the Economic Position of Virginia Agriculture 2001

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THE ECONOMIC POSITION OF VIRGINIA AGRICULTURE

The overall purpose of the Rural Economic Analysis Program (REAP) in the College of Agriculture and Life Sciences at Virginia Tech is to conduct economic analysis and provide information to help guide long-range planning in Virginia's agricultural and rural economies. As the idea for an earlier "economic summit" grew and matured during the planning processes, REAP staff could see the possible benefits of a publication looking at the economic position of Virginia agriculture, and this is the third of such periodic efforts. It is important, however, that it be clear who is responsible for the work. Any factual errors are my responsibility since I have been the writer and overseer of the information collecting and presentation processes.

Moving beyond the factual data, I have, with some input from colleagues and reviewers, attempted to pinpoint important economic forces at work that will shape the agricultural sector in the year 2005 and beyond and identify important state-level issues that will be present for each commodity or each sub-sector. Obviously, the listings and the coverage are not exhaustive. Inferences are being drawn with regard to economic forces and policy issues, and not every reader will necessarily agree with my assessment. I accept that fact of life and I accept responsibility for the inferences that are drawn in the publication. The publication will, I believe, contribute to what is known and to the dialogue and discussions as we plan for the future and consider various policy prescriptions at the local, state, and national levels. It is offered with that purpose in mind. Feedback, input, and/or questions to the REAP program are always welcome.

The reader will note some data as recent as 2001. January 1, 2001 inventories of cattle, for example, are now available. Other data, especially cash receipt data, are sometimes 1999 at the latest. Final data on farm receipts for some commodities lag almost a year as the crops are sold throughout the year and data are accumulated. The mix you see here is, perhaps, the best mix we can offer to update the series and keep it complete.

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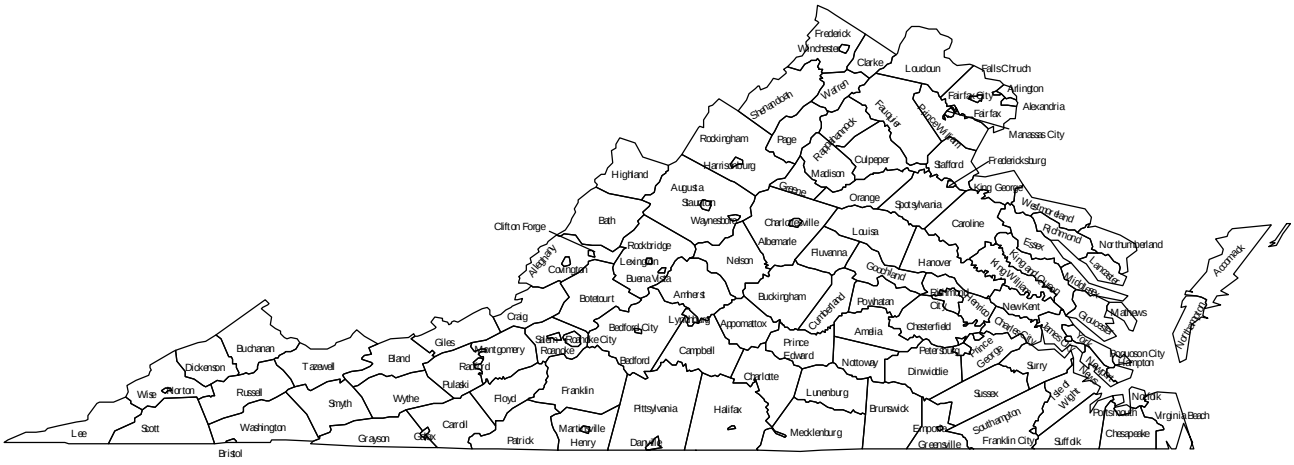
COMMODITY SECTION

Introduction

In this commodity-oriented section, major Virginia agricultural commodities are described graphically and placed in context within Virginia and within the U.S. On pages 2 and 3, Virginia's "top 10" commodities are highlighted along with a "top 20" listing in the U.S. for Virginia. On the subsequent pages, page 4 and forward, the important agricultural commodities in Virginia are treated separately and in some detail. Cash receipts and the commodity rank in Virginia are shown, and each Virginia commodity (where possible) is rated in terms of relative importance in the U.S. farm economy. Trends in acreage and/or production across recent decades are shown for Virginia and for the U.S.

A map of the state shows top producing counties. In some commodities, certain data are available for years as late as 2000 or 2001. In others, the most recent county-level data are from the 1997 Census of Agriculture. A map with counties shown by name is at the bottom of this page for reference purposes.

On the "facing" page for each commodity is a brief narrative which traces past and present for the commodity and looks ahead for the commodity in terms of expected viability, growth, or reductions in relative importance. In this narrative, the focus of attention is on the basic economic forces and/or federal and state policy issues that have been and will be important in determining the competitive position of Virginia in a regional, national, and international marketplace. Given the uncertainties with regard to farm policy, government subsidies, and the international marketplace in the presence of NAFTA and GATT, this process of identifying key economic forces is becoming more difficult--and more important--with each passing year.



Virginia's Top Agricultural Commodities

Virginia's agriculture is broad and diverse. No one commodity or commodity grouping dominates, and Virginia does not dominate the U.S. scene in any single commodity.

Cash receipts for Virginia agricultural commodities exceed $2 billion annually in recent years. This amount is the starting point from which to calculate the economic impact of agriculture. When the directly-related processing, storage, and distribution activities in the agribusiness community are added, the economic impact--depending on the commodity--will be much larger than the cash receipt measure. The REAP publication *The Economic Impact of Agriculture in Virginia* estimates 10 percent of jobs in Virginia and 11.2 percent of economic activity (gross state product) in Virginia is attributable to agriculture.[1]

In percentage terms, the tables on page 3 show that Virginia produces the largest share of U.S. production in peanuts, tobacco, turkeys, and potatoes, with over 6 percent of the U.S. totals. In some commodities--tomatoes, for example--Virginia's rank in the U.S. is quite high (3rd), but Virginia only produces slightly over 4 percent of the crop. The number 1 state, California, dominates the sector in importance.

Considered within a context of nationally important commodities and a significant role for Virginia, not all of the "top 20" commodities in Virginia are adding all that much to Virginia's agricultural economy. The commodities or commodity sectors that clearly do seem to belong, when considered in this broader context of importance at the state and national levels, in alphabetical order, would be:

Apples
Beef cattle
Broilers
Dairy
Peanuts
Potatoes
Tobacco
Tomatoes
Turkeys

All of these nine commodities have significant volume in the state and significant dollar values at the state and national levels. It is, therefore, the group that makes a major contribution to the state economy. In the future, we can expect to see greenhouse and nursery increase in importance in the state and at the national level. The equine industry may be poised to move to a position of importance, but the absence of specific data makes it difficult to examine its economic impact. There will be new "players" appearing in this economic game as Virginia agriculture and agribusiness adjusts to a changing marketplace at the state, regional, national, and global levels.

[1]R. David Lamie. *The Economic Impact of Agriculture and Ag-Related Industries on the Commonwealth of Virginia*, Publication 448-233/REAP 035, 1998.

Virginia's Top 10 Commodities

Commodity	Cash Receipts in 1999 ($1,000)	Rank
Broilers	473,976	1
Cattle & Calves	324,546	2
Milk	292,648	3
Turkeys	220,752	4
Greenhouse & Nursery	170,731	5
Tobacco	155,883	6
Peanuts	59,983	7
Soybeans	51,137	8
Eggs	62,319	9
Tomatoes	41,496	10

Virginia Commodities Ranking in the Top 20 in the U.S.
Based on 1999 Production or Inventory

Commodity	Rank	% of U.S. Total*	Total Value, U.S. ($1,000)	Number of Producing States
Tomatoes	3	4.18	1,833,529	20
Tobacco	4	6.87	2,272,785	16
Turkeys	4	7.57	2,835,389	33
Peanuts	6	5.70	972,155	9
Apples	6	3.40	1,414,172	35
Sweet Potatoes	8	0.78	208,625	10
Broilers	9	3.22	15,129,121	33
Potatoes	10	5.57	2,698,042	14
Peaches	11	0.60	462,534	30
Barley	13	1.75	535,449	27
Cotton	13	0.84	4,695,904	17
Rye	15	2.47	23,344	21
Soybeans	20	0.45	11,922,206	30
Beef Cows	20	2.04	n/a	50
Milk Cows	20	1.34	n/a	50

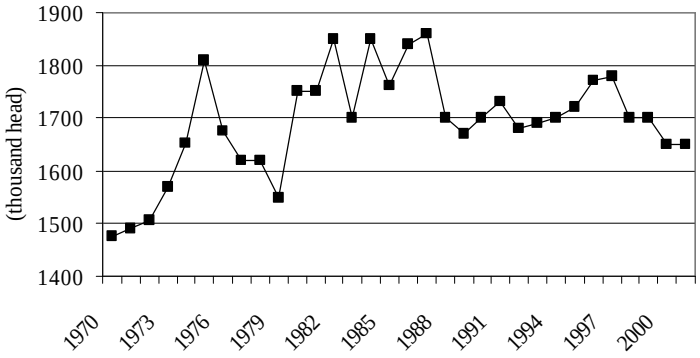
*Percentages of U.S. Total for beef cows and milk cows are based on January 1 inventory numbers.

Cattle and Calves

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$414,905	$324,546
Commodity Rank in Virginia	1st	2nd
Receipts in U.S. (1,000s)	$36,429,167	$36,521,670
Virginia's Rank in U.S. (based on inventory numbers)	19th	21st

TRENDS IN INVENTORY NUMBERS

Virginia



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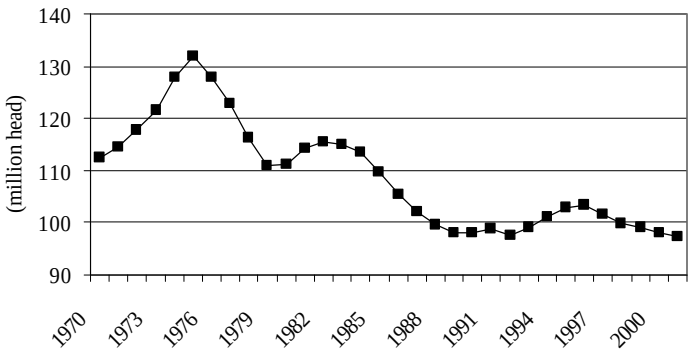
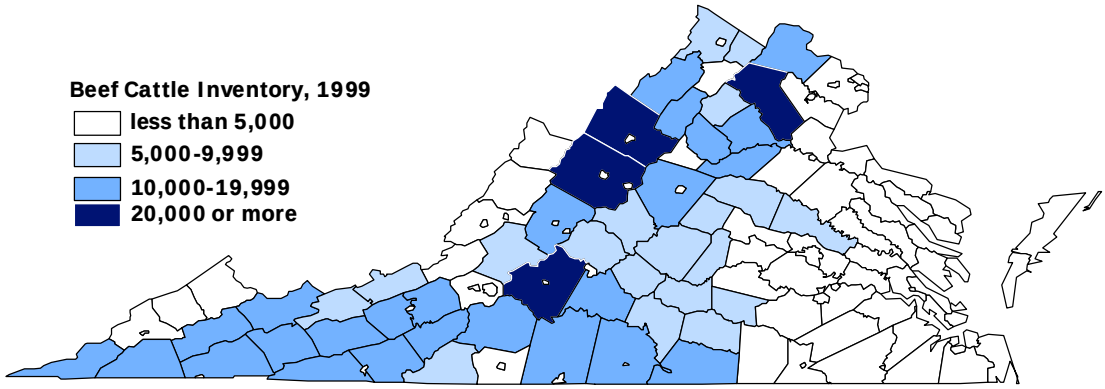


PRODUCTION LOCATION IN VIRGINIA



Cattle and Calves

Past and Present

At the U.S. level, beef cattle dominate the total cattle inventory. Total January 1 numbers peaked historically above 132 million head in 1975 and then slipped to just above 95 million in 1990--back to levels of the early 1960s. In 2001, inventory numbers at the U.S. levels are declining but the sector is poised for a cyclical expansion in numbers that could last to 2005 and beyond. A significant decrease in consumer-level demand for beef starting in the late 1970s and accelerated through the 1990s. Consumers would take the same quantity of beef only at lower inflation-adjusted prices, which is, with relative prices of substitutes and consumer incomes increasing, a sure sign of decreased demand. The price pressure rippled down through the system, with middlemen protecting their margins and producers feeling the pain as prices were pushed lower. The reduction in the beef cow herd exceeded 12 million head, the equivalent of over 300,000 average-size (around 40 cows) producers. Demand bottomed in 1998 (see www.aaec.vt.edu/rilp for demand indexes) and increased 10 percent by mid-2001. Check-off programs to stimulate new product development and processor investments, by small and large firms, to modernize the fresh beef offering and surging exports have helped boost demand.

Virginia's beef cattle sector has fared better than that of the United States. Cattle and calves ranked second in farm-level receipts in the state with over $324 million in 1999. Many of the beef cows in Virginia are held by producers with off-farm employment, and we have many acres of grassland and forage that can only be harvested by cattle or sheep. These two characteristics of the Virginia industry buffered the national declines. Progressive marketing programs by the Virginia Cattlemen's Association, Virginia Cooperative Extension Service, Virginia Department of Agriculture and Consumer Services, Virginia Farm Bureau, and other groups have helped to keep Virginia's industry viable.

Looking Ahead

At the national level, the coming growth in industry size will not be sustained unless demand is sustained. The "check-off program" has helped, but weakness persists and beef's share of the meat market in the year 2005 is likely to be smaller than it is today. Competition from pork and poultry will be strong. Virginia should fare better. We have a comparative advantage in Virginia in producing calves and feeder cattle over some other beef cow states. The concentration of production will continue in the northern Shenandoah Valley counties until development pressure starts to intensify, moving a still larger part of the total inventory to the southwestern region. Environmental issues will become more important statewide as we correctly start to think about surface water pollution and deal with policies and regulation that are likely to start to limit cattle open access to streams.

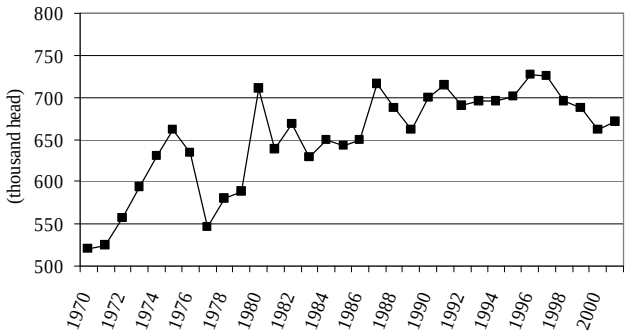
Virginia's beef cattle industry can face a bright future. Beef cow and stocker cattle programs can be partners in environmentally sound forage programs, and the state has a history of supporting research and education in production and marketing. This progressive "edge" can help sustain Virginia's industry even if further losses in market share are suffered at the national level. Calf prices above $1.00 are expected to be the norm for the next 3-4 years--assuming no huge increase in corn prices.

Beef Cows

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	--	--
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	--	--
Virginia's Rank in U.S. (based on inventory numbers)	18th	18th

TRENDS IN INVENTORY NUMBERS

Virginia



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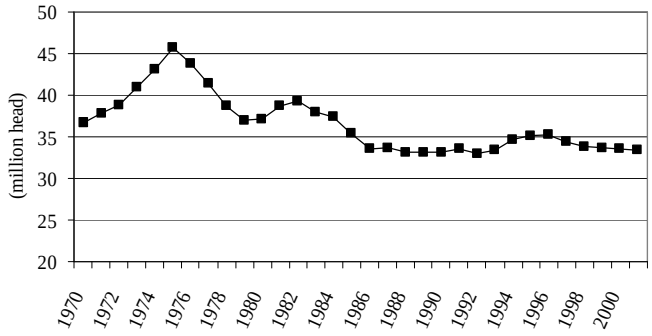
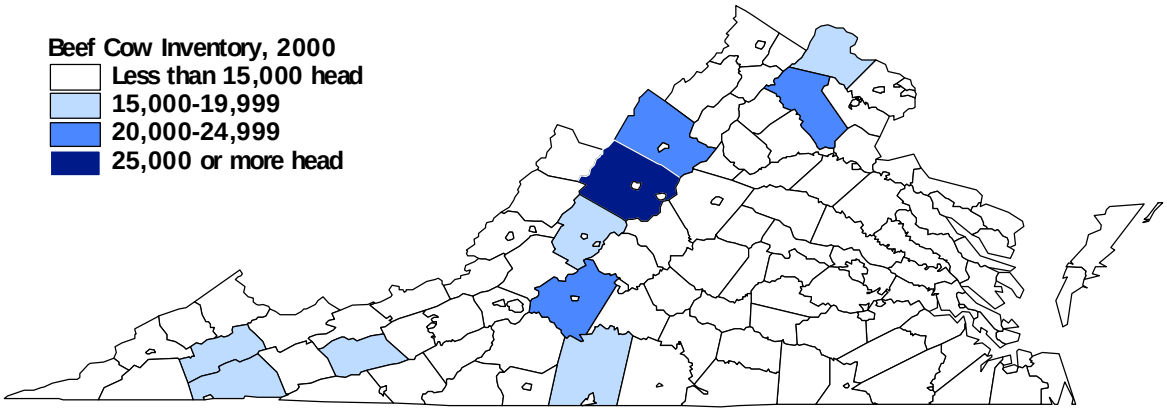


PRODUCTION LOCATION IN VIRGINIA



Beef Cows

Past and Present

Beef cow numbers show the dramatic downsizing since 1975 in the U.S. even more clearly than the total cattle/calf numbers. Average herd size in the U.S. is below 40 cows. The decline of over 12 million cows is, as noted earlier, the equivalent of over 300,000 average-size producers being forced out by the self-correcting forces of the marketplace as the industry downsized. Growth in the herd through 2005 will be at a very modest rate. The size of the emerging expansion will depend on what happens to demand. If the demand increases of recent years continue, the inventory numbers can move above 100 million again and stay there. It is demand at the consumer level that determines the size of the beef herd that can be maintained, and the size of the beef cow herd ultimately determines beef production, per capita supplies, and market share.

Looking Ahead

The size of the beef cow herd will depend on whether the national sector can continue its demand building of recent years. Private investments must continue and the beef check-off program, which is being challenged, needs to continue to serve as support and as a catalyst to new product development. In Virginia, local and state-level policies on land-use taxation and state policy on environmental issues will be important. Beef cow programs can be consistent with environmentally sound and conservation-oriented land-use programs and with the "open space" wishes of Virginia residents from the Northern Valley and the Piedmont to the southwestern counties. Beef cow operations are also consistent with the many part-time farmers in the state. Overall, beef cow numbers in Virginia are likely to hold their own, but this could be a growth sector in the years 2002-2005 and beyond.

The future size of the beef cow herd in Virginia will depend on the extent to which the national industry can continue to increase demand. How consumers respond to the product offering determines the size of the industry in the long run. Virginia will face fewer problems maintaining numbers because of its comparative advantage in beef cow production on pastures and forage programs.

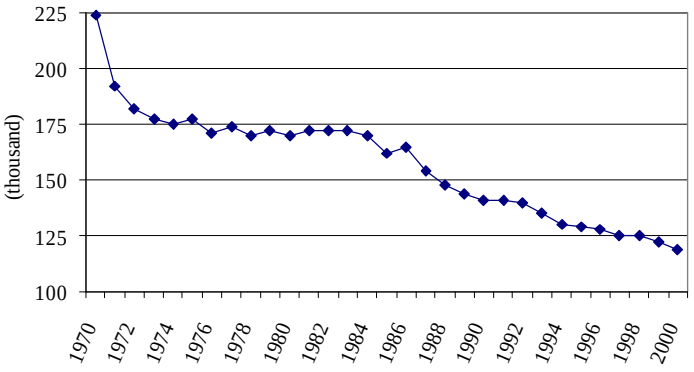
Milk Cows

CASH RECEIPTS AT FARM LEVEL

	1989	1999
Receipts in Virginia (1,000s)	(receipts and rank shown for	
Commodity Rank in Virginia	milk on next set of graphs)	
Receipts in U.S. (1,000s)	--	--
Virginia's Rank in U.S.	19th	20th
(based on inventory numbers)		

TRENDS IN INVENTORY NUMBERS

Virginia



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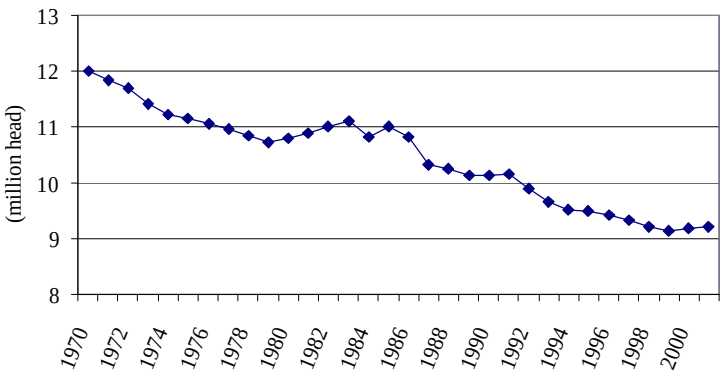
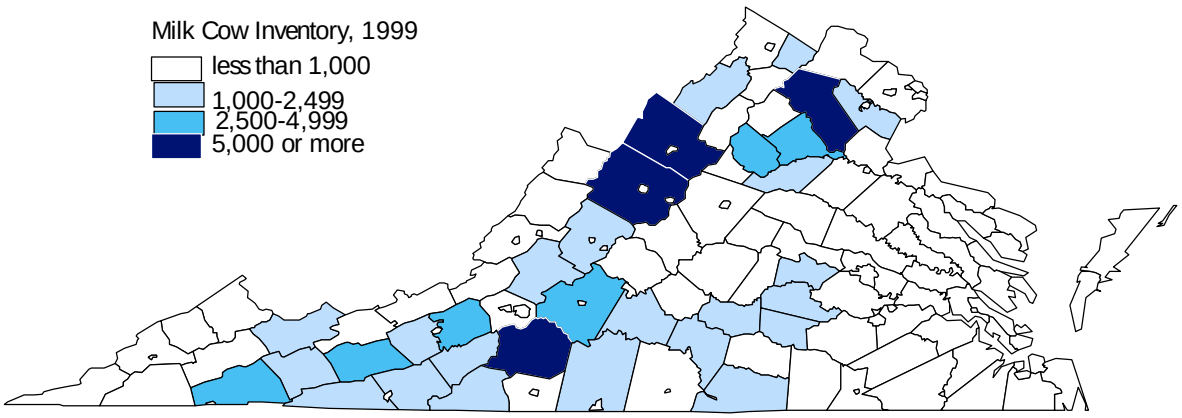


PRODUCTION LOCATION IN VIRGINIA



Milk Cows

Past and Present

The number of milk cows has decreased sharply at both the national and Virginia levels. Across the time period shown, cow numbers in the U.S. declined nearly 25 percent, and the decline in Virginia has been still larger. The decline in number of cows, especially at the national level, does not necessarily suggest a declining industry. Measures of milk production presented later (next page) indicate that production has gone up significantly across the 1970-2000 time period. There has thus been some increase in per capita consumption of total dairy products, but the demand picture does vary significantly. Demand for fluid milk has declined, especially for the 4 percent whole-milk product. Demand for butter and products that have an image of being high in either fat or cholesterol has declined. Interestingly, there are indications that aggregate demand for cheese, which also tends to be relatively high in fat content and cholesterol, has increased more than can be totally explained by the newer low-fat cheeses. In net, this is an industry that has not grown significantly at the national level, and the deeper cuts in cow numbers in Virginia suggest that Virginia is slowly becoming a less important player in the national dairy industry.

Looking Ahead

Cow numbers in the future will be determined primarily by federal policy. Perhaps even more importantly, location of the cows will be determined by federal policy. Dairy policy has a long history and a long tradition in the U.S. and will not be easily abandoned. There are likely to be federal policy provisions to ensure a relatively stable total dairy industry in the U.S. Exactly where that industry will be located could change significantly, however. In current farm bill legislation, the minimum support price for milk is $10.10 per hundredweight. If the Virginia price declines below roughly $12.00 per hundredweight and remains there, some Virginia producers will experience cost-price pressures. A study of Virginia's competitive position in a de-regulated dairy sector indicated Virginia prices would move down toward $12, perhaps lower, per hundredweight. Increased supply pressures are already resulting from growing dairy programs in areas like Georgia, California, Arizona, Texas, and New Mexico. With prices still usually above the $10.10 support, dairy producers are also facing the risks associated with volatile selling prices--a new problem for most. The dairy industry in Virginia is likely to decrease in size in the face of these economic realities unless policy changes that favor Virginia occur. Recent investments in processing capacity in the northern valley are a most positive development.

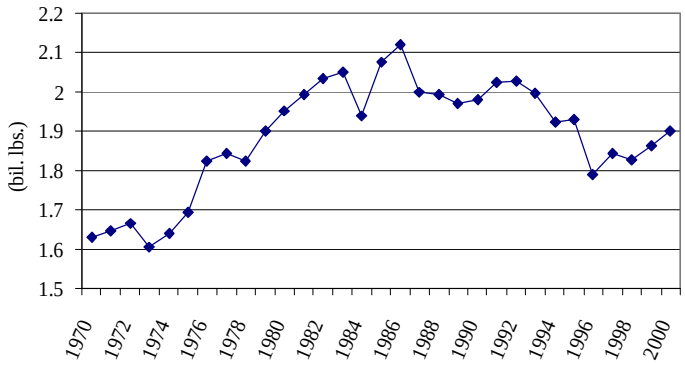
The key to the size of the dairy industry in Virginia is federal policy. If a policy position develops that allows milk prices to decrease from current levels and/or become even more volatile, competitive pressures across U.S. producing regions are likely to bring decreases in cow numbers in Virginia. But any state-level decline will not be abrupt. Major investments in high-tech processing capability in Virginia will offer an umbrella of protection for many Virginia producers for at least the next 10 years, and with new dairy futures as a price risk management tool, a well-managed and larger dairy farm in Virginia has a shot at profitability and sustainability.

Milk

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$279,740	$292,648
Commodity Rank in Virginia	3rd	3rd
Receipts in U.S. (1,000s)	$19,097,059	$23,203,987
Virginia's Rank in U.S. (based on production)	19th	19th

TRENDS IN PRODUCTION

Virginia



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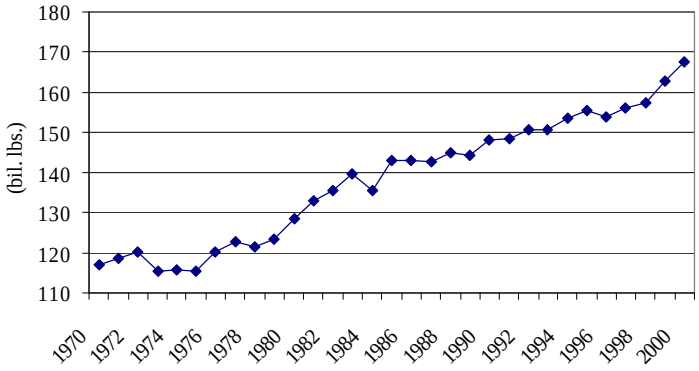
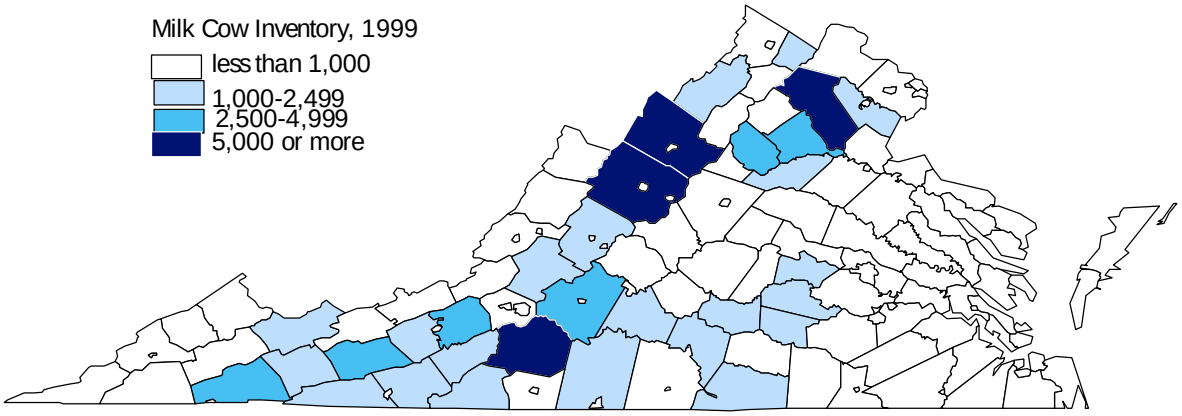


PRODUCTION LOCATION IN VIRGINIA



Milk

Past and Present

The production graphs reflect increased per-cow production and the strong impact of technology in milk production. There is a strong upward trend in total production in the U.S. This upward trend was halted only momentarily by the dairy buy-out program back in 1986. Production levels are important because they determined the extent of the surplus that the federal program bought and removed from the market prior to the 1996 legislation that started the industry toward deregulation.

The industry has been and is very important in Virginia, ranking third in cash receipts in 1999 with receipts of over $292 million. The flat production levels in Virginia since the 1986 dairy buy-out program reflect the relative popularity of that program in Virginia and the number of producers that did exit the industry. The plot of cow numbers shown on the previous page shows a substantial decline in cow numbers in Virginia from 1986 through 2000. Not apparent, however, is the fact that production per cow in Virginia has increased faster than at the national level. This is in direct response to the research and education programs in Virginia's research universities, especially Virginia Tech.

Looking Ahead

Milk production at the national and state levels will be influenced substantially by the farm program and by consumer-level demand for the product. Newer low-fat product innovations such as yogurt have helped the industry maintain a solid consumer base, and if such new products are developed in the future, there is no reason why the dairy sector cannot maintain its relative important status at both the national and the state levels. The future of Virginia is somewhat different than the future for the national sector, however, because regional relocation of production will accentuate as federal policy and world-level competition allow farm-level prices to decline toward the $10.10 per hundredweight support price and even lower if the support price is eliminated in 2002 and beyond. If that occurs, the industry is likely to continue to trend lower in Virginia, and production will shift to larger farms in Virginia and to other producing regions or states that may have a comparative advantage coming from the size of operation and from other dimensions of the production process. The "winners" in such a situation would likely be Georgia, Wisconsin, California, and the southwestern U.S. Countering the apparent cost of production advantages in some of these other states is Virginia's access to large consumer markets in the mid-Atlantic states.

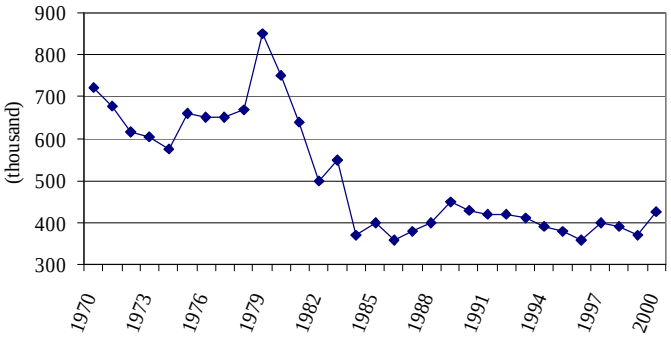
As suggested when discussing cow numbers, the future of the dairy industry in Virginia will rest squarely on the nature of the federal programs and the continued willingness or lack thereof to try to maintain price stability in the dairy sector. If federal program expenditures decrease, Virginia's dairy industry is likely to become smaller across the next decade unless state-level actions counter the national pressures. An example of such a state-level program would be public/private efforts to ensure a well-balanced and efficient production/processing/hauling infrastructure to keep Virginia's industry as competitive as possible. When and if the infrastructure disappears, production in some areas will disappear or the capacity will be relocated to areas with adequate hauling and processing.

Hogs

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$60,246	$40,882
Commodity Rank in Virginia	9th	11th
Receipts in U.S. (1,000s)	$9,769,822	$8,623,125
Virginia's Rank in U.S. (based on production)	20th	21st

TRENDS IN INVENTORY NUMBERS

Virginia



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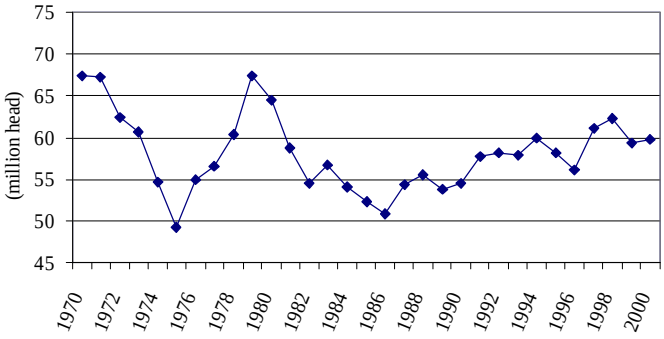
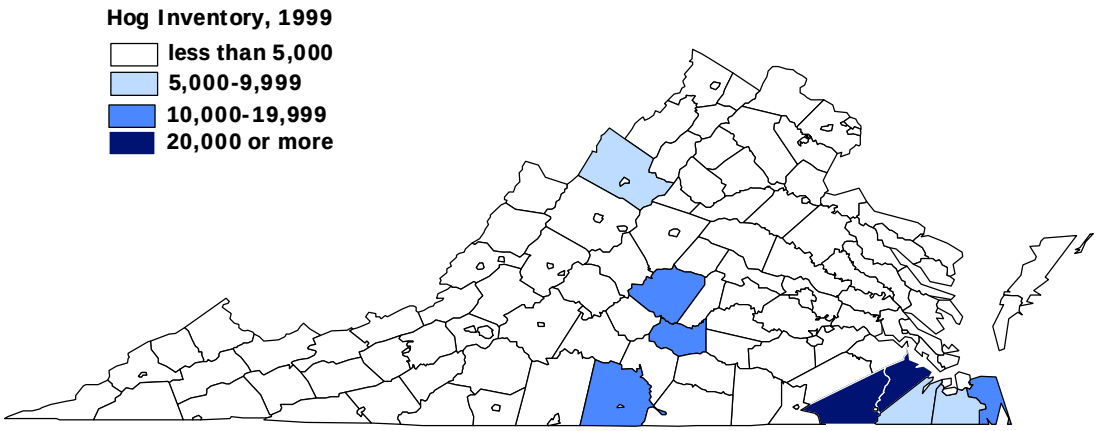


PRODUCTION LOCATION IN VIRGINIA



Hogs

Past and Present

The swine sector in Virginia rapidly lost status in the 1980s and 1990s and stabilized around 400,000 head. Pork experienced demand problems in the 1980-86 period, somewhat akin to those problems in beef, but demand for pork has now stabilized and is increasing (www.aaec.vt.edu/rilp). Hog numbers in Virginia are down over 50 percent from peak numbers in 1979, and that decline is in sharp contrast to the much smaller decline at the national level and the uptrend in national numbers starting in the mid-1980s.

Virginia and North Carolina produce for essentially the same market and face essentially the same circumstances in feedgrain production. Production capacity in North Carolina increased during the 1980s and into the 1990s, bringing some of the pollution and water quality concerns Virginia has been concerned about. A moratorium on new production facilities in North Carolina has been in place since 1997. The General Livestock Permit developed in Virginia in the late 1990s may allow new investments, but the environmental issues associated with concentrated livestock programs are very sensitive in the Commonwealth.

Looking Ahead

The future of the swine industry in Virginia will depend on two things: (1) a balanced process of environmental enforcement within the state, and (2) whether swine producers in the state recognize that the industry is moving toward large production units, both contract and independent, and choose to get involved in that type of production. The contract and large independent programs will import corn from the Midwest, but the experience in North Carolina shows that bringing in corn is feasible. At the national level, a number of large processors, some with a history in poultry production and merchandising, are moving into the pork industry. They are starting to control the genetics and the quality of the product all the way through the system. Quality control can mean that the swine sector at the national level can be even more competitive for market share in the future than it has been in the past. Whether Virginia will participate in this growth will depend primarily on state-level policies, the support for research in production and marketing, and industry attitudes toward contract production.

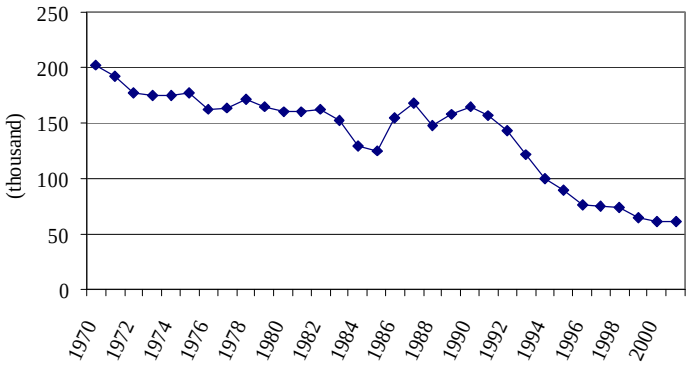
Virginia's swine sector faces an uncertain future. At the national level, the industry is expected to grow, but growth in Virginia is much less likely. State and local policies to protect the environment in a populous state, the process of permit approval at local levels, and producer concerns about large-scale and/or contract production could prove to be important determinants of industry size and makeup.

Sheep and Lambs

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$6,096	$3,141
Commodity Rank in Virginia	18th	21st
Receipts in U.S. (1,000s)	$487,164	$455,655
Virginia's Rank in U.S. (based on production)	19th	24th

TRENDS IN INVENTORY NUMBERS

Virginia



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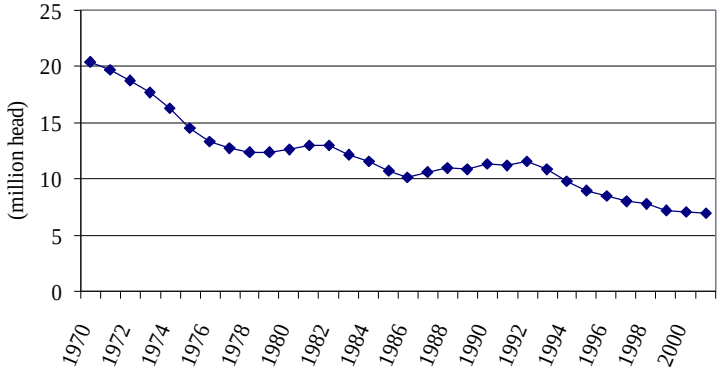
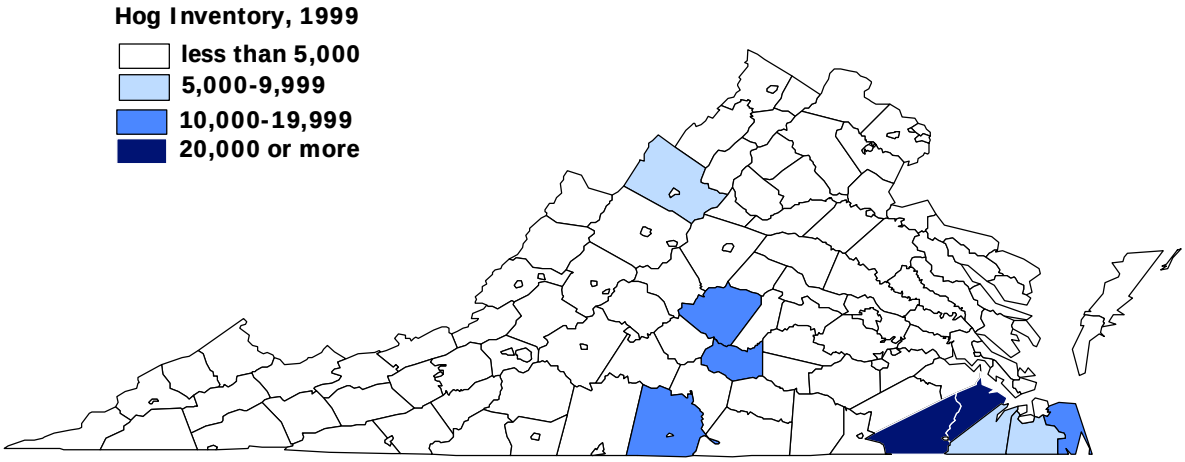


PRODUCTION LOCATION IN VIRGINIA



Sheep and Lambs

Past and Present

In many respects, the sheep industry in the U.S. is a mini version of the cattle sector. The size of the industry has decreased since the early 1960s, with numbers in the 1970-2001 period declining by about two-thirds. Major consumer-level demand problems for lamb have hurt the industry. Mid-1990s changes in farm programs eliminated the wool incentive payments. There are no clear indications at the national level that the demand-side problems for lamb have yet been solved. Investment in product and market development to help boost demand and secure the future of the industry continues to lag, and commercial production has declined sharply in the past 10 years.

The trend is similar in Virginia. There are many pasture and forage acres that are amenable to cattle or sheep production. But this has not sustained inventory numbers in Virginia at a more stable level than has occurred nationally. Virginia is also relatively close to strong ethnic markets in Washington, D.C., and surrounding areas. Nonetheless, Virginia numbers have declined from around 200,000 in 1970 to 61,000 in 2001. Virginia producers have had access to innovative marketing programs, including an electronic auction program developed in the early 1980s by Virginia Tech and VDACS. This program provides access to buyers from across the U.S. and has helped Virginia producers get competitive prices for their lambs. Decisions to maintain an extension specialist at Virginia Tech have helped ensure producer access to research and education programs and to the latest production technology.

Looking Ahead

Total numbers at the national level have fallen toward 7 million head. No developments on the immediate horizon suggest that this industry will return to a growth status. Some industry observers now believe that the lamb product needs to be treated and marketed as a specialty product. Others believe there are substantial niche markets in lamb involving direct-marketing programs, programs that have been investigated by Virginia Tech researchers and VDACS marketing specialists. With, at best, low expectations for any future growth at the national level, Virginia's industry is likely to continue near current levels or continue the downward trend of recent years.

The future of the sheep and lamb industry in the U.S. and in Virginia may rest squarely on whether lamb product offerings can be moved toward the preferences of the modern consumer and decisions on trade issues in world courts. The product is seen as relatively high priced, high in fat content, and inconvenient to prepare. All of these are major burdens at the consumer level. The willingness of commodity groups to solve problems internally appears to be as weak in the sheep and lamb sector as in any of the major national livestock sectors, and federal support for the industry via the wool incentive program is being decreased. In a late 1990s national referendum for the check-off program, producers killed the program and an important determinant of potential "self help" industry programs available to Virginia producers was eliminated by the negative vote. More recently, imports increased as domestic production declined, and it is not clear that protection against imports can or will be maintained. The sector faces an uncertain future.

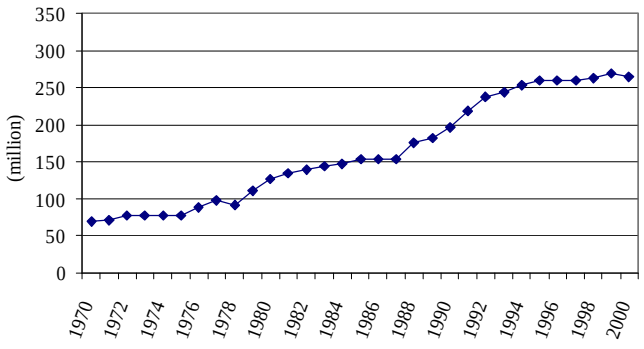
Broilers

CASH RECEIPTS AT FARM LEVEL

	1989	1999
Receipts in Virginia (1,000s)	$296,900	$473,976
Commodity Rank in Virginia	2nd	1st
Receipts in U.S. (1,000s)	$8,777,668	$15,129,121
Virginia's Rank in U.S. (based on production)	10th	9th

TRENDS IN PRODUCTION NUMBERS

Virginia



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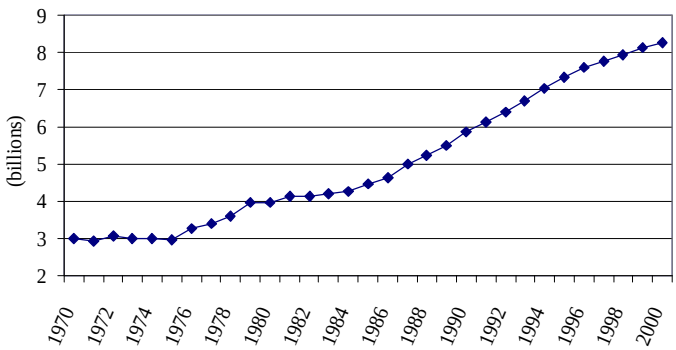
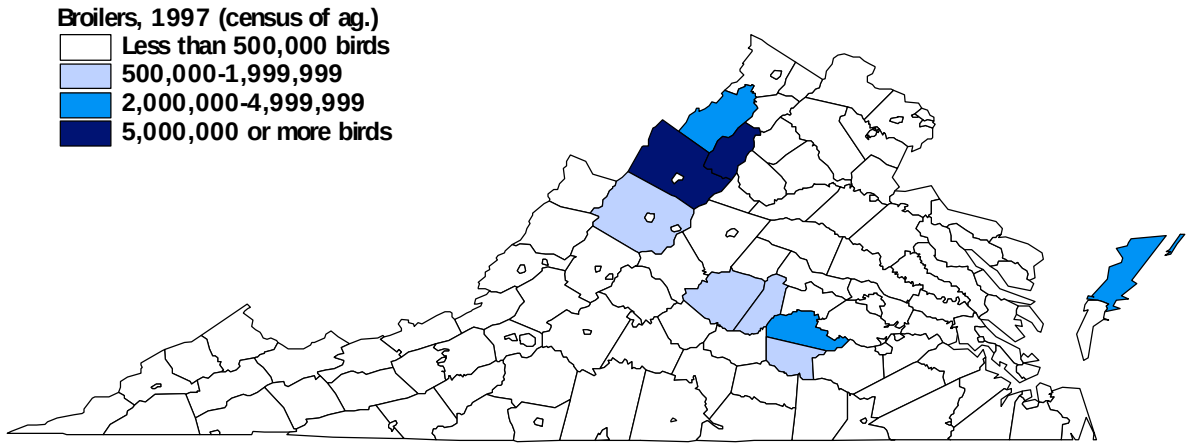


PRODUCTION LOCATION IN VIRGINIA



Broilers

Past and Present

Broiler production is growing at the national level and growing strongly in Virginia. Since 1970, the number of broilers produced in Virginia has increased from some 70 million to more than 250 million birds. This increase has moved the sector from 2nd in the state in 1989 to the position of 1st in 1999, with cash receipts of over $473 million. At the national level, Virginia ranks 9th. Prior to the 1980s, much of the growth in broilers in the U.S. was based on cost-reducing technology. During the 1980s and into 1990s, the cost reductions have continued and have been supplemented by increases in demand. Moreover, the industry features management control at all levels--production, processing, product branding--and therefore is in a position to quickly adjust to changing domestic and international consumer demands and preferences. Feed is shipped into the state, but Virginia firms are efficient and some have an advantage in the form of relatively low labor costs. They have been able to compete and grow.

In Virginia, broiler production is concentrated in a few counties. Some of the counties where broiler production is most concentrated are also counties with increasing populations. Waste management becomes a bigger issue when production is concentrated, and conflicts are always possible when broiler production exists side-by-side with housing developments. In recent years, some of the same environmental enforcement issues that have impacted the swine sector have also been a factor in the level and location of poultry production. The use of BMPs (Best Management Plans) is important to the sector, and recent efforts to transfer litter and/or turn it into fertilizer and marketable products will be important in the long run.

Looking Ahead

All the necessary and sufficient conditions for continued growth at the national level are in place. The industry has catered to a changing and increasingly discriminating consumer and has been rewarded accordingly. Whether Virginia can maintain the rate of increase within the state, especially the rapid increases starting in the late 1980s, will depend primarily on policy considerations, on the ability to resolve any conflicts between an increasing population and increasing broiler production, on continued research to solve any problems associated with litter, and on whether labor-cost reductions can continue to offset any disadvantages in feed costs that Virginia firms might face.

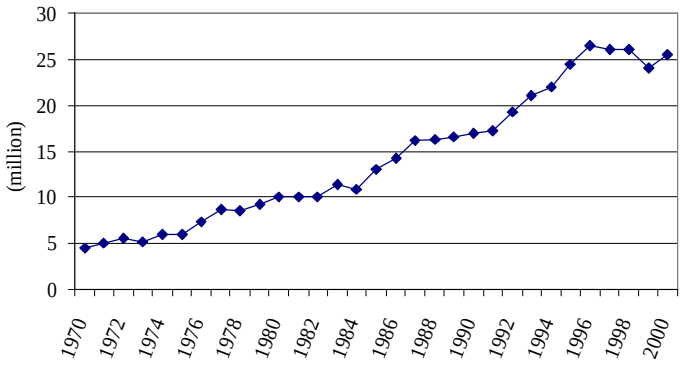
Broiler production will continue to grow and will hold the status of the number one specific commodity in the state unless that growth is slowed by rising concerns over waste management and/or by rising relative feed costs as Virginia corn production continues to struggle. Policy positions with regard to environmental enforcement and state-level programs to help restore competitiveness in feedgrain production and provide research-based solutions to the litter issues will be important to the chances of continued long-term growth and profitability in the broiler sector.

Turkeys

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$133,862	$220,752
Commodity Rank in Virginia	5th	4th
Receipts in U.S. (1,000s)	$2,235,145	$2,835,389
Virginia's Rank in U.S. (based on production)	6th	4th

TRENDS IN INVENTORY NUMBERS

Virginia



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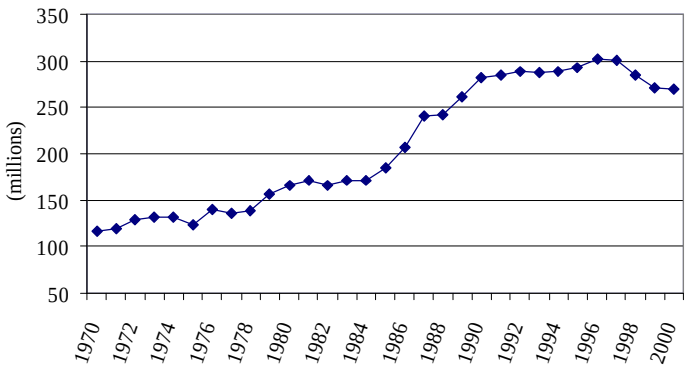
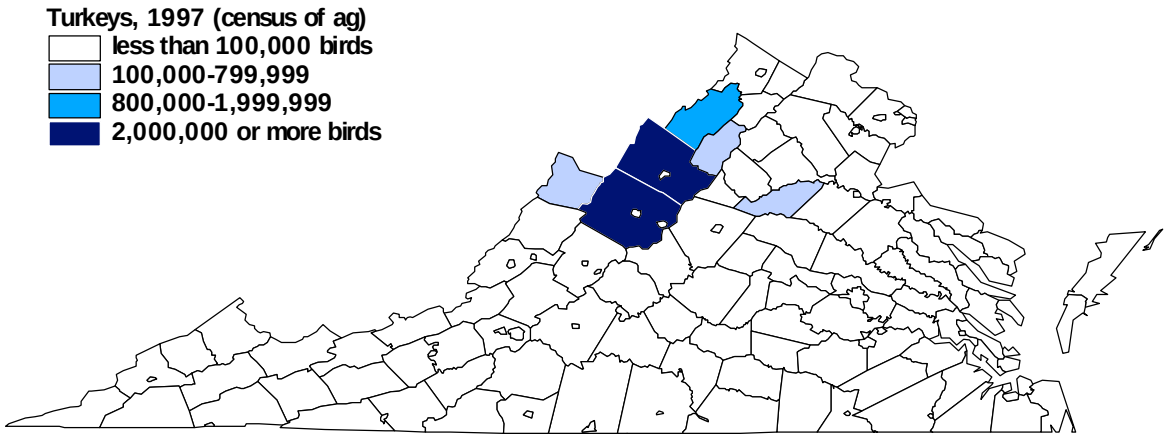


PRODUCTION LOCATION IN VIRGINIA



Turkeys

Past and Present

At the national and state levels, the growth rate in turkey production has paralleled, occasionally even exceeded, the growth in broilers until recent years. This growth has come primarily from research and market development, moving turkey away from the status of a seasonally consumed product. At the national level, the number of turkeys raised has grown from some 170 million birds in 1984 to the 300-million level in 1996 and 1997. During that same time period in Virginia, the number of birds increased from 10 million to 25 million, over a 100-percent increase.

Many of the same environmental issues that tend to swirl around the increased production capacity in broilers are, of course, important in turkeys as well. This industry has been able to adopt cost-reducing technology to allow it to offer more product to consumers at increasingly favorable prices, and like broilers, at least in recent years, has benefited from increases in consumer demand. Turkey production ranks 4th in cash receipts in Virginia agriculture, and Virginia, as a state, stands 4th at the national level in production. Turkeys are thus a rare top 5 commodity nationally for Virginia.

Looking Ahead

Commentary here could basically repeat the earlier discussion for broilers. The integrated producers have the capacity to identify consumer interests and consumer needs and make sure they are met, and so long as this orientation is continued, the demand for these consumer-friendly products is likely to increase. That should sustain continued investments and attract continued research and technology development into the industry. At the national level, production in recent years has been constrained by disease problems and sporadic export demand for low-value parts of the birds. The trend is likely to turn higher again at the national level, however. In Virginia, the key may be the extent to which new production facilities can be located so that conflicts with environmental protection needs and environmental enforcement policies are minimized. The map shows production is highly concentrated in a few counties in the state. Research on disease prevention and litter management will be important.

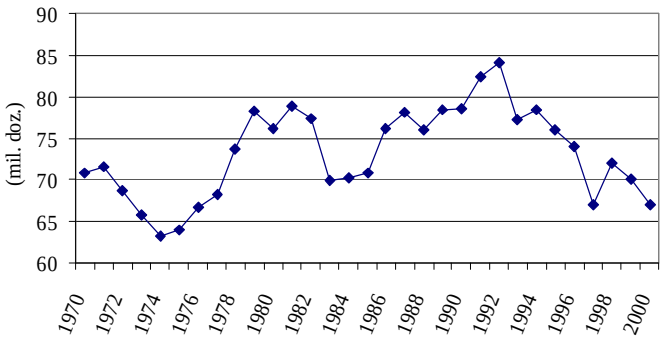
Turkey production in Virginia will continue to trend higher, but at a reduced rate of increase. How fast it grows will actually depend less on developments at the national level, where demand for the product is extremely strong, and more on the environment within which new investments are made in Virginia. Virginia firms have been progressive, efficient, and very competitive with other producing states and regions. A balanced posture of environmental enforcement is in place or is being developed and will be important to the turkey sector. Feed costs are very important, and bumper crops and low prices help the Virginia turkey program that imports much or all of its corn.

Eggs

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$58,780	$62,319
Commodity Rank in Virginia	10th	7th
Receipts in U.S. (1,000s)	$3,861,538	$4,322,589
Virginia's Rank in U.S. (based on production)	23rd	27th

TRENDS IN PRODUCTION NUMBERS

Virginia



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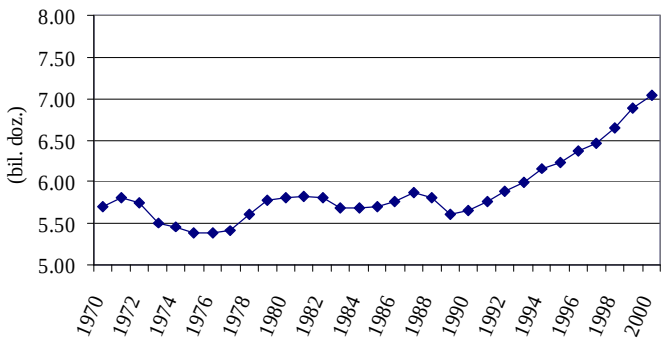
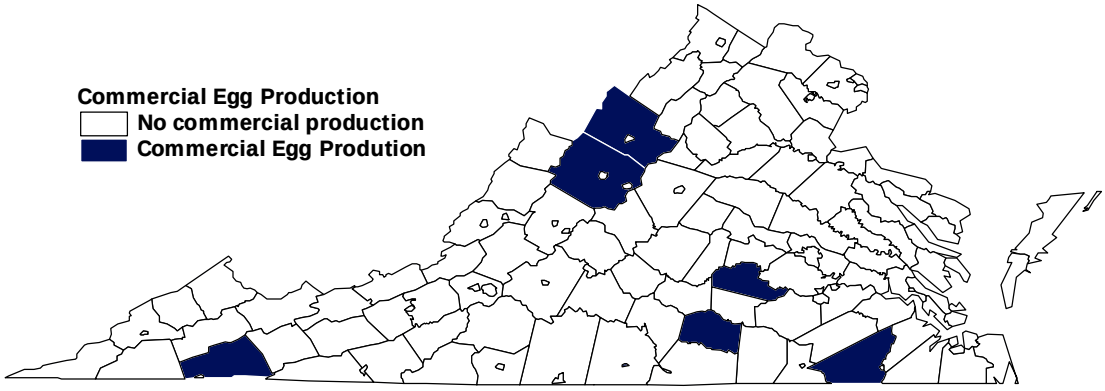


PRODUCTION LOCATION IN VIRGINIA



Eggs

Past and Present

Eggs are another commodity at the national and state level that has been impacted substantially by consumer-level concerns about cholesterol and diets. Production of eggs in the U.S. was relatively stable around 5.6 to 5.8 billion dozen from the late 1970s toward 1990, before showing a sustained increase in the early 1990s. That would mean, of course, that per capita availability and per capita consumption of eggs at the national level has gone down, certainly prior to the 1990s, because population is increasing. The pattern is slightly different in Virginia, with some increase in numbers produced in the late 1980s, and then sustained dips in the 1990s. Eggs are 7th in the latest rankings in Virginia as a generator of cash receipts, and Virginia now ranks 27th at the national level. The important economic forces at the national level have been reduced consumer acceptability of and demand for eggs and cost-reducing technology that has allowed offering more product at decreasing inflation-adjusted prices over time.

In Virginia, eggs have not held their earlier ranking. Cash receipts at the producer level, however, were still a significant $62.3 million in 1999. In the state and nationally, egg production has been and continues to be in the hands of a very small number of firms. Waste management and related environmental issues are receiving significant attention. Economies of large size are important in eggs, and Virginia appears to be struggling in terms of new investments in capacity.

Looking Ahead

The future of the egg industry in the U.S. will depend on the ability of the overall sector to develop new consumer-friendly product alternatives that address concerns about attributes such as cholesterol. Progress is being made in this area, and to the extent that new products can be put on the market, there is a good possibility that the egg sector will be a growth sector at the national level. In Virginia, the situation looks somewhat more negative. Production has tended to be spread across several counties that are not necessarily near or adjacent to the areas densely populated, but some of those counties are now seeing housing development. Access to the mid-Atlantic and New England markets makes a difference to the egg producers because eggs are relatively expensive to transport. Still, starting a new operation in Virginia could be difficult because of permitting considerations and pressure from growing populations.

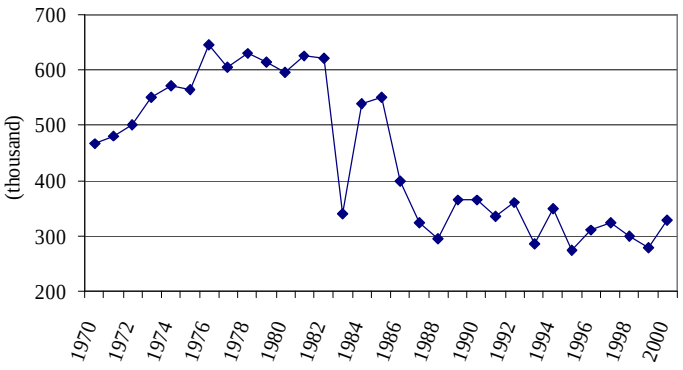
The key to the future of the egg industry in Virginia is the ability of the national sector to develop new user-friendly and consumer-accepted products and product forms. The industry was hit hard by the cholesterol concerns that were paramount at the consumer level during the 1980s and lingered into the 1990s. Virginia is well located relative to consuming areas, should share in any industry growth that does occur, but may not be able to sustain a growth rate equal the national level unless production can be maintained in areas of the state where population density is relatively low and waste management and environmental issues can be handled effectively.

Corn for Grain

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$47,426	$34,533
Commodity Rank in Virginia	11th	14th
Receipts in U.S. (1,000s)	$11,393,888	$14,931,437
Virginia's Rank in U.S. (based on production)	21st	26th

TRENDS IN HARVESTED ACRES

Virginia



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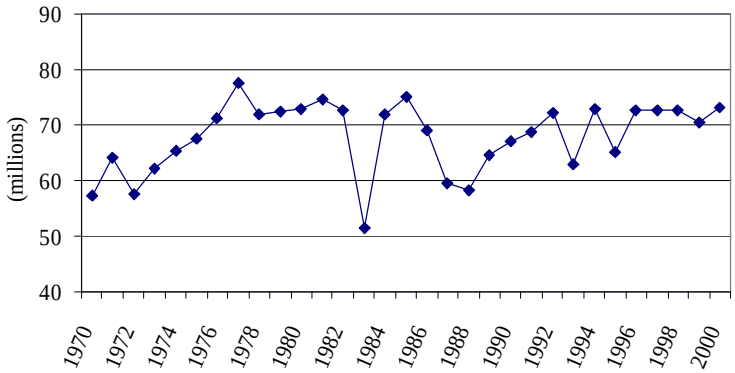
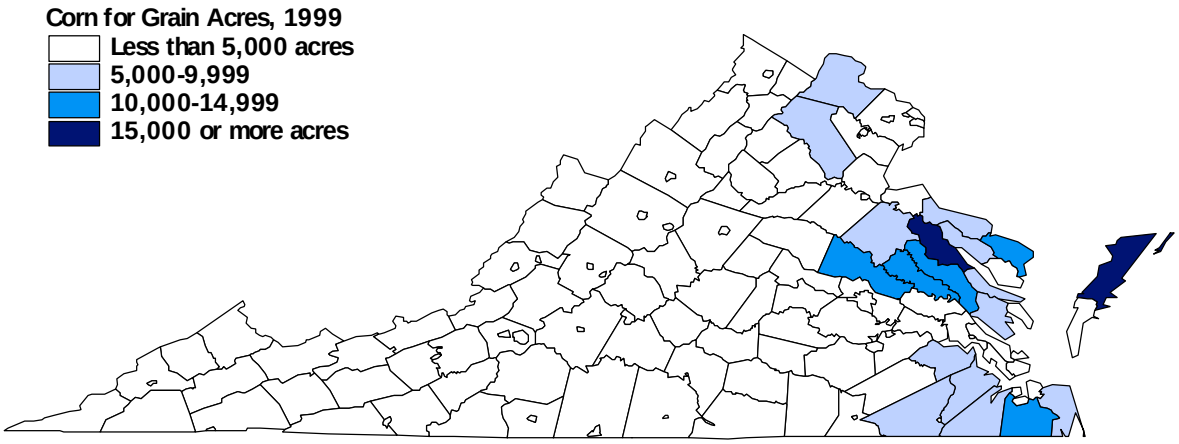


PRODUCTION LOCATION IN VIRGINIA



Corn for Grain

Past and Present

Total state acreage decreased sharply from over 600,000 acres in the 1970s to 300,000 acres in recent years. A major difficulty has been weather, with several droughts during the 1980s. Corn produced in Virginia is produced mainly on sandy soils, which do not hold moisture well. When adequate rainfall is received, yields can be quite good. If rainfall is not adequate, however, the average yields can be sharply lower. For 2000, yield estimates were strong at 146 bushels per acre as compared to 137.1 bushels at the national level, but yields are very volatile in the state.

Another factor was the relatively low level of participation in government programs. Federal farm bills of the 1980s ensured that U.S. corn producers will be able to participate in the world market. Loan rates were set relatively low. If the market price falls below the legislated target price (prior to 1996), the participating farmer is then subsidized. For various reasons, Virginia farmers did not participate in the farm program at the levels of their midwestern counterparts. In most years, less than 50 percent of the base acreage in Virginia was "in the program" compared to 80-90 percent in midwestern states. The result was relatively low prices in the high national-crop years of the 1980s and early 1990s, with little or no subsidy accruing to Virginia producers. Since 1996, the transition payments to Virginia producers have again been constrained by low farm-level yields. These difficulties have been compounded by state budget problems that constrained research efforts designed to develop production technology to fit Virginia conditions and/or examine winter-grown alternatives such as barley or the more drought-tolerant and still summer-grown grain sorghum.

Looking Ahead

REAP researchers estimated in the mid-1990s that Virginia's average yields would have to increase 9 bushels per acre, relative to average yields in Ohio, to be competitive on a statewide basis (Suzanne Thornsbury and David Kenyon, *Where Have All the Corn Acres Gone?*, REAP 001, Virginia Tech, 1991). Such a relative improvement in yields is difficult to achieve. What we are likely to see in Virginia is acreage stabilizing at or below levels of recent years, with about 300,000 acres and corn crops near 30 million bushels. In recent years, some 50-70 million bushels of corn have been used in Virginia by the livestock and poultry sectors. Policy makers need to be aware that, if Virginia corn production continues to decline, the competitive position of the livestock and poultry sectors will be hurt since corn costs will be Midwest plus freight for more of the corn users buy.

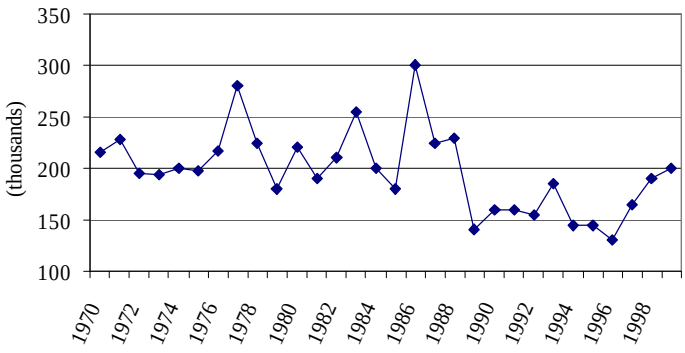
The corn sector has seen dramatic declines in Virginia. The primary reasons appear to be weather problems, a national farm policy that puts Virginia producers at a disadvantage, and lack of effort in the state during lean budget years to support research that generates corn-producing technology that fits Virginia conditions. Decisions to support research in production and marketing and any state-level policies that impact on the competitive position of Virginia corn producers need to be made in full realization that the impact of such decisions/policies will also be felt throughout the grain-using sectors of Virginia agriculture. Virginia is becoming increasingly deficit as a feedgrain-producing state as the poultry sector grows.

Corn for Silage

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	--	--
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$4,860	$12,673
Virginia's Rank in U.S. (based on production)	12th	16th

TRENDS IN HARVESTED ACRES

Virginia



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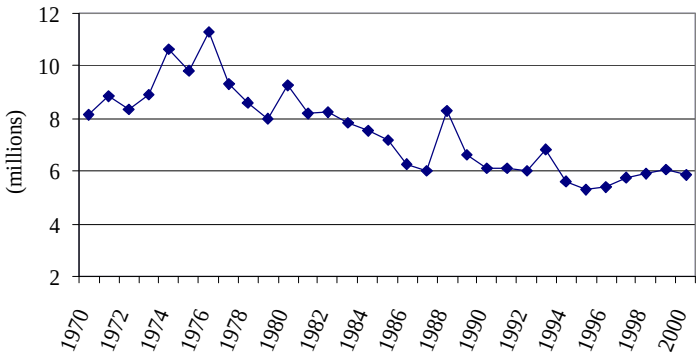
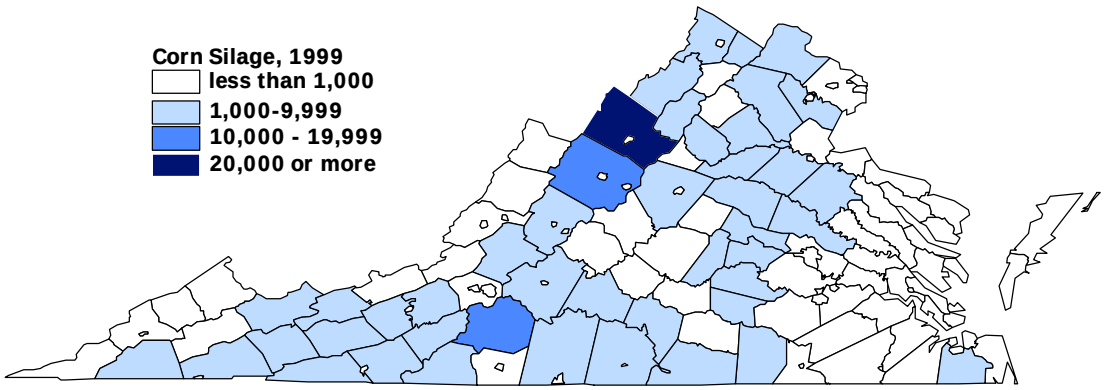


PRODUCTION LOCATION IN VIRGINIA



Corn for Silage

Past and Present

Acreage of corn for silage in Virginia reached the 300,000-acre level in 1986, dropped to 145,000 acres in 1994, and surged to 200,000 acres in 1999. At the national level, the decline has been more prolonged, with the peak acreage in the mid-1970s. Sharp increases at the national level in 1980, 1988, and 1993 were weather related. When widespread weather problems and low yields make harvesting for grain questionable in terms of economics, more of the acres that were intended for grain are harvested for silage.

Silage corn in Virginia tends to be concentrated in the counties where dairy production is concentrated. Rockingham, Franklin, and Wythe counties are examples of top dairy counties in the state, and silage corn tends to be concentrated in and around these counties. Other areas with significant acreages tend to be in southwestern counties where beef cattle programs, especially stocker cattle programs, are also important. Acreage trends clearly parallel developments in the feed-using sectors of the state's agricultural economy.

Looking Ahead

Acreage for silage is likely to decline slightly in future years with possible declines in the state's dairy sector. Declines in dairy usage of corn silage could be partially offset by a growth in stocker cattle and backgrounding programs in the beef cattle sector. Access to research and technology that can be reflected in management practices appropriate to Virginia (no-till production, seeding rates, varieties, fertilization rates, timing of fertilizer and chemical applications, etc.) will be important in silage corn production, just as it is in corn for grain. If that investment in research and technology is not made, then the competitive position of the dairy sector and the stocker/backgrounding programs in beef cattle are threatened.

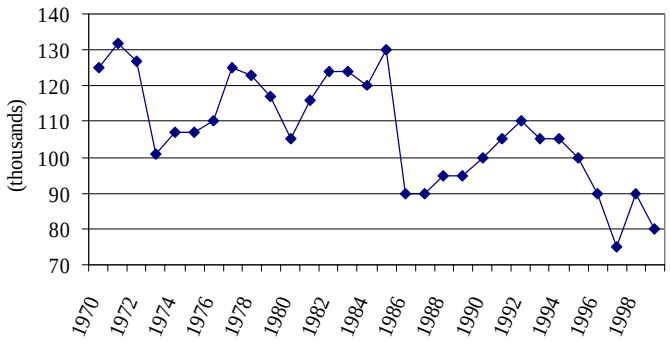
The economic issues and the challenges are similar to those presented for corn for grain. Producers must be able to compete with other sources of feedstuffs, and that means research, technological advancement, educational programs and educational materials. In Virginia, this is especially important to the long-range viability of the dairy sector, the primary user of corn silage as a mainstay in a livestock industry. Developing tendencies for beef-cow producers to retain ownership of their calves could also boost the demand for corn silage programs to the extent they are a part of new intensively managed forage programs in backgrounding calves.

Barley

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$7,329	$5,764
Commodity Rank in Virginia	17th	18th
Receipts in U.S. (1,000s)	$764,960	$535,449
Virginia's Rank in U.S. (based on production)	13th	13th

TRENDS IN HARVESTED ACRES

Virginia



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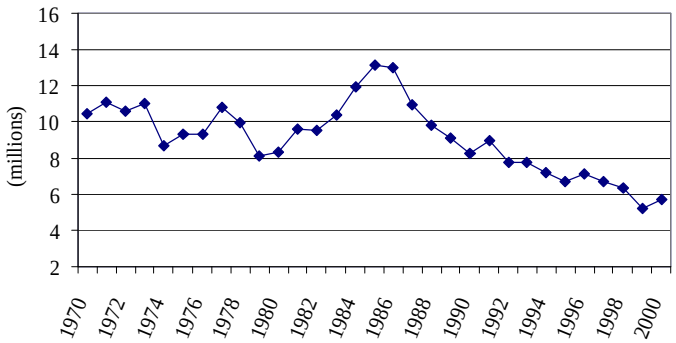
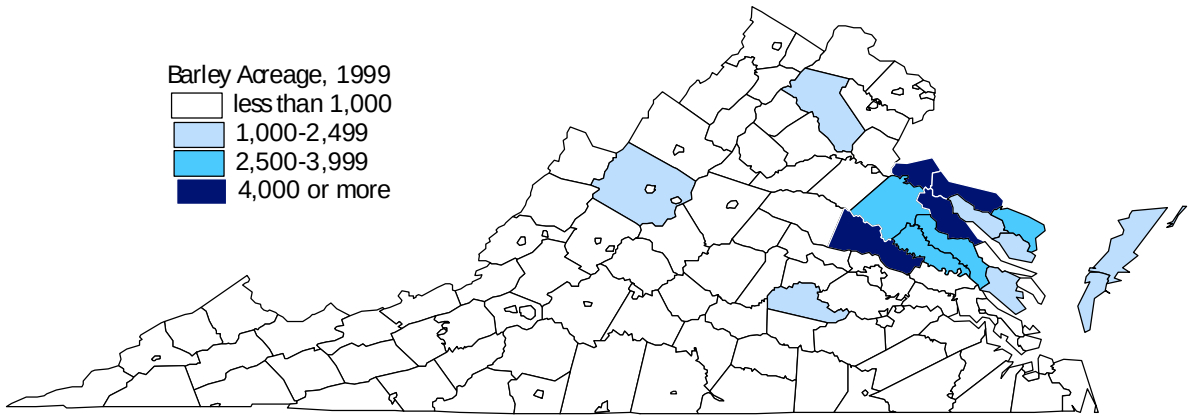


PRODUCTION LOCATION IN VIRGINIA



Barley

Past and Present

At the national level, barley has continued to be a relatively important feedgrain with some 6-7 million acres planted in recent years. This stands in stark contrast, of course, to the 70-80 million acres planted in corn in the U.S. each year. After peaking around 13 million acres in the mid-1980s, barley acreage at the national level has come down sharply. The pattern in Virginia is very volatile. After the 1986-87 period when acreage reached as low as 90,000 acres, a steady increase moved barley acreage back up to the 110,000-acre level, and then a precipitous decline occurred.

Barley could be important in Virginia because it is a winter-produced feedgrain and escapes many of the weather and drought problems facing corn. One widely discussed solution to the problems of variable yields in corn in Virginia, and the related and continuing problem of becoming even more deficit in feedgrain production, is to go to a winter-produced feedgrain. Barley can also offer advantages in double-cropping programs with soybeans. Barley can usually be harvested earlier than wheat, giving the soybean crop to follow more time to mature and achieve better yields. To date, however, Virginia has only a limited and unstable market and only limited infrastructure, in terms of storage and marketing facilities, for barley. This has tended to hamper growth in this potentially important crop. If barley is to become a significant crop in the state, producers will need to know there is a market and that the price will parallel corn prices after adjusting for any differences in feeding value.

Looking Ahead

The future of barley production in the state is likely to rest squarely on whether the needed production research gets done and whether an effective marketing system and infrastructure is developed. If this crop is to move to a position of being a relatively important feedgrain in Virginia, a policy position and state-level actions are needed to help ensure production research and related education, an adequate market, and an adequate pricing infrastructure. The grain-using livestock and poultry sectors would clearly benefit from an aggressive and pro-active barley program by state leadership in the private and public sectors, and the private-sector users, such as feed mills and suppliers, also have a possible responsibility to help "make a market" and give barley a chance.

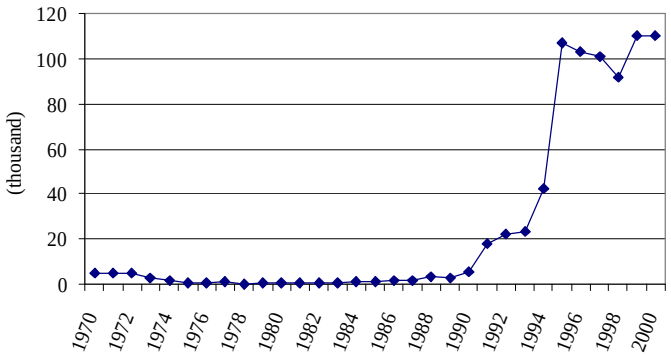
Barley could be an important winter-produced feedgrain in the state. Reaching that status will depend on research efforts, on an adequate and stable market, and on an adequate pricing system to ensure that producers are paid commensurate with the value of the crop they have produced. In mid-2001, the needed research programs and the needed storage, pricing, and marketing infrastructure to position barley as an important feedgrain are not adequate or are not in place.

Cotton

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$1,186	$38,855
Commodity Rank in Virginia	22nd	13th
Receipts in U.S. (1,000s)	$5,025,638	$4,695,904
Virginia's Rank in U.S. (based on production)	16th	13th

TRENDS IN PLANTED ACRES

Virginia



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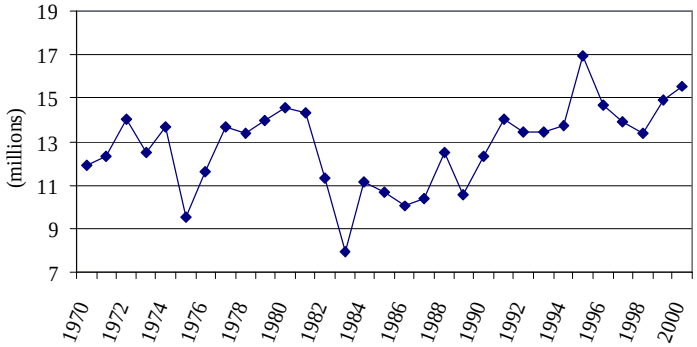
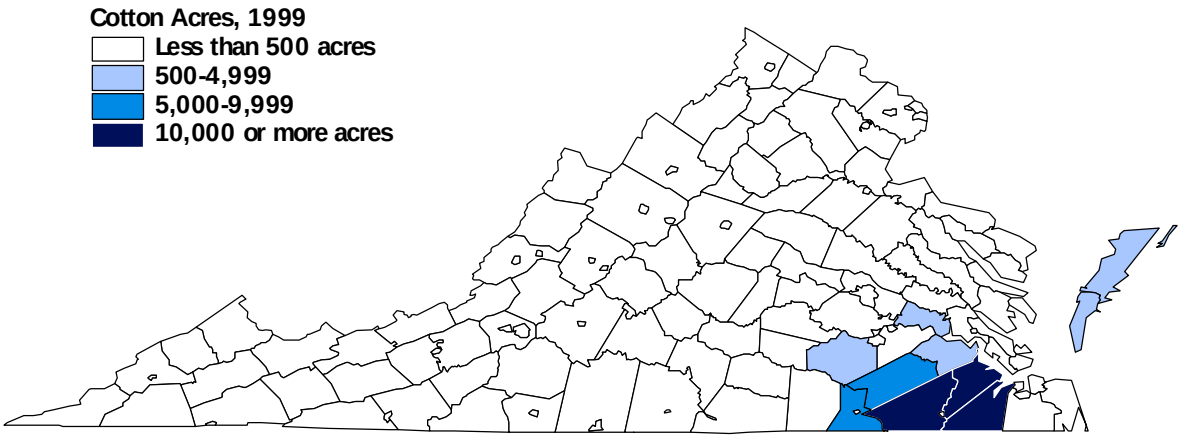


PRODUCTION LOCATION IN VIRGINIA



Cotton

Past and Present

Cotton acreage staged a strong recovery in Virginia from essentially 0 acres in the mid-1980s to over 20,000 acres in 1992 and then to over 110,000 acres in recent years. Part of this growth is related to the positive trend in acreage at the national level across that same time period, with an increase from some 8 million acres in 1983 to over 15 million acres in 2000. But the more important development in Virginia was the emergence of cotton as a replacement for corn as a rotation crop in the peanut-producing southeastern counties. Facilitating that growth has been an investment in ginning and processing capacity in the southeastern counties that was not present prior to the 1990s. At least part of the growth was also stimulated by relatively strong cotton prices in the 1989-91 period and the historically high prices recorded in 1994 and again in 1995.

Volatile prices, however, will constrain the growth in acreage. Average U.S. prices for the 1992-93 crop-year dropped to $.55 per lb. This more modest price level is in sharp contrast to the $.70-$.80 levels in the late 1980s and early 1990s when Virginia acreage surged, and then surged again in 1994-95. A world-level crop, supply surges will push prices lower again, and harvest-period price offers for the 2001 crop are at $.40 or lower, some below $.30. Cotton will require advantages other than highly favorable prices--such as being a rotation crop superior to corn--to sustain the acreages and any future growth.

Looking Ahead

Continued rapid growth in cotton acreage in Virginia from 2001 levels is not likely. At the world level, prices have retreated from the strong prices of recent years, and the stimulus for expanded production in terms of price incentives is gone. It is important, however, to recognize that cotton has a strong position as a rotation crop in the peanut sector in the southeastern counties of the state. To some extent, therefore, the future of the cotton sector in the state rests with the federal policy provisions that will determine the future of peanuts in the state.

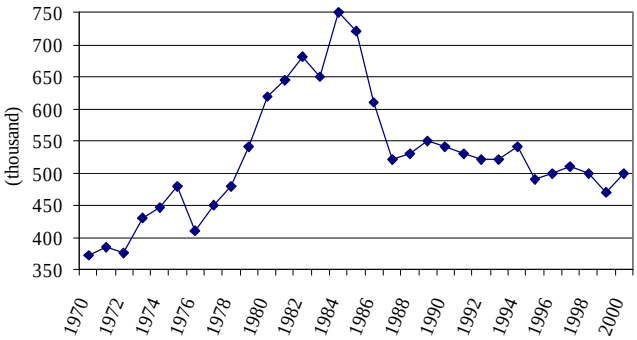
Cotton will continue to be an important crop in the state but will not continue to show growth in acreage. Record-level prices that reached $.90 in 1990-91 surged again toward the $1.00 level in 1995, but the "profit window" that $1.00 cotton provides guarantees a supply surge and lower prices. Those prices are imminent in mid-2001. The position of cotton in Virginia is likely to gravitate more nearly toward one of a crop that has cash receipt potential in a planned rotation with peanuts. This makes the long-term status of peanuts, a federal farm program crop, important to the future of the cotton sector in Virginia.

Soybeans

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$99,141	$51,137
Commodity Rank in Virginia	6th	9th
Receipts in U.S. (1,000s)	$10,524,005	$11,922,206
Virginia's Rank in U.S. (based on production)	19th	20th

TRENDS IN PLANTED ACRES

Virginia



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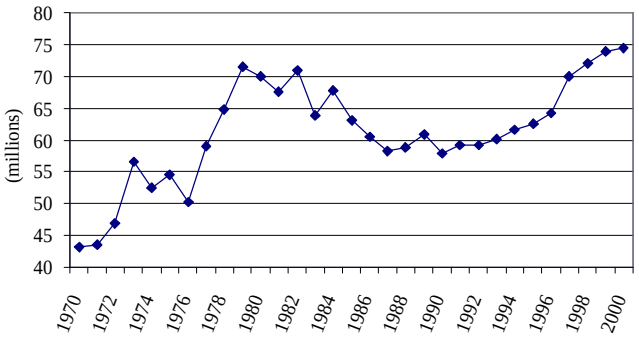
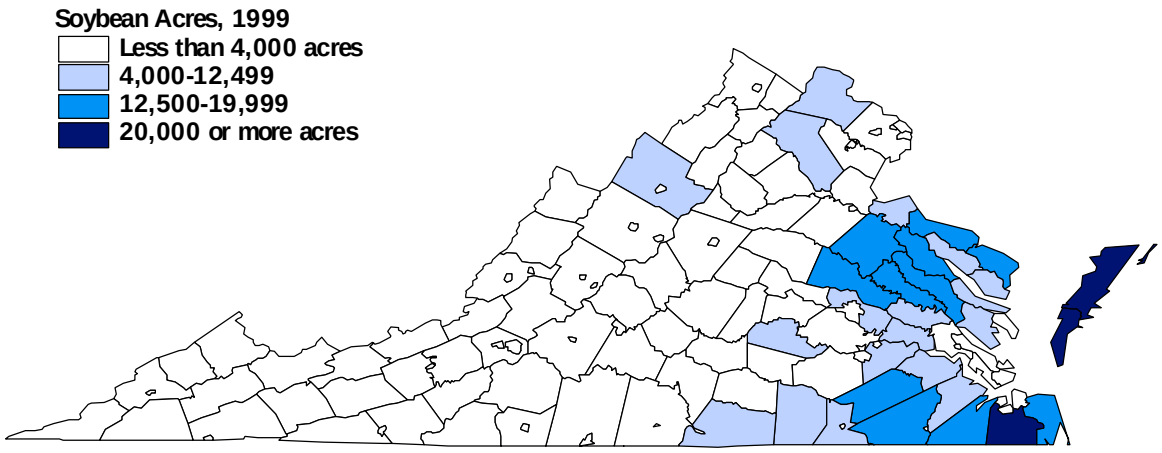


PRODUCTION LOCATION IN VIRGINIA



Soybeans

Past and Present

Soybeans, the predominant oilseed crop in the U.S., is a crop of major importance. In the early 1980s, planted acreage in soybeans at the U.S. level actually exceeded planted acreage in corn. Acreage has surged again in the later 1990s and into 2001, exceeding the 75 million-acre level. A favorable loan rate ($5.27) for soybeans since the 1996 farm legislation has pulled acreage into soybeans. In Virginia, acreage peaked around 750,000 acres in the mid-1980s and has in recent years stabilized in the 500,000 area. Soybeans continue to be an important crop in Virginia, ranking 6th in farm receipts in 1989 and 9th in 1999, with nearly $51 million in cash receipts.

The strong growth in acreage in Virginia from 1970 into the mid-1980s partly parallels acreage at the national level, but soybean acreage also parallels growth in winter wheat acreage in Virginia. Double cropping of winter wheat and soybeans is a widely practiced farm program in Virginia, and a substantial part of the increase in soybean acreage is related to the increase in winter wheat production. The opportunity for a "double crop" is important to many Virginia farmers. The producer can realize attractive per-acre returns if per-acre yields from double-cropped soybeans, which have to be planted later, even approach the yields for full-season soybeans.

Looking Ahead

Soybeans are likely to continue to be an important crop in Virginia. The double-cropping programs with wheat and soybeans offer the potential for strong cash flow in years in which weather patterns allow good soybean yields. Soybeans are a summer-grown crop, but are more drought resistant than corn. At least some of the acres that are moving out of corn production for grain in the state are going toward double-crop winter wheat and soybeans or, possibly, toward double-crop barley and soybeans. The recent tendency to have more acres harvested for soybeans than corn for grain in Virginia is likely to persist and may strengthen. So long as soybean prices are 2.4 to 2.5 times the price of corn, the two tend to be equally profitable on a per-acre basis. How far this crop goes may depend on our ability to compete in export markets, on research and technological advancements in production of double-crop soybeans with wheat (or barley) under Virginia conditions, and on the ability of public/private coalitions to find new global markets for soybeans produced for specific oil characteristics.

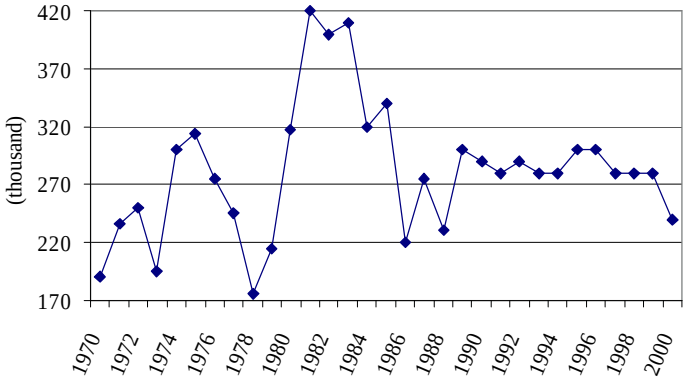
Soybeans are likely to continue to be a strong presence and a strong commodity in Virginia to the extent that wheat or barley acreage expands in the state. Double-crop programs of winter wheat and soybeans are likely to improve the competitive position of this crop in Virginia acreage, with access to world markets and production technology for Virginia conditions the two primary possible constraints. There is potential for growth, and policy decisions on support for research and state-level programs in a global marketplace need to keep this potential in mind.

Wheat

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$44,451	$31,231
Commodity Rank in Virginia	12th	9th
Receipts in U.S. (1,000s)	$10,524,005	$11,922,206
Virginia's Rank in U.S. (based on production)	19th	20th

TRENDS IN PLANTED ACRES

Virginia



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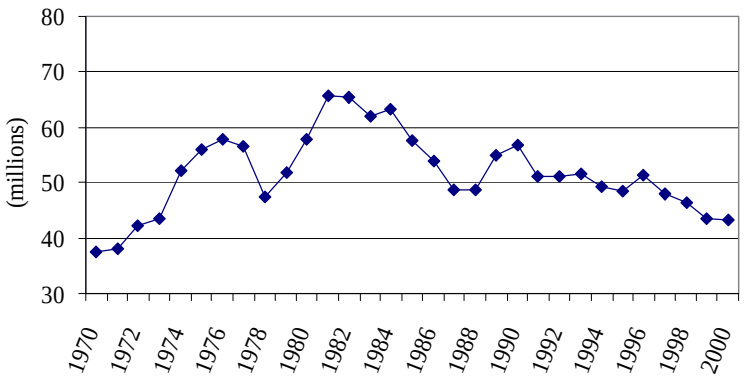
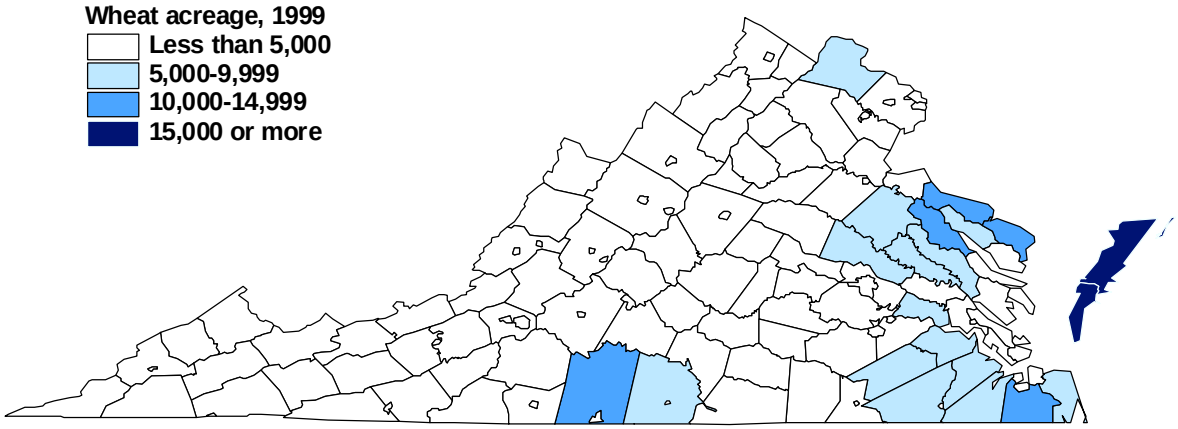


PRODUCTION LOCATION IN VIRGINIA



Wheat

Past and Present

A major crop in the U.S. as a whole, wheat is produced primarily for the export market. Data show that up to 75 percent of the wheat produced in the U.S. in some years goes into the export market, and wheat is the predominant winter-grown grain crop in the U.S. Acreage in the early 1990s was in the 50 million-acre area at the national level for winter wheat alone. After peaking near 420,000 acres in the early 1980s, acreage in soft red winter wheat stabilized near 280,000 acres in Virginia until 2000 when persistent low prices brought a sharp reduction.

Yields in Virginia have increased in recent years, and the crop is a top-10 commodity in the state with over $31 million in receipts in 1999. The most recent data indicate Virginia ranks 20th in the nation in terms of production. As management know-how and technology develop and grow in the state, production is likely to increase. Wheat is a grain crop with the obvious advantage of being a winter-produced crop and with the potential thereby to avoid the drought and rainfall problems facing the summer-grown grain crops in the state. Efforts by crop specialists at Virginia Tech, extension field staff, Virginia Farm Bureau, VDACS, and others have pushed wheat to the forefront in recent years.

Looking Ahead

Wheat could become a more important crop in Virginia. There is an ongoing effort in the state to develop or adopt varieties for Virginia conditions and to make production technology and management know-how available to producers. Yield contests have increased interest in the state, and farm-wide yields in excess of 100 bushels have been attained. As is true with all of the crops, having a solid marketing system, infrastructure, and pricing mechanism will be important. Wheat has less problems than, say, barley or grain sorghum in terms of adequacy of the marketing system, but prices do vary widely within the state. Low prices have pushed national acreage down, but world stock levels in 2001 suggest the possibility of a price recovery in the next five years.

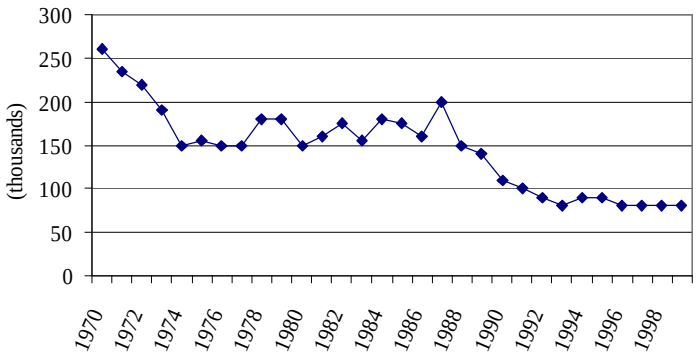
Wheat production could increase again in Virginia primarily because it is being pushed by researchers, educators, and industry leaders, and the flow of technology and know-how to producers is being enhanced. The crop has potential given that it is a winter-grown grain, and state-level policies and programs should take advantage of the opportunities in this crop. Policies to ensure adequate marketing, pricing, and reporting systems will be needed at the state level if wheat is to realize its potential. Wheat is largely an export commodity, and increased wheat production could revitalize and/or enhance the use of Virginia export facilities.

Rye

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$362	$396
Commodity Rank in Virginia	25th	27th
Receipts in U.S. (1,000s)	$19,308	$23,344
Virginia's Rank in U.S. (based on production)	14th	15th

TRENDS IN PLANTED ACRES

Virginia



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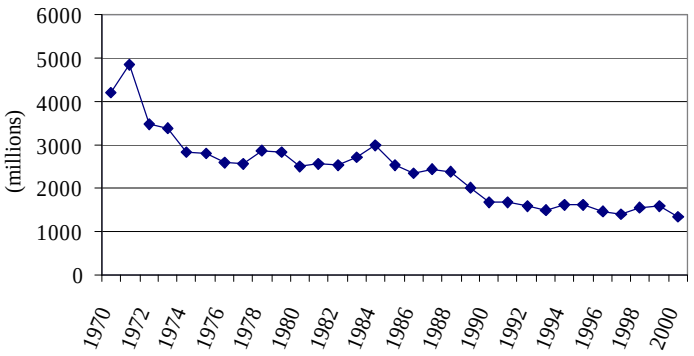
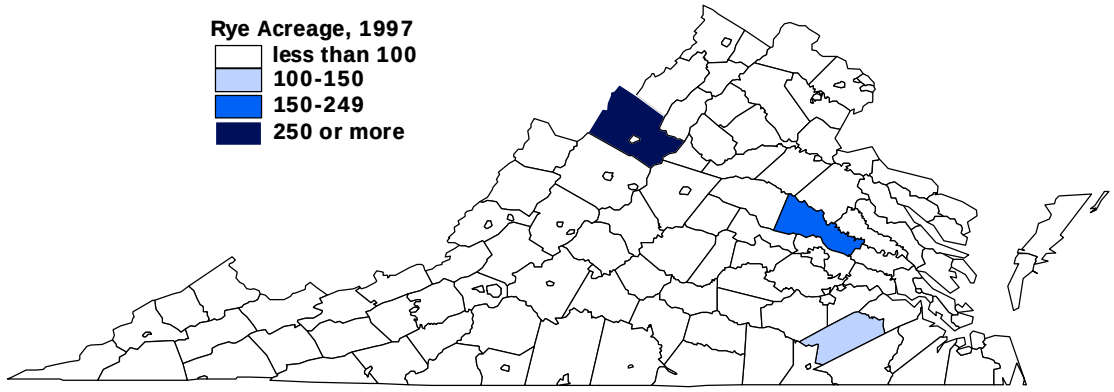


PRODUCTION LOCATION IN VIRGINIA



Rye

Past and Present

The acreage pattern in rye parallels the pattern in oats and some of the other lesser crops. Long and persistent declines at the national level have been largely paralleled by a decline in Virginia. Rye tends to be produced as a cover crop or a winter grazing crop, so there is no major market for rye in the state as a cash crop. This is likely to continue to be the situation for the foreseeable future, although it is interesting to note that at the national level, Virginia's rye production ranked 15th in the nation in 1999. But this ranking is in a national setting where the U.S. acreage has declined since the early 1970s from almost 5 million acres to below 1.5 million acres, and rye is not a major agricultural commodity at the national level.

As is the case with barley, rye is a winter-produced crop that would avoid the drought and weather problems facing corn. But rye is significantly lower in value than corn or barley and is not a major competitor for this reason. The declines in acreage in Virginia and at the U.S. level reflect a crop that is "lost in the shuffle." Rye is not sufficiently important to attract research and development dollars that might lead to new and superior varieties and new production-management technology.

Looking Ahead

Rye is likely to continue to be used as a cover crop and in grazing programs in Virginia. It is not likely to be a major crop in the foreseeable future in Virginia unless its status in farm rotations or in conservation acres in the federal programs changes.

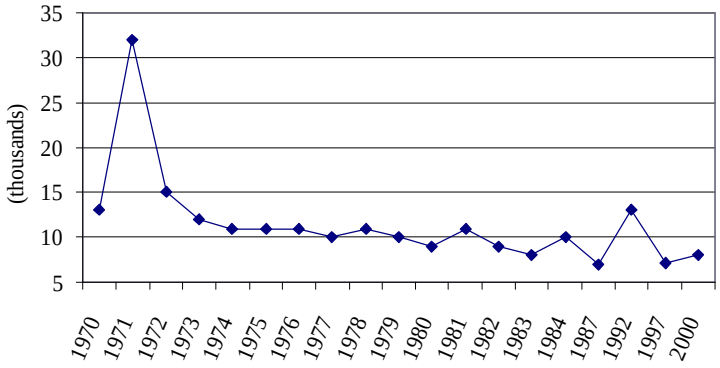
Planted acreage in rye has decreased sharply in the past 12 years. The relative importance of the crop in the state is not likely to increase significantly even though rye does tend to be a top-20 crop for Virginia at the national level. The national crop is quite small, however, and shows no signs of growth.

Grain Sorghum

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	--	--
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$1,240,007	$846,388
Virginia's Rank in U.S. (based on production)		

TRENDS IN PLANTED ACRES*

Virginia



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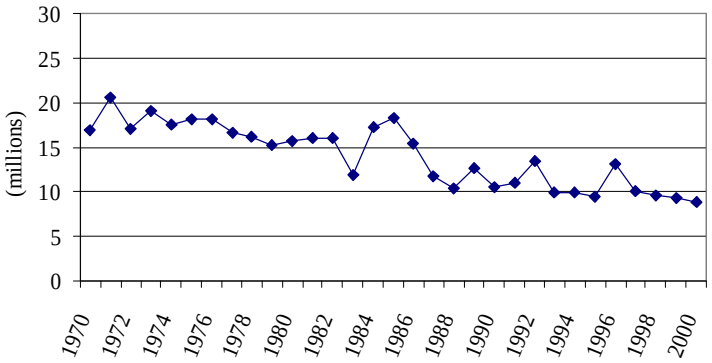
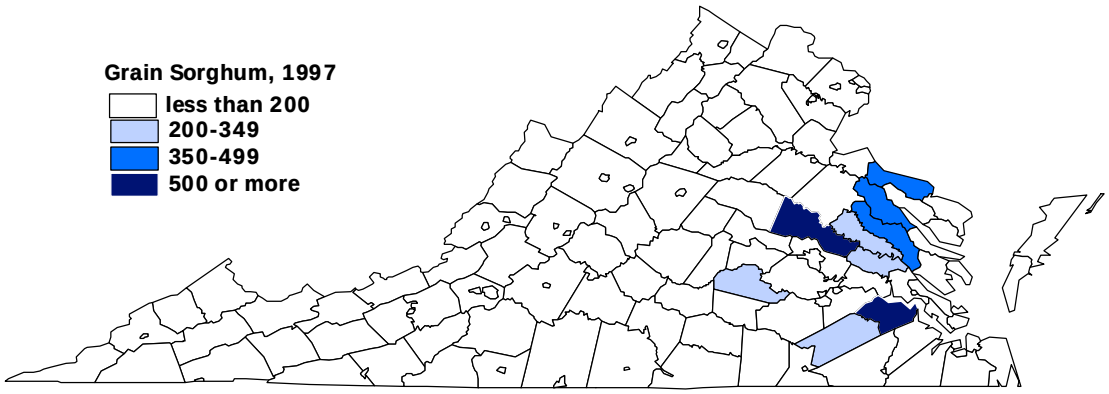


*Yearly estimates not available for all years in Virginia.

PRODUCTION LOCATION IN VIRGINIA



Grain Sorghum

Past and Present

A relatively important feed crop at the national level with around 10 million acres planted in recent years, grain sorghum tends to go on acreage where corn does not fare well because of limited or highly variable rainfall. In recent years, only about 7,000 acres have been planted in Virginia, but this could change as producers react to the several recurring droughts in the early 1990s and look for a feedgrain crop that is a more drought resistant or drought tolerant. Grain sorghum has the same growing season as corn but is considerably more drought resistant or drought tolerant.

Grain sorghum tends to be produced in eastern and southern Virginia counties where the predominant soil type is sandy loam, a soil type that does not hold moisture well. Grain sorghum tends to replace corn, including taking the role of corn as a rotation crop with peanuts in the southeastern peanut-producing counties. An important barrier to increased production is the lack of a well-developed marketing and pricing system. Close to corn in feeding value for most uses, grain sorghum often sells well below corn on a per-pound basis, and access to even a low-priced market is not assured to producers.

Looking Ahead

Grain sorghum could become more important in Virginia as the state becomes more feedgrain deficient and feedgrain prices are bid up relative to the national levels. Grain sorghum has somewhat variable feeding value compared to corn depending on its use, whether in livestock or poultry, but would generally equal 90-100 percent of corn in terms of feeding value. As producers look for a crop that would be more drought tolerant and resistant, and as the price premiums for feedgrains in Virginia tend to encourage expanded local production, grain sorghum could be more important in the state than it has been in recent years. The lack of research on production possibilities under Virginia conditions and the lack of a reliable market and pricing system is constraining development. Action by the state, the private sector, or both to ensure needed research gets done and to ensure a viable market could be the stimulus needed for further development.

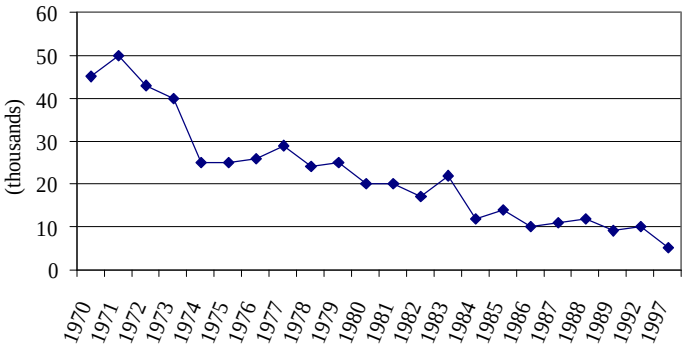
Grain sorghum has the potential to be a drought-resistant feedgrain of importance in Virginia. Whether this will occur may depend on state-level policies and programs in generating production technology for the crop and in developing marketing systems. Longer term, the crop might prove to be important in protecting the economic viability of the livestock, poultry, and dairy sectors in the state.

Oats

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$158	$13 (1990)
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$267,454	$72,969
Virginia's Rank in U.S. (based on production)		

TRENDS IN HARVESTED ACRES*

Virginia



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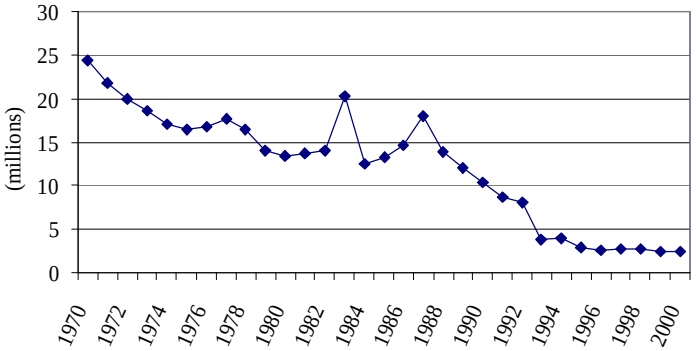
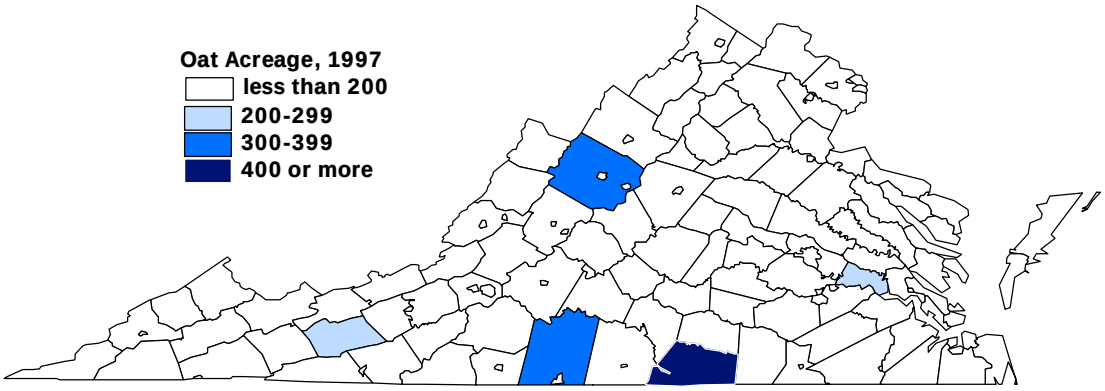


*Yearly estimates discontinued in Virginia after 1989.

PRODUCTION LOCATION IN VIRGINIA



Oats

Past and Present

Acreage in oats has decreased sharply at both the U.S. and Virginia levels. At the national level, the 2000 planted acreage was below 3 million acres, in sharp contrast with the some 25 million acres planted in 1970. In Virginia, the decline has been from 50,000 acres down toward 5,000 acres in 1997, the last census year. In fact, the yearly estimates in planted acreage were discontinued after 1989 as this crop continued to decline in relative importance. There appears to be no major and growing market for oats. Much of the production in the state goes to the horse industry. Any growth in this crop will likely be related to the need for oats as horse feed. The location of production in Virginia would suggest oats are being produced at least partly for recreational market purposes and for horses, especially in the northern producing counties.

Looking Ahead

Acreage in the state is likely to continue to decline. Virginia does not have a strong comparative advantage in producing oats, and prices for the crop have tended to be relatively low. It is not an effective crop as a cash crop in farm plans. To the extent that the horse industry develops in Virginia, acreage of oats produced for that industry could be a factor. The most optimistic outlook, however, might be for acreage to stabilize and stop the long-standing decline, and the crop is still likely to be relatively unimportant in the state.

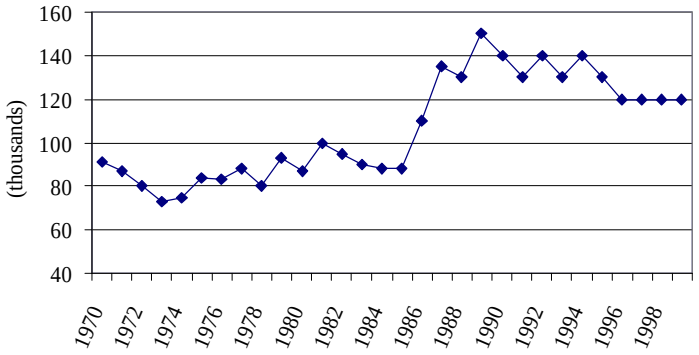
There is no obvious reason why oat production should increase in the state unless local demand in a growing horse industry generates prices sufficiently strong to encourage increased production. If production does increase with any growth in the horse sector, oats will facilitate that industry rather than achieve the status of an important cash crop.

Alfalfa

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	--	--
Commodity Rank in Virginia	(see total hay)	
Receipts in U.S. (1,000s)	$65,923	$73,544
Virginia's Rank in U.S. (based on value of production)	28th	29th

TRENDS IN HARVESTED ACRES

Virginia



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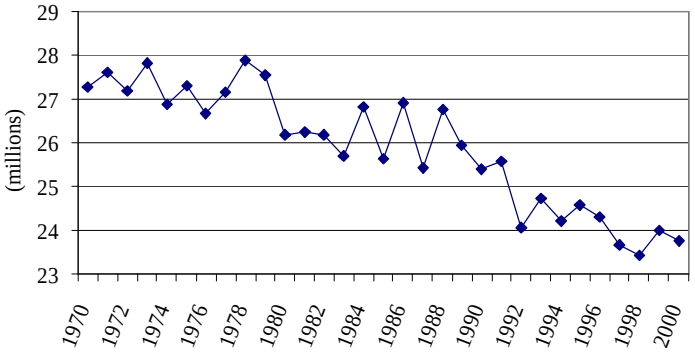
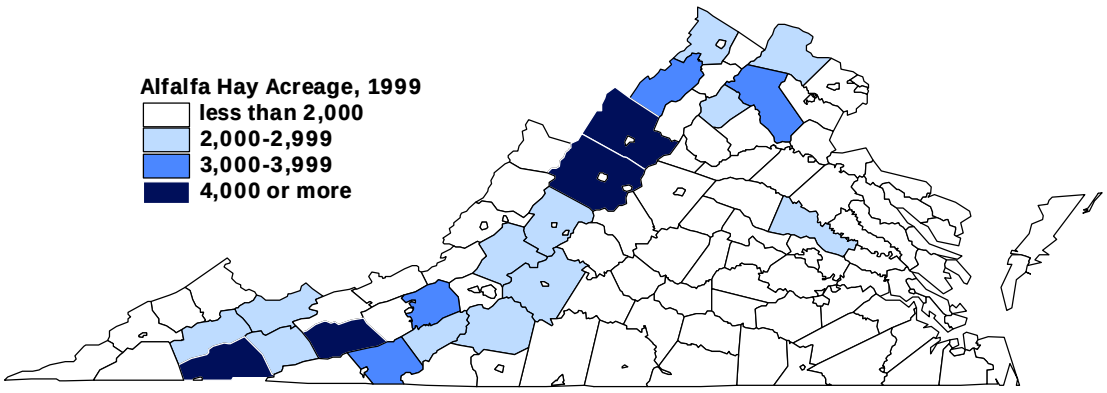


PRODUCTION LOCATION IN VIRGINIA



Alfalfa

Past and Present

At the national level, alfalfa acreage has decreased across the past 25 years, slipping from nearly 28 million acres to fewer than 24 million acres in recent years. This long-term pattern is suggestive of continued disease and pest problems. In Virginia, the pattern looks substantially different, having moved from some 90,000 acres in 1970 up to 140,000 acres in 1994 and then stabilizing at 120,000. The location map shows where the production tends to be, and it roughly parallels the relative importance of dairy, with Rockingham County and Franklin County two of the more important alfalfa-producing dairy counties in the state. To a lesser extent, alfalfa is located where beef cattle programs are also involved with dairy, such as in Wythe County. Alfalfa can be a very important feedstuff in a well-managed farm program, offering a roughage source with potential for high levels of protein. It has long been a mainstay in dairy farm programs.

Alfalfa is not a cash crop per se, so data on cash receipts are not generally available. Based on production, Virginia ranks 29th at the national level. Cash receipts are available for total hay (next page). But the importance of alfalfa is not measured by cash receipts. Alfalfa, and all hay, could well increase in importance in Virginia if dairy producers continue to move to controlled and rotational grazing versus "green chop" crops such as corn silage.

Looking Ahead

A very important soil-conserving crop, with potential for cash-grain status on occasion, alfalfa acreage is nonetheless likely to parallel what happens to the dairy sector in Virginia. If the number of dairy farms and dairy cows in the state continues the pattern of substantial decline that has occurred since the dairy herd buy-out of 1986, there is likely to be less reason for alfalfa production in some of the major dairy-producing counties even if rotational grazing does become more widespread. The crop will continue to be important as a roughage and protein source for beef cattle programs, and there is no indication that beef cattle numbers in Virginia are going to decline sharply. Thus, the crop is likely to continue as a relatively important crop in the state.

Alfalfa can be an important roughage and source of protein in dairy and beef cattle programs. The direction of alfalfa acreage in the state will be influenced by what happens to the number of dairy farms, the number of dairy cows in the state, and the long-term stability of the beef cattle program. Federal programs that impact Virginia's ability to be competitive in the dairy sector will be an important determinant of alfalfa acreage in the state.

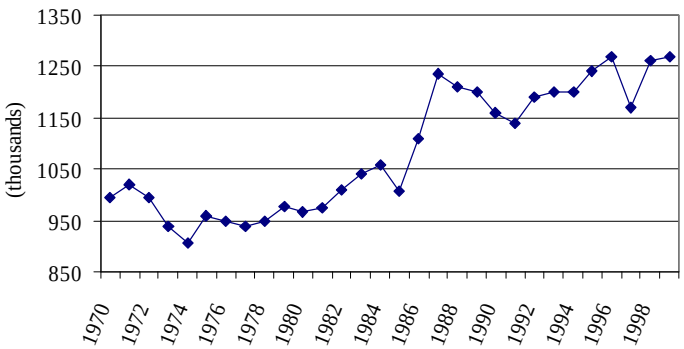
Total Hay

CASH RECEIPTS AT FARM LEVEL

	1989	1999
Receipts in Virginia (1,000s)	$26,522	$22,988
Commodity Rank in Virginia	15th	16th
Receipts in U.S. (1,000s)	$3,377,813	$3,351,339
Virginia's Rank in U.S. (based on production)	24th	28th

TRENDS IN HARVESTED ACRES

Virginia



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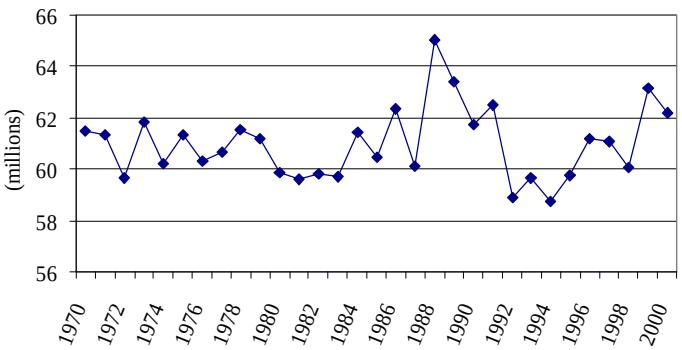
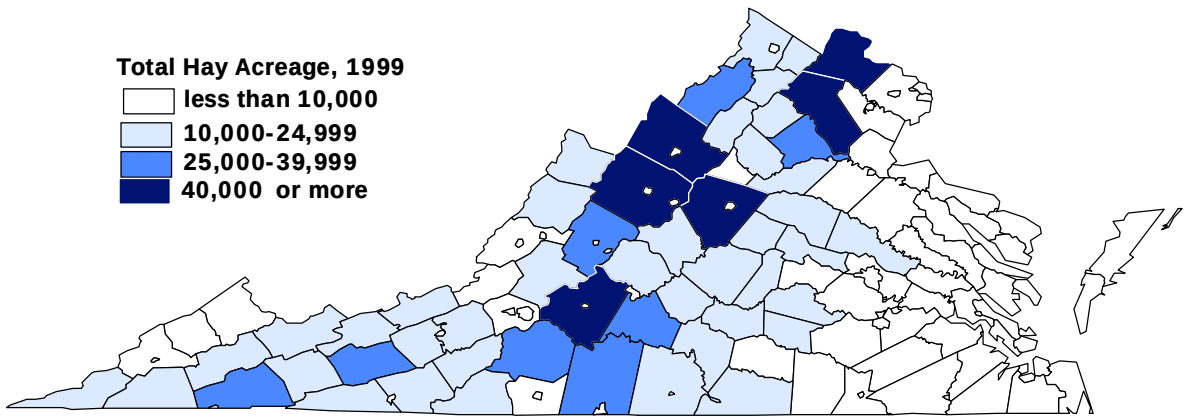


PRODUCTION LOCATION IN VIRGINIA



Total Hay

Past and Present

Hay ranks in the top 20 crops in the state among commodities as a source of cash receipts, with some $23 million in 1999. Acreage in total hay has gone up with a pattern paralleling the pattern in alfalfa, but the numbers are much larger, ranging from some 900,000 acres in 1974 up to 1.25 million acres in recent years. Only about 10 percent of this would be alfalfa acreage, so it is clear that there are many other hays of importance in the state. At the national level, receipts were $3.5 billion in 1994, and Virginia ranks 28th in the national picture.

Hay is important in the major dairy-producing counties and in the counties with substantial numbers of beef cattle programs. This is not surprising because roughage is important in both of those programs. A REAP study of where the acres coming out of corn tend to go shows a significant number of those acres going into hay and hay crops (*Where Have All the Corn Acres Gone?* by Suzanne Thornsbury and David Kenyon, REAP, VCE Publication 448-200/REAP R001, 1991). Indeed, the trend in hay acreage since 1990 shows a strong and inverse relationship with the decline in corn acres across the same time period.

Looking Ahead

Total hay production in the state is likely to continue to increase but at a slower rate. A substantial number of the acres that have gone out of corn production in the past 15 years have gone into hay production, but the corn acreage seems to be stabilizing in recent years. Hay aids environmental protection and is a soil conserving crop. Any future declines in acreage due to any continued decline in the dairy sector are likely to be offset by the other reasons for producing hay. For example, the beef sector in the state is more stable, showing some increase in inventory numbers in recent years, and is a major reason for hay to be produced and fed on the farm where produced. Any growth in the horse industry would also support hay acreage, especially in the grass and mixed hays desired by horse owners.

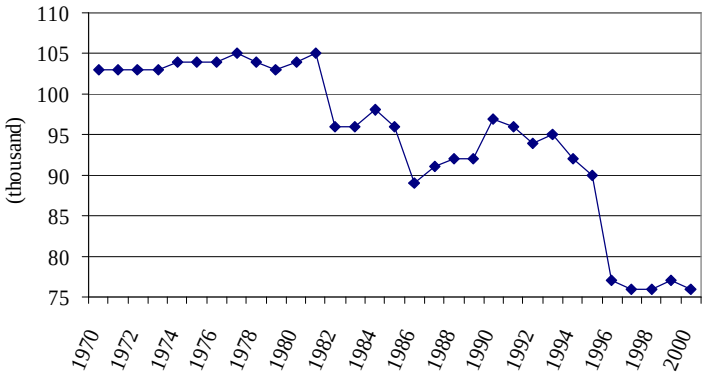
Total hay acreage will move with developments in the dairy and the beef cattle sector and with acreage changes in corn. While hay is important as a cash crop, with some $23 million in sales in 1999, the majority of the crop tends to be fed on the farms where produced. The 1.26 million acres in 1999 is impressively large, exceeding total acreage of any "field crop" in the state by a wide margin.

Peanuts

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$73,629	$59,983
Commodity Rank in Virginia	8th	8th
Receipts in U.S. (1,000s)	$1,116,971	$972,155
Virginia's Rank in U.S. (based on production)	5th	6th

TRENDS IN PLANTED ACRES

Virginia



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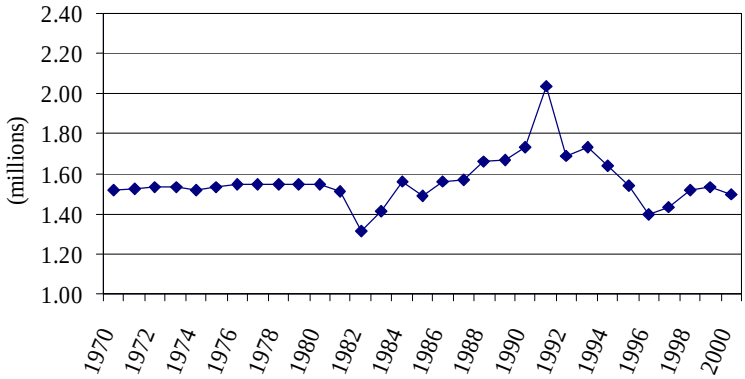
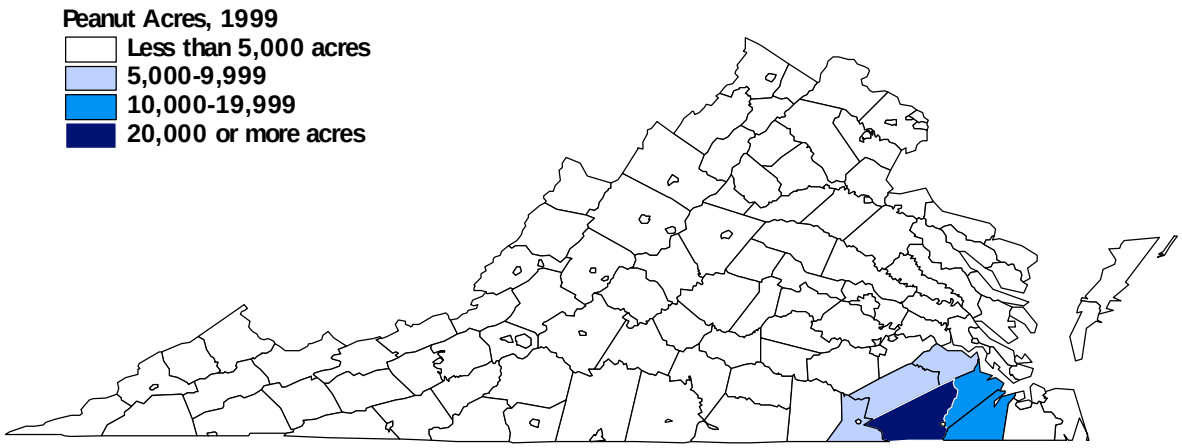


PRODUCTION LOCATION IN VIRGINIA



Peanuts

Past and Present

Ranked 8th in relative importance in Virginia, cash receipts for peanuts were nearly $60 million in 1999. Virginia has a number 6 ranking in the nation, and peanuts is one of the few field crops in Virginia that ranks in the top 10 in the nation. Acreage in the U.S. is volatile, with around 1.5 million acres in 2000. The pattern of acreage in Virginia has been even more variable, with a high of 105,000 acres in 1981 and a decline into the 75,000 range since that time period. At the national and Virginia levels, acreage is primarily a function of the farm program and the extent to which some protection from imports is maintained.

Given the ratification of the North American Free Trade Agreement (NAFTA), which brings Canada, the U.S., and Mexico into a common trade area, Virginia producers will face more competition from other countries in the near future. The 1996 farm bill did not eliminate the peanut program. But the warning signs were clear in 1996 as the legislation was passed. World prices are about 60 percent of prices in the U.S., and there will be strong market-driven pressures for change. Farm program discussions in Congress in mid-2001 suggest a program change that provides transition payments to producers and, perhaps, a target price or counter cyclical price and income provision.

Looking Ahead

Virginia is in a relatively strong competitive position, given its soil types and management know-how in the southeastern part of the state, to produce high-quality peanuts for both the domestic and international markets. Virginia is likely to face a tougher competitive battle in maintaining its acreage in the future if the discussed farm policy program changes are enacted. The trend in recent years in U.S. acreage has been up, and the overall downward trend across the same time period in Virginia acreage suggests that some other producing regions also have a strong competitive position. Both U.S. farm policy and trade policy will be important determinants of the future for this sector.

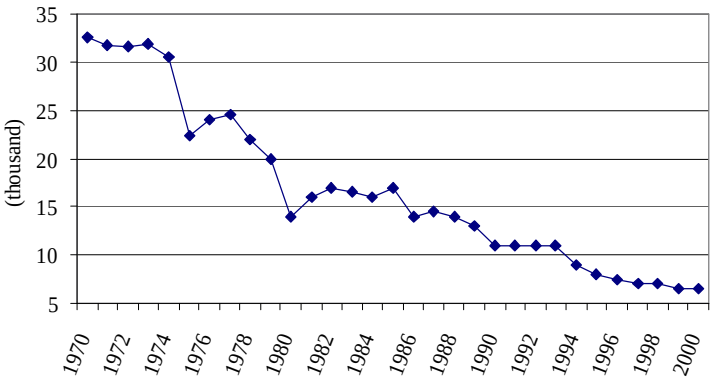
Peanuts are important in Virginia, and Virginia is important in the national scene with a 6th ranking in 1999. The future of peanut production is likely to depend directly on farm policy provisions that influence the level of price supports and/or production controls and on the U.S. position with regard to quotas on imported product in developing trade policy, especially NAFTA and the General Agreement on Tariffs and Trade (GATT). Longer-term, price supports and protective quotas are likely to decrease, putting pressure on the U.S. and Virginia industries. Long-term planning for such a policy scenario is and will be needed.

Potatoes

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$16,807	$7,980
Commodity Rank in Virginia	16th	17th
Receipts in U.S. (1,000s)	$2,335,442	$2,698,042
Virginia's Rank in U.S. (based on production)	7th	10th

TRENDS IN PLANTED ACRES

Virginia



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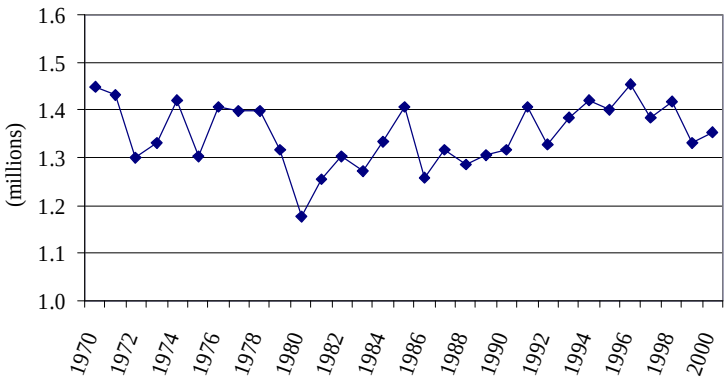
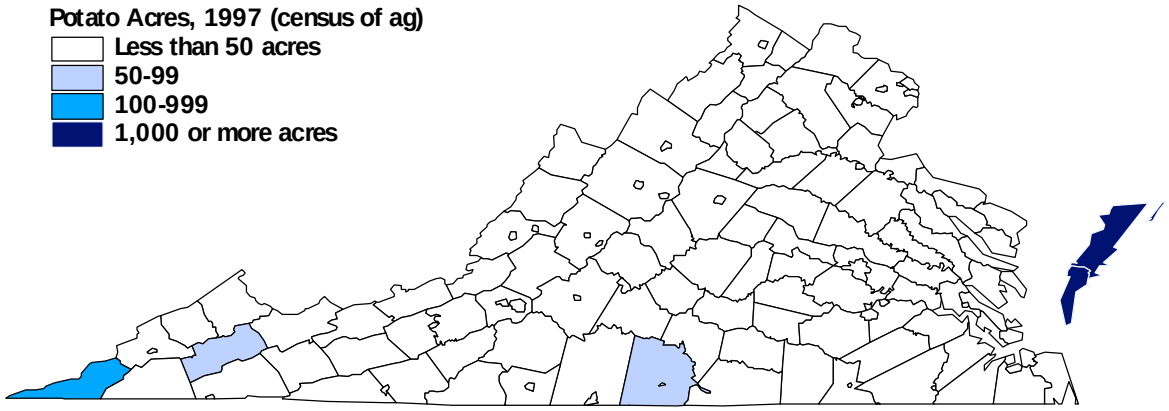


PRODUCTION LOCATION IN VIRGINIA



Potatoes

Past and Present

White or summer potato production is relatively important in Virginia with sales of $8 million in 1999. Virginia's position in the national market is 10th, giving the state another top 10 crop. Much of the production in Virginia is located on the Eastern Shore, with significant production also in the southwestern corner of the state. The acreage pattern in Virginia parallels what is happening in many of the vegetable crops in the state that require a significant amount of hired labor. Virginia's status as a major vegetable-producing state has diminished consistently across the past 25 years in the face of increased competition from around the U.S. and from the world community.

Most analysts feel NAFTA is good for the U.S. in the long run, but most also agree that the vegetable-producing sector is one that will be hurt in the short run by increased production in Mexico. Whether this will be significant for potato production in Virginia is a question of interest and relevance. The national scene has stabilized in recent years in the 1.3 to 1.4 million-acre range. But Virginia's acreage, near 7,000, is down from the 1980s and sharply lower than the levels in the 1970s.

Looking Ahead

Acreage in Virginia is likely to continue to drift lower. Relatively few areas in the state are both well suited to potato production and have developed the infrastructure and processing capacity to handle the crop. Production is likely to be entrenched in those areas, especially on the Eastern Shore, but there is little reason to argue that this crop will expand into other regions of the state, especially in the face of possible increases in competition from Mexico under NAFTA and from other producing countries as GATT brings down trade barriers.

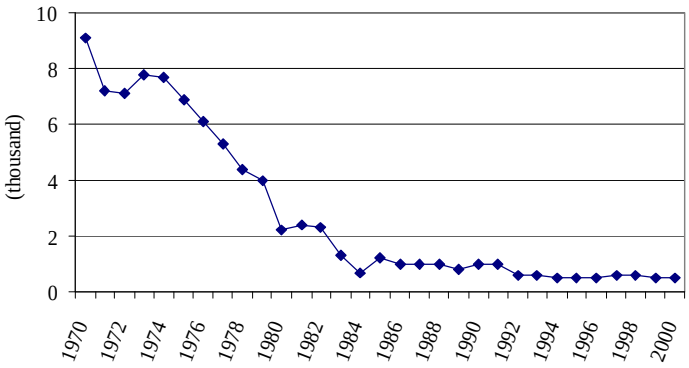
White potatoes fit the same pattern facing many of the traditional vegetable and food crops in the state. Acreage has decreased consistently across the past 20-25 years and is likely to continue to do so given the lack of a comparative advantage in production and the labor-intensive requirements of the crop. Federal and state policies on migrant labor are important to this and other food crops that require seasonal labor.

Sweet Potatoes

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$906	$1,227
Commodity Rank in Virginia	23rd	26th
Receipts in U.S. (1,000s)	$172,971	$208,625
Virginia's Rank in U.S. (based on production)	10th	8th

TRENDS IN PLANTED ACRES

Virginia



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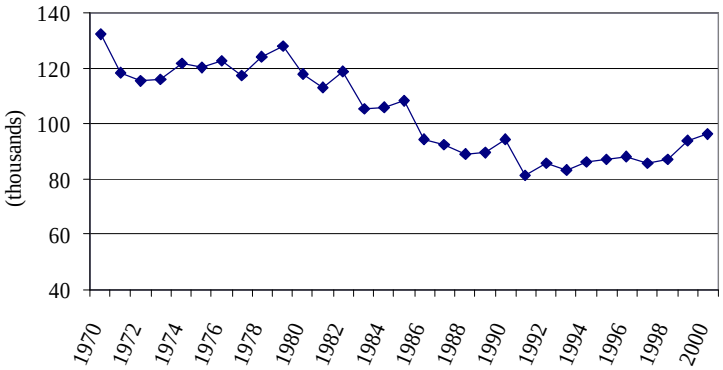
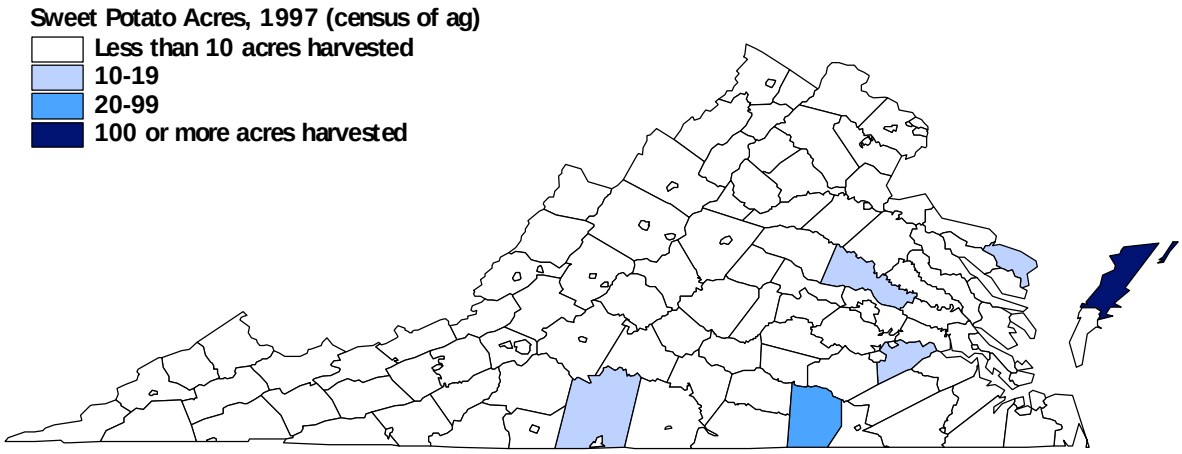


PRODUCTION LOCATION IN VIRGINIA



Sweet Potatoes

Past and Present

Acreage trends in Virginia parallel those in white potatoes, and acreage was near 500 acres in 2000 compared to over 9,000 acres in 1970. There has been a downward trend in production in the U.S. as a whole as the sweet potato crop finds less favor with consumers than it did historically, but acreage has stabilized and even increased slightly in recent years. In Virginia, cash receipts increased from $906,000 in 1989 to $1.227 million in 1999.

Production is again concentrated primarily on the Eastern Shore. As is the case with white potatoes, this region of the state has the infrastructure and the management capability to handle this commodity. NAFTA could also have an impact on sweet potatoes, but the modest size of this sector ensures that the impact on overall Virginia agriculture would be small.

Looking Ahead

Acreage in sweet potatoes has reached a very modest level of some 500 acres and is likely to be sustained near that level, especially on the Eastern Shore. There is no compelling reason to argue that production will plummet even further, given the investment in facilities on the Eastern Shore and the access to the mid-Atlantic and northeastern states as a market. However, there is also no reason to argue that this commodity will expand in production into other regions of the state as competition from other countries under NAFTA starts to develop.

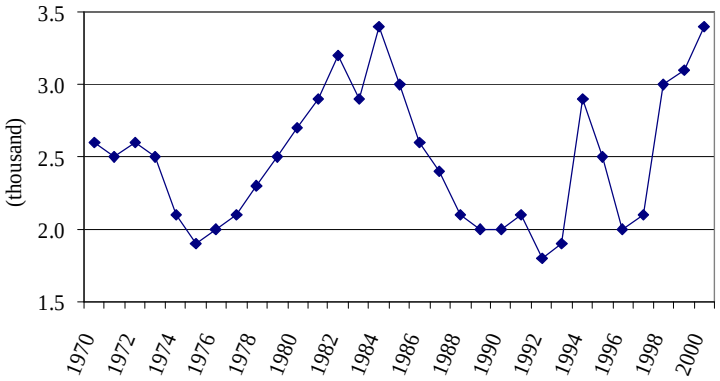
Production of sweet potatoes has declined to very small levels across the past 25 years. Production is likely to be maintained in the 500-acre area, with most of that acreage and production located on the Eastern Shore. Access to middle Atlantic and northeastern population centers has not been enough to maintain Virginia's acreage in sweet potatoes as the crop is eliminated from consumption patterns by many consumers.

Sweet Corn

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$3,318	$2,201
Commodity Rank in Virginia	19th	24th
Receipts in U.S. (1,000s)	$476,527	$695,329
Virginia's Rank in U.S. (based on production)	15th	22nd

TRENDS IN PLANTED ACRES

Virginia



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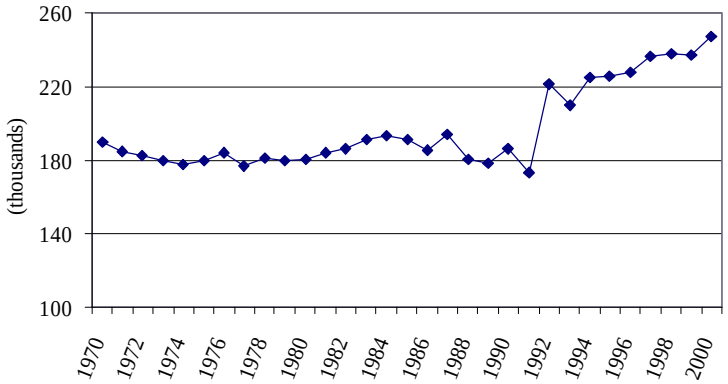
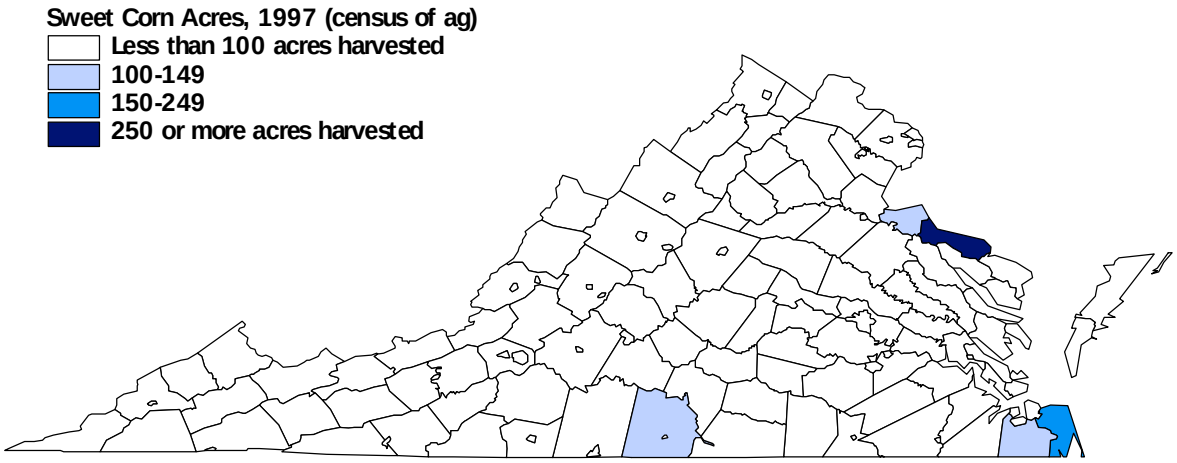


PRODUCTION LOCATION IN VIRGINIA



Sweet Corn

Past and Present

At the U.S. level, acreage declined during the 1980s and then surged toward 250,000 acres in 2000. Virginia's acreage declined in parallel with the U.S. numbers during the 1980s, but there was no surge until 1994, when acreage moved to 2,900 acres, dropped sharply, and then moved above 3,400 acres in 2000. As a consumer product, sweet corn may be pulled in opposite directions by important economic forces. In the 1990s, consumers look for "ease in preparation," and fresh sweet corn can require time to prepare. On the positive side, however, fresh corn is consistent with overall trends toward more crop-based foods and with the current moves toward "pick your own" and sales through roadside stands.

The top producing counties in Virginia are all located near population centers. The total acreage is still only 3,400 acres, suggesting Virginia production is serving only a small fraction of those massive markets. Access to the population centers of the Northeast is often presented as an advantage for Virginia agriculture, but it appears to make little difference in sweet corn. Access to local population centers does seem to be important.

Looking Ahead

Sweet corn is perishable and bulky, and therefore expensive to move. It is a product that gives Virginia a potential advantage given the state's access to a large percentage of the U.S. population. There would appear to be potential for growth, but recent trends are erratic. It may be that more efficient marketing systems and/or development of marketing infrastructure will be needed to make Virginia's producers more competitive. It may also be the case that significant volume of Virginia's sweet corn is moving direct to consumers and is not being "picked up" in the traditional data series reported by state agencies.

Sweet corn would appear to be a "natural" for Virginia with its many part-time farmers and its access to population centers. Through 1992, however, acreage was declining, and there was no obvious move to serve a larger part of the huge markets in and near Virginia until 1994 showed an acreage increase, followed by another surge in the late 1990s. More analysis would appear to be needed here to clarify Virginia's competitive position, clarify how much product is actually being produced and marketed, and establish an information base for long-term planning.

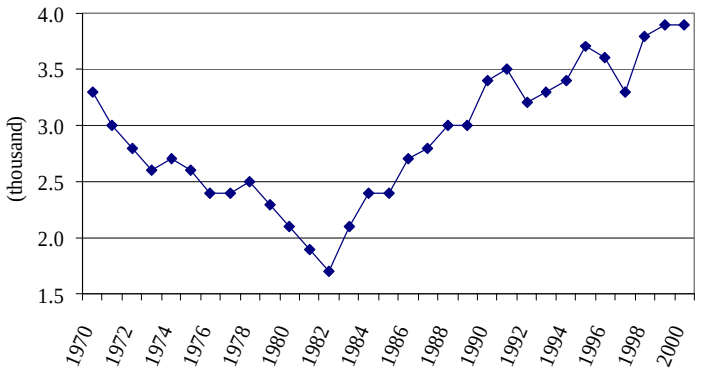
Tomatoes

CASH RECEIPTS AT FARM LEVEL

	1989	1999
Receipts in Virginia (1,000s)	$39,858	$41,496
Commodity Rank in Virginia	13th	10th
Receipts in U.S. (1,000s)	$1,849,856	$1,833,529
Virginia's Rank in U.S. (based on production)	4th	3rd

TRENDS IN HARVESTED ACRES

Virginia



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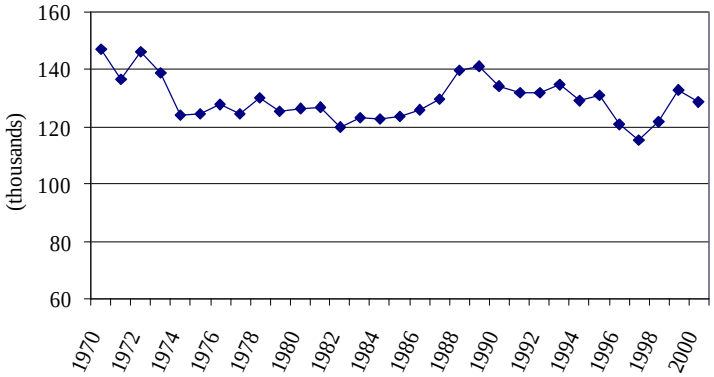
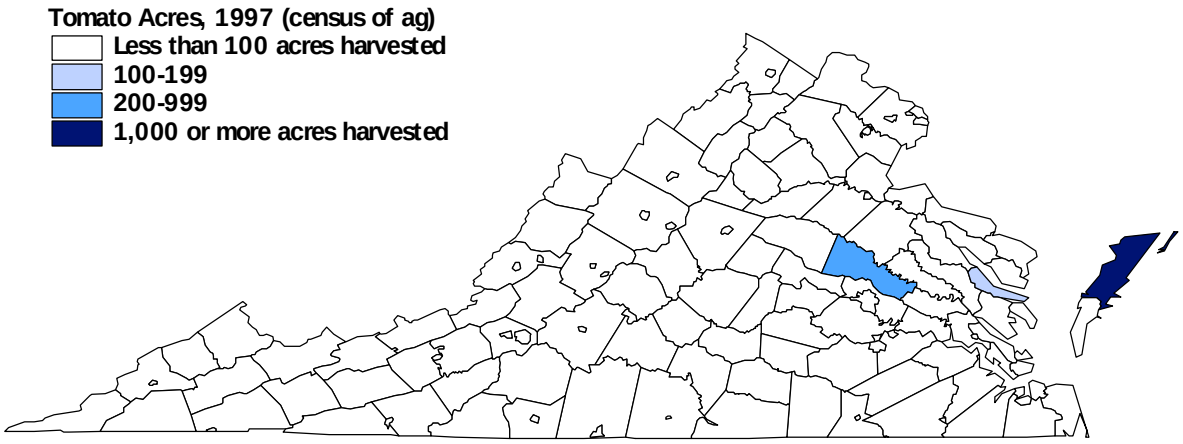


PRODUCTION LOCATION IN VIRGINIA



Tomatoes

Past and Present

Acreage in the U.S. has varied in the 120,000 to 140,000 range. In 2000, acreage was still near 130,000 acres. This commodity has staged a modest comeback in the U.S. as a whole, paralleling a major shift in consumer behavior toward more fruits and vegetables. Salad bars in every restaurant and in some of the fast food establishments help ensure increased consumption of tomatoes as consumers seek on-the-go and low-calorie meal alternatives, especially for lunch.

Production in Virginia has staged a recovery since a 1982 low, when acreage was near 1,700 acres. A surge in the early 1990s to around 3,500 was followed by another slight dip to the 3,300-acre area in 1992, but 2000 acreage approached 4,000 acres. This crop should be able to hold its own and increase in the near term. The map, again, shows much of the production on the Eastern Shore where the management know-how and infrastructure exists to handle this and other perishable commodities. Much of the crop is now grown under contract with large and stable processors. There was and is probably more concern about NAFTA with regard to tomatoes than any other single crop. Many observers feel Mexico is now a major competitor to U.S. and Virginia tomato producers.

Looking Ahead

Tomatoes might expand in the state, especially in and around those highly populated areas where the perishable commodity can be marketed through outdoor farmer's markets or modern retail facilities selling fresh and locally grown product. There are a few large producers selling to the processing markets. The investment in facilities and infrastructure on the Eastern Shore make it likely that tomato production will persist. To some extent, tomato production in the past 15 years has moved back to the relatively strong comparative position in the state that was present in the early 1970s, when commercial tomato production ranged as far west as the Roanoke area and the southern part of the Shenandoah Valley. The impact of NAFTA is not clear to date, but the large-scale production on the Eastern Shore should be cost competitive, and there is potential under the umbrella of large food chains that ships often low-quality product from a distant central distribution facility.

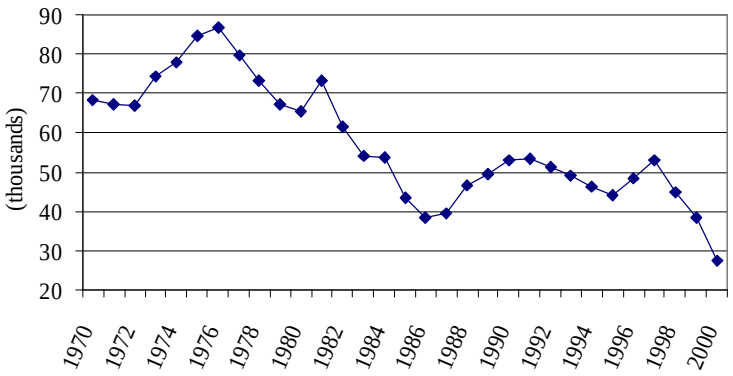
Tomatoes may stage a recovery in Virginia. They are consistent with modern consuming patterns, and Virginia has some advantages in being located near a number of high-population areas. Increased competition from Mexico under NAFTA could constrain any growth in production in the wholesale markets, but retail markets are adding access to consumers for locally grown seasonal tomatoes.

Tobacco

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$160,323	$155,883
Commodity Rank in Virginia	4th	6th
Receipts in U.S. (1,000s)	$2,410,192	$2,272,785
Virginia's Rank in U.S. (based on production)	4th	4th

TRENDS IN HARVESTED ACRES

Virginia



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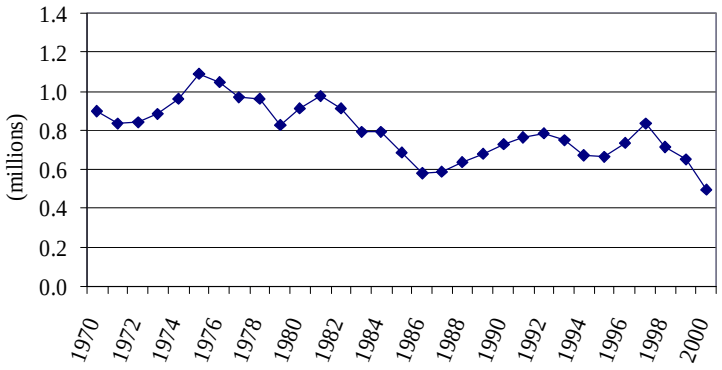
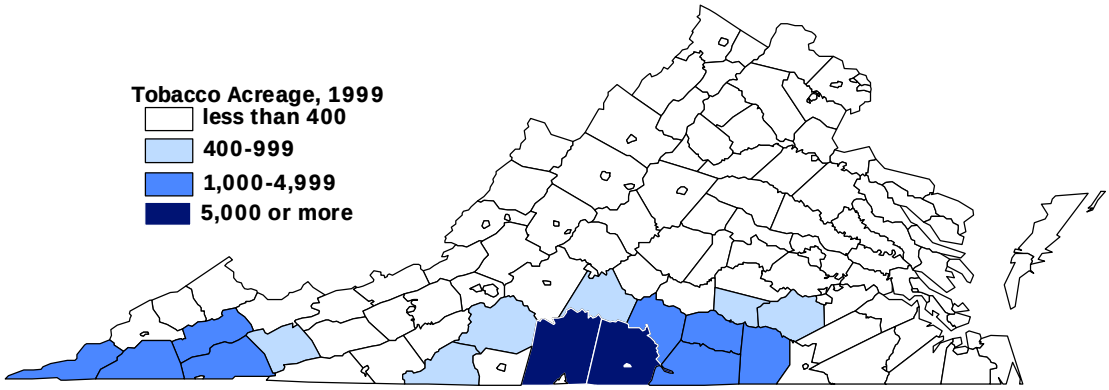


PRODUCTION LOCATION IN VIRGINIA



Tobacco

Past and Present

The acreage trend in Virginia parallels the U.S. as a whole. U.S. acreage for all tobacco dropped from some 1.1 million acres in the mid-1970s to less than 600,000 acres, then moved up toward 800,000 acres in 1992 before declining again to 671,000 acres in 1994. A brief surge pushed above 800,000 acres in 1997, and sustained quota cuts then pushed acreage down to the 500,000 acre area. Virginia had over 85,000 acres in the mid-1970s, dropped to the 40,000 acre range, moved back above 50,000 acres, and dropped to 27,400 acres in 2000. This crop ranks 6th in Virginia in terms of cash receipts, and Virginia ranks 4th in the nation in terms of production, giving the state another top-5 crop. Production patterns and production techniques have changed significantly in the state and around the country. Acreage now tends to be concentrated in the hands of much larger farmers than was the case 20 years ago, and the crop tends to be produced under irrigation and harvested using bulk harvesters and curing barns and other labor-saving techniques. Tobacco production, especially flue-cured tobacco, has traditionally been a highly labor-intensive activity. But technology has benefited the U.S. in general, and Virginia in particular, by reducing the cost of production.

U.S. farm policy, trade policy, and the public stance toward smoking are important for tobacco. More public facilities are banning the use of tobacco, and these patterns are likely to persist. The export market will therefore be even more important in the future, but competition from other producing countries is growing. In 2001, the majority of flue-cured tobacco in Virginia is moving directly to processors via production and marketing contracts.

Looking Ahead

The long-term outlook for tobacco is mixed at best. Consuming patterns are changing in the U.S., but export markets such as mainland China are opening up, and consumption in other countries is increasing. But production in other countries is also increasing. Longer term, one would expect to see U.S. acreage drift lower again and reflect the continued de-emphasis on use and smoking in the U.S. Virginia's share in that market should stay relatively constant, but Virginia's production will decline with the U.S. New research suggests tobacco may be an excellent "host" plant as the genetic engineers develop new ways to produce pharmaceuticals and other valuable consumer products. There are pioneering efforts at Virginia Tech which will be important to the future of this sector in Virginia agriculture.

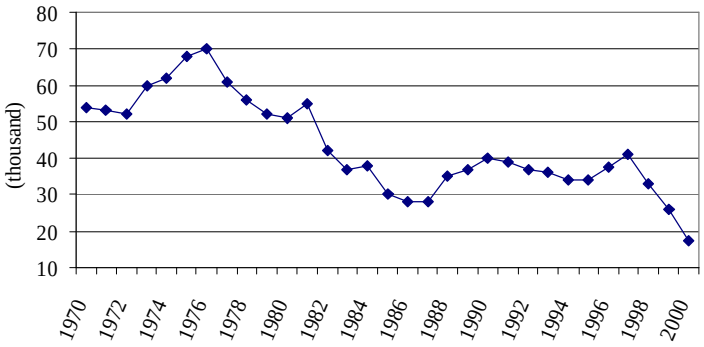
The key to the outlook in tobacco is U.S. policy with regard to smoking and trade policy as it influences export markets for the commodity. The resurgence in acreage in the U.S. and in Virginia since the mid-1980s can be tied directly to growth in the export markets. Other producing countries will have increased access to U.S. markets. New uses for the plant might be developed, and the research on other uses is sufficiently promising to merit private and public support, but the future trend in production is likely to be down. If there is a "program buyout," as is being discussed in mid-2001 again, Virginia's acreage could be threatened. Under the longstanding program, tobacco "quota" cannot be moved to other states or areas. If the program is eliminated, and that is possible if not probable, Virginia producers will be threatened. Research and analysis of policy alternatives will be important.

Tobacco - Flue Cured

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$124,431	$99,698
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$1,402,625	$1,135,810
Virginia's Rank in U.S. (based on production)	4th	4th

TRENDS IN HARVESTED ACRES

Virginia



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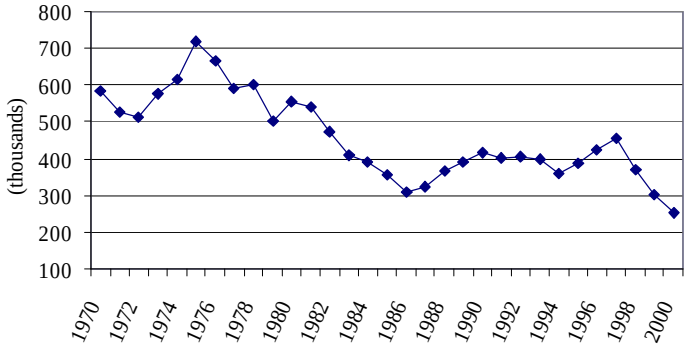
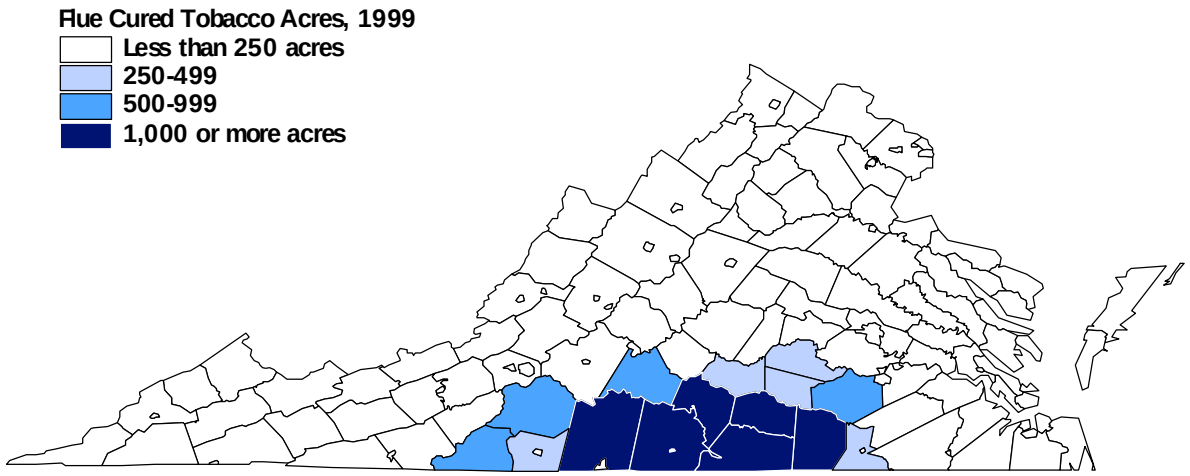


PRODUCTION LOCATION IN VIRGINIA



Tobacco - Flue Cured

Past and Present

With production concentrated in the south central counties, flue-cured tobacco provided some $124 million in 1989, and $99 million in 1999.

Trends in flue-cured tobacco are likely to parallel those discussed on the previous page for total tobacco. The reasons are similar. Policy in the U.S., and the public attitude toward consumption, are the key factors. In addition, access to an export market will be essential for the flue-cured sector if it is to maintain even the reduced acreage and production levels of recent years.

Looking Ahead

Public attitudes in policy will continue to discourage smoking in the U.S., and flue-cured tobacco is used primarily in blends for smoking purposes. Acreage is likely to decline again in the U.S. and in Virginia, given current attitudes and current policy environments in the U.S. The one thing that can stop this would be even more rapid growth in the export markets. While possible, such growth is not highly likely. Access to some of the important export markets, such as China, can be politically sensitive and is influenced by our political and trade policy at the national level. Too, production of flue-cured tobacco is growing rapidly in other countries. Research to develop new uses has potential, but is still in the early stages.

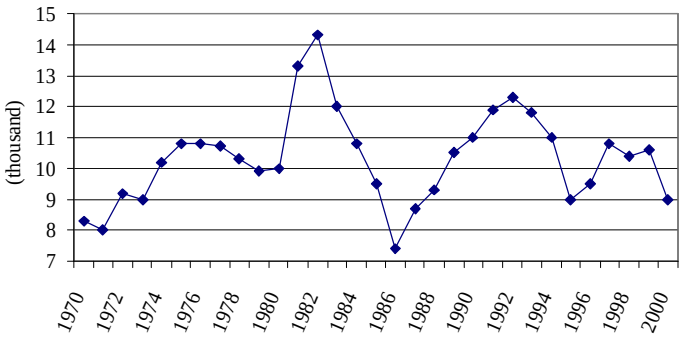
Acreage of flue-cured tobacco in Virginia is likely to drift lower under the pressures of public policy and private sentiment with regard to smoking. How rapid the decline will occur and any possibility of holding acreage at the levels of recent years will rest squarely on developments in the export arena and on help, if any, from research that seeks new uses for the plant. The world market is likely to be even more competitive in the future, and significant adjustments in flue-cured tobacco-producing communities are likely. A key will be what happens to the tobacco program that has been instrumental in keeping quota and the related production in Southside Virginia counties.

Tobacco - Burley

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$32,677	$43,743
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$831,364	$1,047,000
Virginia's Rank in U.S. (based on production)	3rd	3rd

TRENDS IN HARVESTED ACRES

Virginia



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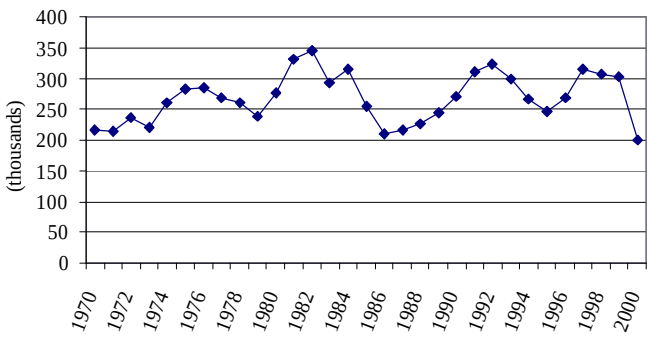
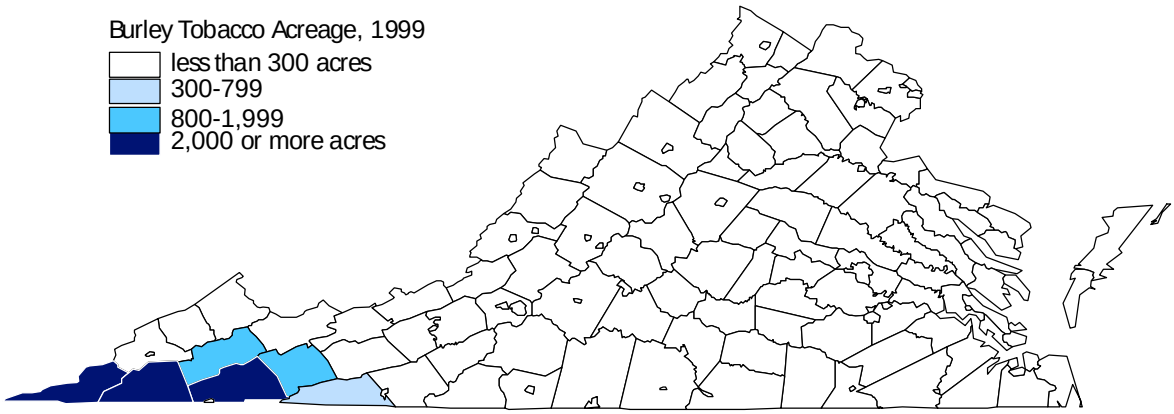


PRODUCTION LOCATION IN VIRGINIA



Tobacco - Burley

Past and Present

A tobacco crop with fewer equipment requirements than flue-cured varieties, the burley acreage pattern in the U.S. and in Virginia is similar to that for total tobacco. Production in Virginia tends to be located in the southwestern counties, especially those counties bordering North Carolina. In 1999, this relatively high-value commodity provided over $43 million in cash receipts, or 28 percent of the total cash receipts in tobacco.

The economic situation facing the tobacco producer parallels that of overall tobacco, which has already been discussed. The growth in acres after 1986 will not be sustained unless the export market continues to grow, and continued growth in the U.S. share of the market will be difficult. The acreage declines in 2000 were related to a large cut in quota, testimony to the importance of the tobacco program in burley and flue-cured production.

Looking Ahead

It is entirely likely that attitudes in the U.S. toward use of tobacco will become even more negative. To the extent that we have new policies forbidding smoking and tobacco use in public facilities or in private facilities such as restaurants, domestic consumption will be discouraged. This will mean that the ability to maintain current production levels will depend almost totally on whether the export market continues to grow. State-level efforts to develop and build those export markets could be very important to the burley tobacco industry in Virginia, but the critical factor in future years will be what happens to the tobacco program.

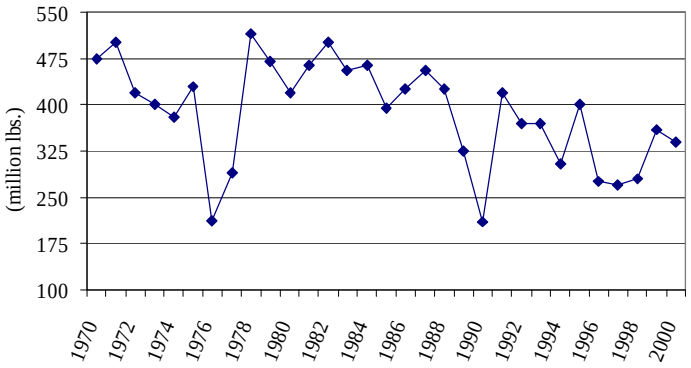
Discouraging use of tobacco and tobacco products is likely to continue to be a problem for the producer of burley tobacco, and the future of this sector is going to depend squarely on what happens in the export arena and the tobacco program. State-level activities to develop export markets and new uses for the plant will be important. Since the burley acreages tend to be relatively smaller and more likely to be tended by part-time farmers, the adjustments to continued decreases in the market may be less dramatic in the burley-producing counties than in the flue-cured producing counties, but they will be nonetheless difficult.

Apples

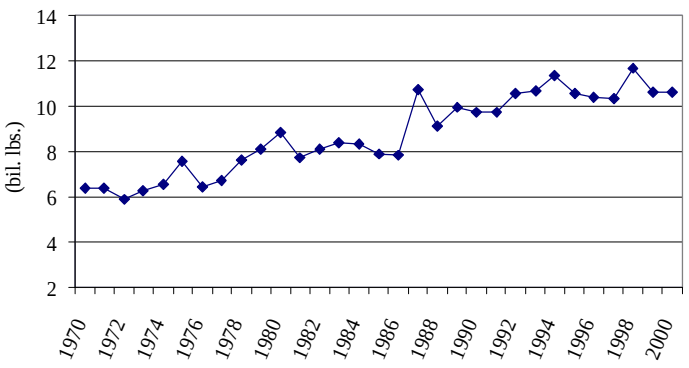
CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$37,905	$39,977
Commodity Rank in Virginia	14th	12th
Receipts in U.S. (1,000s)	$984,458	$1,414,172
Virginia's Rank in U.S. (based on production)	5th	6th

TRENDS IN PRODUCTION

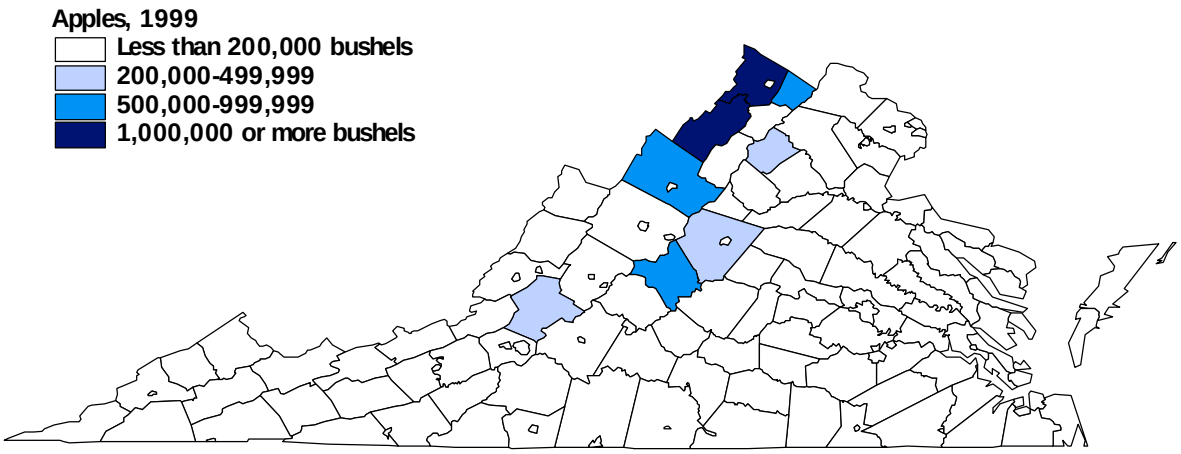
Virginia



U.S.



PRODUCTION LOCATION IN VIRGINIA



Apples

Past and Present

An important tree fruit, apples rank 12th in Virginia, providing nearly $40 million in cash receipts in 1999. In the U.S., Virginia apples ranked 5th in 1989 and 6th in 1999, giving Virginia another top 10 commodity in the national standings. Production at the U.S. level has been increasing in recent years, moving from about 6.4 billion pounds in 1970, up to over 11 billion pounds in 1995, and nearly 12 billion in 1998. There have been strong developments in production technology and apple promotion from competing states, such as the state of Washington. The Washington State apple has become a standard in nearly every consuming market in the U.S.

Production in Virginia has been more volatile, reflecting the susceptibility of this commodity to freezes and other weather problems. The years 1976 and 1990 were good examples of how weather patterns can affect production. From a crop as large as 500 million pounds in a number of instances, the chart shows that crops in 1976 and 1990 dropped toward 200 million pounds, causing an economic disaster for producers. Development of varieties more resistant to freeze damage and development of new production technology is important to the future viability of the apple industry in Virginia, given producers' exposure to weather damage. Apple production in Virginia tends to be for the processing market, especially the apples produced by the large commercial producers as opposed to the smaller direct-marketing operators.

Looking Ahead

Apples are consistent with changing consuming patterns that show more crop-based and high-fiber foods in the diet and are conducive to direct marketing to consumers, through farmer's markets as well as the traditional commercial channels. There is no reason that production of apples for direct consumption in Virginia cannot increase. Production tends to be located in the higher-elevated, northern counties. In some of these counties, population is growing, and this tends to increase market value of apple acreage for development purposes. This will continue to be an issue for the apple producer. Whether production will increase in the state may well depend on how much support the industry gets in production technology, how aggressive the state-level industry is in promotion and marketing, and whether production moves toward direct-consumption apples as compared to processing apples. Land-use taxation policies in the areas where population pressure is increasing will be determinants of whether acreage can stay in apple production.

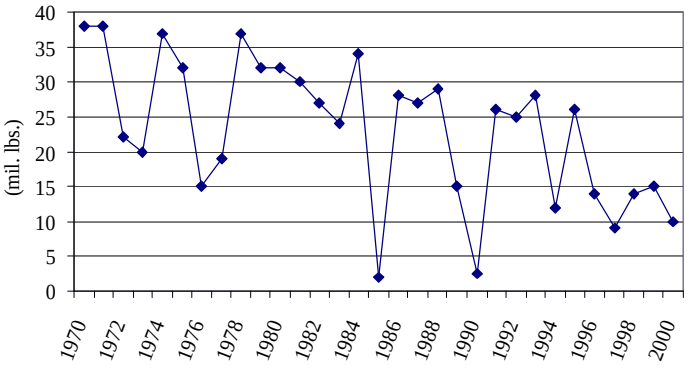
Apple production in Virginia is susceptible to weather problems, but apples are consistent with a changing consumption pattern in the U.S., and Virginia has an advantage in being located near population centers. An aggressive program of development of production technology and an aggressive marketing program could mean growth status for the apple industry in the state. Land-use taxation policies will be important determinants of the future viability of the apple industry since most producing counties are in or near areas of rapid population growth. A change from producing mostly for processing toward fresh consumption may be needed to sustain growth.

Peaches

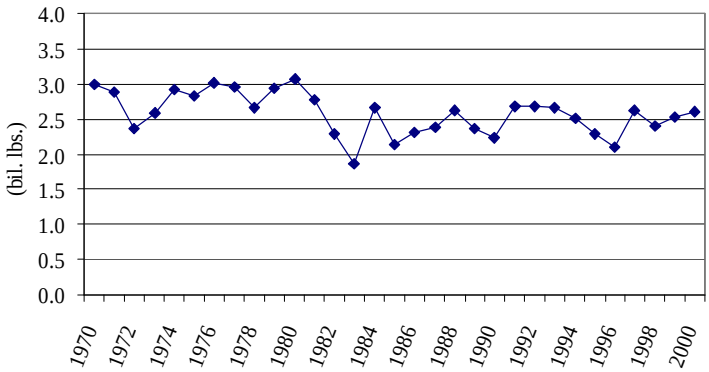
CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$2,988	$3,480
Commodity Rank in Virginia	20th	20th
Receipts in U.S. (1,000s)	$361,374	$462,534
Virginia's Rank in U.S. (based on production)	10th	11th

TRENDS IN PRODUCTION

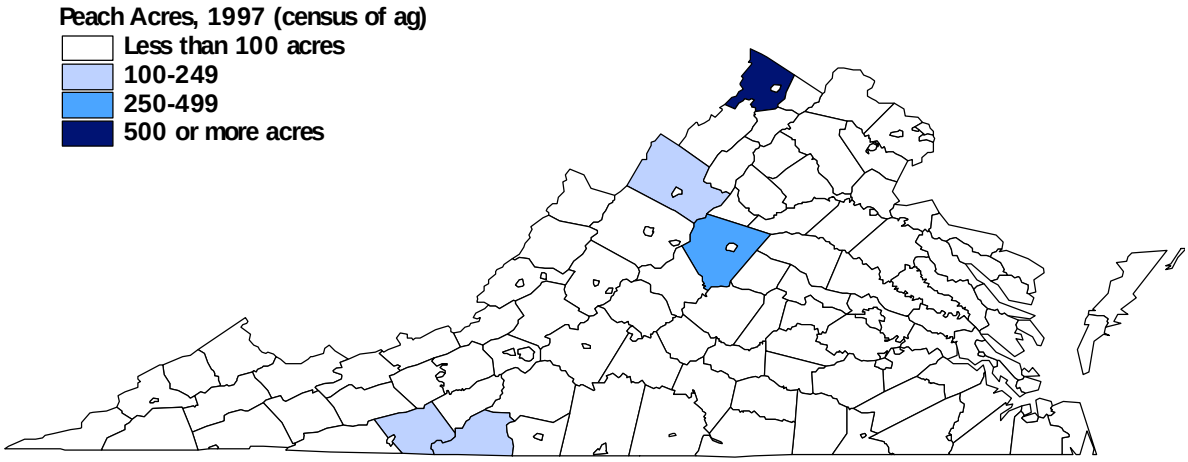
Virginia



U.S.



PRODUCTION LOCATION IN VIRGINIA



Peaches

Past and Present

Production in the U.S. shows little trend, varying around 2.5 billion pounds across the last 10 years. Virginia's production has been as high as 38 million pounds and as low as 2-3 million pounds. The graph for Virginia shows the clear susceptibility of the Virginia peach industry to freeze damage. In 1985 and again in 1990 (the latter the same year that apple production was hit hard), there was essentially no Virginia peach crop. Many orchards grow both apples and peaches, so a year like 1990 is a double disaster. The 1994 Virginia crop was only 12 million lbs., another weather disaster of significant proportions, and production was again in the 10-15 million-lb. range in 2000.

Like apples, peaches are consistent with modern consuming trends, and Virginia has a potential advantage in access to population centers through commercial distribution channels and through farmer's markets. The most important issue in Virginia peaches is susceptibility to freeze damage. Losses such as those sustained by producers in 1985, in 1990, and again in 1994 indicate a difficult long-term future for peaches in Virginia. The 1993 crop was strong, but it is important to recognize that, in the face of growing cash receipts in the U.S., cash receipts in Virginia trended significantly lower from 1984 to 1994, and there is no appreciable growth in recent years.

Looking Ahead

For Virginia to be a major factor in peach production, and to regain its status as one of the top 10 peach-producing states in the nation, both technological development and variety development are needed to minimize or at least reduce susceptibility to freeze damage. The future viability of the industry will require that the total losses in years such as 1985 and 1990 be eliminated or mitigated by research and development. Land-use policies will also be important for peaches as they will be for apples. Like apples, peaches tend to be produced in counties in or near areas of dense population. Taxing much of this acreage at or near market values would put the peach orchard out of business, and pressure to change land-use taxation policies could intensify as the value of the land for development purposes continues to increase.

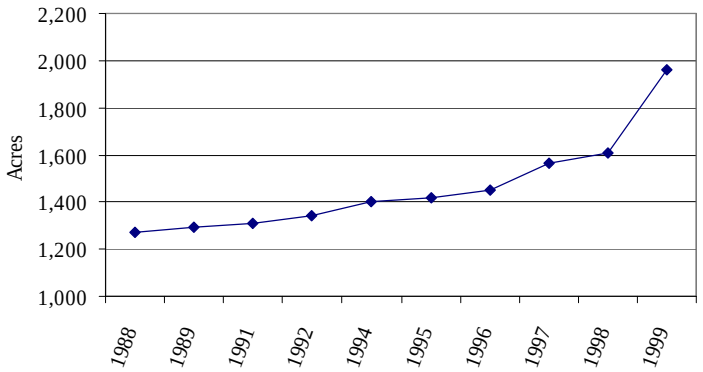
Whether peaches can regain their status as a top 10 producing state in the nation is likely to depend on whether varieties and/or production technology can be developed that can reduce or minimize susceptibility to freeze damage. The research and technology will have to be economically feasible, of course, which means the possible added value has to exceed the cost of the research--assuming money can be found to finance the efforts. Land-use policies will also be a determinant of whether acreage can stay in peaches in the densely populated northern counties such as Loudon and Frederick.

Grapes

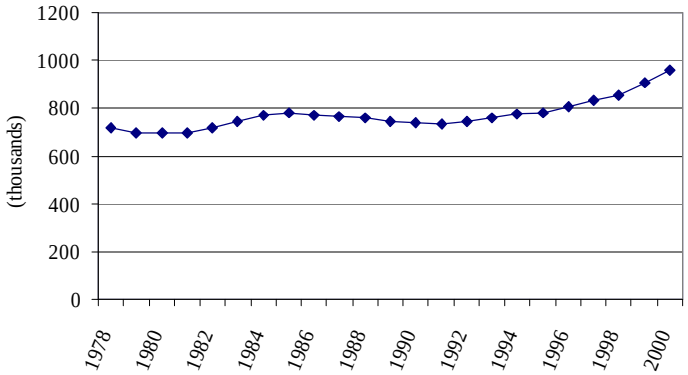
CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	--	--
Commodity Rank in Virginia	--	--
Receipts in U.S. (1,000s)	$1,854,955	$2,731,959
Virginia's Rank in U.S. (based on production)	--	9th (2000)

TRENDS IN TOTAL ACREAGE

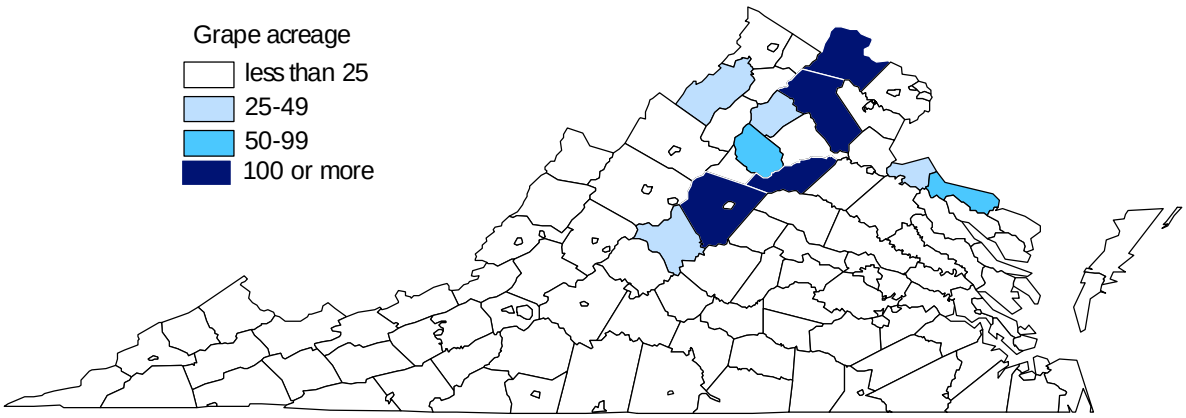
Virginia



U.S.



PRODUCTION LOCATION IN VIRGINIA



Grapes

Past and Present

Grapes are increasing rapidly in Virginia as the Virginia winemaking industry develops. Data are just starting to be collected, and the Virginia rank of 9th in the nation is an estimate from industry sources. Topography and climate are apparently suitable for high-quality wines, and this sector could be a major growth area for Virginia. Production does not compete with cultivated crops and tends to be in counties with rough terrain.

Looking Ahead

Grapes and wine production is complementary to the growing "bed and breakfast" sector and to tourism in general. There are possibilities of guided tours that visit several wineries in some of the most picturesque areas of the state. For growth to occur, more investments are needed in research and education in variety development, production technology, winemaking, and marketing in both the public and private sectors.

This can be a major growth industry in Virginia. It is an example of moving to a high-value crop as the marketplace changes. Grapes also provide a crop that can be grown on hilly terrain that heretofore has been restricted primarily to pasture for beef and sheep programs.

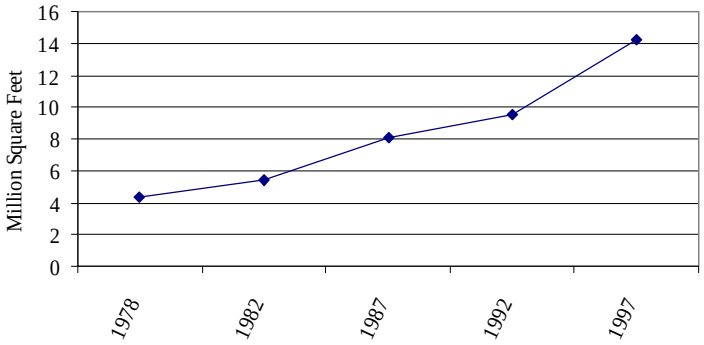
Greenhouse & Nursery

CASH RECEIPTS AT FARM LEVEL	1989	1999
Receipts in Virginia (1,000s)	$91,288	$170,731*
Commodity Rank in Virginia	7th	5th
Receipts in U.S. (1,000s)	$7,776,728	$12,693,501
Virginia's Rank in U.S. (based on production)	19th	21st

*Includes Forest Products

TRENDS IN PRODUCTION (Sq. Feet Under Cover)

Virginia



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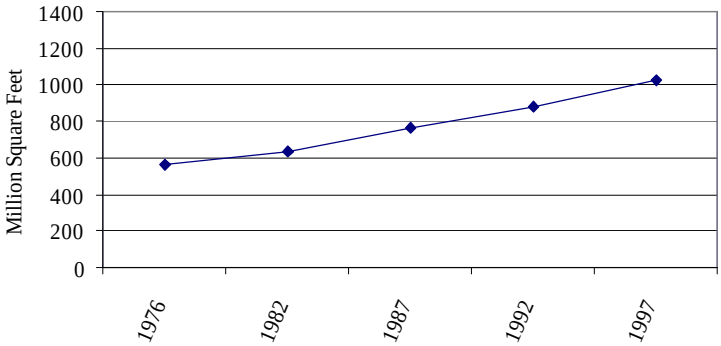
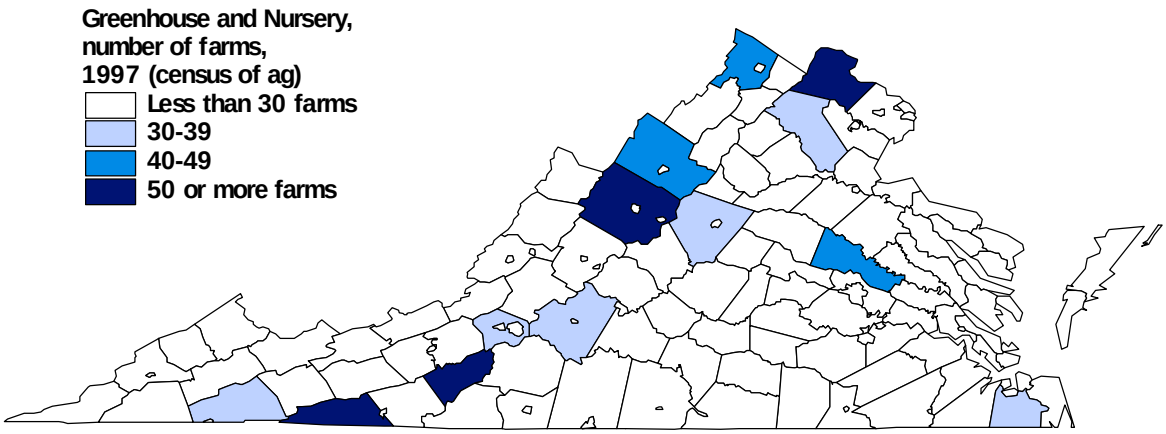


PRODUCTION LOCATION IN VIRGINIA



Greenhouse & Nursery

Past and Present

The data for census years 1978 through 1997 show an increasing importance for greenhouse and nursery production. The 1994 receipts at the U.S. level were in excess of $10 billion. In Virginia, 1999 receipts were nearly $171 million, placing this composite of a number of crops and products 5th in the state. Growth has been rapid. The category includes crops grown in greenhouses or under other forms of cover (cut flowers, cut florist greens, potted plants, greenhouse vegetables, etc.) and crops grown in open acreage (trees, sod, shrubs, etc.). It should be noted that Christmas trees are not included in these "greenhouse and nursery" data. The growth in sod production on sandy soils near the "urban crescent" population centers has been especially impressive.

The charts show faster growth in square footage under cover in Virginia than in the U.S. as a whole, with an increase from slightly above 4 million square feet in 1978 to over 14 million in 1997. County level data are in terms of number of farms, rather than square footage under cover or open acres, because disclosure restraints preclude census listing of data in many counties. Culpeper County, for example, had sales of over $3 million in 1987, but neither the acres of crops nor the square footage of covered space was shown for the county in the census data for reasons of confidentiality.

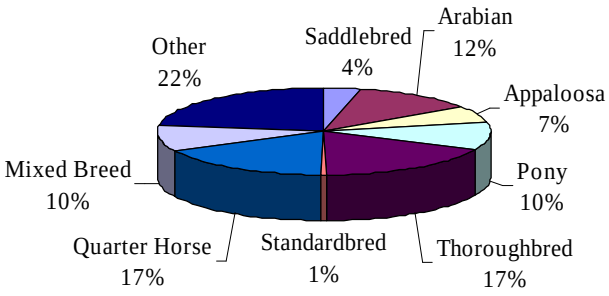
Looking Ahead

A growth sector in the state, this composite of food and ornamentals will likely move up into the top 5 commodities in Virginia within the next few years. Often bulky and costly to transport, greenhouse and nursery products are the type of product for which access to the population centers in the middle Atlantic and northeastern states is truly of significant economic importance. Growth in greenhouse and covered production requires little space, is highly intensive, and is likely to grow faster than open production, especially in and near the population centers where per-acre costs of land can be extremely high.

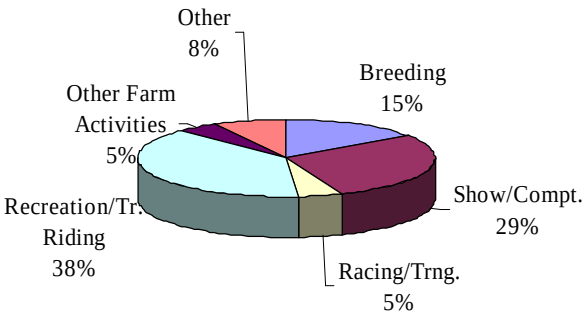
Greenhouse and nursery production is a growth area for Virginia. Nevertheless, care is needed in investigating the market potential and making sure Virginia producers and entrepreneurs can be competitive in reaching middle Atlantic and northeastern markets. Land-use policies, especially land-use taxation policies, will be important in the open-acreage production programs. An "alternative product" area of activity in which it appears Virginia can be very competitive, the greenhouse and nursery sector deserves the close attention of researchers, market developers, and agricultural policy makers and leaders in the state.

Horses

Breeds of Horses in Virginia

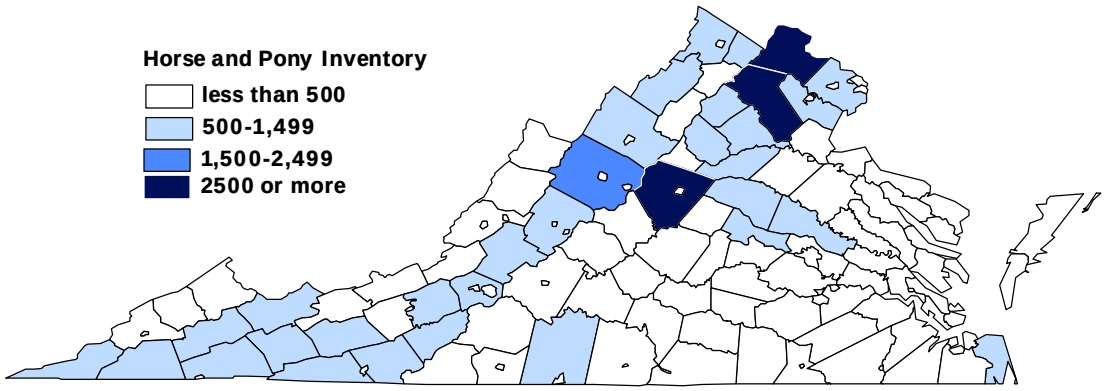


Types of Equine Activities



These graphs are from the *1995 Virginia Horse Industry Profile* prepared by the Wessex Group, Ltd., for the Virginia Equine Educational Foundation, Inc., January 1996.

LOCATION IN VIRGINIA



Horses

Past and Present

Horses have long been a part of Virginia's economy. Unlike agricultural commodities, the impact of the sector cannot be meaningfully measured by looking at farm receipts. The estimated 200,000 to 250,000 horses in Virginia are used for recreational purposes, in shows or other competitions, and for many other non-commercial uses. Sales for breeding purposes are important and come closer to the "farm receipt" measure used throughout this publication, but that measure alone would underestimate the economic impact of the sector.

The map shows concentration of numbers in the northern counties around the population areas, in the Shenandoah Valley, around Richmond, and in the Southeast. But numbers are significant in many other counties spread around the state. Wherever located, expenditures by horse owners contribute to the local economy. A 1995 survey conducted by the industry shows payroll, feed, transportation, and boarding/training to be the top four expenditures at 13.9 percent, 13.6 percent, 10.9 percent, and 10.3 percent respectively. Expenditures for veterinary care and supplies, bedding, fencing, tack and other supplies, farm equipment, and many other uses are also significant. The economic impact is thus spread throughout the community.

Looking Ahead

The horse industry will grow in Virginia. The commercial racing industry in the state is not yet fully established, but growth will occur regardless of whether the fledgling racing industry develops. Racing in surrounding states prompts a demand for breeding stock, training, and development, but the recreation and leisure appeal of horses appears to be sufficient to guarantee growth. Estimates of current employment related to the horse sector approach 25,000, and employment in supply and related sectors would expand that number. Cash receipts in recent years have been estimated to be in excess of $150 million, a level which would make horses a top-10 "enterprise" in the state. But dollar sales, as noted earlier, would likely underestimate the true value of the sector.

The sector will grow. As population and the related demand for recreational and leisure activities grow in Virginia, so too will the number and activity in horses. The contribution from the equine sector reaches into other areas of recreation and tourism where riding events are often featured. If the racing industry "catches on," the contribution to the state economy will be even larger.

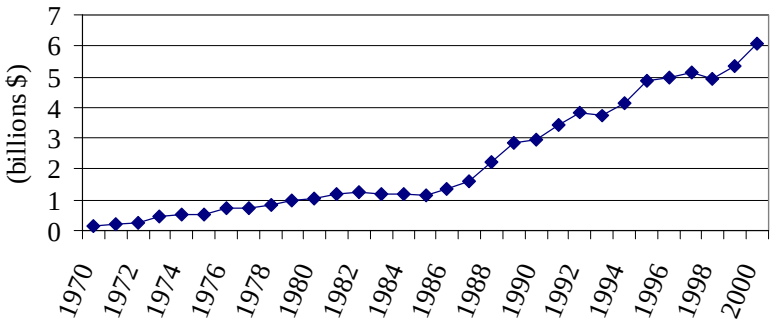
Exports

The export market is important to many agricultural products in the U.S. and in Virginia. In some instances, the potential to develop markets in other countries exceeds the remaining untapped potential in the U.S. In Europe, in China, in Japan, and in the Asian "Rim" countries, rapid economic growth is boosting buying power and creating potential markets for U.S. products.

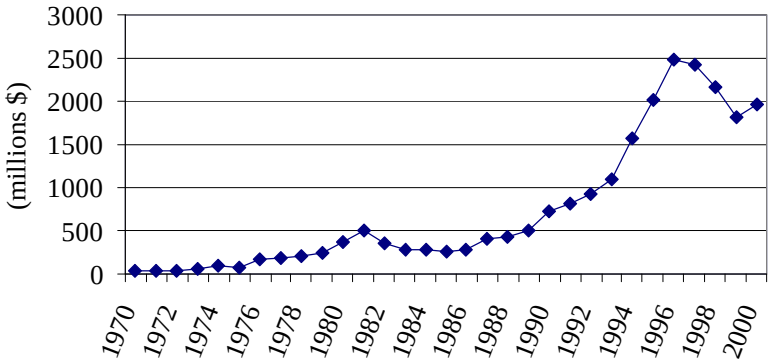
Data on exports at the state level can be difficult to get and sometimes difficult to interpret. The "transfer" problem is the most troublesome issue. A product can be produced in Virginia and move into export channels in another state. Conversely, products produced in other states might move through export channels in Virginia. Despite the difficulties, the export area is obviously important and deserving of attention. There is a widespread perception that pushing to develop export markets is the right thing to do in terms of economic development policy and that state agencies should be directly involved in opening markets overseas. There should always be a caveat to this argument, however. It makes no economic sense and it will not work longer term to push export activity if Virginia does not have, or cannot move into, production of products in which it can truly be competitive. Having access to one of the finest natural ports in the world and to airstrips that allow air transport means nothing if the combined production, processing, and transportation costs to global destinations are significantly above the levels that can be realized by other states, other regions in the U.S., other countries, or U.S. multinational firms located in other countries.

The data presented here indicate relative importance of export markets to the U.S. Any state-level (Virginia) data that are published by the Economic Research Service in USDA are of dubious value. Total exports are allocated across the states based on the state's proportion of production. But that can be misleading. Very few bushels of Virginia's corn will be exported when production is 25-30 million bushels and usage in the state exceeds 60-70 million bushels. The entire area of activity is one that needs detailed analysis, better data, and careful and broad analytical attention. This brief presentation might help to motivate that type of consideration. We show in this section U.S. exports to show trends in important product categories and do not offer ERS state-level data because they can be misleading.

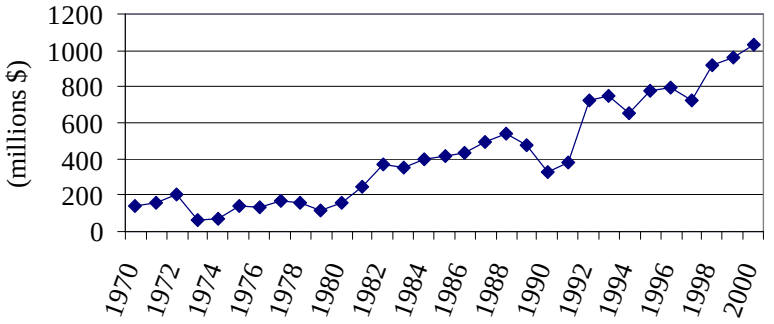
U.S. World Exports for Live Animals and Meat Products, 1970-2000



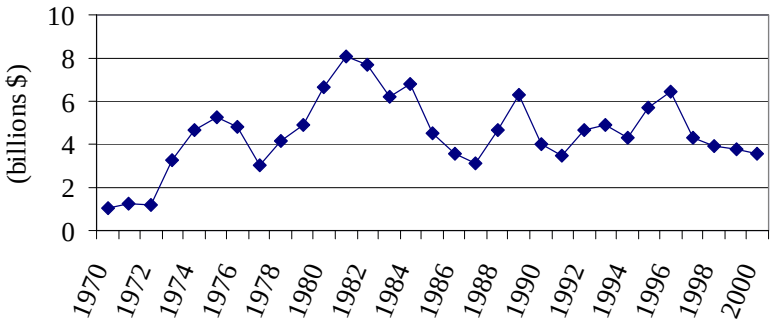
U.S. World Exports for Poultry Meats, 1970-2000



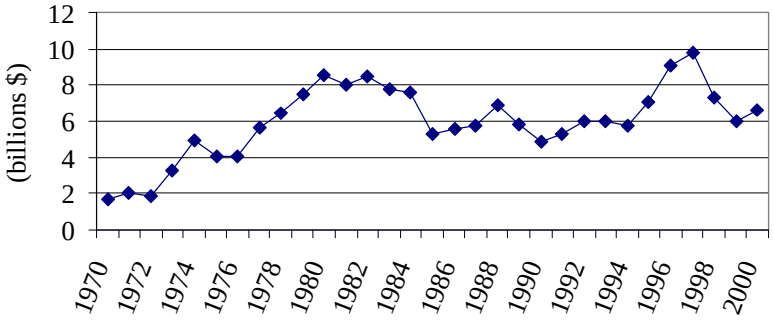
U.S. World Exports for Dairy Products, 1970-2000



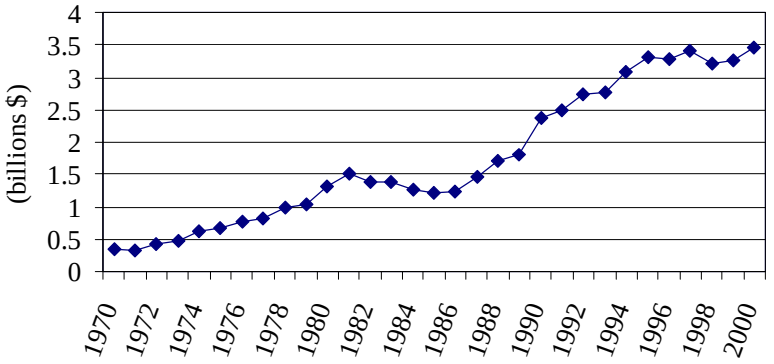
U.S. World Exports for Wheat and Products,
1970-2000



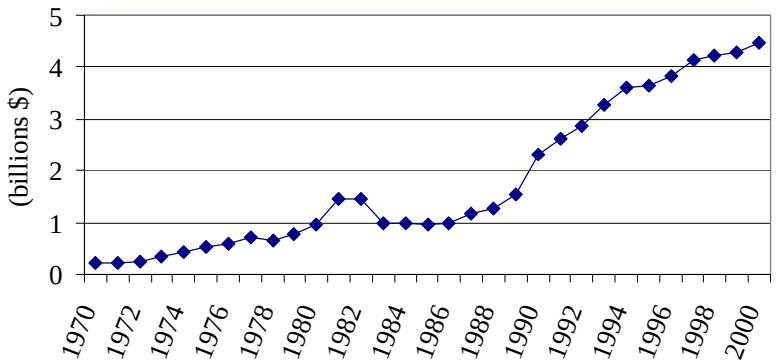
U.S. World Exports for Soybeans and Products,
1970-2000



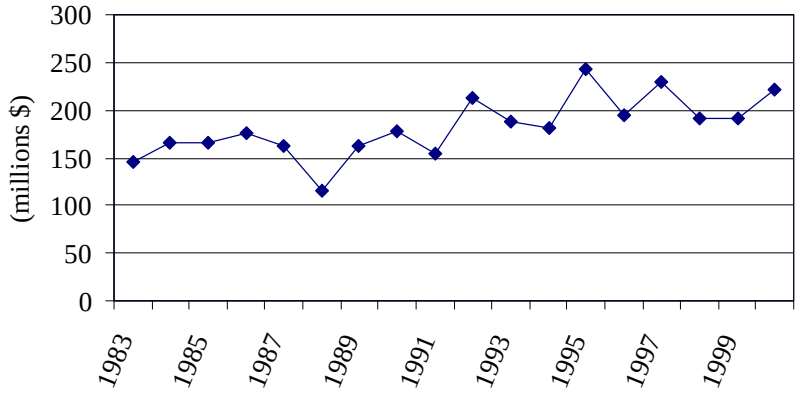
U.S. World Exports for Fruits, 1970-2000



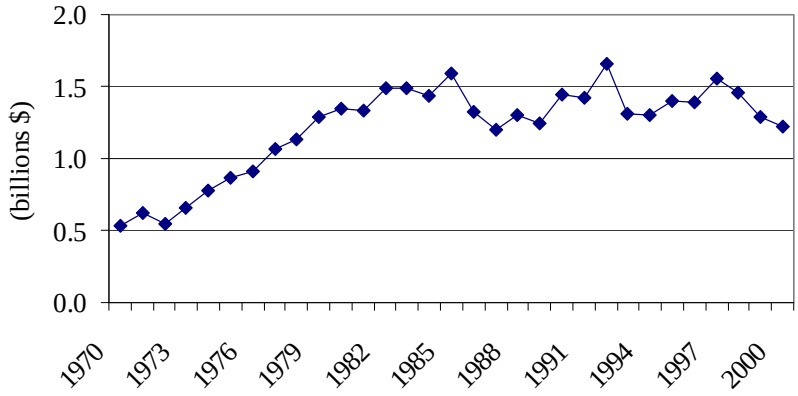
U.S. World Exports for Vegetables, 1970-2000



U.S. World Exports for Peanuts, 1983-2000



U.S. World Exports for Tobacco, 1970-2000



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