91.8	139.9	104.2
1979	77.1	52.4	97.2	82.4	94.0	101.0	*******	*******	*******	*******	*******	*******	84.0
AVGE	72.4	75.5	116.8	114.3	89.8	86.2	114.3	159.1	109.5	110.3	93.2	87.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	37200.375	11	3381.852	3.755**
RESIDUAL	54040.688	60	900.678	
TOTAL	91241.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	129.1	135.4	105.0	113.6	96.1	74.6	109.0
1974	70.2	73.8	126.1	114.4	90.9	69.0	128.6	138.4	106.8	113.2	95.5	75.2	100.2
1975	71.1	71.5	124.2	109.7	89.4	74.0	125.7	144.6	111.1	111.7	94.8	77.3	103.4
1976	72.3	67.3	119.2	101.3	88.9	82.0	124.1	151.8	116.8	108.6	92.7	80.0	100.4
1977	74.6	63.1	113.1	91.9	89.7	90.8	121.8	137.5	122.3	107.2	91.1	81.3	100.4
1978	75.3	59.5	109.4	85.5	88.9	98.0	121.9	160.1	125.6	106.8	89.6	80.9	100.1
1979	75.6	57.9	109.3	83.2	87.5	102.6	*******	*******	*******	*******	*******	*******	86.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	122.0	161.3	127.2	106.6	88.8	80.7	114.4
1980	75.8	57.1	109.2	82.1	86.8	104.9	*******	*******	*******	*******	*******	*******	86.0

TABLE A 145. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	120.6	142.7	120.0	114.5	83.2	74.9	109.3
1974	92.7	49.3	144.9	98.1	76.5	68.6	103.9	178.1	51.9	67.2	111.3	90.2	94.4
1975	101.0	62.1	71.2	97.7	58.4	108.7	86.5	197.9	192.3	114.1	73.9	59.4	101.9
1976	53.4	53.3	110.6	84.3	86.9	97.7	87.1	166.7	236.2	182.6	88.5	4.7	104.3
1977	18.2	69.4	65.2	52.1	87.2	148.1	200.2	259.0	62.9	53.4	70.0	90.4	98.0
1978	43.0	38.1	19.0	74.6	120.1	120.1	181.2	245.2	110.4	16.7	33.2	93.8	91.3
1979	48.0	51.0	50.3	62.4	109.6	123.4	*******	*******	*******	*******	*******	*******	74.1
AVGE	59.4	53.9	76.9	78.2	89.8	111.1	129.9	198.3	128.9	91.4	76.7	68.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	107266.000	11	9751.453	5.961**
RESIDUAL	98152.563	60	1635.876	
TOTAL	205418.563	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.1	173.5	156.7	97.5	90.1	75.7	115.9
1974	76.2	56.0	102.6	87.5	76.3	100.7	107.6	179.3	156.9	94.6	89.3	76.9	100.3
1975	71.8	54.6	96.7	84.1	79.3	103.9	116.7	191.0	155.8	88.5	84.9	79.3	100.6
1976	64.5	53.5	85.1	78.7	84.6	110.9	129.1	205.9	153.0	83.6	77.0	80.5	100.5
1977	55.8	51.7	76.5	73.9	92.6	116.4	138.6	216.1	152.3	79.3	70.3	82.4	100.5
1978	48.6	51.2	68.1	69.0	98.9	123.0	144.6	220.2	152.4	77.7	66.5	82.8	100.3
1979	44.4	50.6	66.0	66.5	103.2	126.0	*******	*******	*******	*******	*******	*******	76.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	147.6	222.3	152.5	76.9	64.6	83.1	124.5
1980	42.3	50.2	64.9	65.2	105.3	127.5	*******	*******	*******	*******	*******	*******	75.9

TABLE A146. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	151.3	111.8	114.7	84.9	114.8	65.4	107.1
1974	71.9	78.5	129.6	115.6	62.7	70.2	139.1	166.9	89.9	113.6	155.4	68.7	105.2
1975	101.6	71.3	87.4	126.8	72.8	88.9	94.7	187.2	167.3	96.3	80.7	89.4	105.4
1976	74.7	79.1	105.7	46.9	93.6	93.2	147.9	173.4	86.6	67.0	59.1	96.2	93.6
1977	58.6	117.3	141.4	113.0	80.6	111.1	130.1	131.7	56.2	72.8	67.2	95.9	98.0
1978	93.2	100.1	104.4	93.3	103.8	128.9	97.2	163.5	182.7	49.7	55.2	156.9	110.7
1979	100.2	56.2	76.0	85.2	126.2	134.6	*******	*******	*******	*******	*******	*******	96.4
AVGE	83.3	83.7	107.4	96.8	90.0	104.5	126.7	155.7	116.3	80.7	88.7	95.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	31580.875	11	2870.989	3.326**
RESIDUAL	51786.375	60	863.106	
TOTAL	83367.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	133.1	157.2	98.0	93.1	89.8	77.4	108.1
1974	78.8	82.0	111.7	114.8	77.1	88.3	134.4	157.0	95.8	90.7	87.0	79.6	99.8
1975	78.8	84.9	112.4	113.4	79.3	92.5	131.6	159.7	92.0	86.8	80.2	84.2	99.7
1976	80.6	88.4	109.9	110.0	85.7	100.9	126.4	161.2	88.6	81.5	73.4	89.5	99.7
1977	82.3	91.4	106.9	104.6	93.6	109.6	122.5	162.9	86.2	75.7	66.5	94.1	99.7
1978	83.2	94.4	104.6	100.2	99.8	116.9	121.9	160.8	85.0	71.2	63.4	96.2	99.8
1979	82.6	97.2	105.9	97.8	101.7	119.6	*******	*******	*******	*******	*******	*******	100.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	121.6	159.7	84.4	68.9	61.9	97.3	99.0
1980	82.2	98.5	106.5	96.6	102.6	121.0	*******	*******	*******	*******	*******	*******	101.2

TABLE A147. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	150.5	112.0	109.7	76.1	59.2	55.5	93.8
1974	33.8	152.4	122.8	121.4	66.1	59.6	128.1	71.9	81.8	70.7	117.8	135.7	96.8
1975	122.9	3.8	53.5	173.6	42.9	165.6	291.8	247.7	17.1	6.2	62.5	680.1	155.6
1976	40.2	90.2	34.5	24.1	35.4	54.7	92.2	180.8	271.5	189.1	116.5	88.1	101.4
1977	76.4	70.1	68.2	203.5	273.5	68.1	130.8	59.6	102.9	42.5	34.2	27.8	96.5
1978	160.4	58.8	85.6	269.5	139.1	76.7	280.7	94.7	15.8	132.2	12.7	93.5	118.3
1979	8.5	6.9	201.1	92.5	29.5	3.7	*******	*******	*******	*******	*******	*******	57.0
AVGE	73.7	63.7	94.3	147.4	97.7	71.4	179.0	127.8	99.8	86.1	67.2	180.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	115062.375	11	10460.215	1.062
RESIDUAL	590788.438	60	9846.473	
TOTAL	705850.813	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	167.1	142.4	95.1	68.3	81.3	247.7	133.7
1974	64.0	76.9	66.8	114.9	77.8	0.8	162.7	139.9	104.9	72.6	79.2	222.5	98.6
1975	69.7	74.0	67.0	127.1	89.7	1.0	162.4	133.9	107.2	79.8	74.4	201.7	99.0
1976	73.9	62.3	72.2	138.1	100.4	1.3	171.7	130.5	100.3	81.2	63.8	195.8	99.3
1977	74.9	55.4	80.8	142.5	104.0	1.6	178.8	128.0	101.3	91.8	56.8	174.8	99.2
1978	72.3	47.8	92.7	147.2	112.0	2.0	177.9	126.0	107.5	98.3	52.3	151.1	98.9
1979	70.7	48.7	98.9	153.3	122.1	2.1	*******	*******	*******	*******	*******	*******	82.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	177.4	125.0	110.6	101.6	50.1	139.2	117.3
1980	69.8	49.1	102.0	156.3	127.2	2.2	*******	*******	*******	*******	*******	*******	84.4

TABLE A148. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	144.6	132.8	119.6	92.4	99.8	73.4	110.4
1974	73.4	80.0	142.8	118.9	64.9	61.6	112.7	161.2	98.5	107.8	151.9	83.2	104.7
1975	110.4	75.3	80.5	104.2	56.6	80.6	90.6	194.6	189.2	109.2	79.4	90.6	105.1
1976	67.6	68.8	101.0	61.3	91.5	93.1	129.8	181.4	150.6	118.9	68.6	52.7	98.8
1977	38.1	90.0	97.9	80.7	84.6	128.2	151.2	158.2	49.6	49.9	63.5	89.8	90.1
1978	83.4	85.2	88.4	69.1	96.9	131.0	111.3	162.1	143.4	41.3	64.1	129.3	100.5
1979	79.5	63.1	72.8	89.7	109.4	118.6	*******	*******	*******	*******	*******	*******	88.9
AVGE	75.4	77.1	97.3	87.3	84.0	102.2	123.4	165.0	125.1	86.6	87.9	86.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	44879.313	11	4079.938	5.384**
RESIDUAL	45465.500	60	757.758	
TOTAL	90344.813	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	117.7	165.2	132.7	105.2	87.6	77.7	114.4
1974	79.2	76.7	105.6	92.3	72.9	85.8	120.4	165.9	134.0	103.4	85.4	77.3	99.9
1975	78.6	77.8	103.7	89.9	74.9	90.9	120.3	168.1	136.6	101.0	80.7	77.4	100.0
1976	78.4	77.9	97.5	85.7	80.0	99.8	119.9	170.2	141.4	96.4	75.0	78.6	100.1
1977	77.0	77.2	92.6	80.3	87.0	108.6	119.9	171.4	144.7	93.5	70.0	77.9	100.0
1978	75.6	76.6	87.9	77.4	92.6	116.3	121.9	170.5	146.0	90.8	67.2	76.5	99.9
1979	73.8	77.2	87.9	76.5	95.4	120.1	*******	*******	*******	*******	*******	*******	88.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	122.9	170.1	146.6	89.5	65.7	75.8	111.8
1980	73.0	77.6	87.9	76.0	96.8	122.0	*******	*******	*******	*******	*******	*******	88.9

TABLE A149. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	119.5	112.3	105.4	103.3	100.5	97.0	106.3
1974	78.3	80.6	228.0	128.9	74.7	76.4	155.5	119.5	82.9	85.4	97.4	98.5	108.9
1975	87.2	215.6	96.8	105.8	87.6	86.2	80.9	115.4	117.8	145.0	123.7	74.1	111.4
1976	72.4	61.6	110.2	116.8	75.9	88.8	62.2	116.8	259.6	129.5	101.0	80.3	106.3
1977	75.1	90.7	87.1	106.9	99.2	92.6	115.6	125.5	102.7	101.5	97.5	93.2	99.0
1978	90.4	89.5	90.7	93.8	97.5	100.8	129.3	105.1	104.8	101.9	97.4	93.0	99.5
1979	90.5	90.3	91.9	94.2	96.6	99.0	*******	*******	*******	*******	*******	*******	93.7
AVGE	82.3	104.7	117.4	107.7	88.6	90.6	110.5	115.8	128.9	111.1	102.9	89.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	12891.250	11	1171.932	1.115
RESIDUAL	63087.500	60	1051.458	
TOTAL	75978.750	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	117.7	116.0	107.0	106.2	106.3	88.5	107.0
1974	78.7	90.4	105.6	115.6	82.4	85.1	117.5	116.6	107.1	107.2	105.7	88.4	100.0
1975	79.3	90.3	103.6	113.6	84.2	86.5	117.8	116.7	107.2	108.2	104.8	88.1	100.0
1976	80.7	90.9	100.0	109.5	87.6	89.5	116.6	116.6	107.9	109.3	104.6	87.4	100.1
1977	82.0	90.6	97.2	105.7	90.3	92.7	116.8	115.9	108.4	110.6	103.5	86.9	100.0
1978	83.2	90.5	94.2	102.2	93.1	95.2	116.4	115.7	108.9	111.9	102.6	86.7	100.0
1979	83.5	89.8	93.0	101.1	94.6	96.2	*******	*******	*******	*******	*******	*******	93.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	116.1	115.6	109.2	112.6	102.1	86.6	107.0
1980	83.6	89.5	92.4	100.6	95.3	96.8	*******	*******	*******	*******	*******	*******	93.0

TABLE A150. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	85.2	111.8	102.1	110.6	113.6	104.7	104.7
1974	82.8	93.7	242.9	73.6	72.4	118.4	85.3	71.2	35.6	129.9	137.8	89.0	102.7
1975	119.8	118.0	45.4	73.9	59.7	94.4	75.5	91.1	139.6	118.3	136.2	104.0	98.0
1976	87.6	100.6	166.4	76.7	71.7	83.2	119.0	110.3	104.8	257.7	102.7	91.9	114.4
1977	94.2	102.4	91.4	90.7	92.0	95.9	101.2	105.7	107.6	106.1	102.1	107.9	99.8
1978	94.8	92.4	91.5	91.8	92.8	117.6	95.8	97.5	122.9	98.1	97.4	105.3	99.8
1979	93.5	91.5	89.6	93.0	110.3	88.6	*******	*******	*******	*******	*******	*******	94.4
AVGE	95.5	99.7	121.2	83.3	83.1	99.7	93.7	97.9	102.1	136.8	115.0	100.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	15572.000	11	1415.636	1.448
RESIDUAL	58661.938	60	977.699	
TOTAL	74233.938	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	88.2	95.0	114.6	121.8	126.2	98.9	107.5
1974	94.6	104.4	105.7	77.6	72.1	99.1	90.9	96.7	114.0	121.4	123.6	99.1	99.9
1975	94.4	103.3	103.7	79.0	74.4	100.1	93.9	97.1	114.4	119.7	119.4	99.1	99.9
1976	95.0	102.1	100.1	81.8	79.2	99.0	95.8	98.6	116.1	116.5	114.8	100.6	100.0
1977	94.3	99.5	96.8	84.7	85.0	98.3	98.7	100.0	116.8	113.8	109.8	101.1	99.9
1978	94.0	97.5	93.7	87.6	90.8	97.1	100.8	102.5	116.0	112.0	106.0	101.8	100.0
1979	93.0	96.0	92.6	89.4	94.1	97.9	*******	*******	*******	*******	*******	*******	93.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	101.8	103.7	115.6	111.0	104.1	102.1	106.4
1980	92.5	95.2	92.1	90.3	95.8	98.3	*******	*******	*******	*******	*******	*******	94.0

TABLE A151. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	44.9	74.1	89.8	95.1	36.2	54.8	65.8
1974	85.7	144.6	158.9	211.5	44.2	57.6	94.2	88.8	61.1	78.6	79.4	100.3	100.4
1975	135.6	82.0	97.1	110.7	124.2	880.0	80.6	59.2	65.8	73.7	84.5	91.7	157.1
1976	103.9	127.0	115.9	101.9	111.4	105.3	91.4	90.1	87.9	102.6	83.6	87.0	100.7
1977	112.8	150.3	89.4	92.3	93.5	92.8	93.8	105.5	113.9	81.1	90.9	136.3	104.4
1978	87.8	97.4	121.0	86.9	97.2	83.8	118.5	95.3	99.2	85.5	120.6	110.1	99.4
1979	87.5	118.7	120.7	91.4	81.7	83.1	******	******	******	******	******	******	97.2
AVGE	102.4	120.0	117.2	115.9	90.4	217.3	87.2	85.4	86.3	86.1	82.5	96.7	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	91406.875	11	8309.715	0.881
RESIDUAL	566013.500	60	9433.555	
TOTAL	657420.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	******	******	******	******	******	******	82.2	91.4	75.8	86.9	81.2	84.9	83.7
1974	111.2	125.1	120.4	106.2	112.6	118.9	83.0	91.9	78.7	87.0	81.9	88.6	100.4
1975	109.7	124.3	118.5	103.8	109.4	114.3	87.3	93.4	82.0	86.5	85.6	95.6	100.9
1976	108.3	121.9	114.2	100.5	104.8	108.4	91.6	96.4	85.9	85.4	90.1	102.9	100.9
1977	104.1	120.8	112.0	97.0	99.4	100.7	96.6	97.9	91.1	86.9	94.8	107.7	100.8
1978	101.2	121.6	111.4	94.3	94.7	94.6	98.5	98.9	95.4	87.6	96.8	109.1	100.3
1979	98.1	123.9	112.1	92.7	91.8	90.3	******	******	******	******	******	******	101.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	******	******	******	******	******	******	99.4	99.3	97.5	88.4	97.7	109.9	98.7
1980	96.5	125.1	112.5	92.0	90.4	88.1	******	******	******	******	******	******	100.8

TABLE A152. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	49.2	127.1	111.9	108.8	63.7	80.9	90.3
1974	95.4	140.7	180.5	161.3	48.4	71.0	82.9	66.9	33.8	107.1	124.8	96.1	100.8
1975	150.4	171.4	57.4	79.0	74.3	100.5	47.2	86.7	120.3	139.8	153.5	78.8	104.9
1976	69.0	58.0	163.1	82.1	59.2	77.5	55.9	112.4	288.9	285.1	89.8	23.3	113.7
1977	46.0	138.7	9.6	63.7	83.3	20.5	336.6	298.3	182.7	22.9	156.5	403.9	146.9
1978	79.9	57.2	277.1	18.1	35.3	118.0	378.0	86.0	155.2	34.8	147.5	97.1	123.7
1979	64.2	140.7	102.6	50.7	51.0	33.5	*******	*******	*******	*******	*******	*******	73.8
AVGE	84.2	117.8	131.7	75.8	58.6	70.2	158.3	129.6	148.8	116.4	122.6	130.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	68276.250	11	6206.930	0.881
RESIDUAL	422725.875	60	7045.430	
TOTAL	491002.125	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	60.4	98.4	121.2	133.1	112.6	77.5	100.5
1974	98.1	127.5	119.5	101.3	64.3	73.9	71.4	99.4	132.9	128.3	114.0	76.4	100.6
1975	93.1	121.6	121.7	92.4	62.4	72.9	88.7	97.1	146.7	119.0	121.0	76.3	101.1
1976	86.9	116.9	119.4	77.4	61.4	70.2	109.5	97.4	162.0	105.3	129.6	77.8	101.1
1977	77.9	107.2	128.1	63.1	58.1	68.4	124.1	97.3	178.6	97.3	134.5	77.3	101.0
1978	70.2	105.7	126.9	52.5	57.3	63.0	132.7	100.9	193.8	94.1	133.7	75.3	100.5
1979	63.9	103.5	131.1	49.6	56.7	60.0	*******	*******	*******	*******	*******	*******	77.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	137.0	102.8	201.4	92.5	133.2	74.4	123.6
1980	60.7	102.4	133.3	48.1	56.3	58.5	*******	*******	*******	*******	*******	*******	76.6

TABLE A153. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	40.6	35.8	361.3	273.6	28.8	82.5	137.1
1974	26.8	27.0	196.9	30.3	33.6	152.8	88.0	202.0	53.2	67.1	77.2	83.3	86.9
1975	79.8	134.3	52.8	41.2	33.4	28.4	123.2	174.0	462.2	359.9	15.3	40.8	128.8
1976	24.0	10.5	109.9	129.9	96.0	55.6	94.5	164.4	203.1	240.9	194.5	11.2	111.2
1977	13.8	17.7	92.5	124.3	1378.7	477.6	62.0	67.2	70.7	74.7	80.1	166.8	218.8
1978	82.0	79.0	76.4	73.9	70.6	65.2	58.3	203.7	44.8	40.0	295.4	351.3	120.1
1979	104.6	35.8	112.8	40.3	43.9	50.1	*******	*******	*******	*******	*******	*******	64.6
AVGE	55.2	50.7	106.9	73.3	276.0	138.3	77.8	141.2	200.1	176.0	115.2	122.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	282749.000	11	25704.453	0.749
RESIDUAL	2059497.000	60	34324.949	
TOTAL	2342246.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	80.2	132.6	262.9	220.1	59.6	56.5	135.3
1974	36.7	20.6	109.7	69.6	63.9	93.8	80.4	130.8	249.5	213.3	67.6	61.4	99.8
1975	38.4	24.0	106.7	73.7	68.8	98.1	81.2	138.9	214.3	190.8	92.9	68.3	99.7
1976	45.5	28.3	99.2	77.5	73.7	95.3	80.8	141.8	190.3	172.6	114.3	77.4	99.7
1977	52.0	32.9	94.5	81.4	77.7	90.0	79.3	148.4	161.9	153.4	144.7	82.1	99.8
1978	57.5	35.6	91.2	82.0	80.1	89.6	76.4	143.8	153.4	148.5	156.8	84.1	99.9
1979	57.6	37.1	91.9	81.5	81.4	95.3	*******	*******	*******	*******	*******	*******	74.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	75.0	141.4	149.1	146.0	162.9	85.2	126.6
1980	57.6	37.9	92.2	81.2	82.1	98.1	*******	*******	*******	*******	*******	*******	74.9

TABLE A154. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	38.5	71.2	9.1	127.4	27.2	24.4	49.6
1974	13.9	140.8	361.0	192.7	62.1	68.9	12.0	32.2	47.8	49.5	84.5	77.4	95.2
1975	163.4	80.7	48.9	170.7	89.1	38.7	19.4	113.3	130.0	79.0	88.0	36.2	83.1
1976	107.8	8.9	399.9	157.7	90.4	19.9	282.4	163.0	59.9	84.4	42.5	65.8	123.5
1977	86.9	81.0	431.9	68.0	67.9	72.0	77.4	82.4	84.0	83.6	83.6	84.3	108.6
1978	88.3	97.9	102.1	85.5	62.7	49.3	87.7	281.4	378.4	28.6	23.5	208.6	124.5
1979	126.3	55.7	52.4	129.4	91.1	41.0	*******	*******	*******	*******	*******	*******	82.6
AVGE	97.8	77.5	232.7	134.0	77.2	48.3	86.2	123.9	118.2	75.4	58.2	82.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	157200.313	11	14290.938	2.061
RESIDUAL	416067.375	60	6934.453	
TOTAL	573267.688	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	30.8	88.1	65.6	67.6	64.6	50.3	61.2
1974	113.8	88.8	334.6	160.7	80.0	48.0	35.5	91.1	66.5	70.0	65.5	54.0	100.7
1975	111.4	89.0	321.1	149.5	77.5	48.8	42.9	106.5	71.2	70.0	65.5	66.9	101.7
1976	112.2	83.8	293.8	134.9	77.4	48.0	52.0	126.8	79.2	70.0	64.8	79.1	101.8
1977	109.8	78.2	266.9	122.1	77.5	46.6	61.2	150.8	84.0	67.9	60.3	92.0	101.4
1978	107.8	73.6	249.3	111.4	78.3	47.3	68.1	164.3	85.5	68.3	56.4	95.6	100.5
1979	103.1	74.8	249.1	105.3	77.5	49.9	*******	*******	*******	*******	*******	*******	110.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	71.6	171.0	86.2	68.5	54.5	97.5	91.5
1980	100.7	75.4	249.1	102.3	77.1	51.2	*******	*******	*******	*******	*******	*******	109.3

TABLE A155. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	142.0	60.8	65.1	19.0	126.8	39.3	75.5
1974	62.1	107.3	336.8	104.8	26.6	155.0	58.4	67.8	113.7	79.9	88.3	86.8	107.3
1975	87.9	96.5	95.2	80.3	65.4	110.4	351.2	297.6	53.0	60.3	70.6	80.5	120.7
1976	85.2	84.8	85.2	89.7	96.6	105.0	111.0	110.4	103.2	93.3	85.0	79.8	94.1
1977	77.1	76.4	77.6	78.8	79.2	78.6	76.7	297.1	144.8	71.8	72.7	74.3	100.4
1978	77.3	237.9	74.6	65.1	56.6	50.3	423.4	462.2	47.3	49.8	106.2	56.2	142.3
1979	116.2	59.9	63.8	67.9	71.3	71.9	*******	*******	*******	*******	*******	*******	75.2
AVGE	84.3	110.5	122.2	81.1	66.0	95.2	193.8	216.0	87.9	62.3	91.6	69.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	160017.125	11	14547.008	2.466**
RESIDUAL	353879.563	60	5897.992	
TOTAL	513896.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	140.6	149.9	76.5	74.5	99.4	74.8	102.6
1974	83.0	98.8	101.4	94.0	82.3	122.5	134.0	157.9	82.3	75.4	97.0	75.5	100.3
1975	83.1	96.2	96.9	90.0	79.3	113.6	128.0	189.8	87.1	75.0	92.2	76.5	100.6
1976	85.9	89.4	88.4	83.2	76.0	99.2	125.2	236.2	90.2	72.0	87.1	75.2	100.7
1977	87.6	82.6	81.1	77.9	74.2	86.0	124.5	271.6	91.9	70.2	85.0	73.6	100.5
1978	90.2	77.0	75.9	74.6	73.7	76.7	124.9	287.2	95.3	70.1	85.6	72.0	100.3
1979	89.9	74.9	74.3	73.8	73.5	73.0	*******	*******	*******	*******	*******	*******	76.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	125.1	295.0	96.9	70.0	85.8	71.2	124.0
1980	89.7	73.9	73.5	73.4	73.5	71.2	*******	*******	*******	*******	*******	*******	75.9

TABLE A156. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	120.0	107.0	91.9	62.9	126.2	41.6	91.6
1974	51.7	106.6	333.2	151.2	69.5	94.8	19.8	43.1	29.4	42.9	157.4	97.3	99.7
1975	203.3	98.0	59.0	108.7	46.2	37.8	79.6	150.4	203.4	188.6	124.0	33.4	111.0
1976	66.0	3.6	205.4	118.2	78.9	44.8	151.7	157.6	136.9	162.8	138.8	14.5	106.6
1977	9.3	12.0	155.0	99.6	802.5	273.7	29.1	182.5	65.3	36.8	43.0	290.6	166.6
1978	98.2	135.5	40.1	33.5	27.0	21.2	180.7	272.6	117.4	9.1	73.2	180.5	99.1
1979	87.0	35.9	50.5	88.5	53.5	24.8	*******	*******	*******	*******	*******	*******	56.7
AVGE	85.9	65.3	140.5	99.9	179.6	82.8	96.8	152.2	107.4	83.9	110.4	109.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	71037.875	11	6457.988	0.492
RESIDUAL	787945.250	60	13132.418	
TOTAL	858983.125	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.9	106.2	109.8	105.2	133.0	50.7	98.0
1974	89.4	62.5	166.7	118.5	75.3	75.9	84.7	112.7	107.9	104.1	128.4	65.4	101.0
1975	86.4	59.6	174.0	111.1	75.2	77.0	90.3	129.4	107.8	101.7	120.4	89.7	101.9
1976	86.4	52.6	145.1	100.6	74.8	74.6	99.9	154.8	113.3	99.4	106.8	118.2	102.2
1977	81.4	43.9	121.7	90.2	72.5	68.2	114.3	179.8	118.1	97.3	97.7	136.6	101.8
1978	74.9	36.1	101.8	83.3	73.9	68.0	125.7	195.1	120.8	95.8	90.9	144.2	100.9
1979	65.5	32.7	100.3	80.4	76.4	72.3	*******	*******	*******	*******	*******	*******	71.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	131.4	202.8	122.1	95.1	87.6	148.0	131.2
1980	60.8	31.0	99.5	79.0	77.6	74.5	*******	*******	*******	*******	*******	*******	70.4

TABLE A157. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	305.6	104.8	88.6	65.0	79.0	55.9	116.5
1974	31.5	47.2	148.4	145.9	89.7	73.5	150.2	187.7	53.1	44.9	158.2	68.8	99.9
1975	64.4	93.8	69.7	123.9	30.7	55.1	170.8	325.9	121.3	59.4	58.1	33.5	100.6
1976	70.0	42.6	394.2	62.3	135.9	69.5	177.2	229.9	276.8	180.6	80.0	22.7	145.1
1977	8.7	61.2	80.2	38.8	79.0	176.9	447.2	359.8	59.8	20.8	46.1	56.9	119.6
1978	33.1	7.1	19.6	76.2	144.6	231.8	280.0	190.5	75.8	21.7	56.6	81.0	101.5
1979	26.3	9.7	56.3	75.8	122.9	101.8	*******	*******	*******	*******	*******	*******	65.5
AVGE	39.0	43.6	128.1	87.2	100.4	118.1	255.2	233.1	112.6	65.4	79.7	53.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	317031.375	11	28821.031	5.457**
RESIDUAL	316915.000	60	5281.914	
TOTAL	633946.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	205.4	211.1	97.8	56.6	93.6	48.6	118.8
1974	49.9	59.0	101.5	99.2	84.1	82.5	215.3	221.2	97.9	54.4	90.1	47.7	100.2
1975	46.5	55.2	93.8	93.1	86.6	95.5	221.5	234.8	96.4	48.8	84.5	48.3	100.4
1976	43.0	49.2	80.5	82.5	91.0	110.0	236.2	253.0	94.9	42.7	72.9	48.6	100.4
1977	39.4	40.1	69.8	73.0	102.7	125.8	245.8	259.9	95.3	37.8	65.4	49.8	100.4
1978	35.1	33.5	61.6	64.8	109.4	137.9	257.8	262.0	96.7	35.8	59.0	49.0	100.2
1979	31.2	29.4	59.7	61.5	114.9	148.9	*******	*******	*******	*******	*******	*******	74.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	263.8	263.1	97.4	34.8	55.8	48.6	127.2
1980	29.3	27.4	58.8	59.8	117.7	154.4	*******	*******	*******	*******	*******	*******	74.5

TABLE A158. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	154.4	93.2	82.2	111.6	84.8	67.3	98.9
1974	61.8	72.8	162.8	120.8	56.6	94.0	166.7	122.4	61.9	74.7	138.6	64.8	99.8
1975	144.4	110.1	41.8	65.4	40.8	110.1	133.5	212.5	185.2	78.1	53.8	74.2	104.2
1976	57.2	77.6	152.9	46.2	159.0	180.7	266.6	102.3	58.6	32.5	30.7	53.5	101.5
1977	73.2	219.2	121.6	56.9	95.9	76.6	356.1	114.0	43.5	845.6	30.8	77.6	175.9
1978	46.4	150.4	161.2	64.7	26.7	175.7	99.7	119.3	84.1	14.3	64.2	145.3	96.0
1979	69.2	25.3	29.6	41.9	97.4	156.5	*******	*******	*******	*******	*******	*******	70.0
AVGE	75.4	109.2	111.6	66.0	79.4	132.3	196.2	127.3	85.9	192.8	67.1	80.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	134643.813	11	12240.344	1.091
RESIDUAL	673192.750	60	11219.879	
TOTAL	807836.563	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	169.9	137.5	78.7	80.3	79.9	66.9	102.2
1974	82.9	99.6	121.6	74.2	77.2	121.6	168.4	134.6	75.3	79.7	74.1	67.0	99.7
1975	79.4	106.1	123.5	72.4	75.3	122.5	200.8	132.2	71.8	75.4	67.2	72.2	99.9
1976	77.0	112.7	118.7	65.4	76.0	127.5	211.2	133.4	70.3	73.2	57.1	79.2	100.1
1977	69.9	115.6	119.2	59.0	79.2	138.1	215.5	130.6	69.0	68.3	49.8	87.0	100.1
1978	66.2	118.8	115.5	53.5	82.7	142.7	224.8	127.1	67.8	66.9	43.6	89.2	99.9
1979	61.9	122.5	118.8	53.1	83.4	142.5	*******	*******	*******	*******	*******	*******	97.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	229.4	125.3	67.2	66.2	40.5	90.3	103.2
1980	59.7	124.3	120.4	52.9	83.8	142.4	*******	*******	*******	*******	*******	*******	97.3

TABLE A159. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	293.3	236.3	99.8	6.6	26.3	61.4	120.6
1974	60.4	36.5	12.3	176.0	40.8	80.6	183.8	327.3	66.0	52.3	47.0	57.6	95.0
1975	78.3	55.6	22.4	10.9	41.0	170.4	1039.7	303.0	22.9	13.1	29.7	75.6	155.2
1976	90.3	66.1	60.0	73.3	95.5	114.3	342.1	97.6	78.7	64.5	55.5	51.2	99.1
1977	51.6	56.3	65.5	78.6	92.6	99.0	467.6	82.0	71.3	64.6	62.0	60.9	104.3
1978	56.9	50.3	44.0	319.0	231.1	561.1	179.7	53.0	62.3	602.9	64.3	60.2	190.4
1979	59.8	64.4	73.6	88.0	109.1	139.9	*******	*******	*******	*******	*******	*******	89.1
AVGE	66.2	54.9	46.3	124.3	101.7	194.2	417.7	183.2	66.8	134.0	47.5	61.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	735118.000	11	66828.875	3.576**
RESIDUAL	1121270.000	60	18687.832	
TOTAL	1856388.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	330.7	255.9	64.2	29.7	36.9	61.8	129.9
1974	71.4	52.7	36.5	77.4	63.5	117.2	342.5	238.3	65.8	33.9	39.5	60.8	100.0
1975	68.8	52.6	38.7	79.1	76.2	121.0	344.5	206.4	64.3	42.5	44.4	59.7	99.9
1976	65.9	53.6	44.2	75.7	92.1	127.1	354.1	168.6	60.9	48.6	47.8	58.6	99.8
1977	63.4	55.2	50.8	77.4	112.6	132.6	347.5	132.2	60.0	55.9	52.1	58.2	99.8
1978	61.0	56.4	56.7	77.9	124.4	134.7	348.2	108.0	61.6	58.6	53.8	57.6	99.9
1979	58.7	55.9	58.3	81.9	131.1	132.3	*******	*******	*******	*******	*******	*******	86.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	348.6	95.9	62.4	59.9	54.6	57.3	113.1
1980	57.5	55.6	59.1	83.9	134.5	131.2	*******	*******	*******	*******	*******	*******	87.0

TABLE A160. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR BARLEY SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	222.4	104.2	89.1	100.0	87.8	66.6	111.7
1974	59.2	73.6	172.2	138.2	65.7	99.2	192.4	154.9	72.4	68.0	116.9	54.1	105.6
1975	92.4	79.6	39.6	68.7	38.0	101.0	187.1	208.5	145.1	67.0	52.7	64.2	95.3
1976	57.2	60.8	166.4	39.3	112.7	112.5	187.1	131.3	140.1	98.3	62.1	41.0	100.7
1977	43.5	147.7	117.5	49.1	76.2	95.7	270.9	154.5	35.3	294.7	28.4	55.0	114.1
1978	35.0	77.1	112.8	68.0	62.2	266.7	214.0	150.4	122.6	44.6	89.9	105.4	112.4
1979	47.9	32.4	78.2	57.3	96.0	106.4	*******	*******	*******	*******	*******	*******	69.7
AVGE	55.9	78.6	114.5	70.1	75.2	130.2	212.3	150.6	100.7	112.1	73.0	64.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	133501.875	11	12136.531	5.856**
RESIDUAL	124356.563	60	2072.609	
TOTAL	257858.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	199.7	153.0	108.5	81.8	82.7	58.9	114.1
1974	64.7	73.5	144.7	55.3	70.3	103.2	203.9	152.2	112.5	83.6	80.1	57.9	100.1
1975	61.7	74.2	140.8	55.7	70.0	103.4	207.0	154.1	118.9	82.4	77.8	58.5	100.4
1976	58.0	73.5	130.9	55.8	71.7	104.3	212.5	157.8	127.6	80.5	72.6	60.4	100.5
1977	52.5	71.4	123.8	55.7	76.5	106.3	215.4	158.2	133.7	78.8	70.3	62.7	100.4
1978	48.3	70.0	115.7	55.7	80.6	107.4	220.0	156.2	137.8	80.1	67.6	63.2	100.2
1979	44.8	69.8	113.4	55.9	82.8	107.9	*******	*******	*******	*******	*******	*******	79.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	222.3	155.2	139.8	80.7	66.2	63.5	121.3
1980	43.1	69.7	112.3	55.9	83.9	108.1	*******	*******	*******	*******	*******	*******	78.8

TABLE A161. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM NORTH DAKOTA TO DULUTH/SUPERIOR 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	190.7	126.8	109.7	137.0	76.1	43.6	114.0
1974	55.5	45.4	71.2	74.0	82.1	141.7	214.5	121.0	21.1	62.3	65.9	158.9	92.8
1975	56.5	70.8	65.0	103.0	87.2	64.8	80.0	236.2	232.3	110.3	70.0	68.2	103.7
1976	46.3	56.1	55.4	73.0	64.0	103.2	132.3	277.4	286.6	128.1	49.2	42.9	109.5
1977	59.2	123.9	68.3	93.3	18.4	80.2	124.9	418.6	79.0	92.3	355.1	107.4	135.1
1978	22.2	38.7	77.9	51.6	63.6	98.2	174.7	319.7	101.5	23.9	67.1	54.6	91.1
1979	116.3	66.7	44.2	61.1	29.2	260.8	*******	*******	*******	*******	*******	*******	96.4
AVGE	59.3	66.9	63.6	76.0	57.4	124.8	152.9	249.9	138.4	92.3	113.9	79.3	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	204235.875	11	18566.895	4.287**
RESIDUAL	259864.125	60	4331.066	
TOTAL	464100.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	164.7	187.1	158.1	112.0	70.6	57.5	125.0
1974	56.2	59.7	66.5	87.7	73.5	103.0	158.8	206.4	151.1	110.6	70.0	59.9	100.3
1975	54.6	57.7	66.5	84.5	70.1	100.5	152.1	237.8	143.7	104.2	68.7	63.1	100.3
1976	53.5	57.6	65.2	81.1	63.4	94.3	141.4	276.6	136.5	99.7	69.0	67.7	100.5
1977	51.3	56.1	63.7	75.4	56.3	92.0	137.6	306.5	130.5	95.8	67.9	68.8	100.2
1978	51.3	56.4	62.5	72.3	49.5	89.1	135.2	325.4	126.0	97.6	67.9	69.1	100.2
1979	50.7	55.3	63.0	70.2	46.0	90.4	*******	*******	*******	*******	*******	*******	62.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	134.0	334.9	123.7	98.5	67.8	69.3	138.0
1980	50.5	54.7	63.2	69.1	44.2	91.1	*******	*******	*******	*******	*******	*******	62.1

TABLE A162. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM NORTH DAKOTA TO MINNEAPOLIS/ ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	141.0	99.2	87.1	104.5	104.5	73.1	102.4
1974	87.2	60.5	70.6	108.2	59.2	81.8	217.3	157.0	107.3	90.3	69.6	91.7	100.0
1975	53.7	107.2	52.5	79.8	88.1	134.8	143.1	186.1	102.2	47.7	92.7	123.9	101.0
1976	73.5	65.2	88.1	72.3	95.9	206.4	133.2	171.1	104.8	51.8	67.6	102.0	102.7
1977	106.4	196.6	74.8	81.2	57.2	90.3	220.5	270.3	97.0	38.2	133.5	128.0	124.5
1978	52.2	59.2	63.6	77.3	109.2	122.5	96.7	174.5	148.8	71.3	59.8	97.7	94.4
1979	110.0	60.5	76.8	55.4	79.4	84.4	*******	*******	*******	*******	*******	*******	77.7
AVGE	80.5	91.5	71.1	79.0	81.5	120.0	158.6	176.4	107.9	67.3	88.0	103.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	77899.813	11	7081.801	5.846**
RESIDUAL	72679.063	60	1211.318	
TOTAL	150578.875	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	166.1	154.8	102.3	78.4	87.9	101.0	115.0
1974	78.6	79.4	72.2	86.9	79.0	110.0	167.1	163.2	101.9	74.2	85.8	102.7	100.1
1975	78.2	77.8	71.3	85.3	79.5	109.4	164.6	175.9	105.3	67.5	60.5	105.4	100.1
1976	79.2	76.2	71.0	80.7	81.5	108.9	159.0	190.5	108.9	59.9	76.7	109.4	100.2
1977	80.6	72.1	72.6	76.3	85.0	103.2	151.6	199.2	114.0	55.4	72.6	111.6	99.9
1978	85.2	69.6	74.1	72.8	85.9	105.9	147.8	204.3	115.8	53.4	71.9	112.8	100.0
1979	88.3	66.9	75.1	72.3	85.1	103.0	*******	*******	*******	*******	*******	*******	81.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	145.9	206.8	116.7	52.4	71.6	113.4	117.8
1980	89.9	65.6	75.6	72.1	84.7	101.5	*******	*******	*******	*******	*******	*******	81.6

TABLE A163. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM NORTH DAKOTA TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	154.4	91.7	85.3	87.4	119.9	89.4	104.7
1974	79.5	116.2	113.6	132.0	72.1	114.8	141.9	218.7	91.9	62.3	100.1	92.3	111.3
1975	92.1	90.9	90.9	74.7	91.1	127.4	148.2	106.9	93.9	91.2	72.6	119.6	99.9
1976	89.6	106.6	69.4	61.3	94.5	132.5	140.1	108.9	97.5	117.6	100.0	108.1	102.2
1977	71.9	141.6	46.2	46.9	70.6	119.6	141.6	177.6	137.8	105.4	60.8	98.0	101.5
1978	73.5	89.6	76.5	31.2	75.5	102.6	159.7	160.1	115.3	99.8	92.7	95.2	97.6
1979	103.9	72.7	63.9	47.1	85.7	67.5	*******	*******	*******	*******	*******	*******	73.5
AVGE	85.1	102.9	76.8	65.5	81.6	110.8	147.7	144.0	103.6	94.0	91.0	100.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	40503.625	11	3682.148	6.257**
RESIDUAL	35307.625	60	588.460	
TOTAL	75811.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.4	107.4	92.4	95.0	98.9	102.6	107.5
1974	85.6	104.3	89.3	65.5	83.8	124.5	146.9	111.4	95.5	96.8	97.1	102.7	100.3
1975	84.3	102.9	87.5	63.1	82.2	122.3	145.9	120.0	100.8	99.7	93.6	103.3	100.5
1976	84.6	98.7	82.7	59.5	82.0	119.6	146.2	130.0	107.0	101.9	88.9	104.3	100.5
1977	85.1	95.1	77.7	55.7	82.1	116.4	147.2	138.0	111.7	104.5	86.8	104.8	100.4
1978	86.1	91.5	73.8	52.3	82.1	113.8	148.6	142.2	114.6	106.4	86.7	104.9	100.2
1979	85.3	90.7	72.9	50.3	81.1	112.2	*******	*******	*******	*******	*******	*******	82.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	149.3	144.3	116.1	107.4	86.6	105.0	118.1
1980	84.9	90.3	72.5	49.3	80.6	111.4	*******	*******	*******	*******	*******	*******	81.5

TABLE A164. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM NORTH DAKOTA TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	150.2	106.3	90.5	108.5	96.6	67.5	103.3
1974	76.5	63.5	82.8	106.1	73.4	114.9	216.0	172.3	92.1	85.5	76.9	104.7	105.4
1975	66.9	101.7	64.1	84.9	89.3	114.7	119.6	173.9	131.1	70.5	83.9	108.7	100.8
1976	73.0	70.8	82.4	73.0	89.1	170.2	132.2	171.6	131.4	73.7	72.0	92.6	102.7
1977	89.2	176.7	71.3	72.9	56.1	86.2	162.0	238.8	92.6	57.8	167.5	122.2	116.1
1978	58.0	62.0	75.2	69.0	94.0	112.7	120.3	208.1	136.1	68.0	67.7	99.4	97.5
1979	117.6	71.4	79.9	66.2	88.2	89.3	*******	*******	*******	*******	*******	*******	85.4
AVGE	80.2	91.0	76.0	78.7	81.7	114.7	150.0	178.5	112.3	77.4	94.1	99.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	67985.938	11	6180.539	7.683**
RESIDUAL	48266.375	60	804.439	
TOTAL	116252.313	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	139.9	165.1	110.3	83.0	85.0	100.5	114.0
1974	75.9	79.6	76.4	85.6	83.8	111.0	140.3	170.0	111.4	80.7	84.3	101.5	100.1
1975	75.6	78.4	75.7	84.2	83.8	109.5	138.6	179.4	115.4	76.7	81.4	103.2	100.2
1976	75.4	77.7	75.0	79.5	85.0	106.3	136.5	190.3	120.6	72.0	79.4	105.4	100.3
1977	74.8	75.0	75.7	74.8	86.6	104.1	134.4	198.2	125.7	68.9	76.9	106.1	100.1
1978	75.5	73.7	76.3	71.3	87.6	100.8	134.7	202.2	128.3	67.6	76.5	106.1	100.1
1979	76.2	71.8	77.0	70.4	87.5	99.2	*******	*******	*******	*******	*******	*******	80.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	134.9	204.2	129.7	67.0	76.4	106.1	119.7
1980	76.6	70.9	77.4	69.9	87.4	98.4	*******	*******	*******	*******	*******	*******	80.1

TABLE A165. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	162.7	224.4	80.3	52.8	193.7	39.2	125.5
1974	39.1	189.6	47.7	50.3	53.7	39.8	144.6	311.6	39.5	67.1	92.5	130.7	100.5
1975	69.3	60.5	126.9	96.6	257.9	14.0	6.4	202.7	195.4	128.1	99.1	89.2	112.2
1976	103.3	121.7	49.6	37.4	42.2	36.8	75.9	154.7	276.3	135.2	74.7	44.2	95.0
1977	83.0	151.1	141.7	57.3	8.3	14.1	22.9	304.9	15.1	166.1	538.8	427.6	160.9
1978	10.7	99.5	141.6	10.8	8.1	45.5	94.6	283.8	253.8	8.3	38.4	49.8	87.1
1979	281.0	196.8	33.5	14.2	19.7	31.3	*******	*******	*******	*******	*******	*******	96.1
AVGE	97.7	136.5	90.2	44.4	65.0	30.2	84.5	247.0	143.4	92.9	172.9	130.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	234620.375	11	21329.125	2.402**
RESIDUAL	532798.000	60	8879.965	
TOTAL	767418.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	115.1	236.5	134.7	92.1	122.4	81.4	130.4
1974	73.7	130.6	86.1	61.3	41.1	28.0	106.0	235.3	142.3	98.3	118.8	80.6	100.2
1975	73.9	129.4	92.0	56.9	36.9	28.3	92.6	236.9	161.1	104.4	104.9	80.4	99.5
1976	81.7	128.5	97.2	50.7	30.5	28.0	76.0	238.4	182.8	111.9	93.8	78.7	99.9
1977	90.8	131.0	96.2	40.3	24.7	29.8	66.5	238.6	206.1	114.3	81.2	73.9	99.4
1978	99.9	137.0	95.6	33.2	19.3	29.9	61.5	236.1	219.5	117.3	79.3	68.6	99.8
1979	101.7	142.6	95.6	28.4	16.3	30.7	*******	*******	*******	*******	*******	*******	69.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	59.0	234.9	226.2	118.8	78.4	66.0	130.6
1980	102.5	145.3	95.6	26.0	14.8	31.2	*******	*******	*******	*******	*******	*******	69.2

TABLE A166. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	149.8	176.3	67.1	146.9	94.3	81.5	119.4
1974	72.6	51.6	72.1	175.0	72.8	36.7	156.8	218.1	124.2	87.9	59.3	175.4	108.5
1975	44.0	284.2	73.3	49.8	37.1	103.2	56.6	239.1	91.2	75.5	190.3	148.1	116.0
1976	145.9	68.9	95.7	45.3	26.3	285.2	66.3	184.1	160.6	64.4	59.7	115.1	109.8
1977	188.1	364.8	118.0	113.0	72.0	44.6	22.6	196.5	61.3	91.5	396.7	364.0	169.4
1978	97.2	41.1	30.6	170.8	116.5	50.1	84.4	85.3	83.0	123.2	49.2	153.7	90.4
1979	142.3	97.2	89.8	99.5	67.9	65.0	*******	*******	*******	*******	*******	*******	93.6
AVGE	115.0	151.3	79.9	108.9	65.4	97.4	89.4	183.2	97.9	98.2	141.6	173.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	91558.500	11	8323.500	1.384
RESIDUAL	360867.000	60	6014.449	
TOTAL	452425.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	113.8	208.8	105.0	98.4	99.9	133.1	126.5
1974	103.5	71.0	87.2	63.5	50.2	71.4	105.1	206.1	104.7	95.8	97.6	142.4	99.9
1975	106.8	69.8	85.1	72.0	56.0	68.8	92.1	197.1	105.1	91.3	92.5	156.3	99.4
1976	114.5	71.3	83.9	82.6	61.0	67.5	74.6	185.9	100.3	88.9	92.2	171.6	99.5
1977	123.4	71.0	80.8	92.6	66.3	65.1	63.7	172.4	99.7	87.7	86.7	178.2	99.0
1978	133.5	73.1	80.9	100.9	70.5	61.8	56.6	164.5	98.1	88.4	84.5	180.5	99.4
1979	139.1	72.1	79.7	106.5	74.5	56.5	*******	*******	*******	*******	*******	*******	88.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	53.1	160.6	97.3	88.7	83.4	181.6	110.8
1980	141.9	71.6	79.0	109.3	76.5	53.9	*******	*******	*******	*******	*******	*******	88.7

TABLE A167. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	159.0	108.8	71.3	118.3	110.3	83.9	106.6
1974	120.7	114.9	73.1	170.2	86.4	106.9	134.9	365.3	122.0	74.9	97.8	100.9	128.2
1975	76.3	101.7	87.2	68.8	67.3	136.1	113.8	95.3	126.7	134.5	67.1	182.2	104.8
1976	118.9	74.9	69.6	51.7	87.7	159.5	96.7	122.6	80.4	178.8	109.2	91.5	103.5
1977	59.2	134.2	62.2	40.9	39.2	140.0	113.0	180.4	196.2	146.7	63.7	94.7	105.9
1978	68.1	126.5	60.3	20.2	87.5	100.4	136.3	161.0	110.5	107.5	101.0	81.9	96.8
1979	108.0	82.2	49.5	45.4	95.0	78.1	*******	*******	*******	*******	*******	*******	76.4
AVGE	91.9	105.7	67.0	66.2	72.2	120.2	125.6	172.2	117.8	126.8	91.5	105.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	61225.875	11	5565.988	3.141**
RESIDUAL	106336.375	60	1772.273	
TOTAL	167562.250	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	130.2	116.0	102.9	124.1	94.5	94.6	110.4
1974	98.5	102.8	74.3	58.4	68.8	134.5	127.1	120.4	102.5	128.0	93.1	94.4	100.2
1975	94.7	106.1	72.7	56.0	69.5	132.3	122.6	128.5	105.2	131.7	91.4	94.3	100.4
1976	90.1	107.4	69.7	52.5	73.1	128.9	119.2	136.5	108.4	135.9	88.1	94.0	100.3
1977	88.7	107.2	65.9	48.6	78.5	124.2	116.9	143.6	109.5	139.3	88.2	93.2	100.3
1978	87.0	107.8	62.4	45.5	82.5	119.4	116.5	147.5	107.9	143.5	89.0	92.5	100.1
1979	85.9	110.2	60.1	43.4	83.5	116.1	*******	*******	*******	*******	*******	*******	83.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	116.3	149.5	107.1	145.6	89.3	92.1	116.7
1980	85.3	111.4	59.0	42.4	84.1	114.4	*******	*******	*******	*******	*******	*******	82.8

TABLE A168. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT ONE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	173.6	161.6	79.1	118.5	120.2	74.1	121.2
1974	103.1	100.8	84.5	158.6	60.3	71.7	135.9	307.8	108.9	86.1	94.5	140.5	121.1
1975	80.3	117.3	79.2	64.3	77.0	101.0	68.0	144.2	119.6	101.3	113.5	125.3	99.2
1976	114.8	93.8	76.0	47.8	80.1	163.6	79.4	136.9	139.0	117.8	86.4	99.3	102.9
1977	121.8	240.8	91.4	73.0	48.9	79.4	65.0	184.5	109.9	102.5	195.8	192.8	125.5
1978	87.7	84.8	61.0	94.7	97.4	67.8	88.7	116.2	123.4	118.3	68.7	126.8	94.8
1979	130.5	103.7	78.9	78.9	73.9	75.3	*******	*******	*******	*******	*******	*******	90.2
AVGE	106.3	123.6	78.5	86.2	72.9	93.1	101.8	175.2	113.3	107.4	113.2	126.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	48042.188	11	4367.469	2.937**
RESIDUAL	89212.438	60	1486.874	
TOTAL	137254.625	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.1	153.8	108.2	104.6	106.2	113.4	114.7
1974	103.0	105.2	81.8	66.2	70.2	86.8	98.2	154.7	109.8	104.9	104.2	116.7	100.1
1975	102.8	104.3	81.0	68.5	71.5	85.3	92.9	152.6	114.3	105.3	98.9	123.1	100.1
1976	104.6	103.4	79.8	71.1	73.6	83.9	84.8	150.4	118.0	106.7	94.8	130.1	100.1
1977	107.3	100.8	77.8	74.0	76.4	81.5	79.8	146.5	122.1	108.7	89.7	133.5	99.8
1978	111.4	99.8	77.2	76.4	76.9	79.3	76.2	145.5	123.4	111.0	88.2	133.7	99.9
1979	113.5	98.6	76.9	79.3	76.7	76.7	*******	*******	*******	*******	*******	*******	86.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	74.4	145.0	124.0	112.1	87.4	133.8	112.8
1980	114.5	97.9	76.7	79.3	76.5	75.5	*******	*******	*******	*******	*******	*******	86.8

TABLE A169. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	134.9	167.7	148.9	144.5	75.4	40.3	118.6
1974	85.4	50.9	43.5	83.8	76.0	171.0	205.9	105.3	38.9	116.0	101.8	84.0	95.9
1975	15.7	49.8	53.8	119.0	78.4	57.1	119.6	196.4	193.6	133.5	67.5	110.3	99.6
1976	54.6	37.2	48.3	77.7	45.5	80.7	117.3	262.4	293.6	148.2	42.9	59.3	105.6
1977	53.8	152.6	83.6	17.6	33.8	65.3	31.4	399.0	151.0	91.3	306.8	157.3	128.6
1978	39.9	43.5	73.0	47.7	116.1	86.8	143.3	282.4	133.5	31.2	41.7	72.9	92.7
1979	78.8	80.0	34.0	37.3	9.1	51.4	*******	*******	*******	*******	*******	*******	48.4
AVGE	54.7	69.0	56.0	63.8	59.8	85.4	125.4	235.5	159.9	110.8	106.0	87.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	185919.188	11	16901.742	4.816**
RESIDUAL	210584.938	60	3509.749	
TOTAL	396504.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	153.9	179.3	165.1	139.2	78.8	78.4	132.5
1974	58.1	49.8	55.1	87.7	63.3	90.5	143.6	196.7	165.3	134.8	76.1	82.2	100.3
1975	56.4	49.5	57.1	81.9	60.7	88.5	135.2	222.5	165.7	125.0	71.7	89.0	100.3
1976	54.9	51.9	59.2	73.8	55.5	81.2	122.8	256.3	168.5	114.5	66.7	98.1	100.3
1977	55.1	53.7	60.2	64.0	49.4	76.7	116.9	283.5	172.3	105.5	60.9	101.2	100.0
1978	57.0	57.8	61.4	55.0	43.5	71.3	110.2	303.5	177.7	103.4	57.3	101.4	100.0
1979	58.7	59.3	63.0	48.9	40.7	71.8	*******	*******	*******	*******	*******	*******	57.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	106.8	313.5	180.3	102.4	55.5	101.5	143.3
1980	59.6	60.0	63.8	45.8	39.3	72.0	*******	*******	*******	*******	*******	*******	56.7

TABLE A170. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	140.0	71.6	150.0	142.7	107.1	52.0	110.6
1974	86.6	63.5	60.4	146.5	89.3	85.9	146.3	219.0	86.4	131.5	108.2	84.4	109.0
1975	55.6	92.4	56.1	25.6	111.0	111.7	109.8	182.1	168.0	78.3	112.9	106.1	100.8
1976	95.8	69.1	46.3	39.7	51.4	331.9	207.9	122.4	123.1	90.1	80.9	143.8	116.9
1977	99.6	194.6	53.2	90.2	46.9	53.1	94.0	422.8	283.3	96.8	112.5	180.9	144.0
1978	72.2	16.8	23.4	23.0	206.4	92.2	23.7	130.8	273.4	127.8	59.6	117.0	97.2
1979	213.8	99.6	42.0	24.7	104.2	57.4	*******	*******	*******	*******	*******	*******	90.3
AVGE	103.9	89.3	46.9	58.3	101.6	122.0	120.3	191.5	180.7	111.2	96.9	114.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	115451.938	11	10495.629	2.392**
RESIDUAL	263272.063	60	4387.867	
TOTAL	378724.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.2	157.3	137.4	117.1	108.6	93.3	127.0
1974	85.1	83.5	55.7	36.6	80.5	94.8	146.4	154.4	145.7	113.6	106.9	101.5	100.4
1975	84.8	83.0	53.0	35.4	79.0	91.7	139.6	154.8	161.0	108.5	101.2	113.2	100.4
1976	85.4	84.7	49.1	33.2	78.3	86.4	127.3	152.4	185.4	103.0	96.4	125.2	100.6
1977	87.3	83.2	44.3	31.4	77.4	82.0	120.9	148.5	202.9	100.2	89.8	133.8	100.1
1978	90.2	85.2	41.5	30.1	77.1	75.8	119.7	141.7	214.2	99.3	87.3	139.2	100.1
1979	92.2	85.0	40.0	29.9	75.9	71.7	*******	*******	*******	*******	*******	*******	65.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	119.1	138.3	219.8	98.8	86.0	141.9	134.0
1980	93.2	84.9	39.2	29.8	75.3	69.6	*******	*******	*******	*******	*******	*******	65.4

TABLE A171. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	155.8	77.8	107.9	70.7	87.5	93.5	98.9
1974	85.1	91.0	79.9	83.4	103.7	151.9	134.5	114.6	91.3	51.8	123.2	112.2	101.9
1975	80.4	77.5	74.9	78.0	87.1	137.0	188.2	129.1	55.3	67.6	96.0	120.2	99.3
1976	122.9	80.0	32.4	48.8	219.3	153.9	189.8	98.4	128.0	53.7	100.3	148.1	114.6
1977	84.6	161.4	13.4	39.2	128.4	56.9	171.4	243.0	121.1	116.8	82.8	125.4	112.1
1978	46.1	16.5	44.4	35.4	73.5	180.1	181.8	131.3	151.1	88.7	61.5	85.0	91.3
1979	115.2	26.4	50.9	44.3	82.9	94.2	*******	*******	*******	*******	*******	*******	69.0
AVGE	89.0	75.5	49.3	54.8	115.8	129.0	170.2	132.4	109.1	74.9	91.9	114.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	80281.000	11	7298.270	5.489**
RESIDUAL	79770.000	60	1329.500	
TOTAL	160051.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	167.0	107.8	94.4	63.0	103.8	116.7	108.8
1974	96.1	83.0	51.9	66.2	106.8	139.5	167.7	108.5	97.8	66.2	102.4	119.1	100.4
1975	92.6	81.3	50.8	62.3	105.0	138.5	170.0	112.6	103.8	70.4	98.9	120.9	100.6
1976	91.3	77.0	49.3	56.2	102.5	134.4	175.2	118.2	109.9	77.4	93.4	121.3	100.5
1977	91.3	72.7	46.9	49.5	99.8	133.3	180.0	122.0	118.2	81.6	88.2	121.2	100.4
1978	92.5	68.7	46.0	44.4	99.2	128.0	184.5	123.1	124.3	85.0	85.2	121.9	100.2
1979	91.5	67.3	45.4	41.8	99.8	126.3	*******	*******	*******	*******	*******	*******	78.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	186.8	123.6	127.4	86.8	83.8	122.3	121.8
1980	91.0	66.6	45.1	40.5	100.1	125.4	*******	*******	*******	*******	*******	*******	78.1

TABLE A172. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT TWO TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.5	109.0	131.3	116.9	79.9	49.6	105.9
1974	73.8	61.7	52.8	94.1	79.2	129.3	160.7	143.9	82.0	87.2	107.3	103.0	97.9
1975	52.2	74.8	62.1	72.4	90.8	109.6	127.5	167.5	146.0	97.0	84.4	114.3	99.9
1976	81.1	54.7	52.8	66.1	73.0	158.3	146.5	145.7	162.1	88.1	67.2	112.7	100.7
1977	91.2	179.3	55.7	80.8	63.7	54.2	76.9	255.8	160.9	87.8	196.2	129.8	119.4
1978	55.3	39.5	65.3	51.9	126.7	99.9	100.9	169.3	166.5	74.9	50.8	101.4	91.9
1979	159.5	92.3	71.9	46.1	107.9	88.9	*******	*******	*******	*******	*******	*******	94.4
AVGE	85.5	83.7	60.1	68.6	90.2	106.7	126.8	165.2	141.5	92.0	97.6	101.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	59566.313	11	5415.117	4.521**
RESIDUAL	71869.063	60	1197.818	
TOTAL	131435.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	148.0	143.2	135.9	100.1	88.4	107.4	120.5
1974	73.5	67.4	56.6	78.9	79.4	121.8	143.0	146.8	138.4	98.3	87.6	108.8	100.0
1975	73.2	68.9	56.9	77.0	81.2	113.9	134.9	154.2	143.1	93.6	87.2	110.6	100.0
1976	73.3	72.5	58.7	71.9	84.9	113.3	123.6	163.2	149.8	89.8	86.5	112.7	100.0
1977	73.6	75.1	60.3	65.9	89.6	108.9	116.0	168.7	155.7	86.0	84.9	113.5	99.9
1978	75.0	78.5	62.1	61.6	92.6	103.9	111.8	170.6	160.0	85.3	83.3	114.2	99.9
1979	76.0	79.7	62.4	60.4	93.6	101.5	*******	*******	*******	*******	*******	*******	78.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	109.7	171.6	162.2	85.0	82.4	114.6	120.9
1980	76.6	80.3	62.6	59.8	94.1	100.2	*******	*******	*******	*******	*******	*******	78.9

TABLE A173. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	207.7	134.6	115.0	143.4	66.8	64.5	122.0
1974	70.4	43.4	70.2	62.1	82.4	97.5	243.4	141.1	37.8	74.5	55.6	191.6	97.5
1975	57.7	64.5	103.5	63.8	64.8	69.0	82.9	213.7	193.3	95.8	100.7	72.3	96.3
1976	45.4	66.9	46.9	76.7	74.8	238.8	135.6	160.8	220.3	118.7	61.0	61.9	109.0
1977	55.2	66.7	61.9	124.6	60.9	79.7	123.1	265.4	103.4	104.1	200.5	97.5	111.9
1978	48.9	51.7	83.3	96.4	55.7	118.5	150.0	249.7	112.9	64.6	52.9	119.3	100.3
1979	131.2	63.2	77.0	74.3	70.7	90.2	*******	*******	*******	*******	*******	*******	84.4
AVGE	68.1	59.4	73.8	83.0	68.2	115.6	153.8	194.2	130.4	100.2	89.6	101.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	105484.438	11	9589.492	4.737**
RESIDUAL	121460.000	60	2024.333	
TOTAL	226944.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	181.6	165.8	171.4	109.7	73.7	70.6	128.6
1974	58.5	60.6	71.5	76.7	73.2	89.6	175.1	172.3	169.2	108.6	73.4	71.7	100.0
1975	57.7	60.2	71.5	80.0	71.4	91.0	164.6	188.0	166.5	103.1	72.1	76.6	100.1
1976	56.0	61.2	72.0	84.3	68.6	91.5	150.4	204.8	159.8	98.6	72.7	82.5	100.2
1977	53.8	61.3	70.9	87.5	66.4	94.7	140.5	217.3	155.6	94.1	70.8	87.7	100.1
1978	52.8	61.9	70.6	90.9	64.7	95.3	134.7	222.7	152.2	95.4	70.2	89.3	100.0
1979	52.6	61.2	69.6	93.4	63.9	96.6	*******	*******	*******	*******	*******	*******	72.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	131.8	225.3	150.4	96.0	69.9	90.2	127.3
1980	52.5	60.8	69.1	94.7	63.5	97.3	*******	*******	*******	*******	*******	*******	73.0

TABLE A174. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	175.8	126.8	115.3	124.1	102.9	66.3	118.5
1974	66.6	36.9	60.7	81.7	57.3	48.1	183.7	175.7	160.5	107.0	81.8	116.5	98.0
1975	39.6	32.8	36.9	84.7	107.9	106.8	140.7	223.1	135.7	81.6	100.4	151.9	103.5
1976	44.2	49.7	66.7	67.6	73.3	252.7	156.3	237.1	141.1	63.4	102.8	78.6	111.1
1977	68.6	116.9	84.5	48.6	40.5	99.5	126.8	468.1	130.0	75.7	118.9	60.2	119.8
1978	88.6	70.7	58.4	55.3	163.8	103.7	130.2	178.8	155.1	83.0	71.7	86.7	103.8
1979	124.6	65.3	64.9	48.8	116.0	98.9	*******	*******	*******	*******	*******	*******	86.4
AVGE	72.0	62.0	62.0	64.4	93.1	118.3	152.2	234.9	139.6	89.2	96.4	93.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	164975.000	11	14997.727	6.745**
RESIDUAL	133402.125	60	2223.369	
TOTAL	298377.125	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	167.4	187.0	139.6	99.4	97.5	91.0	130.3
1974	53.6	43.1	60.8	74.5	83.0	104.3	164.3	191.2	138.6	95.8	99.0	88.0	99.7
1975	56.7	45.7	61.6	71.6	85.5	103.8	157.5	198.3	140.1	89.2	98.1	86.1	99.5
1976	61.2	50.0	62.7	66.6	91.7	103.8	148.2	204.8	140.0	82.7	98.1	82.7	99.4
1977	67.1	55.3	64.3	61.0	96.5	103.6	141.2	209.0	141.0	77.1	96.5	80.4	99.4
1978	72.6	59.5	66.4	55.9	101.1	102.7	137.6	210.4	139.8	74.5	97.4	77.1	99.6
1979	76.7	62.0	68.3	52.9	101.9	101.5	*******	*******	*******	*******	*******	*******	77.2

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	135.7	211.1	139.2	73.2	97.8	75.5	122.1
1980	78.7	63.2	69.2	51.5	102.2	100.9	*******	*******	*******	*******	*******	*******	77.6

TABLE A175. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	309.4	95.7	7.3	117.4	117.6	72.7	120.0
1974	138.8	65.6	146.6	318.3	31.5	18.6	308.3	79.7	94.2	178.5	198.1	43.5	135.1
1975	48.0	53.9	61.7	71.1	1037.0	934.9	87.3	87.5	86.9	86.3	86.1	85.3	227.2
1976	83.8	81.7	319.6	78.5	78.2	78.6	1744.4	80.4	81.4	81.9	81.4	79.8	239.1
1977	77.6	75.0	72.7	70.5	137.5	67.8	403.3	270.8	68.6	70.2	72.5	75.4	121.8
1978	472.8	82.6	86.3	89.4	92.1	93.5	94.4	93.7	92.3	90.1	87.9	85.9	121.8
1979	84.9	84.3	84.1	84.0	84.1	82.4	*******	*******	*******	*******	*******	*******	84.0
AVGE	151.0	73.9	128.5	118.6	243.4	212.6	491.2	116.0	71.8	104.1	107.2	73.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	914816.000	11	83165.063	1.372
RESIDUAL	3635657.000	60	60594.281	
TOTAL	4550473.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	247.4	84.2	63.8	117.3	122.6	67.2	117.1
1974	85.9	66.0	91.7	71.4	100.5	73.0	263.0	83.7	64.8	112.2	116.9	68.1	99.8
1975	86.8	67.6	90.3	72.3	101.6	74.1	264.9	83.4	71.8	106.1	109.9	70.0	99.9
1976	84.8	70.7	85.4	74.7	107.8	80.5	259.1	84.5	77.4	95.8	98.4	75.0	99.5
1977	87.3	75.9	83.8	78.4	106.2	83.8	253.6	86.0	83.2	88.9	90.0	79.3	99.7
1978	87.6	79.2	81.2	80.5	106.1	85.3	259.8	86.6	82.3	82.1	82.1	82.0	99.6
1979	91.5	81.8	83.0	81.8	101.8	81.8	*******	*******	*******	*******	*******	*******	87.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	263.0	86.9	81.8	78.8	78.1	83.4	112.0
1980	93.5	83.1	84.0	82.5	99.6	80.0	*******	*******	*******	*******	*******	*******	87.1

TABLE A176. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT THREE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	187.3	128.3	109.4	138.1	85.4	67.0	119.3
1974	70.0	39.5	68.0	74.8	74.8	85.8	257.4	200.8	126.1	102.1	79.6	142.8	110.2
1975	38.6	38.9	49.9	79.6	107.6	99.7	113.5	223.9	168.7	83.8	95.0	105.3	100.4
1976	37.6	49.7	59.8	65.6	71.2	249.1	165.1	212.6	171.4	71.1	89.7	84.6	110.6
1977	56.3	99.0	71.4	73.0	36.1	82.2	136.6	451.4	122.4	82.5	173.0	75.1	121.6
1978	62.8	54.3	68.1	75.4	90.8	104.1	135.4	213.8	134.4	64.6	47.7	96.3	95.6
1979	152.2	54.2	74.7	53.7	108.0	90.7	*******	*******	*******	*******	*******	*******	88.9
AVGE	69.6	55.9	65.3	70.3	81.4	118.6	165.9	238.5	138.7	90.4	95.1	95.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	181187.313	11	16471.570	7.618**
RESIDUAL	129735.063	60	2162.251	
TOTAL	310922.375	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	169.1	192.5	142.4	103.2	88.5	95.7	131.9
1974	46.8	44.7	61.8	74.2	85.0	96.2	166.8	196.4	142.4	99.9	90.0	93.5	99.8
1975	48.4	45.7	62.5	74.0	85.2	95.7	160.4	205.1	143.6	91.8	92.5	92.8	99.8
1976	49.9	47.6	63.7	72.5	87.7	95.7	150.1	213.9	144.6	83.8	96.3	91.5	99.8
1977	51.9	49.8	65.5	70.1	88.9	96.1	143.5	219.7	145.9	76.5	98.9	90.5	99.8
1978	53.9	51.7	67.7	67.8	90.8	95.3	140.7	220.7	146.1	74.1	100.5	88.0	99.8
1979	55.9	52.7	69.4	66.9	90.7	94.0	*******	*******	*******	*******	*******	*******	71.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	139.3	221.1	146.2	72.9	101.4	86.8	128.0
1980	57.0	53.2	70.3	66.4	90.6	93.4	*******	*******	*******	*******	*******	*******	71.8

TABLE A177. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	275.8	70.3	17.6	179.1	27.1	6.8	96.1
1974	13.1	72.9	8.9	69.7	379.5	1326.4	255.0	373.4	56.7	26.5	111.7	253.5	245.6
1975	52.3	46.4	39.5	16.5	97.7	166.4	184.2	248.4	140.7	63.2	13.0	67.5	94.6
1976	36.0	60.3	199.3	318.9	95.4	75.5	238.8	111.1	32.0	107.6	29.5	39.2	112.0
1977	49.6	173.8	64.7	571.3	77.2	79.9	560.0	76.6	75.2	72.0	68.2	62.5	161.1
1978	55.5	49.2	43.5	38.7	104.0	95.1	180.5	767.9	120.2	31.3	33.1	35.0	129.5
1979	109.9	36.6	35.5	33.8	31.6	235.4	*******	*******	*******	*******	*******	*******	80.5
AVGE	52.7	73.2	65.2	174.8	130.9	329.8	282.4	275.0	73.7	80.0	47.1	77.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	683973.000	11	62179.363	1.762
RESIDUAL	2116943.000	60	35282.383	
TOTAL	2800916.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	225.0	200.8	58.5	87.1	42.7	47.8	110.3
1974	34.1	66.7	46.3	104.3	157.5	128.7	234.9	188.7	58.2	87.2	43.9	48.8	99.9
1975	36.6	68.8	46.5	100.3	149.4	123.4	236.2	201.3	63.9	77.0	45.2	51.5	100.0
1976	43.6	69.1	49.4	95.6	122.6	122.8	241.1	214.4	74.6	70.0	43.3	52.6	99.9
1977	50.2	67.2	52.3	95.5	98.5	121.6	240.4	233.6	81.5	64.2	41.3	51.7	99.9
1978	56.7	67.8	54.7	93.4	77.0	127.5	249.9	229.6	83.3	69.1	39.0	48.9	99.7
1979	59.0	70.5	54.2	9[illegible].7	74.8	127.8	*******	*******	*******	*******	*******	*******	79.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	254.6	227.6	84.2	71.6	37.9	47.6	120.6
1980	60.1	71.8	53.9	90.8	73.7	128.0	*******	*******	*******	*******	*******	*******	79.7

TABLE A178. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	152.4	43.4	51.3	120.6	151.6	54.4	95.6
1974	111.6	92.0	76.9	112.1	55.5	230.6	83.9	99.0	54.9	80.2	308.6	113.2	118.2
1975	96.8	86.9	84.0	69.6	96.9	33.4	23.3	671.4	173.2	54.4	143.9	348.2	156.8
1976	101.1	470.3	31.5	19.4	42.7	119.1	130.6	34.4	177.7	115.9	133.7	35.4	117.7
1977	169.6	230.9	74.5	32.6	57.1	21.4	36.0	235.1	86.5	108.3	132.0	137.0	110.1
1978	102.4	69.0	52.5	173.1	98.6	23.6	17.3	108.3	272.5	231.5	67.7	52.2	105.7
1979	101.5	95.1	97.0	57.5	18.6	31.2	*******	*******	*******	*******	*******	*******	66.8
AVGE	113.8	174.0	69.4	77.4	61.6	76.6	73.9	108.6	136.0	118.5	156.3	123.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	133328.375	11	12120.758	1.113
RESIDUAL	653404.000	60	10890.066	
TOTAL	786732.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	92.3	89.1	106.2	90.0	191.8	88.2	109.6
1974	113.5	182.4	65.5	61.6	63.6	55.0	89.7	95.9	108.4	92.5	185.0	88.9	100.2
1975	116.5	178.8	65.1	58.8	65.0	50.9	78.1	106.4	124.8	102.0	171.9	89.2	100.6
1976	118.2	174.2	65.9	52.8	64.4	44.8	63.1	123.2	145.7	113.6	150.4	91.2	100.6
1977	117.6	173.2	65.2	46.9	61.5	41.2	53.8	128.8	169.3	129.2	130.8	87.0	100.4
1978	119.4	168.7	67.7	43.3	57.9	36.8	53.9	131.2	180.0	138.8	117.5	83.4	99.9
1979	122.7	165.5	69.1	43.4	56.6	34.5	*******	*******	*******	*******	*******	*******	82.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	54.0	132.5	185.4	143.6	110.8	81.6	118.0
1980	124.3	164.0	69.8	43.4	55.9	33.4	*******	*******	*******	*******	*******	*******	81.8

TABLE A179. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	231.7	81.8	82.7	62.2	253.9	64.9	129.5
1974	30.6	41.8	216.5	269.1	19.0	10.6	270.3	128.4	160.3	36.1	216.8	43.5	115.3
1975	150.3	59.1	47.8	100.9	185.9	94.2	131.6	126.1	170.5	93.6	48.3	60.7	105.9
1976	95.4	87.4	62.7	101.3	98.2	81.3	196.6	112.5	91.4	91.3	63.0	96.4	98.1
1977	124.2	214.5	50.1	111.7	96.6	196.9	146.4	204.8	66.8	34.4	62.0	212.0	126.7
1978	93.7	65.8	396.7	111.7	59.5	45.4	169.7	209.0	92.1	47.6	43.7	179.2	126.2
1979	105.5	94.6	77.4	87.6	38.7	56.8	*******	*******	*******	*******	*******	*******	76.8
AVGE	100.0	93.9	141.8	130.4	83.0	80.9	191.0	143.8	100.6	60.9	114.6	109.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	81136.875	11	7376.078	1.509
RESIDUAL	293283.938	60	4888.063	
TOTAL	374420.813	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	202.7	108.8	110.5	66.0	151.8	60.5	116.7
1974	95.1	64.1	57.0	145.8	71.3	69.3	198.2	114.8	103.2	65.0	141.3	72.1	100.0
1975	96.7	65.3	58.3	141.6	72.0	68.6	190.4	129.2	102.6	63.3	118.0	91.5	99.8
1976	103.5	70.5	60.7	126.6	73.8	69.5	177.3	147.6	101.9	62.7	89.1	116.1	100.0
1977	105.7	76.1	65.1	114.2	73.7	67.9	169.8	162.2	99.6	62.6	65.6	136.2	99.9
1978	108.9	81.7	68.2	103.7	72.7	66.7	166.0	169.1	97.0	63.5	55.4	148.4	100.1
1979	106.8	83.2	70.2	104.1	70.4	63.5	*******	*******	*******	*******	*******	*******	83.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	164.1	172.6	95.8	63.9	50.2	154.5	116.8
1980	105.7	84.0	71.2	104.3	69.3	61.8	*******	*******	*******	*******	*******	*******	82.7

TABLE A180. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FOUR TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	233.9	66.9	49.7	156.2	136.6	40.9	114.0
1974	41.2	61.4	108.2	116.1	90.0	193.2	133.6	119.1	86.6	23.9	221.0	103.8	108.2
1975	200.9	89.4	52.1	78.7	167.3	105.1	115.9	247.8	138.9	58.2	48.5	111.2	117.8
1976	59.1	116.7	94.3	133.3	83.4	105.7	165.4	86.5	97.2	91.6	74.3	49.3	96.4
1977	83.1	149.9	74.7	109.9	94.0	164.4	118.0	129.3	50.6	21.6	83.4	117.5	99.7
1978	63.3	19.9	153.3	70.3	96.5	148.1	78.6	168.5	112.1	71.0	35.9	101.9	93.3
1979	98.2	93.5	92.4	73.5	135.8	132.8	*******	*******	*******	*******	*******	*******	104.4
AVGE	90.9	88.5	95.8	97.0	111.1	141.5	140.9	136.4	89.2	70.4	99.9	87.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	36220.688	11	3292.790	1.514
RESIDUAL	130479.313	60	2174.655	
TOTAL	166700.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	162.6	103.8	93.0	63.6	92.1	80.3	99.3
1974	62.2	98.9	83.9	110.3	111.5	140.3	160.4	104.9	90.3	63.4	90.7	81.3	99.8
1975	63.6	101.9	87.8	107.6	110.0	142.7	147.2	112.3	91.8	63.2	82.4	86.2	99.7
1976	68.8	106.7	90.5	102.2	111.4	140.7	133.0	121.9	94.0	62.5	72.7	92.6	99.8
1977	72.6	109.8	97.2	97.9	109.0	139.1	121.7	128.9	96.4	64.4	64.2	94.9	99.7
1978	77.3	112.6	99.7	93.6	108.7	138.7	120.7	129.5	94.8	66.1	62.4	93.2	99.8
1979	78.4	113.9	103.4	92.2	105.3	142.6	*******	*******	*******	*******	*******	*******	106.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	120.3	129.8	94.0	67.0	61.5	92.3	94.1
1980	79.0	114.6	105.2	91.5	103.7	144.5	*******	*******	*******	*******	*******	*******	106.4

TABLE A181. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	250.1	88.2	116.4	188.7	71.8	26.4	123.6
1974	28.3	8.4	50.8	45.7	88.3	294.5	366.4	108.8	21.8	46.2	63.7	154.5	106.5
1975	110.0	111.5	7.6	11.9	86.4	16.1	91.5	444.1	411.2	95.3	116.1	138.3	136.7
1976	16.5	15.0	127.0	221.5	10.4	167.2	158.1	380.9	81.0	101.1	8.6	66.0	112.8
1977	154.9	273.2	68.4	72.1	9.7	10.5	82.4	163.0	111.6	164.7	635.1	108.5	154.5
1978	15.7	13.0	10.8	9.0	7.8	97.8	268.0	346.8	52.6	21.3	577.9	9.5	119.2
1979	90.5	13.5	80.4	19.6	26.6	35.2	*******	*******	*******	*******	*******	*******	44.3
AVGE	69.3	72.4	57.5	63.3	38.2	103.6	202.8	255.3	132.5	102.9	245.5	83.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	369432.000	11	33584.727	2.234
RESIDUAL	901833.000	60	15030.547	
TOTAL	1271265.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	229.4	244.2	129.4	111.2	74.2	102.6	148.5
1974	68.6	48.0	40.5	38.4	47.4	71.0	211.3	240.8	123.3	112.2	105.6	99.6	100.5
1975	68.8	45.2	39.0	37.6	41.7	66.9	191.6	249.3	110.6	99.7	164.5	93.5	100.7
1976	71.7	42.5	39.1	34.2	31.5	59.1	161.0	260.8	107.5	91.4	237.3	84.1	101.7
1977	65.0	32.7	39.3	30.2	21.6	60.0	147.8	273.1	97.7	80.8	285.0	72.0	100.4
1978	67.1	27.5	43.0	28.9	14.9	55.6	137.2	277.8	95.3	83.2	310.1	63.5	100.3
1979	66.7	22.5	45.2	29.6	12.2	54.8	*******	*******	*******	*******	*******	*******	38.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	131.9	280.1	94.1	84.4	322.6	59.3	162.0
1980	66.4	19.9	46.3	30.0	10.9	54.5	*******	*******	*******	*******	*******	*******	38.0

TABLE A182. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	90.1	134.1	145.0	88.4	86.9	56.6	100.2
1974	112.4	81.1	110.2	77.2	66.3	69.8	324.8	166.5	92.2	89.4	91.6	115.1	116.4
1975	87.1	223.0	50.0	107.1	52.7	97.7	150.9	165.9	98.6	50.8	137.9	158.3	115.0
1976	57.2	48.4	108.8	76.4	82.4	126.1	125.1	136.5	141.6	29.4	102.3	143.4	98.1
1977	50.0	137.9	121.6	78.5	75.4	70.4	107.2	145.8	164.2	26.1	214.0	229.8	118.4
1978	6.2	39.1	75.1	64.1	83.5	131.3	41.7	150.7	182.1	103.4	17.4	62.1	79.7
1979	195.0	70.9	84.8	84.5	63.0	95.7	*******	*******	*******	*******	*******	*******	99.0
AVGE	84.6	100.1	91.7	81.3	70.5	98.5	140.0	149.9	137.3	64.6	108.4	127.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	53049.125	11	4822.645	1.845
RESIDUAL	156815.063	60	2613.584	
TOTAL	209864.188	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.8	154.7	118.0	70.1	106.5	117.4	115.8
1974	81.3	76.1	97.6	86.8	69.3	94.6	125.8	152.9	122.2	65.0	109.5	124.9	100.5
1975	78.0	74.0	97.1	84.7	70.5	95.4	122.0	152.1	128.8	56.4	115.9	135.5	100.8
1976	71.3	71.2	94.9	83.1	71.3	97.8	116.5	150.8	137.2	46.4	125.0	146.7	101.0
1977	64.2	65.7	93.9	79.6	73.3	102.8	110.5	149.6	146.2	38.2	130.5	152.2	100.6
1978	58.8	63.9	94.3	78.1	74.3	104.1	106.6	147.7	153.2	33.6	133.1	154.9	100.2
1979	56.7	62.6	96.2	75.9	75.3	103.3	*******	*******	*******	*******	*******	*******	78.4

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	104.7	146.8	156.7	31.3	134.4	156.2	121.7
1980	55.7	61.9	97.2	74.8	75.9	103.0	*******	*******	*******	*******	*******	*******	78.1

TABLE A183. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	2.8	95.4	86.4	2.8	314.8	169.0	111.9
1974	3.3	148.4	266.6	24.4	16.3	130.5	126.1	63.6	46.3	164.6	149.9	116.2	104.7
1975	184.9	7.7	294.3	29.6	30.5	105.9	143.4	29.8	129.3	181.1	47.4	162.7	112.2
1976	54.3	46.6	146.1	20.5	43.1	81.1	155.8	222.5	271.6	124.0	106.9	174.3	120.6
1977	18.7	17.9	78.5	82.5	102.1	90.9	180.5	241.9	30.1	181.9	57.4	58.3	95.1
1978	54.0	48.9	46.6	46.4	44.7	114.1	258.5	166.1	62.1	127.0	107.0	57.3	94.4
1979	76.7	22.5	25.8	10.2	194.9	58.0	*******	*******	*******	*******	*******	*******	64.7
AVGE	65.3	48.7	143.0	35.6	71.9	96.8	144.5	136.5	104.3	130.2	130.6	123.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	97606.813	11	8873.344	1.634
RESIDUAL	325818.438	60	5430.305	
TOTAL	423425.250	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	127.6	96.7	88.3	156.2	102.6	152.8	120.7
1974	55.9	33.8	208.8	27.0	40.3	102.5	131.9	112.3	85.2	157.7	100.5	148.4	100.4
1975	54.2	33.7	189.6	28.8	43.3	102.2	147.2	132.7	80.8	158.8	98.4	136.6	100.5
1976	54.1	32.9	157.6	30.8	56.2	98.4	166.3	154.6	78.5	161.4	91.7	124.1	100.6
1977	55.1	34.0	119.6	32.7	70.1	94.4	185.8	176.1	76.7	159.3	89.8	113.7	100.6
1978	55.7	33.2	86.0	34.3	87.8	89.8	194.9	193.3	76.0	156.3	87.3	110.6	100.4
1979	54.7	33.5	67.5	36.1	96.0	89.9	*******	*******	*******	*******	*******	*******	63.0

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	199.4	201.8	75.7	154.8	86.1	109.0	137.8
1980	54.3	33.6	58.2	36.9	100.2	90.0	*******	*******	*******	*******	*******	*******	62.2

TABLE A184. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT FIVE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	174.3	116.7	123.8	122.4	103.9	52.2	115.6
1974	67.4	55.8	99.7	56.4	65.4	128.4	269.9	124.6	62.6	82.3	83.2	111.5	100.6
1975	82.1	136.9	69.4	70.4	81.8	76.5	120.9	204.1	156.3	60.1	110.3	134.2	108.6
1976	55.0	43.1	100.5	78.3	62.2	110.3	130.8	166.1	140.0	58.2	97.9	122.6	97.1
1977	78.8	156.8	91.1	68.0	77.1	62.6	100.7	191.4	167.3	64.0	218.2	246.4	126.9
1978	83.7	56.1	42.9	39.1	62.6	104.9	99.2	190.7	147.3	78.7	131.5	97.5	94.5
1979	144.3	65.3	78.0	83.1	57.1	63.8	*******	*******	*******	*******	*******	*******	81.9
AVGE	85.2	85.7	80.3	65.9	67.7	91.1	149.3	165.6	132.9	77.6	124.2	127.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	75156.188	11	6832.379	4.305**
RESIDUAL	95225.250	60	1587.087	
TOTAL	170381.438	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	146.2	153.0	141.2	72.4	100.1	125.1	123.0
1974	70.6	61.1	90.9	69.0	71.5	99.5	141.9	155.7	142.5	70.9	101.9	125.4	100.1
1975	72.2	61.4	89.3	67.9	71.1	97.8	133.0	163.7	145.6	69.5	105.6	123.9	100.1
1976	74.4	62.2	86.2	68.7	70.2	91.8	122.5	175.0	149.7	67.8	111.7	123.1	100.3
1977	75.1	61.5	84.0	69.5	67.9	88.9	114.8	183.2	151.9	66.9	116.2	121.0	100.1
1978	76.4	62.0	82.5	71.0	66.5	83.7	112.4	186.9	153.0	66.2	119.3	120.9	100.1
1979	76.9	61.8	82.3	70.4	65.5	82.7	*******	*******	*******	*******	*******	*******	73.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	111.1	188.7	153.5	65.9	120.9	120.9	126.8
1980	77.2	61.6	82.2	70.2	65.0	82.2	*******	*******	*******	*******	*******	*******	73.1

TABLE A185. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	113.1	118.6	104.6	154.4	84.7	50.4	104.3
1974	64.1	51.4	124.8	116.4	105.7	106.6	251.7	82.0	36.0	86.5	63.8	70.8	96.7
1975	129.7	61.6	68.7	180.0	73.2	78.0	83.6	144.3	168.3	175.0	63.4	71.7	108.1
1976	37.4	78.0	75.6	69.5	117.4	67.9	126.7	336.2	215.6	63.5	77.5	58.1	110.3
1977	69.4	65.3	67.5	90.6	57.1	127.1	122.3	305.9	82.0	77.2	354.6	75.9	124.6
1978	34.2	51.7	118.2	59.2	76.5	105.1	184.6	332.6	74.5	55.0	40.7	52.6	98.7
1979	87.7	57.8	49.6	82.3	85.1	99.8	*******	*******	*******	*******	*******	*******	77.0
AVGE	70.4	60.9	84.1	99.7	85.8	97.4	147.0	219.9	113.5	101.9	114.1	63.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	125435.938	11	11407.813	3.130**
RESIDUAL	218708.063	60	3645.134	
TOTAL	344194.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	114.7	158.3	124.4	126.7	74.0	65.4	110.6
1974	73.3	65.4	87.7	116.5	94.6	92.6	115.3	177.0	120.3	119.6	74.4	65.8	100.2
1975	70.5	63.6	87.1	109.6	90.4	94.3	120.2	208.7	113.9	105.7	71.5	66.1	100.1
1976	69.6	63.0	82.7	101.6	85.3	95.8	124.5	242.2	109.5	95.8	68.5	66.3	100.4
1977	65.0	62.1	80.0	89.1	83.4	97.0	131.6	275.4	104.0	83.9	65.1	65.0	100.1
1978	64.1	61.8	76.3	81.3	80.4	99.9	134.4	296.1	100.9	78.9	64.7	63.5	100.2
1979	61.6	61.2	77.9	76.1	79.5	104.1	*******	*******	*******	*******	*******	*******	76.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	135.8	306.4	99.4	76.4	64.5	62.8	124.2
1980	60.4	60.8	78.7	73.5	79.0	106.2	*******	*******	*******	*******	*******	*******	76.4

TABLE A186. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	228.2	76.4	88.2	67.7	118.8	93.2	112.1
1974	101.8	56.0	61.6	102.7	29.1	79.6	278.4	144.3	143.1	78.3	47.4	81.4	100.3
1975	43.1	79.0	36.3	139.5	97.8	139.8	178.8	206.1	70.6	39.6	54.3	96.3	98.4
1976	87.3	82.5	90.8	88.6	104.5	279.0	158.4	142.0	73.2	44.2	46.6	89.5	107.2
1977	119.5	213.5	73.5	74.2	66.3	103.3	282.2	219.4	145.4	20.5	58.3	59.7	119.6
1978	30.8	104.0	45.9	110.8	97.6	120.7	141.3	240.7	125.5	21.4	21.5	110.8	97.6
1979	114.0	16.7	63.9	54.5	89.1	103.2	*******	*******	*******	*******	*******	*******	73.6
AVGE	82.7	91.9	62.0	95.1	80.7	137.6	211.2	171.5	107.6	45.3	57.8	88.5	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	155887.875	11	14171.625	7.175**
RESIDUAL	118500.313	60	1975.005	
TOTAL	274388.188	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	219.6	151.2	94.7	59.7	52.4	90.8	111.4
1974	85.8	78.2	64.7	105.3	84.9	113.1	216.8	155.3	96.9	56.2	52.4	88.6	99.9
1975	86.6	81.5	63.6	103.7	84.7	113.0	207.5	167.9	101.1	49.5	50.8	87.3	99.8
1976	87.6	88.0	62.6	98.8	86.2	114.2	194.2	184.4	104.4	40.5	49.5	86.4	99.7
1977	89.8	94.3	63.7	92.5	88.5	114.5	180.9	196.3	106.8	33.8	47.6	87.7	99.7
1978	94.3	100.5	64.8	85.5	89.1	113.9	174.3	201.0	107.6	30.3	47.5	88.3	99.8
1979	98.5	103.3	65.6	81.3	87.5	111.3	*******	*******	*******	*******	*******	*******	91.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	171.0	203.3	108.1	28.6	47.5	88.6	107.8
1980	100.6	104.7	66.1	79.2	86.7	110.0	*******	*******	*******	*******	*******	*******	91.2

TABLE A187. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	125.5	54.7	72.2	56.1	19.9	57.3	64.3
1974	43.5	59.6	621.9	132.9	141.7	170.8	301.7	73.5	60.0	26.4	27.5	65.0	143.7
1975	87.3	104.6	67.5	110.3	182.2	174.2	204.1	125.2	43.4	21.6	130.1	42.8	107.8
1976	45.2	126.8	82.3	681.0	274.3	68.9	82.6	81.4	68.4	56.7	50.4	53.0	139.2
1977	64.0	71.6	55.7	70.1	23.4	289.1	228.1	170.0	40.7	27.4	39.1	149.0	102.3
1978	51.1	50.0	52.6	250.1	397.7	98.0	107.0	98.2	82.2	64.7	52.5	46.1	112.5
1979	44.6	47.3	108.8	67.7	92.0	141.0	*******	*******	*******	*******	*******	*******	83.6
AVGE	55.9	76.6	164.8	218.7	185.2	157.0	174.8	100.5	61.1	42.2	53.2	68.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	256755.000	11	23341.363	1.944
RESIDUAL	720562.000	60	12009.363	
TOTAL	977317.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	198.7	87.3	62.4	39.5	34.6	56.8	79.9
1974	61.7	96.7	79.3	131.5	184.6	166.2	194.9	93.0	61.5	39.7	35.9	57.2	100.2
1975	61.6	92.7	76.6	137.0	177.5	168.2	190.0	101.6	61.2	40.6	39.6	57.0	100.3
1976	61.8	88.5	75.6	138.9	168.2	170.0	183.6	114.9	61.0	41.7	43.6	55.9	100.3
1977	59.4	84.1	77.3	148.0	165.3	163.4	171.3	122.3	63.6	45.8	48.7	56.1	100.5
1978	58.7	79.1	80.5	147.0	154.5	169.8	161.8	128.5	66.3	49.6	51.4	56.7	100.3
1979	57.3	73.7	81.4	148.9	145.1	176.3	*******	*******	*******	*******	*******	*******	113.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	157.1	131.5	67.7	51.6	52.7	57.0	86.3
1980	56.7	71.0	81.9	149.8	140.3	179.5	*******	*******	*******	*******	*******	*******	113.2

TABLE A 188. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SIX TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	176.9	101.8	88.5	97.5	86.4	62.3	102.2
1974	71.8	50.3	110.8	132.0	84.0	109.9	311.8	136.1	121.4	82.1	44.1	85.7	111.7
1975	76.5	94.9	48.4	150.9	93.3	121.5	145.0	168.6	98.7	92.1	54.1	78.6	101.9
1976	69.5	76.7	72.0	89.6	100.4	208.5	155.5	212.7	113.7	42.1	47.5	74.8	105.3
1977	100.0	172.8	78.5	69.9	73.1	119.0	213.4	226.0	111.0	41.5	177.5	73.8	121.4
1978	45.0	58.6	90.3	83.7	91.0	103.9	164.8	297.8	114.0	32.8	29.5	91.9	100.3
1979	137.1	35.2	73.7	89.7	97.7	92.1	*******	*******	*******	*******	*******	*******	87.6
AVGE	83.3	81.4	78.9	102.6	89.9	125.8	194.6	190.5	107.9	64.7	73.2	77.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	126506.500	11	11500.590	7.064**
RESIDUAL	97690.000	60	1628.167	
TOTAL	224196.500	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	168.8	150.2	106.6	84.2	57.2	77.0	107.3
1974	78.3	76.9	72.0	111.9	91.0	121.5	170.9	158.4	107.1	79.1	56.3	76.8	100.0
1975	78.6	75.1	72.8	106.8	89.5	119.5	171.2	178.7	108.8	69.5	52.1	78.2	100.1
1976	79.3	73.4	72.9	99.5	89.1	116.5	171.9	201.6	109.5	60.3	48.6	79.2	100.1
1977	78.8	70.1	74.9	91.8	89.8	113.2	171.4	223.4	110.6	51.2	45.0	80.6	100.1
1978	79.9	67.5	76.8	85.9	90.1	110.5	172.9	234.1	110.9	46.8	44.6	80.3	100.0
1979	80.7	65.2	79.8	82.8	89.6	109.0	*******	*******	*******	*******	*******	*******	84.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	173.7	239.5	111.0	44.6	44.3	80.2	115.5
1980	81.1	64.0	81.4	81.2	89.4	108.2	*******	*******	*******	*******	*******	*******	84.2

TABLE A189. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	166.0	87.7	12.4	154.1	242.3	19.5	113.7
1974	25.6	139.9	48.0	62.2	73.5	403.1	86.8	94.8	103.2	106.9	106.2	104.7	112.9
1975	102.1	98.2	94.9	93.9	95.4	98.0	100.5	101.7	102.0	102.3	102.6	102.3	99.5
1976	101.2	99.5	98.1	97.6	98.2	99.2	100.2	100.6	100.5	100.4	100.5	100.4	99.7
1977	100.4	100.3	100.2	100.1	100.1	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.1
1978	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1979	100.0	100.0	100.0	100.0	100.0	100.0	*******	*******	*******	*******	*******	*******	100.0
AVGE	88.2	106.3	90.2	92.3	94.5	150.1	108.9	97.5	86.4	110.6	125.3	87.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	23532.000	11	2139.273	1.053
RESIDUAL	121864.000	60	2031.067	
TOTAL	145396.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	104.0	95.5	102.8	105.1	104.6	103.0	102.5
1974	101.2	98.5	95.5	90.7	95.2	104.1	103.7	96.2	102.7	104.5	104.0	102.6	99.9
1975	101.1	98.7	96.1	91.8	95.9	103.8	102.6	97.7	102.1	103.4	102.9	102.0	99.8
1976	100.9	99.1	97.1	94.5	97.2	102.2	101.4	99.1	101.4	102.0	101.8	101.3	99.8
1977	100.6	99.4	98.3	97.0	98.4	100.9	100.3	100.2	100.7	100.9	100.8	100.6	99.8
1978	100.3	99.7	99.2	99.1	99.3	99.7	100.1	100.4	100.4	100.4	100.4	100.3	99.9
1979	100.1	99.9	99.6	99.5	99.6	99.7	*******	*******	*******	*******	*******	*******	99.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	99.9	100.4	100.2	100.1	100.2	100.1	100.2
1980	100.0	99.9	99.8	99.8	99.7	99.7	*******	*******	*******	*******	*******	*******	99.8

TABLE A190. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	55.3	172.4	348.2	231.5	58.1	58.4	154.0
1974	58.3	56.9	54.7	51.9	49.2	46.8	180.1	530.0	399.4	91.1	48.0	51.4	134.8
1975	56.2	61.8	67.8	72.9	76.1	77.1	76.7	75.5	444.3	72.9	357.7	70.5	125.8
1976	70.0	70.0	70.8	72.0	220.1	74.4	223.9	74.4	221.2	73.2	72.9	73.3	109.7
1977	148.8	459.1	79.5	83.2	87.6	92.3	96.9	100.3	102.2	101.9	100.3	98.3	129.2
1978	96.7	95.9	95.8	96.4	97.5	98.9	100.3	101.3	101.6	101.2	100.4	99.4	98.8
1979	98.0	96.8	95.7	94.8	93.9	92.5	*******	*******	*******	*******	*******	*******	95.3
AVGE	88.0	140.1	77.4	78.5	104.1	80.3	122.2	175.6	269.5	112.0	122.9	75.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	205944.500	11	18722.227	2.116
RESIDUAL	530821.000	60	8847.016	
TOTAL	736765.500	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	113.4	119.3	353.0	80.8	68.1	59.8	132.4
1974	69.7	65.7	65.0	67.2	74.1	68.7	116.4	116.9	332.7	82.1	70.6	62.9	99.3
1975	74.4	69.2	68.3	71.1	77.5	72.8	121.0	109.4	295.0	83.7	75.6	68.5	98.9
1976	81.8	75.5	74.2	77.4	83.4	79.4	117.3	100.1	252.5	85.8	83.2	76.1	98.9
1977	88.7	81.7	80.0	83.0	89.1	85.4	117.3	92.3	210.6	87.3	88.5	82.4	98.9
1978	96.7	88.0	84.6	87.0	92.4	89.7	114.5	88.9	184.3	88.2	91.2	86.2	99.3
1979	102.4	91.7	86.2	87.4	92.0	90.3	*******	*******	*******	*******	*******	*******	91.7

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	113.0	87.1	171.2	88.7	92.5	88.1	106.8
1980	105.2	93.6	87.0	87.6	91.8	90.6	*******	*******	*******	*******	*******	*******	92.7

TABLE A191. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	98.2	50.1	50.5	72.0	82.7	87.0	73.4
1974	30.6	221.3	291.0	276.6	47.3	20.7	106.0	138.3	23.6	76.6	62.0	62.9	113.1
1975	262.6	188.6	76.0	55.3	41.2	68.2	64.9	166.0	89.9	18.4	24.3	135.0	99.2
1976	240.6	279.4	48.1	47.1	23.5	216.3	124.4	105.4	142.1	30.8	294.0	201.5	146.1
1977	134.3	174.6	38.8	43.3	44.5	38.7	30.1	140.2	214.2	107.9	166.7	147.8	106.8
1978	77.8	96.3	37.2	40.2	42.1	46.1	55.4	72.6	300.0	653.0	166.0	157.0	145.3
1979	94.6	104.1	31.6	22.1	51.2	42.5	*******	*******	*******	*******	*******	*******	57.7
AVGE	140.1	177.4	87.1	80.8	41.6	72.1	79.8	112.1	136.7	159.8	132.6	131.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	107679.125	11	9789.008	0.947
RESIDUAL	620318.688	60	10338.645	
TOTAL	727997.813	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	98.4	120.8	74.1	62.5	75.5	115.4	91.1
1974	209.2	230.4	63.8	58.2	39.3	51.2	93.4	120.5	87.3	64.7	84.1	122.3	102.0
1975	197.0	219.2	60.4	55.5	39.1	49.1	85.5	120.7	116.2	69.2	97.6	132.9	103.5
1976	180.2	198.3	54.1	49.5	39.3	48.1	74.5	121.1	150.4	74.8	112.3	144.4	103.9
1977	158.6	177.9	46.9	43.5	39.4	46.7	68.9	117.5	182.0	79.5	126.0	155.7	103.5
1978	138.7	158.4	40.8	38.5	41.0	45.7	67.5	114.3	199.2	82.0	135.2	164.0	102.1
1979	123.2	148.4	37.8	37.1	42.6	44.5	*******	*******	*******	*******	*******	*******	72.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	66.8	112.8	207.8	83.3	139.8	168.1	129.8
1980	115.5	143.4	36.2	36.4	43.4	43.9	*******	*******	*******	*******	*******	*******	69.8

TABLE A192. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT SEVEN TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.9	78.9	80.3	76.5	149.4	111.5	98.7
1974	85.8	98.9	139.4	102.8	22.1	46.0	95.5	143.3	102.7	82.5	48.2	109.9	89.8
1975	201.4	179.0	94.1	50.0	31.8	81.1	73.2	147.8	95.9	55.6	71.3	286.9	114.0
1976	256.4	128.2	58.4	47.0	35.5	90.4	73.8	73.0	174.6	38.4	213.3	197.7	115.5
1977	104.3	175.9	58.0	47.5	55.4	8.2	9.8	81.7	161.1	93.1	165.8	139.7	91.7
1978	95.7	130.5	53.5	56.4	53.9	52.2	106.1	54.7	238.9	397.0	115.5	113.6	122.3
1979	101.7	105.4	85.2	52.7	42.1	47.7	*******	*******	*******	*******	*******	*******	72.5
AVGE	140.9	136.3	81.4	59.4	40.1	54.3	75.7	96.6	142.2	123.9	127.2	159.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	106942.875	11	9722.078	2.765**
RESIDUAL	210939.813	60	3515.663	
TOTAL	317882.688	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	86.8	116.8	106.2	67.2	107.0	151.6	105.9
1974	164.7	143.1	92.3	62.1	33.8	69.0	84.1	112.0	113.3	67.5	114.5	153.2	100.8
1975	157.3	144.3	87.8	60.6	36.0	66.5	82.1	105.2	130.5	68.5	119.5	154.7	101.1
1976	150.4	145.5	79.8	56.5	39.7	64.3	79.8	97.9	148.7	70.5	125.6	157.5	101.4
1977	142.8	142.0	71.9	53.5	43.2	62.1	79.9	89.1	168.7	71.4	132.1	158.6	101.3
1978	132.8	140.1	66.9	51.5	46.7	59.3	79.9	82.3	179.2	71.8	141.6	160.3	101.0
1979	122.0	137.5	65.2	52.0	48.8	56.5	*******	*******	*******	*******	*******	*******	80.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	79.8	79.0	184.4	72.0	146.3	161.2	120.5
1980	116.6	136.2	64.4	52.3	49.9	55.1	*******	*******	*******	*******	*******	*******	79.1

TABLE A193. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	77.5	73.9	114.7	87.0	15.4	133.5	83.7
1974	17.7	18.1	53.4	200.2	262.2	124.6	103.0	51.7	77.9	99.2	99.2	93.5	100.1
1975	92.1	93.6	89.5	70.9	98.4	101.4	24.4	77.0	116.8	63.3	113.5	105.5	87.2
1976	59.0	220.0	24.4	109.1	93.4	146.7	182.2	59.0	75.0	87.1	68.3	82.3	102.2
1977	75.8	146.8.	74.1	77.4	82.3	86.8	530.3	86.2	83.3	82.0	82.2	83.3	124.2
1978	85.6	87.1	85.4	80.2	73.7	68.3	390.3	192.3	65.8	69.6	75.2	80.4	112.8
1979	83.1	83.4	83.7	83.6	83.6	83.6	*******	*******	*******	*******	*******	*******	83.5
AVGE	68.9	108.2	68.4	103.6	115.6	101.9	218.0	90.0	88.9	81.4	79.0	96.4	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	103192.375	11	9381.125	1.901
RESIDUAL	296054.563	60	4934.242	
TOTAL	399246.938	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	128.6	68.7	102.5	86.8	102.9	98.5	98.0
1974	69.7	109.5	71.7	113.6	117.1	122.7	139.9	69.5	99.8	86.6	101.2	97.5	99.9
1975	70.9	108.6	71.9	108.4	111.3	116.1	170.8	70.7	92.9	84.5	97.6	94.7	99.9
1976	74.8	107.7	74.5	98.0	100.5	107.3	207.5	74.3	88.5	80.9	93.9	91.8	100.0
1977	76.6	105.2	76.2	91.1	91.0	100.3	242.0	76.7	82.9	78.3	89.8	88.5	99.9
1978	79.1	106.0	78.8	85.6	84.3	94.2	258.4	78.9	81.7	77.8	87.5	86.6	99.9
1979	79.1	107.5	79.4	85.8	82.9	90.8	*******	*******	*******	*******	*******	*******	87.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	266.5	80.0	81.2	77.6	86.4	85.7	112.9
1980	79.1	108.2	79.6	85.9	82.3	89.0	*******	*******	*******	*******	*******	*******	87.3

TABLE A194. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	112.0	92.9	86.7	91.5	92.7	111.0	97.8
1974	90.2	93.5	94.8	103.1	96.1	133.8	109.8	88.0	89.7	93.1	97.2	99.3	99.0
1975	98.6	95.9	90.3	123.5	111.1	93.8	98.3	115.6	79.9	61.1	84.1	155.3	100.6
1976	119.4	99.1	101.3	58.3	106.6	112.5	79.0	57.8	84.9	114.0	94.6	111.8	94.9
1977	85.3	118.6	102.2	117.3	92.2	88.0	92.6	96.8	99.5	101.4	102.9	104.3	100.1
1978	105.1	105.0	103.5	97.8	89.0	87.6	71.6	179.0	150.5	87.1	185.4	101.4	113.6
1979	89.9	115.5	101.5	93.5	84.4	106.8	*******	*******	*******	*******	*******	*******	98.6
AVGE	98.1	104.4	98.9	98.9	96.6	103.7	93.9	105.0	98.5	91.3	109.5	113.8	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	2759.313	11	250.847	0.498
RESIDUAL	30195.063	60	503.251	
TOTAL	32954.375	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	102.7	97.5	85.5	93.6	92.0	108.3	96.5
1974	100.3	99.5	96.7	112.3	102.8	109.5	100.8	97.1	86.2	94.7	92.7	108.2	100.1
1975	100.1	101.2	97.6	111.6	101.3	106.9	95.7	97.9	90.1	95.6	94.7	107.5	100.1
1976	99.8	104.1	98.7	110.2	99.1	102.6	92.6	99.9	94.6	95.9	96.6	107.1	100.1
1977	100.2	106.7	100.4	107.3	96.2	99.8	88.2	101.5	99.7	96.4	98.8	106.7	100.2
1978	98.9	109.6	101.7	105.3	93.5	97.6	86.2	102.1	102.0	97.5	100.0	107.0	100.1
1979	97.6	111.1	102.5	103.8	91.5	97.2	*******	*******	*******	*******	*******	*******	100.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	85.2	102.4	103.1	98.1	100.6	107.2	99.4
1980	97.0	111.9	102.9	103.0	90.5	96.9	*******	*******	*******	*******	*******	*******	100.4

TABLE A195. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	29.4	43.7	61.7	51.0	96.4	60.5	57.1
1974	36.4	309.2	173.0	146.2	61.3	61.5	19.4	64.2	49.0	66.3	76.6	85.0	95.7
1975	95.2	78.0	101.8	167.9	25.2	183.0	118.8	60.1	13.9	12.5	176.0	68.1	91.7
1976	44.3	312.7	170.0	62.8	29.2	163.8	127.0	58.5	66.1	96.0	46.0	136.4	109.4
1977	130.3	162.0	51.7	65.6	157.8	173.2	85.6	86.3	91.2	99.1	108.5	112.4	110.3
1978	111.2	98.8	80.3	62.8	49.6	39.4	226.0	56.1	133.7	100.1	363.1	51.2	114.4
1979	14.0	159.3	163.3	47.8	26.0	14.5	*******	*******	*******	*******	*******	*******	70.8
AVGE	71.9	186.7	123.4	92.2	58.2	105.9	101.0	61.5	69.3	70.8	144.4	85.6	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	96492.313	11	8772.027	2.131
RESIDUAL	246983.375	60	4116.387	
TOTAL	343475.688	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	80.4	58.1	52.6	62.6	107.4	83.4	74.1
1974	71.5	237.8	137.2	119.1	40.0	144.4	82.3	59.6	56.0	67.3	105.6	89.1	100.8
1975	77.7	224.2	128.5	111.8	40.4	138.0	96.8	61.9	64.1	74.9	105.6	93.7	101.5
1976	86.5	201.2	119.8	98.7	38.8	133.3	115.1	64.5	73.0	81.1	110.1	94.7	101.4
1977	90.7	186.9	116.7	81.3	37.9	122.5	134.6	65.7	83.2	88.2	110.9	95.8	101.2
1978	96.2	173.7	114.3	68.0	37.3	116.4	144.1	66.9	89.1	92.5	110.0	97.8	100.5
1979	98.8	170.5	112.2	61.0	39.0	109.3	*******	*******	*******	*******	*******	*******	98.5

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	148.8	67.5	92.1	94.7	109.5	98.9	101.9
1980	100.2	168.9	111.2	57.4	39.9	105.8	*******	*******	*******	*******	*******	*******	97.2

TABLE A196. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT EIGHT TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	69.9	86.4	76.9	94.9	104.5	81.5	85.7
1974	57.2	151.6	109.4	112.9	96.2	101.8	86.6	75.3	78.2	85.5	102.3	106.7	97.0
1975	108.5	101.7	92.1	139.5	90.7	95.8	82.1	87.6	72.3	70.5	105.8	132.2	98.2
1976	103.6	143.9	112.3	67.7	91.9	129.5	96.0	65.1	85.6	114.5	80.5	117.4	100.7
1977	91.3	153.6	128.4	101.0	94.8	67.7	95.5	82.7	90.7	97.5	103.9	110.2	101.4
1978	115.5	116.5	110.6	96.3	79.7	72.5	95.1	164.8	134.9	83.0	181.3	67.2	111.5
1979	74.0	134.5	108.8	96.2	100.7	71.6	*******	*******	*******	*******	*******	*******	97.6
AVGE	91.7	133.7	110.2	102.3	92.3	89.8	87.5	93.7	89.8	91.0	113.0	105.9	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	12381.188	11	1125.563	2.268
RESIDUAL	29775.375	60	496.256	
TOTAL	42156.563	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	82.7	81.6	78.0	88.1	101.5	110.7	90.4
1974	102.3	145.1	109.0	115.1	93.8	90.4	84.2	80.9	79.1	89.7	100.7	111.2	100.1
1975	102.7	143.6	109.9	112.8	92.7	87.8	87.1	80.7	83.3	90.4	100.2	112.8	100.3
1976	102.0	141.1	111.0	109.8	92.1	83.4	89.8	81.8	89.0	90.3	100.8	114.8	100.4
1977	101.2	138.5	112.6	105.4	91.5	79.0	92.6	82.7	93.3	91.0	100.8	115.6	100.3
1978	98.9	137.4	114.4	102.1	92.2	75.1	94.0	83.1	95.9	92.7	100.5	115.3	100.1
1979	97.7	137.3	116.2	99.8	92.5	73.1	*******	*******	*******	*******	*******	*******	102.8

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	94.7	83.4	97.1	93.5	100.3	115.1	97.3
1980	97.1	137.3	117.2	98.7	92.6	72.1	*******	*******	*******	*******	*******	*******	102.5

TABLE A197. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO DULUTH/SUPERIOR, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	71.6	45.0	69.0	63.3	69.5	29.5	58.0
1974	29.6	25.7	41.8	52.2	84.2	361.3	279.6	110.2	6.5	21.7	62.6	119.4	99.6
1975	13.9	308.2	70.8	162.0	72.7	138.4	93.9	318.1	626.5	83.9	45.8	11.3	162.1
1976	170.0	98.6	117.0	15.4	154.7	7.1	170.2	400.5	99.0	14.7	83.3	17.7	112.4
1977	35.5	115.2	14.3	35.4	19.7	109.1	126.5	704.5	37.5	130.6	450.3	17.5	149.7
1978	3.7	34.6	8.2	38.5	68.9	136.3	274.9	433.7	143.6	16.7	26.4	4.0	99.1
1979	39.1	5.8	20.4	87.3	10.0	186.0	*******	*******	*******	*******	*******	*******	58.1
AVGE	48.6	98.0	45.4	65.1	68.4	156.4	169.5	335.3	163.7	55.2	123.0	33.2	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	480568.125	11	43688.008	2.818**
RESIDUAL	930163.875	60	15502.730	
TOTAL	1410732.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	170.1	217.8	73.9	56.1	70.5	23.7	102.0
1974	33.0	153.6	72.0	40.1	97.8	171.5	162.0	257.5	71.3	57.6	71.1	22.7	100.9
1975	30.6	138.3	61.3	37.9	87.5	158.5	167.0	316.4	72.7	54.4	67.0	19.5	100.9
1976	28.8	123.9	51.2	38.5	73.9	136.3	163.6	385.3	79.1	56.9	62.7	16.1	101.4
1977	27.5	95.8	43.3	40.0	66.4	119.8	171.0	434.0	87.4	53.3	59.2	13.3	100.9
1978	27.9	76.0	35.4	44.4	55.6	113.8	169.1	468.0	93.0	54.3	60.0	12.6	100.8
1979	27.9	57.9	29.0	47.2	50.3	121.2	*******	*******	*******	*******	*******	*******	55.6

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	168.1	485.1	95.8	54.8	60.4	12.2	146.0
1980	28.0	48.8	25.9	48.5	47.6	124.8	*******	*******	*******	*******	*******	*******	53.9

TABLE A198. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO MINNEAPOLIS/ST. PAUL, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	109.7	91.1	60.7	92.6	95.5	81.8	88.6
1974	80.1	66.9	73.0	107.0	68.0	114.1	234.0	138.7	60.2	81.3	67.1	80.1	97.5
1975	70.2	150.3	82.5	69.8	90.4	185.9	154.5	156.8	87.3	28.8	79.1	113.4	105.7
1976	73.5	60.4	108.0	91.0	134.4	135.6	103.1	211.5	62.7	26.1	38.7	100.8	95.5
1977	107.1	173.7	50.3	100.9	64.6	142.4	374.1	335.9	68.1	26.3	113.1	117.4	139.5
1978	45.8	50.2	85.2	57.4	100.6	157.1	103.3	192.1	157.7	58.5	76.3	94.3	98.2
1979	80.9	53.6	88.4	34.0	83.6	103.2	*******	*******	*******	*******	*******	*******	73.9
AVGE	76.3	92.5	81.2	76.7	90.3	139.7	179.8	187.7	82.8	52.3	78.3	98.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	121123.563	11	11011.230	4.730**
RESIDUAL	139678.438	60	2327.974	
TOTAL	260802.000	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	161.3	146.5	71.0	62.9	77.6	96.6	102.7
1974	82.5	74.9	85.3	93.3	95.2	148.6	157.7	162.3	70.1	58.3	76.4	98.1	100.2
1975	81.1	73.1	83.1	90.3	93.2	147.7	153.3	184.0	73.3	50.8	73.6	100.2	100.3
1976	79.8	70.7	82.4	83.4	92.6	146.3	145.7	207.6	78.7	42.2	73.1	103.5	100.5
1977	77.3	66.4	84.1	76.9	94.9	143.3	137.4	224.5	84.5	36.4	71.7	106.0	100.3
1978	78.3	64.2	84.6	72.0	94.6	140.4	130.4	236.9	86.9	33.6	71.9	108.0	100.2
1979	79.1	62.6	83.8	71.4	92.8	137.6	*******	*******	*******	*******	*******	*******	87.9

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	126.9	243.2	88.1	32.2	72.1	109.0	111.9
1980	79.5	61.8	83.4	71.0	91.9	136.1	*******	*******	*******	*******	*******	*******	87.3

TABLE A199. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO THE PACIFIC NORTHWEST, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	95.3	59.7	37.9	52.6	18.7	56.5	53.5
1974	11.3	196.7	196.6	108.9	197.2	289.8	145.0	42.8	22.8	232.2	96.4	25.8	130.5
1975	28.4	116.3	125.3	117.4	142.9	100.5	427.2	102.4	22.2	31.5	44.8	54.2	109.4
1976	53.7	907.0	51.7	237.9	73.1	89.2	98.9	95.1	83.6	73.2	67.5	68.5	158.3
1977	77.0	90.9	94.8	80.4	61.9	49.1	554.4	371.6	44.6	52.1	62.9	73.0	134.4
1978	75.9	73.2	147.4	78.7	86.4	94.3	99.5	97.9	90.3	81.4	76.4	75.7	89.8
1979	79.7	85.4	87.7	87.0	84.3	80.8	*******	*******	*******	*******	*******	*******	84.1
AVGE	54.3	244.9	117.3	118.4	107.6	117.3	236.7	128.2	50.2	87.2	61.1	59.0	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	279834.688	11	25439.516	1.631
RESIDUAL	936046.313	60	15600.770	
TOTAL	1215881.000	71		

NO EVIDENCE OF STABLE SEASONALITY AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	183.2	77.4	34.5	59.3	59.9	52.4	77.8
1974	41.7	165.7	130.4	151.3	133.0	93.8	194.6	84.0	36.3	59.3	60.6	55.0	100.5
1975	46.0	154.9	129.1	141.4	124.7	90.3	205.3	92.7	41.7	61.5	65.4	59.1	101.0
1976	55.0	136.2	119.9	130.4	109.6	86.4	228.4	105.5	47.4	61.2	66.1	63.8	100.8
1977	64.4	123.4	113.3	125.8	95.5	84.6	230.6	114.3	55.5	64.6	69.4	69.5	100.9
1978	73.7	110.5	107.4	118.0	84.7	82.5	236.5	122.5	60.5	66.1	68.6	73.5	100.4
1979	77.9	104.7	108.7	111.1	81.0	81.0	*******	*******	*******	*******	*******	*******	94.1

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	239.5	126.6	63.0	66.9	68.2	75.4	106.6
1980	80.1	101.8	109.3	107.7	79.2	80.3	*******	*******	*******	*******	*******	*******	93.1

TABLE A200. MONTHLY SEASONAL-IRREGULAR RATIOS AND SEASONAL FACTORS FOR OATS SHIPMENTS FROM CROP REPORTING DISTRICT NINE TO ALL DESTINATIONS, 1973-1979

Seasonal-Irregular Ratios

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	131.0	92.3	64.9	82.5	84.6	69.7	87.5
1974	74.6	71.1	88.4	116.4	82.9	164.3	220.4	122.8	51.1	77.9	65.7	84.7	101.7
1975	66.7	145.8	86.7	84.4	94.6	162.2	134.8	143.1	114.5	31.7	70.3	99.1	102.8
1976	79.1	69.3	110.6	79.5	123.3	138.7	111.4	209.7	70.6	42.2	57.4	93.1	98.7
1977	97.2	210.6	58.8	83.0	61.6	122.0	301.5	318.3	59.1	36.3	149.3	120.2	134.8
1978	43.8	68.6	88.5	58.9	97.4	148.3	116.5	195.7	126.6	47.4	61.3	85.7	94.9
1979	86.2	59.8	96.4	55.0	106.1	126.4	*******	*******	*******	*******	*******	*******	88.3
AVGE	74.6	104.2	88.2	79.5	94.3	143.7	169.3	180.3	81.1	53.0	81.4	92.1	

STABLE SEASONALITY TEST

	SUM OF SQUARES	DGRS.OF FREEDOM	MEAN SQUARE	F
BETWEEN MONTHS	103413.375	11	9401.215	5.419**
RESIDUAL	104086.688	60	1734.778	
TOTAL	207500.063	71		

**STABLE SEASONALITY PRESENT AT THE 1 PER CENT LEVEL

Seasonal Factors

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1973	*******	*******	*******	*******	*******	*******	149.4	137.0	71.1	66.4	73.3	88.4	97.6
1974	79.4	90.4	93.7	93.6	100.0	153.1	146.0	150.6	70.4	62.8	71.9	90.6	100.2
1975	79.5	88.7	91.5	89.9	98.4	150.1	141.7	170.8	73.6	56.9	68.8	93.8	100.3
1976	80.3	86.5	90.3	82.5	98.6	144.9	135.6	192.7	79.4	50.1	66.6	97.5	100.4
1977	80.9	80.8	91.1	75.2	100.5	140.5	130.0	209.6	85.3	45.1	64.4	99.5	100.3
1978	82.8	77.2	91.3	69.3	101.7	136.4	126.0	221.1	88.0	42.8	64.1	100.7	100.2
1979	84.0	74.1	91.0	68.5	101.4	134.7	*******	*******	*******	*******	*******	*******	92.3

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVGE
1979	*******	*******	*******	*******	*******	*******	124.1	226.9	89.4	41.6	63.9	101.3	107.9
1980	84.6	72.6	90.8	67.8	101.2	133.9	*******	*******	*******	*******	*******	*******	91.8

LIST OF TABLES

Table No.		Page
1	Monthly Indexes Seasonal-Irregular Ratios for All Grain Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	11
2	Monthly Seasonal Indexes for All Grain Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	14
3	Monthly Indexes Seasonal-Irregular Ratios for Hard Red Spring Wheat Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	16
4	Monthly Seasonal Indexes for Hard Red Spring Wheat Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	18
5	Monthly Indexes Seasonal-Irregular Ratios for Durum Wheat Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	19
6	Monthly Seasonal Indexes for Durum Wheat Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	20
7	Monthly Indexes Seasonal-Irregular Ratios for Barley Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	22
8	Monthly Seasonal Indexes for Barley Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	24
9	Monthly Indexes Seasonal-Irregular Ratios for Oats Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	25
10	Monthly Seasonal Indexes for Oats Shipments from North Dakota to all Destinations, 1967-68 to 1978-79	27
	Appendix Tables A1-A200	

LIST OF FIGURES

Figure No.		Page
1	The Four Components of Time Series Data	4
2	Crop Reporting Districts in North Dakota	9
3	Monthly Seasonal-Irregular Ratios for All Grain Movements from North Dakota	12
4	Monthly Seasonal-Irregular Ratios for Hard Red Spring Wheat Movements from North Dakota	15
5	Monthly Seasonal-Irregular Ratios for Durum Movements from North Dakota	21
6	Monthly Seasonal-Irregular Ratios for Barley Movements from North Dakota	23
7	Monthly Seasonal-Irregular Ratios for Oats Movements from North Dakota	26