Proceedings

Can Agriculture and Growth Coexist?

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Virginia Farming in Transition

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My objective (Figure 1) is to contribute context to and understanding of the environment in which you are going to make plans to maintain farming in your community and to try to maintain some open space. To this end, I will walk you quickly through a moving picture of what is happening to agriculture and where we are seeing changes, growth, or lack thereof in different cropping patterns in Virginia. The intention is to give you a snapshot of what is happening in the transition process in agriculture in this state. Then I will focus more specifically on what is happening in your jurisdictions. Finally, I will tell you what I think is going to happen to the notion that the marketplace, as a possible means of ensuring profitability of farming, will be sufficient to maintain farms in production in your areas.

Figure 1

Objective

To look at current and pending changes in farming and what they will mean for land in farming and for open space in Virginia.

I will start by looking at changing acreage and production locations of some major crops in the state. We had about 450,000 acres in soybeans in the state (Figure 2), and soybeans is a key crop in many of your jurisdictions (Figure 3).

Figure 2

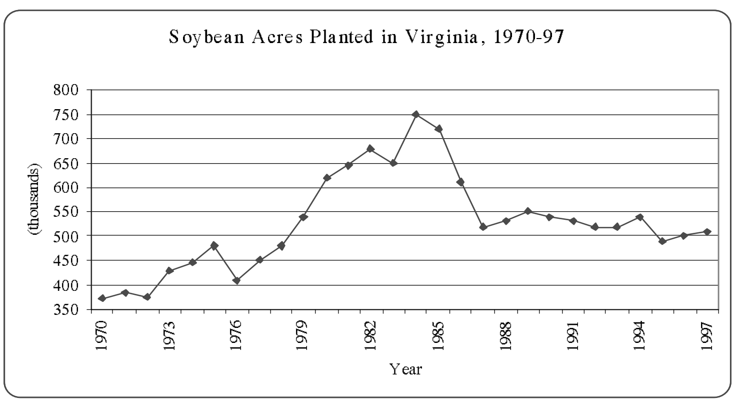
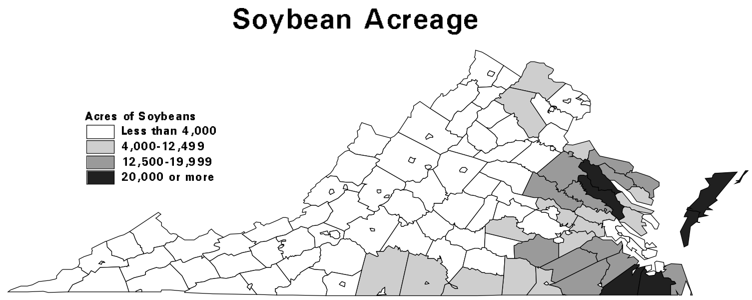
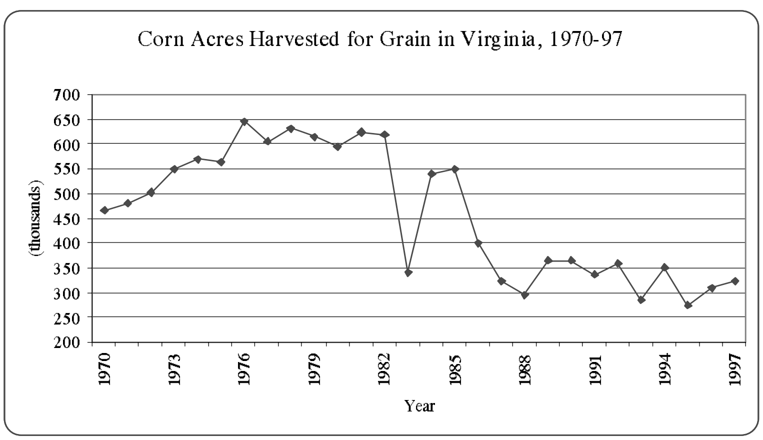


Figure 3



Corn acreage harvested for grain in the state is an interesting story. It is down from about 700,000 acres 10 to 12 years ago to around 300,000 acres (Figure 4). We have a hard time getting decent yields in this state because of unreliable rainfall patterns. The farm programs at the national level subsidized midwestern farmers who were able to participate in the programs more easily than Virginia farmers. This situation drove a lot of our farmers out of business. The exodus from farming is probably going to continue. Corn is located in the northern Valley, Northern Neck, and the Southeast (Figure 5). Some of the peanut-producing counties which use corn in their rotations have some of the largest number of acres involved. One of the problems with corn over the past 10 to 15 years is that we have not had the research resources or the commitment to develop new varieties that produce well here. You cannot just borrow midwestern technology, bring it into Virginia, and produce corn profitably. It does not work.

Figure 4



Wheat, around 300,000 acres, is grown a little more broadly than corn and soybeans (Figure 6), with Accomack County being the number one county in wheat production. The acreage, yields, and potential of wheat has grown considerably in the state (Figure 7), at least partly because of a concerted effort by a team of experts in the College of Agriculture and Life Sciences at Virginia Tech using modern technology and management to increase yields.

Figure 5

Corn for Grain Acreage

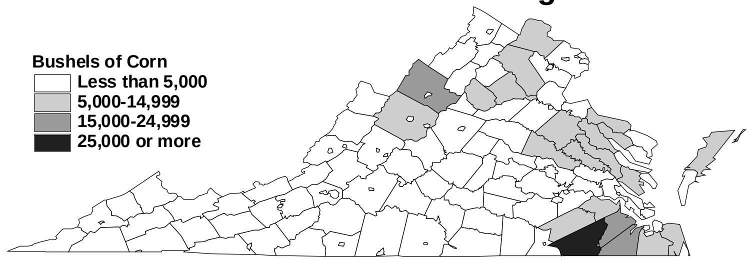


Figure 6

Winter Wheat Acreage

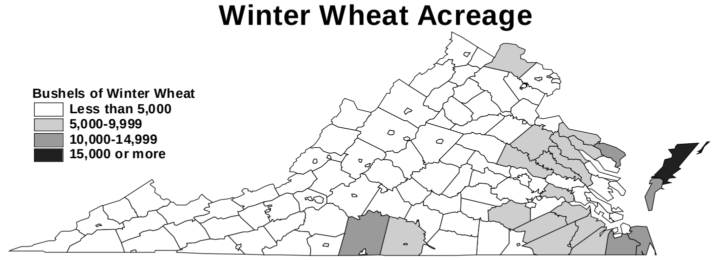
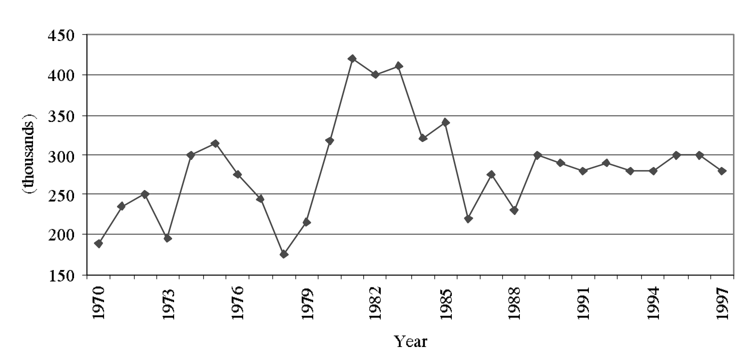


Figure 7

Wheat Acres Planted in Virginia, 1970-97



Cotton is a phenomenon in this state since the early 1990s. Production increased rapidly to 105,000 acres in recent years (Figure 8) primarily because in 1994/95 cotton prices reached $1.00 per pound and higher. This rapid production increase resulting from a price rise goes on in agriculture in this state and all around the country. We see price rise above costs of production for various outside reasons. We see it as an opportunity to make more money, over-plant causing supply to increase, drive price back down, and go broke. The phenomenon works that way. I talk to students in my beginning class about what I call a "micro-macro trap." I tell them that one farmer who starts to increase his acreage in cotton in southeastern Virginia is not going to change the price, is not going to influence the marketplace. The micro or individual level cannot make any difference. But if you multiply that individual decision all across southeastern Virginia and, more importantly, all across Georgia, Alabama, and Texas, it makes a big difference. These prices that went above $1.00 in the 1990s are now back into the mid-$0.50s and may be headed still lower. We increased production, we bought equipment, we brought land into production, and we are driving that supply function out to the right. Unless we can boost demand, the result will be lower prices. The cotton acreage tends to be in the peanut-producing counties, I might add, at least partly because cotton is a better rotation crop than is corn for many of our peanut farmers (Figure 9).

Figure 8

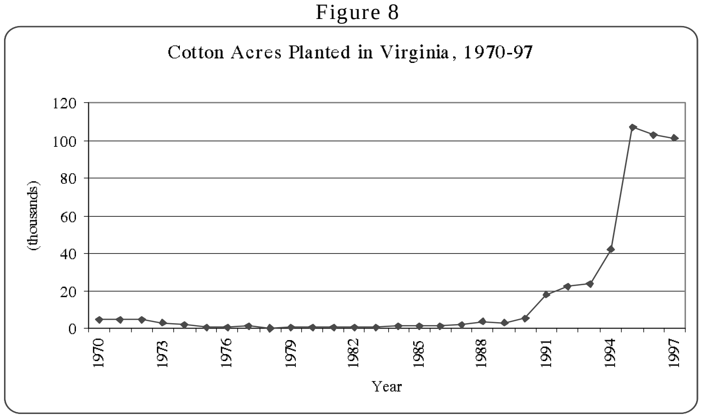
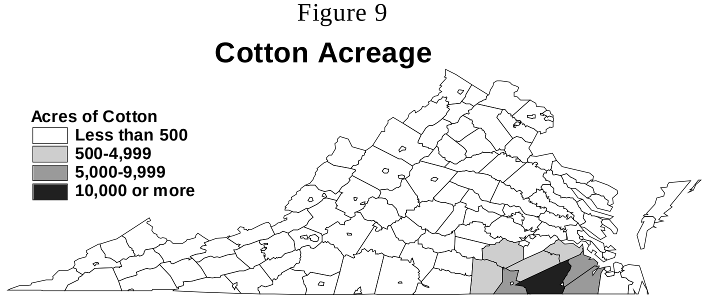


Figure 9



Peanut acres are going down (Figure 10). We are probably eventually going to lose the peanut price support program. Price supports were reduced in the 1996 Freedom to Farm Act. We appear to be headed toward some more stable, but lower, base-level of production. Notice the scale: we are down from about 100,000 acres in 1981 to about 75,000 acres 1997. Peanut acreage is primarily in the southeast corner (Figure 11). It is a very, very important crop to that area.

Figure 10

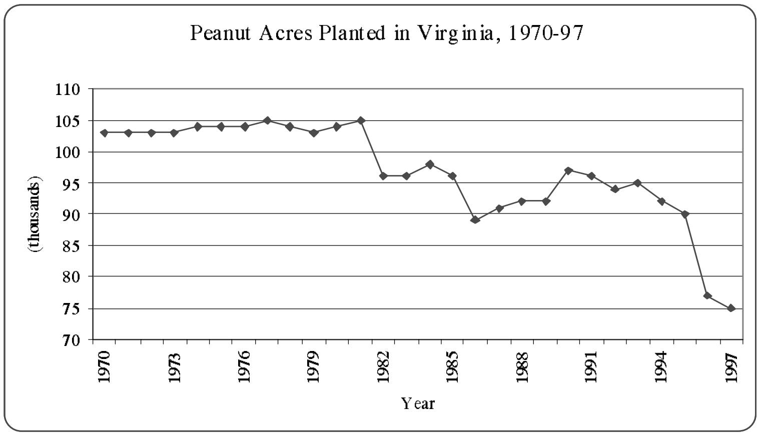
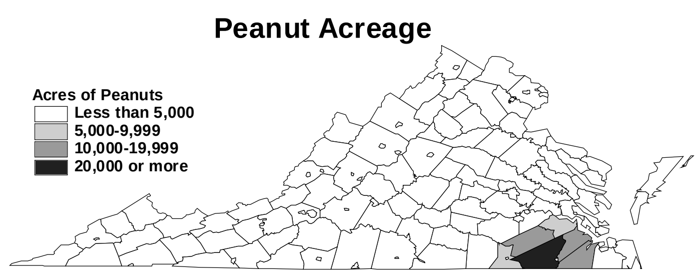


Figure 11



Tobacco acreage harvested in Virginia varies around 50,000 acres (Figure 12). We know this crop has some very uncertain times ahead of it. Quota was cut by 17 percent for 1998, sales for flue cured tobacco for this year (1998) are in, and we are probably headed for double digit percentage cuts in quota again.[1] The quota situation is not quite as drastic in burley, so far, as it is in flue cured (Figure 13). We are monitoring the preponderance of programs that are being negotiated with several of the States Attorneys General and will try to have some impact on settlements to protect farmers' interests. Since we lost the proposed settlement at the national level last year, we are down to state-level programs. I do not find anything in the proposed state-level programs that expresses any concern for the quota rights of farmers or for helping these rural communities make the adjustments they will have to make across the next ten years or so. We will see if we can get some of that money back, but I am somewhat discouraged.

[1] A quota cut of 18 percent was announced on December 15, 1998.

Figure 12

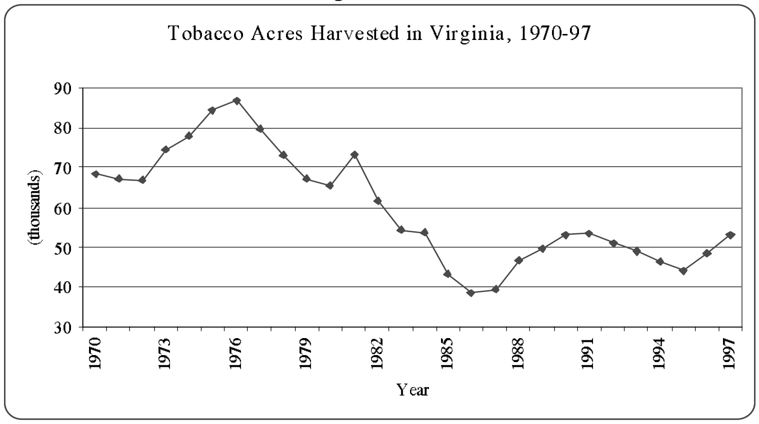
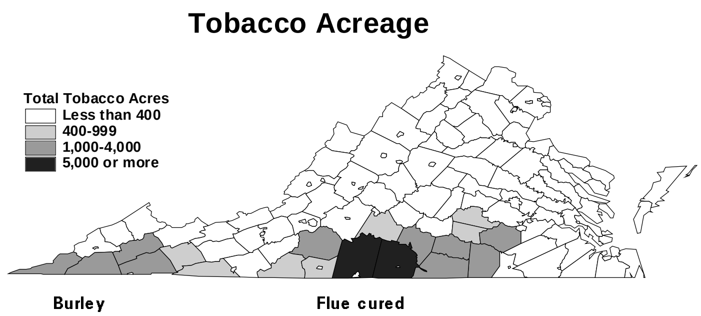


Figure 13



One of the things happening is that we are moving out of corn and away from row crops, which require time, labor, and equipment, to crops like hay, which require much less time, labor, and equipment. Hay acreage, including alfalfa, has expanded considerably in the state (Figure 14). Part of that change is not a surprise because we are a very large beef cattle state. The acreage tends to be around Harrisonburg, in Rockingham and Augusta counties (Figure 15).

Figure 14

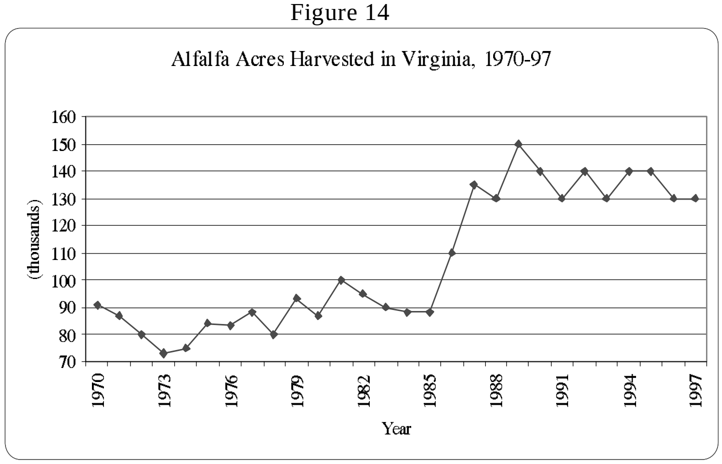
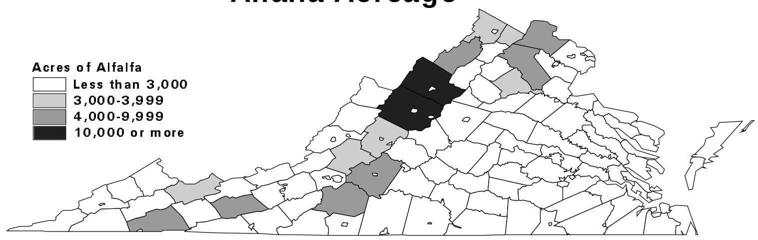


Figure 15

Alfalfa Acreage



We have gone from having independent farmers producing tomatoes to almost total corporately controlled, large acreage production (Figure 16). We have about 3,500 acres of tomatoes. It is still a significant crop. It is located primarily on the Eastern Shore counties and two Northern Neck counties (Figure 17).

Figure 16

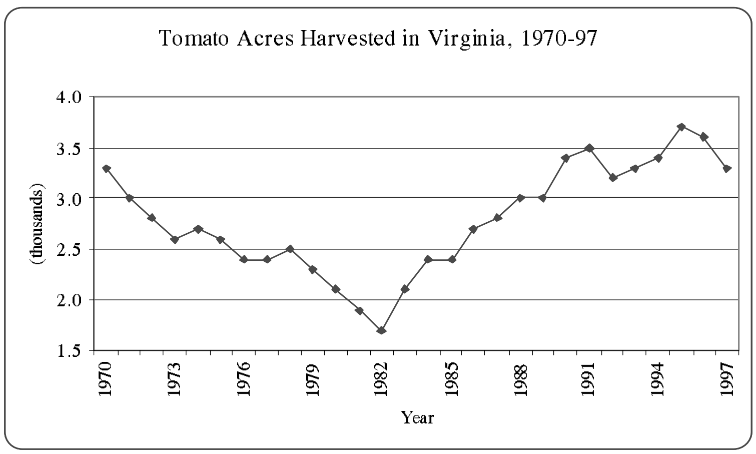
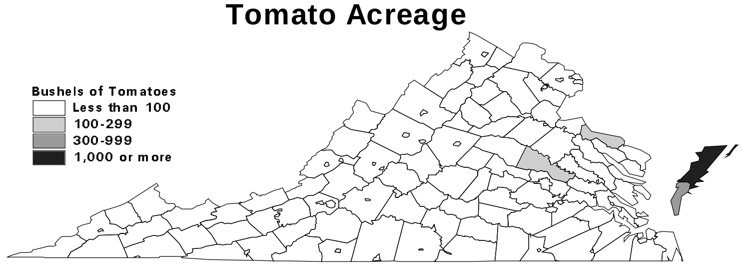


Figure 17

Tomato Acreage



Apples show a stable to downward trend in the state (Figure 18). Apple growers face a difficult situation this year with some producers selling processing apples for less than $0.05 per pound. We cannot continue to sell at those prices. Some infrastructure and market development may be needed. Orchards are a type of open space that is nice to drive past; they are nice to look at; they are really attractive, vis-à-vis a lot of the things we think about as perks of open space. Probably nothing is nicer to drive past than a well maintained apple orchard. They are mostly in the northern part of the state (Figure 19).

Figure 18

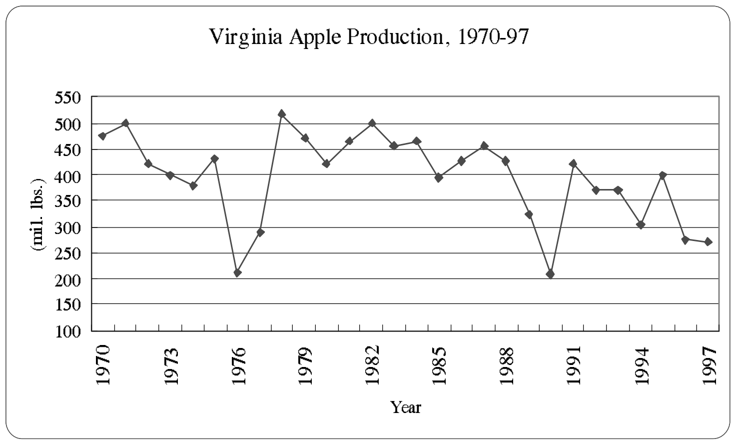
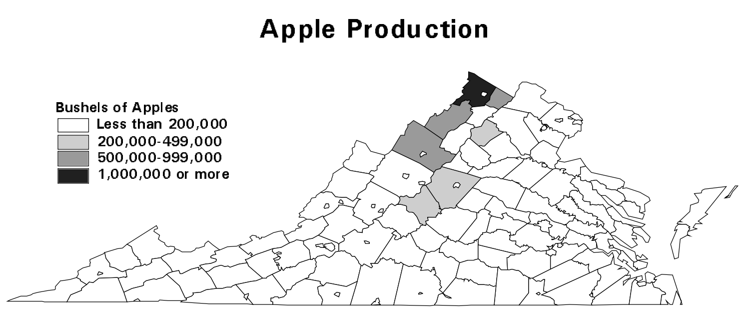


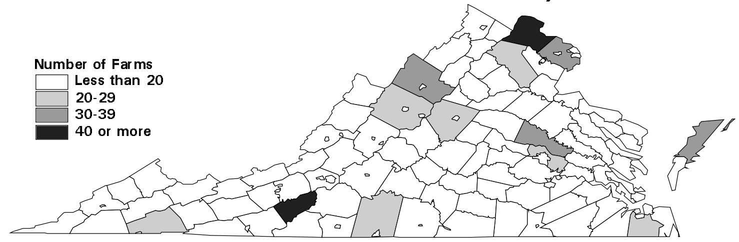
Figure 19



One of the growth areas is greenhouse and nursery (Figure 20). It is probably one of the areas we are going to see expand in the state. It is one of the activities that being located within 400 to 500 miles or so of 60 percent of the United States population may make a difference. We are dealing with perishable products and high shipping costs. We found that being located close to a lot of people in the Northeast does not make much difference in where we slaughter beef cattle or where we produce broccoli or things like that. We found out we may not be able to be competitive in our production. But greenhouse and nursery is an area where it probably does make a difference, and that difference may be why we are seeing growth in this particular sector.

Figure 20

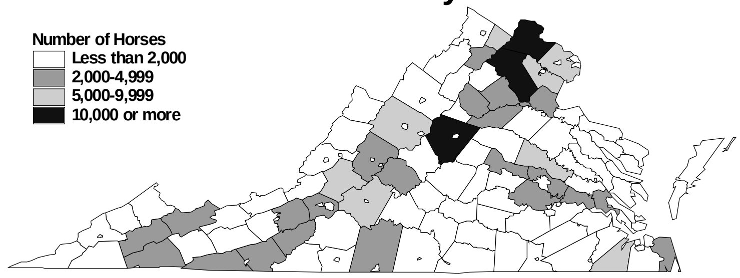
Greenhouse and Nursery



Getting time series data on the equine sector is difficult, but horses are becoming important in this state (Figure 21). They are having a significant economic impact. They provide the type of farming that we are probably going to increasingly move toward—part-time farming. We are going to see a lot of these part-time operations for breeding, commercial, and recreational purposes. And they are a type of activity that you might find desirable for open-space purposes.

Figure 21

Horse Inventory



Nationally, the number of beef cows has been reduced substantially. We have not reduced numbers that way in Virginia (Figure 22). A significant percentage of these beef cows are owned by people who make most of their living from off-farm employment. We have been able to sustain production through some very difficult economic times vis-à-vis selling price for calves. We are in the top 15 producing states in the nation with over 700,000 beef cows. They are located primarily in the Shenandoah Valley and southwestern counties (Figure 23). Beef cows are raised all through the state, but not always with 15,000 cows or more in the county.

Figure 22

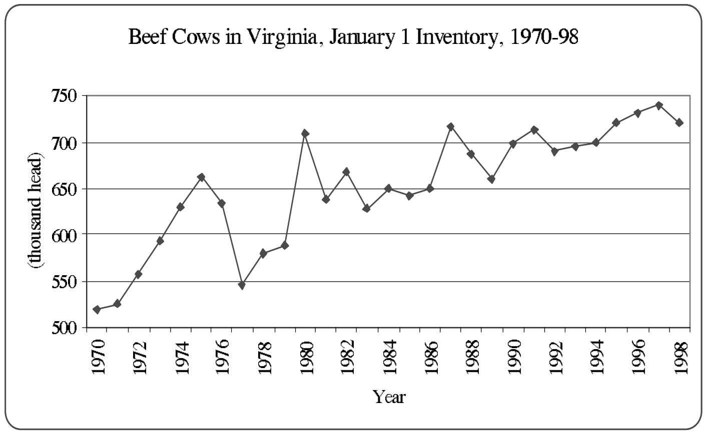
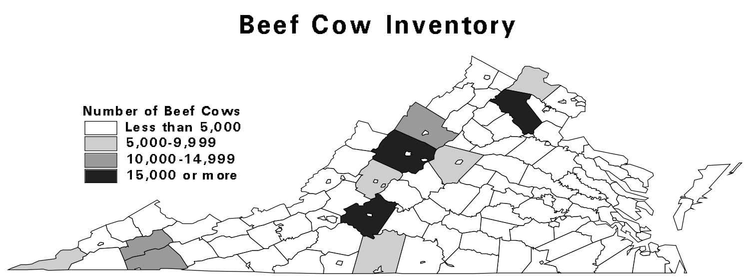


Figure 23



Milk cows are going in the opposite direction (Figure 24), both nationally and locally. We are greatly increasing milk production per cow so that nationally our milk production has not gone down. We just do not need as many cows as was historically the case. Dairy is one of the sectors that looks the most economically viable in the state with milk prices in the $15 to $16 per hundredweight range. I hope that lasts, but I am dubious—I do not think it will. I think we are facing some challenges as well in the dairy sector as soon as we get a surge in production next spring. Some consolidation is occurring here. I think we are going to have fewer dairy farms in the state. Again, dairy is typically a very desirable type operation to drive past. Some waste management issues exist with which we need to deal, but we can deal with those with good technology and sophisticated approaches. Dairy is an open space, pastoral type program. Rockingham County has a large number of milk cows (Figure 25).

Figure 24

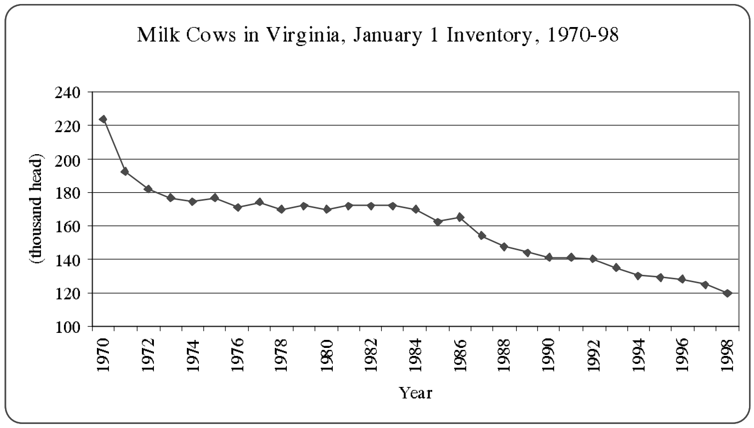
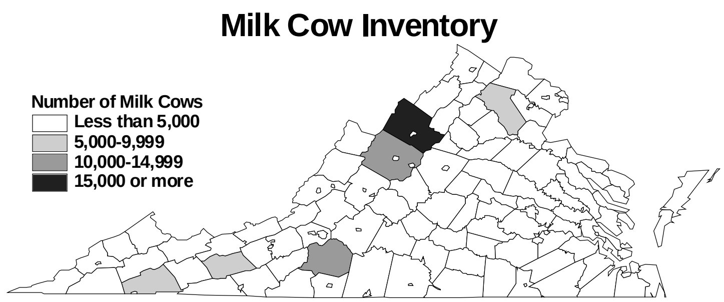


Figure 25



Hogs and pigs in the state show a dramatic decrease (Figure 26). About half the hogs in the state are owned by one major producing company resulting in the number of independent swine producers being down dramatically compared to 20 years ago. Most of the numbers are now in the southeastern corner of the state (Figure 27). I do not think it will be any great news to you that environmental and other concerns are associated with expansion down in that area. Some of you have probably been involved with some of those decisions.

Figure 26

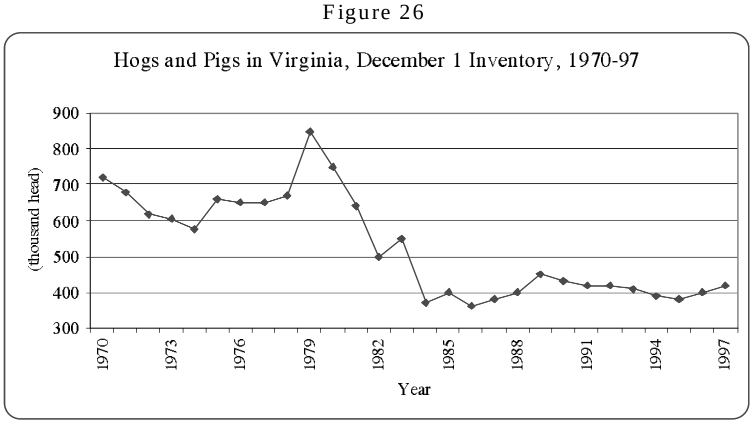


Figure 27

We are a top ten state in the nation in broiler production (Figure 28). You need to keep in mind that broiler production requires crops, grass—something on which to spread the poultry litter. Rockingham County is again the number one county, but broilers are located through the Piedmont and through many of your jurisdictions (Figure 29). We are in the top five turkey-producing states, with solid growth in that area (Figure 30) and with an even more concentrated location (Figure 31).

Figure 28

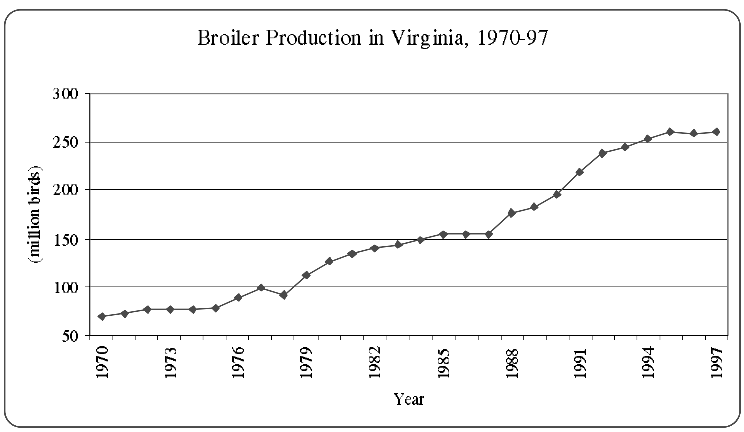


Figure 29

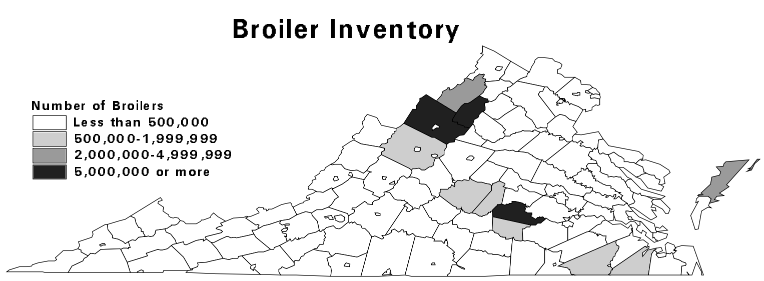


Figure 30

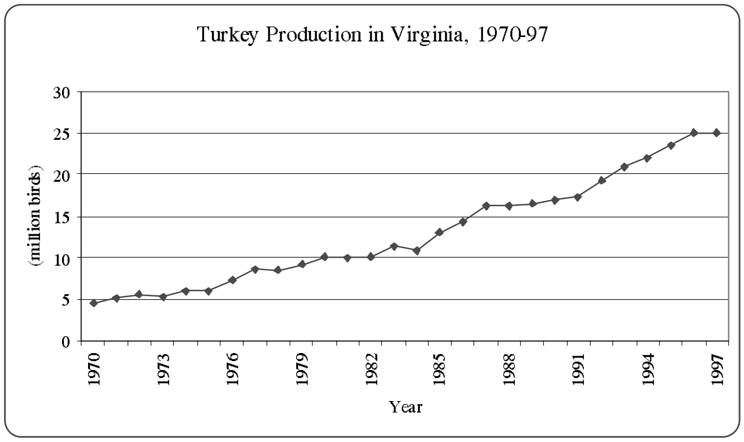
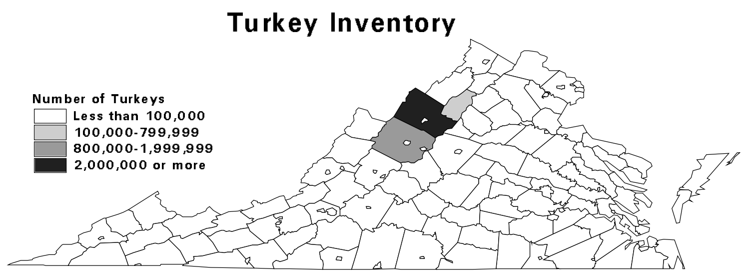


Figure 31



Why are all these data important? The economic impacts from agriculture and agribusiness in the nation as a whole indicate about 13 percent of economic activity and about 17 percent of jobs are associated with agriculture (Figure 32). Our numbers in Virginia are not quite that high but are in the neighborhood of 11 to 12 percent of the economic activity and 13 to 15 percent of all jobs.[2] Typically, the way we have done these studies, we have not included the forestal and fisheries and wildlife sectors. If you add those sectors, you get a significant part of the economic activity in the state and a significant source of employment opportunities. This economic impact is important.

[2] See Lamie, David. *The Economic Impact of Agriculture and Ag-Related Industries on the Commonwealth of Virginia.* VCE Pub. 448-233/REAP R035. August, 1998.

Figure 32

The U.S. food and fiber system (farming and its related industries) accounted for $997.7 billion (13.1 percent) of the gross domestic product (GDP) in 1996 and employed almost 23 million people (17 percent of the U.S. labor force).

Source: Kathryn L. Lipton. *The Food and Fiber System: Contributing to the U.S. and World Economies,* ERS, U.S. Department of Agriculture, p.iii.

I want you to recognize that as we talk about small farms, limited resource farms, farms that have someone who is retired on them, on average, they have no farm-related income shown for those types of operations (Figure 33). When you have someone living on a farm and working someplace else, making a substantial household income of some $75,000, the farm contribution to that income, at the national level, is actually negative. We do not have these same data for state or local jurisdictions, but the concepts we are talking about—profitability or lack thereof of farming—are the same. When we talk about farm sales, we are talking about $150,000 to $200,000 in sales before the farm-related income contribution is major. I will use $100,000 as a cutoff level to demonstrate how many farms we have in the state and how we compare to surrounding states.

Figure 33

Data from the ARMS made it possible to construct a typology of U.S. farms.

Small farms have sales less than $250,000. They include:

Limited-resource (291,700 farms): operator household incomes under $20,000, farm assets under $100,000.

Retirement (261,400 farms): operator's major occupation is retired.

Residential/lifestyle (537,200 farms): operator's major occupation is "other," i.e., neither farming occupation nor retired.

Lower sales (524,800 farms): operator's major occupation is farming and farm sales are under $100,000.

Higher sales (192,300 farms): operator's major occupation is farming and farm sales are $100,000 to $249,999.

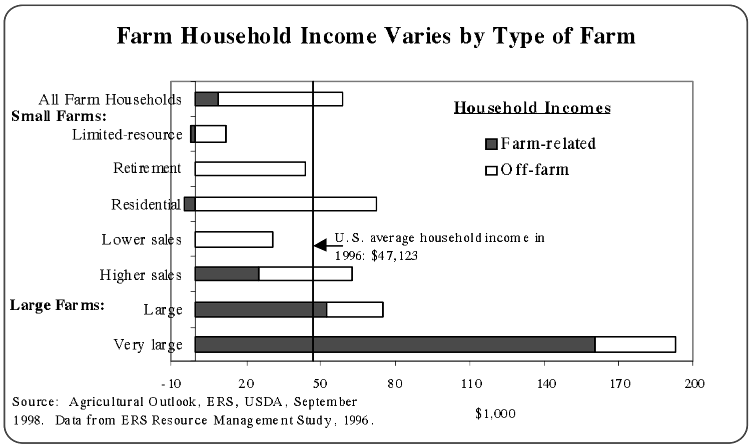
Large farms have sales of at least $250,000. They include:

Large (95,500 farms): farm sales are $250,000 to $499,999.

Very large (58,800 farms): farm sales are $500,000 or more.

The national average household income is $47,123 (Figure 34). If we take this national average and add the on-farm income from farms selling over $100,000 of product to the off-farm income, we are in good shape. Incomes in the $65,000 to $75,000 range provide a decent income. When we go to large farms, you are talking about $250,000 to $500,000 in annual sales. Notice the farm income component is actually above the average household income in the United States. When we go to very large farms, those with above $500,000 in sales a year, we have substantial amounts of farm income coming from that relatively small percentage of all farms, but certainly dominating in terms of income they earn that is a percent of all farm income. These are national figures and I will bring these down to state level.

Figure 34



At the state level, we get the same picture (Figure 35). When we get to the very small farms with less than $20,000 in sales, the contribution to income is negative. It takes the larger operations. At the national level, the 1 percent of the farms with sales above $1,000,000 is getting almost 35 percent of all net farm income. The same pattern holds in Virginia. We are "Wal-Marting" virtually everything, all through agriculture. Because huge economies of size exist, the large operations can operate more cheaply. And given that we have a competitive industry with no barriers to entry, we have nothing to stop anyone from coming into corn production or egg production or cotton production when prices look attractive in the short run. But with the increased supply in response to the price increase, we tend to always drive those profit opportunities away. One of the ways you survive as prices come down is you get bigger and you get cheaper. The formula is "get bigger, get cheaper, or get out." That mentality often happens at the farm level, at the processor level, and at the input supply level. It is happening with grocery stores.

Figure 35

Dollar Sales, Net Cash Income, Percent of Net Cash Income by Farm Size, 1997

Size ($1,000 sales)	% of Farms	% of $ Sales: Crops	% of $ Sales: Livestock	Average Net Cash Income ($)	% of Net Cash Income
≥ 1,000	1.0	21.5	34.8	1,123,721	34.7
500-999	1.7	11.4	13.8	285,912	16.3
250-499	4.0	14.5	13.9	116,647	15.9
100-249	10.0	38.3	18.6	58,947	20.1
50-99	9.1	7.3	9.8	35,229	10.9
20-49	13.1	4.6	4.5	9,890	4.4
<20	61.1	2.3	4.6	(1,112)	(2.3)

Source: Adapted from Farm Structure and Performance Branch, Economic Research Service, USDA *http://151.121.66.126/briefing/fbe/fi/fiscdmu.htm*

What I call the "Wal-Mart effect" is Wal-Mart coming in and taking advantage of huge economies of size in buying, distributing, and selling, but a lot of small, family-type operations have gone out of business as a result. We are seeing the same thing happening in farming. We are probably going to see another surge of exits, unfortunately, within the next few years. We may be sitting very close to as big a farm crisis as we had in the 1980s. We are selling slaughter hogs, this week, for $15 per hundredweight. Serious analysts are concerned that slaughter hogs would go for $10 per hundredweight. Never in my lifetime have we seen prices like that. Corn all over the Midwest at harvest this year was $1.60 to $1.70 per bushel. Wheat actually went under $2.00 per bushel in the Midwest. I have never seen that before, not in modern history. We have the fallout, if you will, from the 1996 Freedom to Farm Act which turned the production juggernaut loose. It allowed us to produce huge amounts of product and put it on the world market that increasingly does not want it because of all the economic problems in Asia. The result is that we have price and income difficulties. These difficulties are not going to go away overnight. We need to appreciate and understand these factors when we think about whether profitable farming can keep land open in our particular areas.

Virginia farms by size of farm (Figure 36): Acres are on the left, number of farms in the middle, percent of total farms on the right side. We have about 48,000 farms in this state, which, as defined by the Bureau of the Census, include farms with sales of $1,000 or more. You can see we have a very large number of small farms. But we have a significant number of farms that have 500 to 2,000 acres. We have a number of very large, commercial farms in the state that can compete in what they are doing with anybody in the United States or anywhere in the world. If you look at farm distribution by sales, and that may be the more significant approach, we have exactly 10 percent of our farms, if you add the 1.8 and the 8.2 on the right hand side, that sell more than $100,000 a year (Figure 37). Let me will remind you that when you look at the income data, you have to have a farm of that size before you can have a significant portion of household income from farming activities. A lot of it will still be from off-farm employment, but when we get above $100,000 in sales, on-farm income usually starts to make a major contribution to total household income.

Figure 36

Number of Virginia Farms by Size of Farm, 1996*

Size in Acres	No. Farms	Percent of Total Farms
1-99	25,200	52.5
100-499	18,480	38.5
500-999	2,880	6.0
1,000-1,999	1,104	2.3
≥2,000	336	.7

*Estimated by using the 1996 total reported by ERS, USDA in the Virginia Fact Sheet and applying the sizes and related percentages from the 1992 Ag Census.

Figure 37

Virginia Farms by Farm Sales

Farm Sales	Percent of Virginia Farms
< 50,000	85.4
50,000-99,999	4.6
100,000-499,999	8.2
> 500,000	1.8

Source: Virginia Fact Sheet, ERS, USDA

Compared to states around us with farms having sales over $100,000, we are not a small or insignificant agricultural state by any stretch of the imagination (Figure 38). Look at Maryland. They have far fewer farms than we do and over 50 percent more of the larger farms than we do. Pennsylvania has about the same number of farms as we do. But again, they have over twice as many farms with large sales because they are a major dairy-producing state. We do not have to be very large in dairy before we sell $100,000 in milk per year. If we get into the farm states of Ohio, Iowa, Indiana, notice that the number of farms with sales above $100,000 is in the 20,000s and 30,000s. When we talk about 250 and 300 acres and more of grain production, for example, we can have that level of annual sales very easily.

Figure 38

No. Farms With Sales Above $100,000 by State

State	No. Farms (1996)	Sales Above $100,000	(%)*
Virginia	48,000	4,800	(10.0)
Pennsylvania	50,000	10,050	(20.1)
Kentucky	88,000	8,888	(10.1)
North Carolina	58,000	10,440	(18.0)
Georgia	43,000	7,439	(17.3)
Maryland	13,700	2,850	(20.8)
Ohio	72,000	9,864	(13.7)
Illinois	76,000	21,736	(28.6)
Indiana	61,000	11,712	(19.2)
Iowa	98,000	31,360	(32.0)

*Calculated from 1992 Ag Census data on percent of farms with sales above $100,000 per year.

In terms of some quick facts, this overhead pretty much looks at your jurisdictions (Figure 39). Jeff Alwang's students put some of these data together. Basically, what you see all through the jurisdictions you represent is the number of farms decreasing and land in farming decreasing. That trend has been there a long time. These data are from 1987 and 1992. The 1997 agricultural census data will be available soon, and we will be able to update this information. But these trends will continue or will accentuate when we see the 1997 data.

Figure 39

Quick Facts on Farms, Land in Farming in Virginia by City/County

	No. Farms		Land in Farms		Percent Change	
County or City	1982	1992	1982	1992	No. Farms	Land
Virginia Beach	231	156	51,275	43,332	-32	-15
Chesapeake	282	189	56,109	52,948	-33	-3
Suffolk	376	268	94,224	83,047	-29	-12
Louisa	482	384	93,718	81,427	-20	-13
Loudoun	888	942	206,601	195,476	+6	-5
Prince William	314	259	51,172	32,973	-18	-36
Fauquier	973	925	247,942	235,533	-5	-5
Frederick	632	536	126,087	98,142	-15	-22
Isle of Wight	333	212	100,415	86,247	-36	-14
Southampton	518	329	198,508	178,469	-36	-10
Bedford	1,353	1,227	218,546	200,507	-8	-8
Orange	461	419	118,613	107,700	-9	-9
Shenandoah	922	832	139,595	125,394	-10	-10
Culpeper	537	471	143,434	115,295	-12	-19
Rockingham	2,046	1,864	261,595	236,074	-9	-10

The number of farms in your area that have more than $100,000 in sales, based on 1992 data, is about 1,500 in the jurisdictions represented here today (Figure 40). Fifteen hundred is a very significant number of relatively large, competitive farming operations. Not surprisingly, Rockingham County, the leading county in the state in dairy and poultry, is at the top of the list with 683 farms with sales of $100,000. As I said, if we are in poultry or dairy, we do not have to have very large acreage to sell that much product. If we are in the beef business, we probably have to be in a position of up to 300 beef cows to sell that much product a year, and that number of cows requires a very large acreage.

Figure 40

Quick Facts on Number Large Farms by City/County

Number Farms With $100,000 or More in Sales

City, County	No. Farms (in 1992)
Virginia Beach	29
Chesapeake	48
Suffolk	102
Louisa	16
Loudoun	67
Prince William	11
Fauquier	73
Frederick	43
Isle of Wight	76
Southampton	157
Bedford	45
Orange	36
Shenandoah	101
Culpeper	41
Rockingham	683

We continue to see some of these major field crops that I talked about represented in your jurisdictions as major crops, plus some significant livestock, vegetables, and specialty crops (Figure 41). I wanted to pick on corn just a little bit to drive home the point that I made earlier. This overhead shows harvest price for corn in the United States and the Southeast (Figure 42). I just want to show how difficult it is to be competitive in a global marketplace when the tendency is always to expand production every time we get a price increase and drive the profit out for everybody. Agriculture is like that, and agriculture will be like that for the foreseeable future. We are seeing prices as low as $1.50 for corn. And perhaps more significantly, we need a profit margin where we are talking about a selling price above all per bushel costs—including capital replacement costs, etc. (Figure 43). You want to go into the corn business? Making a profit above all costs in corn is a very difficult task in this country because of that phenomenon that I have talked about—the tendency is to increase production anytime price rises above cost of production. We had bad weather in 1995 and record high prices in 1996; we inundated the market in the following 2 years with over 80 million acres planted and a crop this year close to 10 billion bushels. The big production is made worse by the economic problems in Asia. We cannot sell this expanded production for the very high prices that caused it.

Figure 41

Quick Facts on Major Crops by City/County

County or City	Major Crop(s)	Major Livestock	Specialty ?	Significant Nursery/Greenhouse ?
Virginia Beach	Corn, wheat, soybeans	Hogs	Vegetables	133,224 sq ft
Chesapeake	Corn, wheat, soybeans	--	Vegetables	1,080,789 sq ft
Suffolk	Corn, wheat, soybeans	Hogs	Vegetables	784,405 sq ft
Louisa	Corn, wheat, soybeans	Beef	Grapes	--
Loudoun	Corn, wheat, soybeans	Beef, dairy	Vegetables	393,704 sq ft
Prince William	Corn, wheat, soybeans	Beef, dairy	--	--
Fauquier	Sorghum, barley, potatoes	Beef, dairy	Vegetables	160,208 sq ft
Frederick	Corn, wheat, soybeans	Beef	Vegetables, fruits	257,348 sq ft
Isle of Wight	Corn, soybeans, peanuts	Hogs	--	--
Southampton	Corn, soybeans, peanuts	Poultry/eggs	--	--
Orange	Corn, soybeans, wheat	Beef, dairy	Fruits	--
Culpeper	Corn, wheat, soybeans	Beef, dairy	Vegetables	619,700 sq ft
Bedford	Corn, hay, tobacco	Beef, dairy	Fruits	96,434 sq ft
Rockingham	Corn, soybeans, hay	Poultry, beef, dairy	Fruits, grapes	233,878 sq ft
Shenandoah	Corn, soybeans, hay	Poultry, beef, dairy	Fruits, grapes	--

Figure 42

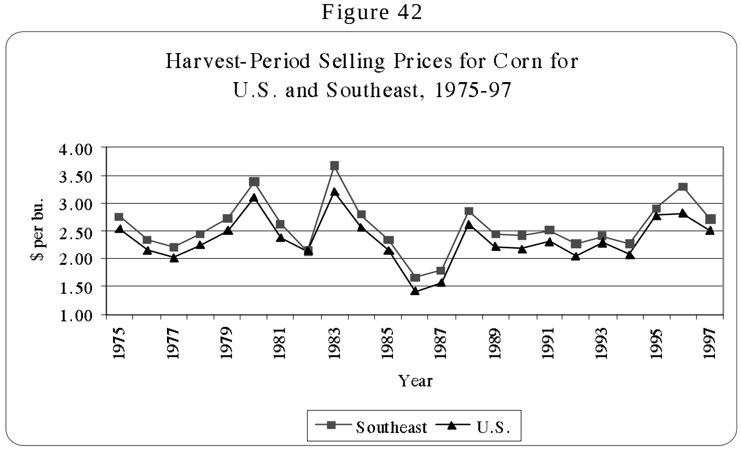
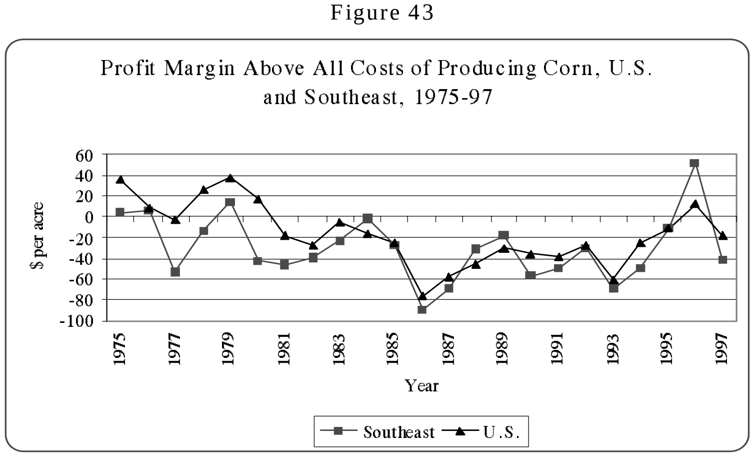


Figure 43



Let me share with you a few closing thoughts. I have only two or three of these to lay out. I think we will see fewer farms, larger farms, less land in farming, less row crop farming, more part-time farming, more niche markets and niche marketing, and more attention to value-added activity in our farm efforts (Figure 44). If we are going to stay in farming, we have to do some of these things. We must find some ways to enhance value. Just producing a homogeneous commodity and selling it in a global market with every other large, commercial producer around the world is not going to provide a profitable farm activity.

Figure 44

The likely developments:

1. Major challenges to profitability of farming in Virginia
   - Fewer farms
   - Larger farms
   - Less land in farming
   - Less row crop farming
   - More part-time farming
   - More niche markets and marketing
   - More attention to value added

If we are going to keep farm families farming, we are going to have to recognize that we must find ways to provide more off-farm income (Figure 45). We need viable rural economic development programs. We need high-quality jobs; an investment in infrastructure needs to be made. I think those sorts of things have to happen. If we do not have that good off-farm job when the time comes that somebody from those farm families has to work off-farm, we run the risk that the families will eventually have to move out of the community to find jobs. The result is a disruption that ripples all through the community. We must recognize that not only are we talking about the viability of farming and the profitability of farming, but we are talking about opportunities to enhance off-farm income as well.

Figure 45

2. More off-farm income will be needed to keep families on the farm. We will need:
   - Rural economic development programs
   - New high-quality jobs
   - Investment in infrastructure
     - Education
     - Roads
     - Water
     - Waste management

As we think about plans, we have to understand what a public good is. We need to appreciate open space, to appreciate what farms provide (Figure 46). But we need to recognize that appreciation is not necessarily something that will happen based on private incentives or the marketplace. Collectively, as governmental entities in our local areas, we may have to make sure this appreciation can happen, if it is going to happen. That is what a public good is: something that we value broadly within the public community but is not necessarily going to occur if we rely on private or market incentives. We have global markets. We compete with Argentinean corn farmers. We have a competitive farm economy. We tend to jump at these short-term price opportunities and, unfortunately, make long-term capital investments in response to what turns out to be a temporary price increase. We expand output, drive price back down, and then sit there carrying a debt load. Some of you are smiling, and I suspect the smiles are evidence you recognize what I am saying. It is a tough situation to be in, and we are sitting in it right now with several of our agricultural commodities.

Figure 46

3. To keep families on the land and maintain open space, you must have a plan. The plan will need to reflect understanding of:
   - Public goods
   - Global markets
   - Competitive farm economy
   - Environmental issues
   - Use-value taxation
   - Estate planning
   - Progressive tax policies
   - Value of land for development

Environmental issues are probably determining more of where intensive livestock and poultry programs are going in this country than are economics. They are in Guymon, Oklahoma, in Utah, and in unusual places. In some areas of Virginia, we will not tolerate those intensive operations because of perceptions that they are not necessarily good neighbors or that they are not kind to the environment. We need to deal with those perceptions because a lot of times it is those intensive operations that can generate money and make profits at the farm level.

Use-value taxation is an important issue for farm viability. Estate planning is important as well. Virginia Department of Agriculture and Consumer Services had a program in Charlottesville about a month ago where they talked about the importance of being able to transfer farm assets from one generation to the next. That transfer process is clearly very important. It is very complementary to what is being talked about today.

Progressive tax policies will be important. We have to find a way to do some local things in a Dillon's Rule state. I understand the need to get some of the tax burden off real estate. We have to recognize that land has a value for development purposes in our localities that we are going to have to confront and deal with. People come to us sometimes from the northern Valley counties and the conversation goes

"What can we grow up there to keep our counties in farming?"

"What's the land worth? $8,000 to $10,000 per acre?"

"No, more like $15,000 per acre."

The answer is nothing legal. We will have to intervene. The marketplace is not going to keep this land in farming. The marketplace is going to drive it toward some higher value use unless a plan is made, and unless something is done to influence the use of land and open space in our communities.

If we want open space, if we want farming to continue in our areas, we must recognize and deal with many of the issues I have raised and with the needs and issues that other speakers will raise. If we do not, we will lose our farms to development pressures or to low commodity prices or to both. We must have a plan and policies that reflect the realities of our modern global marketplace.

Growth in Virginia: People and Jobs on the Move

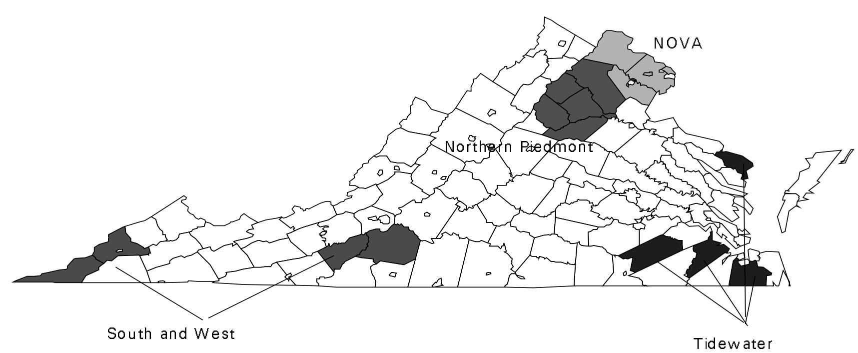
Todd McNew
Bradford Mills

Growth in Virginia and the ensuing pressure on land is affected by a myriad of factors such as local economic opportunities within the county or city; the pull of environmental amenities within counties or cities; the regional growth in broader non-metropolitan areas; and the pressure of high growth in metropolitan areas on non-metropolitan areas within commuting distance (Figure 1). We want to demarcate four regions of distinct patterns of growth in Virginia. These regions are NOVA (Arlington, Fairfax, Loudoun, and Price William) region; Northern Piedmont (Culpeper, Fauquier, Madison, Orange, and Rappahannock); south and west (Floyd, Franklin, Lee, and Wise); and Tidewater (City of Chesapeake, Isle of Wight, Northumberland, and Sussex) (Figure 2).

Figure 1. Goal: Demarcate 4 regionally distinct patterns of growth in Virginia

1) Population
2) Migration by age cohort
3) Employment shifts by sector
4) Pull of amenities
5) Commuting patterns

Figure 2. Jurisdictions Studied



The United States Bureau of Census asks the question, “Have you moved in the last five years?” Because our focus was migration and this information is only available based on the Census, we used the 1990 and 1980 census data rather than the most current population projections available. The period 1985 to 1990 is the base period for the analysis.

The major findings of the study are summarized in Figure 3. First, migration is a major component of population growth in counties and cities in Virginia. However, we see very different migration patterns by age cohorts, particularly patterns for young adults at the beginning of their economic careers and elderly and retired people. Second, employment shows, in most counties, negative rates of agricultural employment growth but high rates of service sector growth. Third, the impact of environmental amenities on migration patterns for population growth is rather limited. It is mainly restricted to retirees, who will move for the amenity values of counties rather than economic opportunities. Fourth, commuting households are an important component of growth on the non-metropolitan fringe. Finally, the incidence and intensity of comprehensive planning tends to depend on the challenges growth presents.

Figure 3. Punch lines

- Migration is the major component of growth
- Age cohorts show different migration patterns
  - strong inflows of young economically active adults into areas with employment growth
- Low rates of agricultural employment growth
- The impact of amenities on migration is limited
- Commuting households are an important component of growth on the metropolitan fringe
- Incidence and intensity of comprehensive planning depends on the challenges of growth

Migration

At the most basic level, population growth equals in-migration minus out-migration plus births minus deaths. As we see in Figure 4, the migration part of the equation is the key to growth throughout most of the state. In NOVA, Northern Piedmont, and Tidewater regions, in-migration rates are much higher than natural growth rates. Only in the south and west do we see negative rates of in-migration, which is somewhat counterbalanced by slightly positive figures for natural growth. Looking at age-cohort migration, however, we find very different trends throughout the state (Figure 5). In NOVA, we have very high in-migration among young people; we have net out-migration among older people. In the south and west, we have almost the opposite situation. We have out-migration of young people and very slight positive figures for in-migration among the older and middle age cohort. In the Northern Piedmont and Tidewater regions, we actually see a more even spread among all the age cohorts. These age cohorts are divided into 15 - 34 (young), 35-54 (middle age), and 55+ (retired and elderly).

Figure 4. Annual Rates of Migratory and Natural Growth, 1985 to 1990.

Region	Migratory Growth	Natural Growth
	------------%-----------	
NOVA	3.11	1.53
Northern Piedmont	2.21	0.76
South & West	-0.16	0.33
Tidewater	1.45	1.11

Source: Ciesen County to County Migration Files 1985 to 1990, U.S. Bureau of the Census.
Virginia Statistical Abstract 1996-97, Weldon Cooper Center for Public Service, UVA

Figure 5. Annual Net Migration by Age, 1985 to 1990			
Region	Age Group		
	15 – 34	35 – 54	55+
NOVA	1.83	0.97	-0.10
Northern Piedmont	0.58	0.73	0.41
South & West	-0.21	0.05	0.06
Tidewater	0.54	0.45	0.12

Source: Ciesen County to County Migration Files 1985 to 1990, U. S. Bureau of the Census

Employment growth

We divided employment growth throughout the state into four sectors: agriculture, mining, and natural resource extraction (AMNR); manufacturing, construction, and transportation (MCT); trade and services (TS); and government (Figure 6). We see very high growth in the MCT and TS sectors throughout most of the state, especially in NOVA. Of course, what also stands out is the very poor showing of the AMNR sector in the same period—a very strong negative rate of employment growth. The NOVA figure for AMNR, which is quite high, comprises a very small percentage of overall employment in NOVA. We are also looking at agribusiness and agricultural advocacy-type jobs. Therefore, we do not get a real picture of what is going on in production agriculture in NOVA. But the figures for Northern Piedmont, south and west, and Tidewater provide a pretty good picture of what was happening from 1985 to 1990 to employment in agriculture across the state.

Figure 6. Annual Employment Growth by Sector, 1985 to 1990				
Region	Sector			
	Agriculture Mining	Manufacturing Transportation Construction	Trade & Services	Government
	----------------------------%------------------------			
NOVA	7.04*	7.35	6.29	1.80
Northern Piedmont	-4.01	3.94	5.61	3.85
South & West	-4.48	2.86	2.64	3.60
Tidewater	-2.27	3.10	7.97	6.15

* This sector comprises a very small percentage of total county workforce and includes agribusiness and agricultural advocacy employment.

Source: Regional Economic Information Systems, U. S. Department of Commerce

Migration and employment growth

Since we were looking at both employment and migratory growth, we show the relationship between these two factors using correlation coefficients, a statistical concept that relates two or more items. Correlation coefficients range from 1 to –1, which indicate a strong relationship. A correlation coefficient near 0, either positive or negative, indicates little relationship. If the correlation coefficient is positive, the items being compared move in the same direction—increasing or decreasing together. If the correlation coefficient is negative, the items being compared move in opposite directions—one increases while the decreases.

These correlation coefficients clearly tell us that jobs and migration are the keys to growth in Virginia (Figure 7). Among young people statewide, the correlation between MCT and TS sectors and migration is extremely high, almost 1. We also find the correlation between AMNR and migration for young people is low, but positive. In many counties, young people are leaving and agriculture is declining. The correlation between the middle aged and older people and the MCT and TS sectors is also high, although not as high as for the younger people.

Figure 7. Jobs and Migration: Keys to Growth

* Statewide, among younger people, correlation between employment growth and migration is very high, especially in the construction, manufacturing, and service sectors.
* Significant declines in agricultural employment spur out-migration of younger people.
* Migration of middle aged people and employment in construction, manufacturing, and services sectors is highly correlated.
* Based on a national amenities scale, little or no correlation exists between amenities and migration.

The Economic Research Service (ERS) has published a national amenities scale which measures the presence of things like mountains, coastlines, and climate for every county in the country. We ran correlations between migration for different age cohorts and the scale ERS developed for Virginia. We found no correlation whatever for the 1985 to 1990 period for the younger and middle age cohorts. For the older cohort (55+) we found only slight correlation between the presence of natural amenities and in-migration. We can conclude, for the period studied and the data used, jobs and migration are clearly the keys to growth.

Commuting decisions

Are commuting decisions important (Figure 8)? If we look at rapidly growing non-metropolitan areas, they tend to be on the fringes of rapidly growing metropolitan areas. Commuting decisions reflect, to some extent, the strength of the local labor market. Choosing to work in an area or commuting and incurring the associated costs of working in another area is symptomatic of the match, or lack thereof, between the labor supply and the labor demand. Having large numbers of out-commuting households in your area may have a number of fiscal implications for your jurisdiction. Local expenditures on schooling are usually 50 percent or more of county expenditures. A commonly held belief is that commuting families bring a disproportionate number of children into the community which requires significant increases in educational expenditures. Finally, commuting may increase road congestion.

Figure 8. Why are Commuting Decisions Important?

* Prevalent on non-metropolitan fringes
* Reflect strength of local labor market opportunities
* May have fiscal implications, especially for school expenditures
* Congestion costs

We looked at commuting patterns between the Northern Piedmont and NOVA and the underlying factors causing people to commute. Do people commute for higher wages or because of a preference for living in non-metropolitan areas? Do commuters have a disproportionate number of children? We found the following non-wage factors to be very important in influencing commuting decisions to metropolitan from non-metropolitan areas (Figure 9). Females in households with children are less likely to commute. But the number of children in the household does not matter. In fact, households living and working in a non-metropolitan area do not have fewer children than households that moved into the area and are commuting into NOVA. Commuting households are not putting a differential impact on local expenditures through demand for schooling for their children. Further, commuting households tend to live in houses with higher property values, potentially providing a higher tax base.

Figure 9. Significant Results

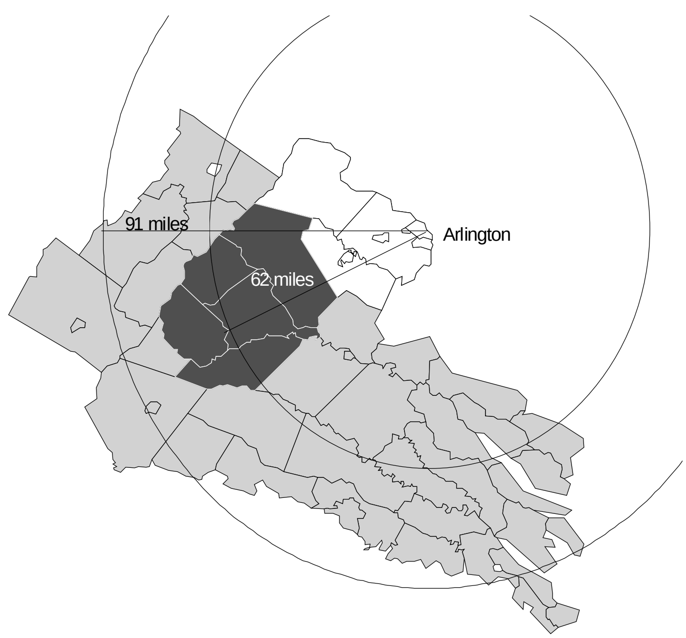
* Non-wage factors influencing commuting
  - Gender
  - Females with children
  - Not number of children!
  - Property Value

An examination of the relationship between individual characteristics and earnings in the local, non-metropolitan area and the metropolitan area showed that commuters received different returns for their education (Figure 10). Non-metropolitan labor markets pay less overall. We calculated that difference to be $7 to $10 per hour less based the individuals' characteristics like age, education, and work experience. Therefore, we can say that differences in potential earnings in metropolitan and non-metropolitan areas remain a significant factor underlying commuting decisions. The opportunity cost of commuting is defined as the wage that could be earned in that metropolitan area while sitting in the car commuting from the non-metropolitan area to Arlington. The wage gap between non-metropolitan and metropolitan areas compensates individuals for commutes up to 62 miles (Figure 11). Thus, the draw of metropolitan labor markets goes well past Fauquier County and into Orange and Rappahannock counties. If we consider the opportunity cost as the lowest wage that could be earned in a non-metropolitan area, the draw of metropolitan labor markets extends much farther into the Piedmont region.

Figure 10. More Significant Results

* Commuters receive fundamentally different returns to personal characteristics in non-metropolitan and metropolitan labor markets
* Non-metropolitan county labor markets pay much less overall

Figure 11. Distance of NOVA Labor Market Draw in Northern Piedmont Area



Comprehensive planning

Each county in Virginia is required to prepare a comprehensive plan (Figure 12). Comprehensive plans vary widely over the regions we studied. In metropolitan areas, comprehensive planning is seen as an important tool for managing growth and in non-metropolitan areas for encouraging growth. In general, we can say that NOVA has long history of comprehensive planning and strong planning capacity in place. In the Northern Piedmont, we see considerable success with planning, although it has varied somewhat with the pressures of growth that have been put on the individual counties. In south and west, the issue of planning is still being questioned as an acceptable tool to manage growth. In the Tidewater area, a large variation occurs in planning.

Figure 12. Comprehensive Planning

* Each county in Virginia is required to prepare and adopt a comprehensive plan
* Focus, form, and function of local comprehensive planning varies across regions in response to pressures of growth

Summary

We showed that migration is a major component of growth, particularly migration among young, economically active adults (Figure 13). The movement of people and jobs tends to be highly correlated. For agricultural employment, we need to be concerned both because the rate of employment growth is negative, in most cases, and associated with the out-migration of young, economically active people. County environmental amenities, however, have a fairly limited impact on migration and that effect is mainly among retirees. Commuting households are an important component of growth on the metropolitan fringe, particularly in rapidly growing non-metropolitan areas. Finally, we find the incidence and intensity of comprehensive planning is highly related to the challenges of growth. Essentially, we plan when we have to. We do not plan for the sake of planning; we plan when we face significant change and challenge in our communities.

Figure 13. Punch lines - Revisited

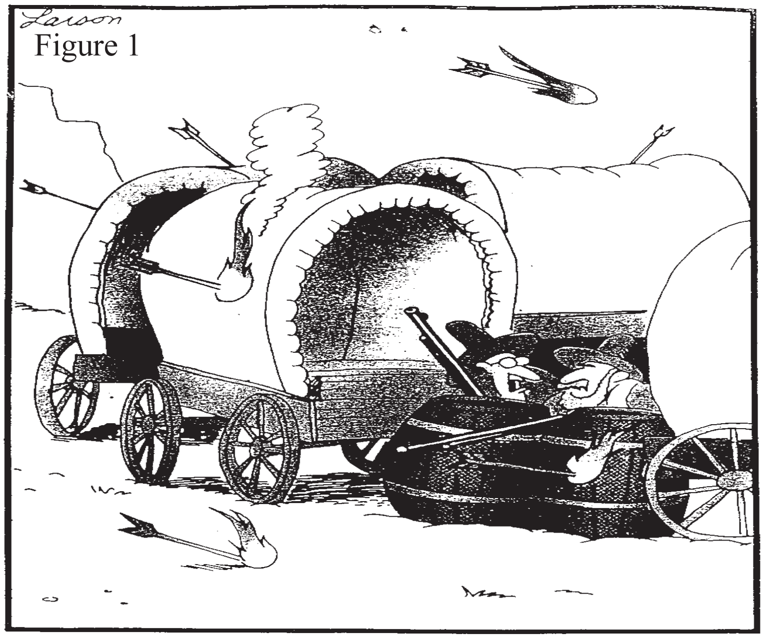
* Migration is the major component of growth
* Age cohorts show different migration patterns
  – strong inflows of young economically active adults into areas with employment growth
* Low rates of agricultural employment growth
* The impact of amenities on migration is limited
* Commuting households are an important component of growth on the metropolitan fringe
* Incidence and intensity of comprehensive planning depends on the challenges of growth

Managing Agriculture and Growth in Virginia: The Role of Planning and Zoning

Michael Chandler

The previous speakers described the various elements we associate with change. Garry Larson, our modern day cartoon philosopher captures the essence of change in this visual (Figure 1). Indeed, change is occurring in our localities. You are here today because of the rate of population expansion you are experiencing. And in deference to our host community, it is only fitting we share a visual that appeared in the local paper a year or so ago (Figure 2). It says, “This place just hasn’t been the same since we made the top ten places to live list.” Both visuals underscore the challenge facing each community attending this conference: namely, how will the needs of agriculture be addressed in the face of growth and change?

Figure 1



“Hey! They’re lighting their arrows! . . .
Can they DO that?”

Figure 2.

My purpose this morning is to discuss the role planning and zoning can play in managing growth and agriculture. To accomplish this purpose, I intend to review the foundational underpinning for planning and zoning in the Commonwealth (Figure 3).

Figure 3. Key planning and zoning activities impacting Virginia agriculture

1926	Enabling authority for zoning adopted by the Virginia general assembly
1962	Agriculture is added to the Virginia Code as a permissible land use category
1970	Open Space Land Act authorized (10.1-1700)
1971	Use Value Assessment (58.1-3329 through 3244) authorized by the General Assembly)
1975	Local comprehensive planning mandated by the General Assembly
1977	Agricultural and forestal districting authorized by the General Assembly (15.2-4400 through 4407)
1981	Federal Farmland Protection Act adopted
1982	Agricultural Stewardship Act authorized (10.1-559.1 through 559.7)
1988	Chesapeake Bay Act adopted (10.1-2200)
1995	Right to Farm Act adopted (3.1-22.28 through 22.99)

In 1926, the General Assembly passed legislation authorizing the practice of zoning. Four years later, Herbert Hoover, while serving as the Secretary of Commerce, crafted an enabling act for planning and zoning. In fact, Virginia's current planning and zoning statutes borrow heavily from the work of Herbert Hoover.

In 1962, agriculture was added to the Virginia Code as a permissible land use classification. Virginia's open space land act was authorized in 1970. Although Virginia is a strict Dillon's Rule state, the open space land act is one of the most liberal in the country. When used with certain planning tools, numerous Virginia localities have been able to secure open space. Use-value assessment was authorized in 1971. In 1975, the General Assembly mandated that all local governments engage in local comprehensive community planning. Specifically, the General Assembly required every locality in the Commonwealth to appoint a planning commission by 1976, adopt a subdivisional ordinance by 1977, and by 1980, adopt a comprehensive plan. Most localities have complied with this mandate.

Additional actions taken by the Commonwealth affecting agricultural practices include the authorization of forestal districts, authorization of the Federal Farmland Protection Act and the Agricultural Stewardship Act in 1982. The Chesapeake Bay Act was adopted in 1988, and the Right to Farm Act was adopted in 1995. I make reference to the Chesapeake Bay Act for several reasons. Specifically, zoning is a discretionary tool of planning implementation in Virginia. However, if a locality comes under the purview of the Chesapeake Bay Act, zoning becomes mandatory. About one-third of Virginia is impacted by the Chesapeake Bay Act.

What is the nature of planning (Figure 4)? We need to think about planning as both a concept and a process. For example, each of us had to plan to be here today. Some of you made your plans several weeks ago while some of you decided to attend this program just yesterday. This kind of forward thinking or anticipatory action helps define planning. Peter Drucker, the noted management expert, defines planning as ". . . consciously recognizing the futurity of the present decisions." His powerful insight provides clarity and balance, whether we are thinking about planning in our personal lives, business lives, or the lives of our communities.

Figure 4. The nature of planning

1. Viewed in isolation, what does the term planning mean to you?
2. Characteristics of a planned activity.
3. What does the term land use planning mean to you?

Who is responsible for land use planning in your community?

Through land use planning we purposely give definition to what we want our communities to be in the future. In many respects, a land use plan is the preferred future captured in pictures, symbols, policies, and narrative (Figure 5).

Figure 5. The comprehensive plan

1. Focuses on physical development.
2. Should reflect community goals and should define development policies.
3. Should be an articulate statement about a community's preferred land use pattern.
4. Should be comprehensive in design and long range in orientation.
5. Should be vision driven and a by-product of civic input.

Planning can be defined as a process that helps move a community from where it is today to where it would like to be tomorrow. Most land use plans feature a 5, 10, 15, 20, and in some instances, a 25-year planning horizon. If the document is to have meaning it must be adopted by the locality and subsequently followed.

As Figure 6 suggests, a variety of elements help define the comprehensive plan. Facts are the study and analysis of present and past condition as well as emerging trends. Potential involves deciding what we would like to see happen in the future. Perception involves reaching out, getting in touch with the community to get a sense of what people want for the future. Concepts provide a summary of what the plan intends to accomplish. Feedback and implementation represent ways to bring the plan to life.

Federal law is supreme and it generally takes precedence over state law, which, in turn, takes precedence over local actions or statutes (Figure 7). The authority to engage in land use planning is an extension of the police power provision, which is a by-product of the tenth and fourteenth amendments to the United States Constitution.

The presumption of legislative validity is another concept of importance to planning. Legislative validity means your comprehensive plan, under the law, is presumed valid: each element and attribute contained in the plan will stand unless someone, through a court proceeding, successfully challenges the plan as being unreasonable and contrary to the interest of the community.

Figure 6. What goes into a comprehensive plan

Facts:	The study and analysis of past and present conditions, as well as emerging trends.
Potential:	A prediction of future conditions. An analysis of potential opportunities and potential problems. A futures orientation.
Perceptions:	An assessment of the community's aspiration and attitudes.
Concepts:	A statement about the policies and/or plans, methods, and tools which will bring the plan to life.
Feedback:	A system to analyze plan accomplishments, deficiencies, and make necessary adjustments.
Implementation:	The plan shall recommend methods of implementation.

The content of the declaration of legislative intent as it applies to planning is terribly important (Figure 8). It establishes the foundation for local planning and zoning practices across the Commonwealth. The statement begins with a review of the police power provision. The declaration next addresses transportation and community facility needs. Providing for the future needs of agriculture, industry, business, and residential uses is another vital function of planning. Item G states that growth in the community will be consonant with the efficient and economical use of public funds. Many local governments in Virginia are using this section of the code to incorporate growth management strategies with their local comprehensive plans.

Section 15.2-2223 of the Code says: "The Commission shall make studies and surveys of existing, conditions and trends of growth and probable future growth requirements of the community..." (Figure 9). Furthermore, "The plan shall be general in nature and shall designate the general location, character and extent of each feature shown on the plan and will indicate where existing lands or facilities will be extended, removed, relocated, vacated, narrowed, abandoned, or changed in use." Some opponents of planning point to this section of the code and the language, "general in nature," to suggest that the comprehensive plan is of little value. Section 15.2-2232, however, puts some teeth in planning. This section of the code states

> Upon adoption, the plan shall control the general location, character, and extent of each feature shown on the plan. No street, connection to an existing street, park or other public area, public buildings or public structures, public utility, facility, or public service corporation facility, other than a railroad facility, whether publicly or privately owned, shall be constructed, established or authorized until its location has been approved by the planning commission as being substantially in accord with the Plan.

This section of the code states very clearly that once adopted, the local plan shall control. Thus, the plan does have impact.

Figure 7. Basic legal concepts

1. Supremacy of federal law
2. Precedence of state over local law/ordinance
3. Police power provision
4. Presumption of legislative validity
5. Federal role
    - A. U.S. Constitution
        1. First amendment
        2. Fifth amendment
        3. Fourteenth amendment
        4. Supremacy clause, article six
    - B. Acts of Congress
        1. Section 1983, Civil Rights Act of 1871
        2. NEPA, 1970 other acts of the Congress
    - C. Judicial rulings
6. State role
    1. Guarantees/prohibitions
    2. Code of Virginia
    3. Acts of the legislature
    4. Judicial rulings
7. Local role
    1. Local charter/uniform powers act
    2. Local plans
    3. Local ordinances

Figure 8. Declaration of Legislative Intent: (Virginia Code15.2 – 2200)

The purpose of enabling authority for planning is to encourage localities to

A. Improve the public health, safety, convenience, and welfare of their citizens;
B. Plan for future development of existing communities so that transportation systems are carefully planned;
C. Develop new community centers with adequate highway, utility, health, educational, and recreational facilities;
D. Recognized the need for mineral resources and the need of agriculture, industry, and business in future growth;
E. Provide residential areas with healthy surroundings for family life;
F. Preserve agricultural and forestal land be; and
G. Make growth of the community consonant with the efficient and economical use of public funds.

Figure 9. 15.2 – 2223 Comprehensive plan scope and purpose

1. The commission shall make studies and surveys of existing conditions and trends of growth and the probable future growth requirements of the community.
4. The plan shall be general in nature and shall designate the general location, character and extent of each feature shown on the plan and will indicate where existing lands or facilities are to be extended, removed, relocated, widened, vacated, narrowed, abandoned, or changed in use.

Section 15.2 – 2224 of the code talks about planning process. Item 1 states, in part,

> The Commission shall survey and study such matters as the preservation of agricultural and forestal land, production of food and fiber, characteristics and conditions of existing growth, trends of growth, natural resources, historical areas, groundwater, surface water, geologic factors, population factors, employment, environment, and economic factors, existing public facilities, drainage, flood control and damage prevention measure, transportation facilities, and the need for affordable housing and any other matters related to the subject matter and the general purposes of the plan. . . .

I call this section of the code the "Prego" factor. If you are familiar with the television commercial, you know the announcer, talking about Prego's ingredients, says, "It's in there." The same can be said for 15.2-2224. As long as we can show linkage back to some demonstrable public purpose, we can include almost anything in our plans. A nexus, or relationship, must exist between each planning principle and each regulation. By proving or documenting the nexus we are positioning the plan to withstand legal challenge.

The basic steps in the planning process are logical and pretty straight forward (Figure 10). One difference we see today compared to a few years ago is the role visioning plays in the process. Increasingly, before getting into the plan development process, localities are going through a visioning exercise. The visioning process helps a community invent its future by actively thinking about the possibilities implicit in the future. Visioning is a proactive process. It is the process William Jennings Bryan had in mind when he stated during the 1896 Presidential campaign that the future should not be something we wish for, it should be something we work to achieve. The future should not be a matter of chance; it must be a matter of choice. Having a plan should mean we have made a choice.

Bringing a plan to life means we have to implement the plan (Figure 11). We have four primary tools of planning implementation in Virginia: the official map; the capital improvement program (CIP); the subdivision ordinance; and the zoning ordinance.

Figure 10. Basic steps in the planning process

1. Plan and schedule the process, including a planning horizon.
2. Gather and analyze data.
3. Identify issues, define problems, define opportunities, define plan elements.
4. Develop a preferred vision of the future.
5. Develop goals and objectives for the plan and each plan element.
6. Develop the plan.
7. Evaluate the plan and modify accordingly.
8. Adopt the plan.
9. Implement the plan according to a schedule.
10. Monitor the plans impact, determine the plans effectiveness and make adjustments.

Figure 11. Bringing the plan to life

1. Adopting the plan
2. Implementing the plan
3. The official map 15.2-2233 (discretionary)
4. The capital improvements program 15.2-2239 (discretionary)
5. The subdivision ordinance 15.2-2240 (mandatory)
6. The zoning ordinance 15.2-2280 (discretionary)

Section 15.2-2280 (Figure 12) defines zoning as a legislative process by which a locality identifies or classifies land within its jurisdiction into discrete districts. In your local zoning ordinance, for example, you might have several residential districts. You might have planned commercial, business, and industrial districts. Each district regulates land use, building placement, and building density. The authority to zone is derived from the police power, and it is a discretionary authority. Zoning ordinances must feature a map as well as a text. The zoning ordinance is a powerful tool for plan implementation because it is the means by which we actually regulate land use. The plan is a projection of what we hope to see in our community. However, the pretty colors on the land use map will not happen unless we have a zoning ordinance. Zoning is the way we bring the land use map to life.

Figure 12. The zoning ordinance: 15.2-2280

1. Zoning is a legislative process by which a locality classifies land within its jurisdiction into districts.
2. Authority for zoning is discretionary.
3. Zoning regulates the use of land, the size and location of buildings.
4. Zoning derives its authority from the police power.
5. A zoning ordinance must feature a map and a text.
6. The zoning ordinance is a powerful tool of plan implementation.

Managing agriculture and growth through planning and zoning practices is a viable and potentially beneficial exercise. Our very brief journey through the planning and zoning maze suggests a couple of broad generalizations. First communities can plan for tomorrow today. The code not only sanctions planning (15.2-2200), it clearly and forcefully articulates the purpose and scope of planning (15.2-222 through 2232).

Second, the code makes clear that zoning is a permissible and legal activity (15.2-2280). Further, the code artfully links the purposes of zoning (15.2-2283) (Figure 13) back to the comprehensive plan (15.2-2200). Finally, the criteria to be considered when developing zoning districts (15.2-2284) (Figure 14) plainly suggests that zoning, when linked to the goals and policies featured in the comprehensive plan, creates a powerful bond and defensible public policy which a locality can use to the collective benefit of the community.

In many respects, the issue facing local governments across Virginia is not whether we *can* plan, but rather on our capacity and community *will* to plan. Agriculture and growth can coexist. Prudent, equiitable, and fair planning and zoning practices will make such a future possible. Our challenge is to make the future happen.

Figure 13. Purpose of Zoning: 15.2-2283

1. To provide for adequate light, air, convenience of access and safety from fire, flood, crime, and other dangers
2. To reduce or prevent congestion in the public streets;
3. To facilitate the creation of convenient, attractive, and harmonious community;
4. To facilitate the provisions of adequate police and fire protection, disaster evacuation, civil defense, transportation, water, sewerage, flood protection, schools, parks, forests, playgrounds, recreational facilities, airports, and other public requirements;
5. To protect against destruction of or encroachment upon historic areas;
6. To protect against the overcrowding of land, undue density of population in relation to existing or available community facilities, obstruction of light, air, danger and congestion in travel and transportation, or loss of life from fire, flood, or panic;
7. To encourage economic development activities that provide desirable employment and enlarge the tax base;
8. To provide for the preservation of agricultural and forestal lands and other lands of significance to the natural environment;
9. To protect approach slopes and other safety areas of licensed airports; and
10. To promote creation and maintenance of affordable housing and to protect surface water and ground water.

Figure 14. Criteria to be considered in drawing and applying zoning ordinances and districts 15.2 – 2284

1. The existing use of character of property;
2. The comprehensive plan;
3. The suitability of property for various uses;
4. Trends of growth or change;
5. Current and future land requirements as determined by population, economic and other studies;
6. Requirements for transportation, airports, housing, schools, parks, playgrounds, recreation areas, and other public services;
7. The conservation of natural resources;
8. The preservation of flood plains;
9. The preservation of agricultural and forestal lands;
10. The conservation of properties and their values; and
11. The encouragement of the most appropriate use of land throughout the county or municipality.

Tools and Incentives to Manage Agriculture and Growth

Jesse J. Richardson, Jr.

I am a lawyer. I was born and raised in Frederick County and basically lived there all my life. I have seen a lot of changes in Frederick County and in Virginia. In Frederick County, we are about 70 miles from Washington, D.C., and I like to say we are about 300 miles too close. When we talk about "foreigners" or "immigrants," we are talking about people from northern Virginia who move into Frederick County. I was in Albania for a month in the beginning of the year and when I came back I said, "Gosh, I felt right at home there." People thought that was kind of strange. But then I explained Albania is a land of great natural beauty and man-made disasters, just like Frederick County. I think what Mike was talking about with planning is very important to prevent man-made disasters in the great natural beauty we have in Virginia. Preserving the landscape is a hot issue. In the November 8, 1998 edition of the *Los Angeles Times,* I found this story:

> In all the startlement over the Democratic resurrection last Tuesday, no one much noticed the passage of Measure B in Ventura County. Maybe we should have been paying closer attention. This initiative amounts to a sizable revolution in Southern California.
>
> In effect, the citizens of Ventura declared that half a century of rape and pillage by land developers had come to an end, at least in their county. They stripped the Board of Supervisors of the power to approve new subdivisions on land zoned for open space or agriculture. They reserved that power to themselves. In the future, any such proposals would go on the ballot.

In Ventura, California, if a farmer wants to change the use of his land, he has to put it to a vote. The enabling authority does not allow that in Virginia; it is not going to happen here. I would not see the state allowing the change either. We are assuming, at this conference, that preserving open space and agricultural land is desirable—something that we want to do. If you start with that assumption, land use really means property rights. When we are preserving open space through agriculture, property rights come down to really one question—Who pays? The original title of my talk was "Financing Growth." You might have come in and said, "I'm getting cheated because he is talking about something else." But the question is who should pay? I am going to talk about two rules today, for each one a different person or group of people is going to pay. Depending on who we choose, the financial burden—and there is a financial burden—is going to fall on a different group of people. Where that burden falls is important.

We learned this morning the free market is not enough (Figure 1). If we leave it to the free market, we are not going to have open space and agricultural land. The first question is what can we, as local governments, do? What is within our power to do? Mike asked how many people had read your comprehensive plan; I want to ask how many people have read the Constitution in the last ten years? I make the students in my class read the U. S. Constitution and the Virginia Constitution at the beginning at class. They are shocked at what they find in them. Their response is, "Wow! Now I know how all this works, now I know why it is—the Constitution says it is that way." You must start with the Constitution. It says the powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the States or to the people. One of those powers is police power. Police power is the power of states to legislate for the health, safety, morals, and general welfare of the citizens. Health, safety, morals, and general welfare of people: I have that memorized, I have said it so many times. When you are zoning and planning, health, safety, morals, and general welfare is the power that you are acting on.

Figure 1.

- The free market is not enough. We need incentives and planning tools for agriculture and growth to coexist.
- First, What can local governments do on their own?
- The 10th Amendment to the *U.S. Constitution* states that, "The powers not delegated to the United States by the Constitution, nor prohibited by it to the states, are reserved to the States, respectively, or to the people."
- *Police Power*: Power of a state to legislate for the health, safety, morals, and general welfare of its citizens.
- Source of Power for local governments: Charter or enabling statute.

The source of power for local governments is their charter or enabling statutes. Here is another really interesting question—how many of you have ever read the charter for your city, county, or town? We have two—was it enjoyable? You need to read your charter because—and I do not want to mix church and state—if we say the enabling statutes are the bible for the localities, then what your charter says is God speaking. What your charter says is even more important than your enabling statutes. Most charters were written a long time ago and some of them say some really funny things. They give localities powers they do not know they have. If I can get you to go back and read your charter, I will have accomplished two things. You might find some really useful powers in it, and you will have no problem sleeping. Some localities in Virginia have powers that other localities do not have, and those powers can be very useful.

One reason you might want to preserve open space and agricultural land is the cost of community services. A number has been developed by various researchers, albeit some question as to how valid it is has been raised. This number calculates, for every dollar of tax revenue that social land use brings in, how much that land use costs the locality in services. The Farmland Trust webpage uses Clarke County, Virginia as an example. According to the American Farmland Trust, for every dollar of taxes that commercial and industrial property brings in for Clarke County, the County spends only $0.21 in services. The county makes $0.79 per dollar of taxes as clear profit to subsidize something else. Farming and forestland in Clarke County is an even better bargain—$0.15 in services for every dollar in taxes that it brings in. Then residential—for every dollar in taxes that residential use brings in, it *costs* the county $1.26 in services. Again, these numbers might be questioned by some, but you get the general idea. I know Frederick County, Virginia, right now has a good group of people who are doing a good job. In the past the attitude seems to have been—bring on the houses, the more houses the more money we make. Once you start building schools as fast as you can, you still cannot keep up, and things are not better, then maybe you begin to understand that houses are not so profitable.

I want to state Dillon's Rule clearly (Figure 2). I like to say the Dillon's Rule means the state is mommy and the localities are kids. You only do what mommy tells you to, and that is what Dillon's Rule says, ". . . a municipal corporation possesses and may exercise the following powers, and no others: First, those granted in express words; second, those necessarily or fairly implied in or incident to the powers . . .; third, those essential to the declared objects and purposes . . ." Essential does not mean convenient, it means *essential*. The last part of the rule is very instructive—if any doubt arises at to the existence of the power, the court has to look at it. If it is borderline, the locality does not have the power. If any doubt exists, it is resolved against the locality. Dillon's Rule is very important in Virginia, because that tells you what you can and cannot do. [1]

Figure 2. Dillion's Rule

Dillion's Rule: A municipal corporation possesses and may exercise the following powers, and no others:

First, those granted in express words;

Second, those necessarily or fairly implied in or incident to the powers expressly granted; and,

Third, those essential to the declared objects and purposes of the municipal corporation, not merely convenient, but indispensable.

Any fair, reasonable doubt concerning the existence of the power is resolved by the courts against the municipal corporation, and the power is denied.

What we can do and is being done, is special use taxation. Most of you know about special use taxation because it is a common tool (Figure 3). Farmland is taxed at its value for farmland and not at fair market value. Again, the effectiveness of this tool is debatable. Issues arise on both sides.

Figure 3. Tools and Incentives Presently Used in Virginia

(1) Special Use Taxation
(2) Agricultural and Forestal Districts
(3) Agricultural Zoning
(4) Right to Farm
  (a) Nuisance Protection—Constitutional?
  (b) Special Use Permits Not Allowed
(5) Agricultural Stewardship Act
(6) Proffered or Conditional Zoning
(7) Purchase of Agricultural Conservation Easements (Virginia Beach program) 3,737 acres; approx. $8 million
(8) Income Tax and Estate Tax Incentives for Conservation Easements

Most of you know about agricultural and forestal districts. They are voluntary programs where an individual farmer or forester or a group of farmers or foresters get together, designate the area as an agricultural or forestal district and certain limitations are placed on what they can do with their land. In exchange, they get special use taxation and certain other protections against nuisance lawsuits.

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[1] See Jesse Richardson, "Variation on 'Mother, May I?': Dillon's Rule," *Horizons*, 10:6 (Nov./Dec., 1998) for discussion of Dillon's Rule.

I think nearly every county in Virginia has agricultural zoning except in Bedford. They have a very unique zoning ordinance. Right now their entire county is in one zone. You have to apply for a permit for anything other than farming and single-family residential. They are trying to enact a more traditional zoning ordinance. This more traditional zoning ordinance proposes to place, I believe, 82 percent of the land in agriculture. It has been met by a lot opposition from citizens. The word I heard used was "vested rights." Vested rights is a term of art in the legal world. You have no vested rights in your zoning classification: it can be changed. Different standards can be applied. We do not really know in Virginia what standards apply to rezoning. It seems if you down-zone the property, the Maryland rule would apply, which means you can only down-zone property if you made a mistake the first time and you are correcting the mistake or if a change in circumstances surrounding the land to be down-zoned has occurred.

Agricultural zoning is one thing you can do to protect farmland. Again, it comes down to who pays. Who pays is the question in Bedford County. If they want to reserve 82 percent of the land for agriculture, who is going to pay for it? Do you put it on the backs of the farmers or do you spread it out over the whole county? You might ask a farmer if he has a 401K program or retirement plan. "I sure do," he will reply, "you are looking at it, right out the window." They rely on their farmland to provide their retirement. If, for example, Bedford County, and I know Montgomery County is doing something similar, were to change the zoning ordinance to reduce the number of houses farmers can put on their property, the county has just reduced their retirement benefits. The question is, like the flaming arrows, "Can they do that?" The answer by lawyers is always one of three things: maybe, it depends, or I don't know. You get charged according to the number of words. Only $150 for maybe; $250 for I don't know. It does depend on each circumstance whether it can be done or not.

The Right to Farm Act is a hot issue right now. Virginia has two of them. One of them is very unique. As far as I know we are the only state with one like this. It says that if the operation is located in an agricultural zone, you cannot require a special use permit anymore. What had happened in the past, and mostly with hog farms, was that localities were requiring special use permits. Hundreds of people would show up for public hearings for the special use permit application, and the Boards of Supervisors or Town Councils would deny the permit based on the public pressure, even though in the land use plan, the requested use was entirely appropriate for that location. But the people had said no, and the Board of Supervisors followed that. You cannot do that anymore. If you have any regulation in an agricultural zone, it has to be up front. You can have reasonable restrictions and setbacks and so forth.

Nuisance protection means that as long as the farm is operated properly, you cannot be sued as a nuisance. That protection has been declared unconstitutional in Iowa, of all places. The Iowa supreme court said that by saying your neighbor cannot sue you as a nuisance as long as your farm is properly operated, you have just taken your neighbor's private property right without just compensation. I have spoken to the attorneys involved in that case. They are considering whether to appeal to the United States Supreme Court. But the case casts doubt on whether nuisance protection is valid. A footnote to that case, the defendant farmer was a hog farmer, I am sure you predicted that. Do you know who sued the hog farmer? Another hog farmer, right across the road.

Virginia Beach has a unique program you may hear a little more about later. Virginia Beach is now actively seeking to buy the development rights from farmers, that is to purchase the agricultural easements. Perhaps the farmer can build one house per acre on his farm. Virginia Beach is saying we will pay him/her $X and put a conservation easement on the property, which means he/she cannot develop it, his/her children cannot develop it, and anyone he/she sells it to cannot develop it. He/she is selling his/her development rights. Property rights are a bundle of sticks. One of the sticks is the right to put houses or other buildings on it. Virginia Beach is buying this right. They have bought the development rights on 3,737 acres, and it is costing them approximately $8 million. Again, we go back to who paid for that? They added 1.5¢ per hundred to the real estate tax and imposed a cell phone tax to pay for this program. My understanding is they have a lot of other acres in the mill to be dealt with. It is a fairly popular program. Farmers are participating in the program because they do not have to pay for it; they are being compensated for their development rights.

Some income tax and estate tax incentives for donating conservation and selling conservation easements are used. I do not want to get into them, except to say they exist.

I added one other technique that is being used: cluster zoning. Again, the debate as to whether cluster zoning is effective as a means of preserving farmland goes on. Assume a farmer owns 100 acres, under the existing law he/she is allowed to put one house per acre. Under cluster zoning, the farmer can still put 100 houses on that parcel, but the houses have to be grouped together with open space preserved on the parcel. This program is a voluntary program in Frederick County. From anecdotal evidence and observation, it seems to be working in one sense: the open space in these subdivisions is generally being leased or purchased by farmers. They are putting hay or cattle on it. But we have run into one problem, the neighbors in the subdivision do not like it when the farmer spreads manure or sludge.

Circuit breakers arebasically a tax credit in certain circumstances (Figure 4). Transferable development rights (TDRs) are different from the purchase of development rights like the Virginia Beach program. TDRs have a target zone and a preservation zone. The preservation zone says landowners cannot build houses on their properties any more. But the landowners get a piece of paper giving them X number of development rights which they can sell to someone in the target zone. We do not have enabling legislation for this program. Again, who pays? The taxpayers do not pay; the farmers do not pay; the developers pay, presumably. The biggest TDR program in the country, I believe, is in Montgomery County, Maryland, and it began in the 1970s. Again, reviews are mixed. Some people say it is the greatest thing since sliced bread; 25 years later, other people are beginning to doubt its validity. Frederick County, Maryland, just north of Montgomery County, has now developed all around the farmland leaving isolated pockets of farmland that in some cases are not viable as farms any more. But the development rights have been sold, so that all one can do is farm it.

Figure 4. Tools and Incentives Not Presently Used in Virginia

(1) Circuit breakers
(2) Transferable of Development Rights (TDR's)
(3) Smart Growth (Maryland Model)

I will close with smart growth. Maryland has enacted smart growth at the state level. If we are going to get it, it will be at the state level, too. Basically, smart growth says we want to have development where we already have development—like Baltimore and Frederick, and areas that are preserved now, we want to keep green and preserved. They have a purchase of agricultural conservation easement program where some of the money comes from the state, some from the locality. They have a really unique program that if you buy a house near where you work and the employer is a participating employer, your employer gives you $1,000, the state gives you $1,000, and the locality gives you $1,000 toward your closing costs. The aim of smart growth is to keep sprawl from developing. It lets you put development in urban centers and keep the outside part as farmland. Then we do not have the commuting problems, nor do we have a lot of other problems. That seems to be the wave of the future. Whether it will come to Virginia or not, is an interesting question. I do not know the answer.

Preserving Farmland: A National Imperative

Mary Heinricht

This conference raises the question, "Can agriculture and growth coexist?" This question is posed, of course, because of the competition for land that communities are experiencing. Nationwide, farm and ranch lands are feeling most of the pressure. People want to build homes on farmland, others want to create riparian buffers strips on farms, some want to mine it, and some people actually still want to farm it. One of the key components of the "smart growth" initiatives you are seeing around the country is to design programs and communities where farming and development can coexist.

What was once an issue discussed mostly in just the eastern and western states—farmland preservation—is being discussed in all states, even those which do not seem to have the same development pressures. One reason is that we have so radically changed our patterns of settlement—while populations may only be growing at 2 or 4 percent—land consumption to accommodate new homes is increasing by up to 45 and 50 percent.

The good news is that almost every state is doing something to protect its farmland. Some, like Virginia, are convening conferences like this one to share ideas and explore possibilities. I commend you for coming together today, and I am very pleased to participate in the discussion. Communities are beginning to recognize the multiple values of farmland, and Virginia must do the same. It will set the tone for how the farmland protection initiative progresses. I would like to spend the next few minutes discussing eight important values with you.

The most obvious value of farmland is that most of our food comes from farmland. But many people do not realize how much of our food comes from the threatened farmland in urban edge communities. American Farmland Trust completed a study called *Farming on the Edge* in 1997, which identified the areas of the nation's agricultural assets—the best soils—which are experiencing the most development pressure. The Piedmont Region is the second most threatening agricultural region in the country. Approximately half of our nation's food comes from urban-edge communities, including 75 percent of the fruits and vegetables produced domestically.

A less obvious value of farmland is that it helps protect our water supplies. In 1996, New York City recognized this value when it was ordered by the Environmental Protection Agency to build a new $5 billion water filtration plant or to develop another approach to cleaning up its water supply. They chose to invest $300 million in a farmland protection program for the New York City watershed. Money is now available to purchase agricultural easements and to help farmers develop Best Management Practices for their land. The city recognized that farmland is considerably less detrimental to the environment than residential development.

Farmland is important because it provides habitat for numerous species, some of which are endangered or threatened. Recognizing that important value of farmland, the Maryland General Assembly created a program in 1997 that will allocate about $30 million per year, for 15 years, to permanent protection of farmland. This money has to be used for farmland that is important from a natural resource perspective, like farmland with critical species habitat.

Communities are recognizing the economic value of farmland. Specifically, farmland more than pays its way in tax revenues, while residential development places a drain on local budgets. This point has been proven over and over in all of the 40 plus Cost of Community Services studies completed by American Farmland Trust and other groups. The American Farmland Trust does not want to discourage growth. Growth is good and it is necessary. But because the fiscal and other benefits of farmland are so important, we think communities should try to save their best farmland, allowing growth on more marginal lands.

Farmland is worth protecting because it contributes to the economy. Farming is a huge industry providing jobs and product. Duchess County, New York panicked when IBM, which had been its largest employer, decided that they would leave the county. As the county regrouped and tried to figure out what new industry they could attract to their region, people in the county began to realize that they already had an industry there—agriculture. It is their number one industry, and they have put a number of programs in place to protect it.

There are also the social, cultural, and historic reasons for saving farmland. They are very hard to quantify, and they may have different significance in different regions. Last are the aesthetic reasons to save farmland. Most people love to look at farms. The president of American Farmland Trust, whose family owns a beef cattle farm in Marin County, California, has told us that half-acre lots down the road from his farm are selling for $1 million per acre, in large part because people benefit from the beautiful view his land provides.

We all need to do a better job at marketing these farm assets. The better our marketing, the more proponents of farmland protection we will have, and more proponents will make it easier to move to the next step: creating and implementing an effective farmland protection program.

An effective farmland protection program will result in a better quality of life for nonfarmers. Perhaps more importantly, it will make it easier for farmers to do what they love: farm. It will not solve all of their problems; it will not change the weather or international markets; but it can stabilize the land base. Stabilizing a large enough land base will make it easier to encourage agricultural support services like tractor and feed dealers not to close up and leave town. A stable land base is needed to ensure that farming will not be costly. A land protection program can help lower inheritance taxes and keep land affordable. A stable land base will help make farming less risky because farmers will not have to contend with complaints from nonfarming neighbors.