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Does Maryland's Smart Growth Program Protect Farmland?

Jesse J. Richardson, Jr. and Amanda Micklow



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Abstract

This paper examines whether Maryland's Smart Growth program protects working farmland. The authors compare data from Maryland, New Jersey, Delaware, Virginia and West Virginia. Census of Agriculture data on number of farms, acres in farms and market value of agricultural products sold.

The study finds that since the implementation of Smart Growth:

- Maryland has lost farms at a greater rate than all neighboring states other than Delaware
- Maryland ranks in the middle of the five states examined with respect to number of acres in farms lost
- Only Delaware experienced a greater reduction in the market value of agricultural products sold

The study concludes that Maryland's failure to consider agriculture as an industry hampers the protection of farmland. In addition, the state appears to treat farmland and open space as equivalents.

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Introduction

Urban sprawl and growth management have moved to the forefront of American political and popular debate. Sprawl may be defined as "unplanned, uncontrolled, and uncoordinated single-use development that does not provide for an attractive and functional mix of uses and/or is not functionally related to surrounding land uses and which variously appears as low density, ribbon or strip, scattered, leapfrog, or isolated development" (Nelson and Duncan, page 1).

The term "smart growth" refers to programs and policies designed to combat undesirable urban sprawl. The State of Maryland is considered a leader in smart growth and perhaps the originator of the term. Although smart growth programs and policies take on various forms, the underlying principles remain the same. Smart growth espouses efficient land use through mixed-use development and detailed, human-scale design by fully utilizing urban services, providing a variety of transportation options, and preserving¹ open space ("Smart growth background", 2007). Smart growth consists of two main pillars: discouraging development on resource lands and encouraging development in appropriate areas.

Resource lands include farmland. However, farmland differs from "open space" or resource lands in general in that the term connotes economic activity. On average, 2.2 million acres of farmland per year were converted to urban uses between 1992 and 2001, compared to 1.1 million acres/year in the previous decade (Nickerson & Barnard, 2006). Facing continuing population and economic growth and increasing development pressures, every state and many local governments have enacted land use policies that seek to protect farmland.

All smart growth programs either explicitly list the protection of farmland as a key goal of the statute or imply that farmland protection is a priority. The protection of open space also appears as a primary objective in most statutes. Often, farmland and open space are used in conjunction with one another or interchangeably.

The prominence of farmland protection as a goal in growth management implies that policy makers perceive that a shortage of farmland exists. For example, Freilich argues that urbanization is consuming such large quantities of agricultural land that a crisis has ensued (Freilich, page 279). Freilich cites figures placing the damage at two acres a minute and three million acres a year (Ibid). The cause of the crisis, according to Freilich, is that the marginal profitability of some farm operations leads farmers to rely on land values for retirement income (Ibid, page 281). When farmers sell off parcels of land to pay loans or to supplement income, land use conflicts, including nuisance suits,

¹ The authors abhor the use of the term "farmland preservation" and prefer to use "farmland protection." With respect to land generally, "land conservation" is the preferred term.

increase (Ibid). This lack of a "critical mass" weakens the farm economy generally, exacerbating the cycle.

Indeed, the amount of farmland in the United States decreased from 1,141.6 million acres in 1945 to 945.5 million acres in 1992. (Tweeten, 1945 Census of Agriculture 5 (1947) and 1992 Census of Agriculture 8 (1994)) The amount of cropland, however, which excludes farmland in forest and permanent pasture, increased between 1945 and 1992. (Tweeten, page 240) However, different regions of the county displayed different rates of loss or gain of cropland. Cropland loss rates during this period were highest in the eastern states, especially in the northeast and in the southeast. (Tweeten, page 240) Contrary to Freilich's assertion, Tweeten estimates that only 377,400 acres of cropland per year (or 41% of the total cropland loss of 920,00 per year) was lost to urban development between 1982 and 1992. (Tweeten, page 241) Highways, parks, wetlands, recreation, wildlife, range land, pasture land, forest land, water reservoirs, and military land use account for the bulk of crop land loss, in Tweeten's view. (Tweeten, page 241) However, conversion to urban use is not reversible, while many other conversions are reversible. (Tweeten, page 241)

Heimalch and Bills note that only 48% of the converted cropland was classified as prime cropland. (Heimalch and Bills, "Soils and Urbanizing Areas; Changes in Productive Capacity, The Limitations for Development" Presentation at the meeting of the American Agricultural Economics Association (July 27-July 30, 1997)) Tweeten calculated the amount of land lost to urbanization versus the amount of land lost to farm causes, such as a lack of ability of farmers to compete for more land or low farm profitability. Urbanization took approximately 26% of the farmland, while farm factors took 74% of the farmland. (Tweeten, Department of Agriculture, Environmental and Development Economics Paper, ESO 2385, 1998)

The causes of farmland loss can, therefore, be fairly debated. In addition, views differ on whether the present level of loss should cause concern. This article does not address the issue of whether farmland needs to be protected or not. The statutes examined in this article generally place great emphasis on the protection of farmland. Therefore, the authors assume that the value of protecting farmland is high and that protection of farmland is a proper governmental purpose.

This article seeks to examine whether the nation's most prominent smart growth program, Maryland's, in fact protects farmland. The authors first summarize traditional farmland protection tools. Maryland's smart growth legislation is then examined. The paper then summarizes Census of Agriculture data from Maryland, as well as Virginia, Delaware, New Jersey, and West Virginia. The comparison explores whether the Maryland's smart growth protects farmland in general or compared to these other states.

Traditional Farmland Protection Tools

Introduction

Governments and private organizations employ traditional farmland protection tools like “agricultural” or large lot zoning, agricultural and forestal districts, purchase of development rights (purchase of conservation easements), use-value assessment for real property tax purposes, and various forms of estate tax relief.

These tools are applied with near blind faith, and with no consideration of the necessary elements of a successful farmland plan. Daniels maintains that farmland protection programs must seek four main goals: (1) protect a critical farmland mass; (2) maintain affordable farmland prices for expansion and entry; (3) provide reliable protection in the future; and (4) achieve results in a cost effective manner (Daniels). These goals notably omit consideration of farm profitability or any focus on the farm operator. In contrast, a survey of county agricultural departments in Washington State revealed that most planning departments felt that the significant factors contributing to a farm operator's decision to retain farmland were farm operation profitability, farm operator age, farm operator plans for the land at his retirement (Klein and Regangold).

Libby encapsulates the latter considerations when asserting that a successful farmland protection policy must "...acknowledge that a farm is more than land. A program that focuses on land, but overlooks the management part of the farm is bound to fail. It may keep land from being developed but will not retain economical, viable, open land with the opportunities and incentives that make land a farm. Open, unattended land, with no economic return, will not long resist development nor should it" (Libby).

Libby further opines that a successful farmland protection program must distribute the costs of the program fairly (Ibid). This paper will not address this important issue. The equitable distribution of costs is an issue that could form the basis of an entire article. Finally, Libby also asserts that all levels of government must participate in order for the program to be successful (Ibid). The vast majority of “traditional” farmland protection policies fail to address any of the three prerequisites for a successful farmland protection program posited by Libby: maintaining the economic viability of farming, distributing the costs fairly and involving all levels of government.

Although these tools protect open space with varying degrees of success, by focusing almost entirely on the land, omitting the “farm” and the farmer, they fail in furthering the industry of agriculture. This section briefly discusses traditional farmland protection tools and their limitations.

Agricultural Zoning

Agricultural zoning designates districts for agricultural land uses and aims to protect farmland from incompatible land uses (Clark & Hall, 2005). Agricultural zoning can generally be divided into two categories, exclusive and non-exclusive zoning.

Exclusive zoning, as its name implies, prohibits any use of the land other than agricultural. This type of zoning permits certain compatible buildings like farm residences and barns on the property. The second, and more common, approach is non-exclusive agricultural zoning, which permits non-agricultural uses, often residential. Non-exclusive agricultural zoning typically takes one of three forms: sliding scale, cluster, or large lot zoning. Sliding scale zoning decreases the number of dwellings per acre as acreage increases. For example, the zoning ordinance might permit one dwelling for the first five acres, one for the next ten, and one for each twenty acres after that. This encourages residential development on smaller parcels, thereby preserving larger tracts of land (Cordes, 2002).

Cluster zoning protects large areas of farmland by “clustering” development on the property. The zoning ordinance may restrict density to one dwelling per five acres, but the actual development is “clustered” together at a higher density, again protecting larger tracts of land (Cordes, 2002). Large lot zoning protects agricultural operations and farmland by restricting density. Lot sizes usually range anywhere from 20 to 640 acres, depending upon location (Richardson, 2007).

Although agricultural zoning has several shortcomings, large lot zoning is most criticized for actually encouraging sprawl. Large lot zoning is supposed to restrict minimum lot size to be too large for residential use, but the minimum amount necessary to conduct agricultural operations. However, often times the lot sizes are too large for development but too small to sustain a farm (Clark & Hall, 2005). The resulting pattern of extremely low-density residential development makes the land unusable for farming or forestry – a practice referred to as “rural sprawl” (Richardson, 2007).

Sliding-scale and cluster zoning hold promise. However, most often these types of zoning occur at very low density, merely changing the form of the rural sprawl.

Agricultural and Forestal Districts

Local governments implement agricultural and forestal districts programs that “allow farmers to form special areas where commercial agriculture is encourage and protected” (American Farmland Trust, 2002, 1). Landowner participation in the district is voluntary and once enrolled in a district, the landowner agrees to maintain the land in an agricultural use for a set number of years (Hellerstein, et al., 2002).

In exchange for this promise, landowners are provided with enhanced protection from nuisance complaints and restrictive local government ordinances. Some programs also offer automatic eligibility for differential tax assessment or property tax credits (American Farmland Trust, 2002).

Conservation Easements

“A conservation easement is a legal agreement between a land owner and a land trust or government agency that permanently limits uses of the land by recording deed restrictions that prohibit development in order to protect its conservation value” (Virginia Chapter of the American Planning Association, 2002, 26). Participation is voluntary. Easements may be sold or donated. In a Purchase of Development Rights (PDR) program, landowners sell conservation easements to a private conservation organization or government agency. The purchasing agency/organization usually pays the landowner the difference between the value of the land for agriculture and the value of the land of its “highest and best use” (American Farmland Trust, 2002, 3).

A conservation easement is most often donated to a preservation agency, resulting in income tax deductions (Hellerstein et al., 2002). In addition, the landowner may receive other income, property, and estate tax benefits (American Farmland Trust, 2002).

Transfer of Development Rights (TDR)

Transfer of Development Rights (TDR) programs “allow landowners to transfer the right to develop one parcel of land to a different parcel of land” (Hellerstein et al., 2002, 10). The local government designates and downzones the “sending area”, an area consisting of resource lands. In addition, an area appropriate for dense development is designated as the “receiving area”.

The landowner in the sending area receives “paper development rights” that may not be used in the sending area, but may be sold to landowners in the receiving area. Purchasing landowners may develop at densities higher than what is otherwise allowed in the receiving area (Hellerstein et al., 2002).

A TDR program may be used to shift development from agricultural areas (sending area) to designated growth zones (receiving area). However, although most TDR programs seek to protect farmland (Fulton, et al.), TDR programs have been primarily effective in urban areas (Lawrence).

Use-Value Assessment

Use-value assessment, also known as differential assessment, assesses agricultural land at its value for agriculture, rather than upon its fair market value, which is generally higher (American Farmland Trust, 2002). Unlike other traditional farmland preservation tools, use-value assessment focuses on the economic viability of agriculture. By reducing property taxes on agricultural land, use-value assessment protects or increases farm profitability. A lack of profitability is a major motivation for farmers to sell land for development, so use-value assessment also protects the agricultural land base (American Farmland Trust, 2002).

Conclusions

While traditional farmland protection tools may prevent or delay development on certain parcels of land, these tools do not prevent development. Land use tools fail to impact the rate or amount of growth in a region. The tools do not alter birth rates, death rates, immigration rates, jobs or other factors determining the rate and amount of development. Although often called ways to “conserve” land, traditional farmland protection tools merely hold the ability to affect the spatial arrangement of development within a region (Richardson 2006).

Traditional farmland protection tools “treat the protection of agricultural land, even the protection of agriculture itself, as a land issue” (Duncan, 1987). Only one tool, use-value assessment, addresses farm profitability. The availability of land does not ensure the continuation of farming (Duncan, 1987). Therefore, traditional farmland protection methods generally fail to promote the industry of agriculture.

Smart Growth in Action: Maryland

Introduction

Maryland’s Smart Growth program is one of the best-known growth management initiatives in the United States. In 2000, the program was proclaimed one of the 10 most innovative new government programs in the nation in the annual Innovations in American Government awards program co-sponsored by Harvard University’s John F. Kennedy School of Government, the Ford Foundation and the Council for Excellence in Government (National Center for Smart Growth Research and Education). This section summarizes Maryland’s smart growth.

Overview of Smart Growth in Maryland

Used throughout the United States, the term “smart growth” was popularized by Maryland’s 1997 Smart Growth legislation. However, the 1997 Smart Growth initiatives are only one part of the development of Maryland’s growth management policy. An important development in growth policy occurred in 1992 with the enactment of the Maryland Economic Growth, Resource Protection, and Planning Act (Planning Act). One important condition of this legislation was a requirement that all local government comprehensive plans be consistent with eight specific “visions” designed to guide policymakers in deciding where and how future development should occur (Frece, 2005). The Act also specified four “sensitive areas” for special protection: streams and stream buffers; 100-year floodplains; habitats for endangered species; and steep slope (“Planning act of 1992,” 2007).

The 1992 Planning Act served as a foundation for the Smart Growth initiatives that would follow five years later. Championed by Maryland Governor Glendening, the 1997 Smart Growth legislation has three specific goals (Maryland Department of Natural Resources,:

1. Support existing communities and neighborhoods by targeting state resources to support development in areas where the infrastructure is already in place or planned to support it;
2. Save our most valuable natural resources before they are forever lost;
3. Save taxpayers millions of dollars in the unnecessary cost of building the infrastructure required to support sprawl.

In order to achieve these goals, the Maryland General Assembly passed five pieces of legislation and budget initiatives, known as the Smart Growth initiatives. The program allows the State to “direct resources to revitalize older developed areas, preserve some of Maryland’s valuable resource and open space lands, and discourage the continuation of sprawling development into our rural areas” (“What is Maryland’s smart growth?” 2007). The centerpieces of the legislation are the (1) Priority Funding Areas and the (2) Rural Legacy Programs. The other initiatives include incentives to develop (3) Brownfields, (4) Live Near Your Work, and (5) Job Creation Tax Credits.

Maryland’s 1997 Smart Growth Initiatives

Priority Funding Areas

The cornerstone of the 1997 initiatives, the PFA Program seeks to influence the location and amount of growth in Maryland by restricting where the State can spend money associated with growth projects to areas known as Priority Funding Areas (PFAs). Projects like highway, sewer and water construction, and economic development assistance in Priority Funding Areas receive funding over other projects in the State (“Priority funding areas,” 2007).

Priority Funding Areas (PFA) include the traditional core of Maryland's urban development and areas targeted for economic development. These PFAs include (“Priority funding areas,” 2007):

1. Municipalities;
2. Baltimore City;
3. Areas inside the Baltimore and Washington Beltways;
4. Neighborhoods designated for revitalization by the Department of Housing and Community Development ("Designated Neighborhoods");
5. Enterprise and Empowerment Zones; and
6. Certified Heritage Areas within county-designated growth areas.
7. County-Designated Smart Growth Areas: Counties may designate areas as a PFA if they meet guidelines for intended use, availability of plans for sewer and water systems, and permitted residential density. The areas eligible for this designation include existing communities and areas where industrial or other economic development is desired.

Figure 1 shows the Priority Funding Areas in Maryland. Most are clustered in the Baltimore and Washington, D.C. areas, with others in towns and other population centers in each county in the state.

Rural Legacy Act

As a counterpart to the Priority Funding Areas Act, the Rural Legacy Program seeks to discourage development on resource land, focusing specifically on the protection of Maryland's agricultural lands and natural resources. The Program encourages local governments and private land trusts to identify Rural Legacy Areas - regions designated by the Rural Legacy Board as rich in agricultural, forestry, natural, and cultural resources- and to apply for competitive funds to supplement existing land preservation efforts or to develop new ones.

Easements or fee estate purchases are sought from willing landowners in order to protect areas vulnerable to sprawl development that can weaken an area's natural resources, thereby jeopardizing the economic value of farming, forestry, recreation and tourism ("Maryland's rural legacy," 2007). As of September 30, 2002, the Rural Legacy Program had permanently protected 32,530 acres in the state (The Maryland Land Conservation Center, 2002). The program uses traditional farmland protection tools.

Figure 2 shows the designated Rural Legacy Areas in the state. Most consist of clusters within each county. Many lie along waterways.

Brownfield Clean-up Program

In order to limit the consumption of open space and farmland, the 1997 legislation provides incentives for brownfield redevelopment. The legislation limits liability for those redeveloping these lands, unless they exacerbate contamination or create new pollution. The law also creates a voluntary clean-up program for brownfields. The program also provides economic incentives in the forms of grants and low-interest loans to fund brownfields redevelopment ("Brownfields," 2007).

Live Near Your Work Program

This program encourages employees of businesses and institutions to buy homes near their workplace by providing a minimum of \$3000 to buyers moving to designated neighborhoods. This initiative will help stabilize the neighborhoods surrounding the State's major employers ("Live near your work," 2007) and curb urban sprawl.

Job Creation Tax Credit Program

The Job Creation Tax Credit Program encourages mid-sized and smaller businesses to invest in Smart Growth areas around the State. This program will encourage a more efficient use of the State's existing infrastructure ("Job creation tax credit," 2007).

Is Maryland's Smart Growth Effective in Protecting Farmland?

Introduction

To determine the impact of Maryland's Smart Growth initiatives upon farms and farmland, Census of Agriculture data from 1992 to 2002 was compared from Maryland and the surrounding states Virginia, West Virginia, New Jersey, and Delaware. As shown in Table 1, the population of these states ranges from 783,600 (Delaware) to 8,414,350 (New Jersey). The land area contained within each state also varies considerably, with Virginia containing 39,594.07 square miles to only 1,953.56 square miles for Delaware. Population densities range from 75.1 people per square mile (West Virginia) to 1,134.4 people per square mile (New Jersey). Despite these differences, the states share similarities in geology, climate, and agriculture. All lie within close proximity to Maryland.

These states also differ greatly in the approach to farmland protection. Although all states address farmland protection, Virginia and West Virginia are considered to lack a great deal of initiatives specifically geared towards farmland. Maryland is considered as the most proactive state with the "best" program for farmland protection.

Geography and Geology

Figure 3 shows the Land Resource Regions contained within the five states. All states lie within five Land Resource Regions (LRR) identified by the U.S. Department of Agriculture (1998):

1. Northern Atlantic Slope Diversified Farming Region (S)
2. East and Central Farming and Forest Region (N)
3. Atlantic and Gulf Coast Lowland Forest and Crop Region (T)
4. South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock Region (P)
5. Northeastern Forage and Forest Region (R)

The majority of the state of Maryland falls in the *Northern Atlantic Slope Diversified Farming Region (S)*. Most of the soils in this region are Udalfs, Udufts, and Ochrepts. These soils are characterized by a mesic temperature regime, udic and aquic moisture regimes, and mixed mineralogy. The eastern part of the state is within the *Atlantic and Gulf Coast Lowland Forest and Crop Region (T)*. Soils in this region have restricted drainage. Most extensive are Aquults. These soils have a thermic temperature regime and an aquic moisture regime. They are deep and medium textured to fine textured. Only a small part of the state falls into the *East and Central Farming and Forest Region (N)* (U.S. Department of Agriculture, 1998).

Virginia contains all four LRR. Most of the state is classified in the *South Atlantic and Gulf Slope Cash Crops, Forest, and Livestock Region (P)*. The dominant soils in this

region, located in the eastern half of the state, are Udults. They have clayey or loamy subsoil, a thermic temperature regime, an udic moisture regime, and kaolinitic, mixed, or oxidic mineralogy. The western part of the state is located within the *East and Central Farming and Forest Region (N)*. Most of the soils in this region are Udults and Ochrepts. They have an udic moisture regime and a thermic or mesic temperature regime. The soils dominantly are well drained, strongly acid, and highly leached and have clay-enriched subsoil. They range from shallow on the sandstone and shale ridges to very deep in the valleys and on the large limestone formations. And a small, coastal area of the state is within *Atlantic and Gulf Coast Lowland Forest and Crop Region (T)* (U.S. Department of Agriculture, 1998).

The majority of the state of West Virginia falls in the *East and Central Farming and Forest Region (N)*. Udults and Udalfs on uplands are the most extensive soils. The Udults are on deeply weathered stable landforms. Fluvents along streams are not extensive, but they are cropped intensively throughout the region. Ochrepts are extensive on mountain slopes and on dissected plateaus. Udalfs and Udolls are in limestone valleys and basins, but their total area is small. A small portion of the state also falls into the *Northern Atlantic Slope Diversified Farming Region (S)* (U.S. Department of Agriculture, 1998).

The coastal nature of the state of Delaware results in the majority of the state falling within the *Atlantic and Gulf Coast Lowland Forest and Crop Region (T)*. The most extensive soils are Aquults. A very small portion in the northern part of the state falls into the *Northern Atlantic Slope Diversified Farming Region (S)* (U.S. Department of Agriculture, 1998).

The *Northern Atlantic Slope Diversified Farming Region (S)* is the most prevalent region in New Jersey. The dominant soils in the region are Udults, Udalfs, and Ochrepts. The coastal, eastern part of the state lies within the *Gulf Coast Lowland Forest and Crop Region (T)*. And the northern tip of the state is in the *Northeastern Forage and Forest Region (R)*. The dominant soils are Ochrepts. (U.S. Department of Agriculture, 1998).

Type of Agriculture

Although the size and population of and number of farms² in the selected states vary the states share significant similarities in the top five crops harvested. Table 2 shows the top

² For the purpose of the Census of Agriculture, a farm is any place from which \$1,000 or more of agricultural products were produced and sold, or normally would have been sold, during the census year. The \$1,000 value is not adjusted for inflation. For the 1997 and 2002 census, operations receiving \$1,000 or more in Federal government payments were counted as farms, even if they had no sales and otherwise lacked the potential to have \$1,000 or more in sales. If a place does not have \$1,000 in sales, a "point system" assigns dollar values for acres of various crops and head of various livestock species to estimate a normal level of sales. Point farms are farms with fewer than \$1,000 in sales during 2002 but have points worth at least \$1,000. Point farms tend to be very small. Some, however, may normally have large sales, but experience low sales in a particular year due to bad weather, disease, changes in marketing strategies, or other factors. The census of agriculture uses the point system to help identify farms meeting the current

5 crops for each state and the number of acres in each of the crops in each state. Soybeans and corn for grain are top crops in each state. Forage, wheat for grain and vegetables are also prominent. The agricultural production in each state is remarkably similar.

Farmland Protection?

Introduction

One goal of Maryland's Smart Growth program is to identify and protect the state's most valuable farmland and other natural resources. As population and development continue to increase and valuable farmland is being converted to other uses, one may question whether Maryland is achieving this goal.

To answer this question, Census of Agriculture data from 1992 to 2002 was analyzed to determine the actual impacts of two of Maryland's Smart Growth initiatives, Priority Funding Areas Act and more specifically, the Rural Legacy Program, upon farmland. The Census of Agriculture is produced every 7 years, so data from the 1992, 1997 and 2002 Censuses of Agriculture are used. Maryland's Smart Growth programs were not enacted until 1997, so the 5-year span between 1992 and 1997 serves as an observation of farmland protection before Smart Growth. The period from 1997 to 2002 shows the performance of the Smart Growth initiative.

This paper compares changes in number of farms

Limitations

This study examines state-level data, which fails to reveal local or small-scale changes or farmland protection successes (and failures). Ideally, regional data would be examined. However, regional data on pertinent information are difficult, or impossible, to find.

Although the states examined share many similarities with respect to agriculture, each state faces different political environments and different, though similar, development pressures. Many factors may impact farmland protection. This study focuses on land use and smart growth.

Number of Farms

Figure 4 displays the percent change in the number of farms in each state for the periods 1992-1997 and 1997-2002. The number of farms in the state of Maryland increased by 1.7 percent from 1992 to 1997, the period prior to enactment of the state's Smart Growth

definition. For 2002, a farm that had \$500 point value and \$500 in government payments is considered a farm. This would not have been true for the 1997 census. For farms with production contracts, the value of the commodities produced is used, not the amount of the fees they receive. In 1997 the land in farms also included acreage in the Conservation Reserve Program, cut Christmas trees, short rotation woody crops, and maple trees tapped (Census of Agriculture, 2002)

initiative in 1997. In the same period, the surrounding 4 states (Virginia, West Virginia, New Jersey, and Delaware) also experienced an increase in the number of farms. Significantly, however, Maryland's percentage increase during that period is dramatically lower than that of West Virginia, New Jersey and Virginia.

After the initial implementation phase, however, the number of farms in Maryland decreased by 8 percent. In the same time period (1997-2002), all five states studied experienced a decrease in the number of farms. Notably, Maryland's decrease is higher than three surrounding states, with Delaware as the only exception. The number of farms in Delaware increased during that period, but at a slightly lower rate than the increase in Maryland.

In the five-year period between 1997-2002, each state showed a loss in the number of farms. In West Virginia, Virginia and New Jersey, these losses are almost mirror images of the prior period's gain, with the greatest increases during 1992-1997, showing the greatest losses in 1997-2002. However, Delaware showed the greatest percentage loss in the number of farms, with Maryland showing a slightly lower rate of decrease. Although all considered states experienced a decrease in the number of farms, the comparably higher percentage in Maryland lends to the conclusion that the Smart Growth initiatives failed to protect farmland.

Number of Acres in Farms

The number of acres in farms tells a similar story as the number of farms. Figure 5 shows the percentage change in acres in farms in each state between 1992 and 1997 and between 1997 and 2002. Between 1997 and 2002, West Virginia, Virginia and New Jersey experienced an increase in the number of acres in farms. Meanwhile, the number of acres in farms in Maryland decreased by 1.4 percent and Delaware showed no change. During the same period, Maryland experienced an increase in the number of farms. This result means that, as shown in Figure 6, the number of larger farms decreased in comparison to the increase in smaller farms.

The number of acres in farms decreased in all five states from 1997-2002. Within this period, the number of acres in farms in Maryland decreased by 5.3 percent. New Jersey and Delaware experienced greater percentage decreases, while West Virginia and Virginia saw small losses.

Maryland's Smart Growth initiatives appeared to have little impact during the study period with respect to acres of farmland lost. Maryland experienced greater acreage loss than states comparable in size and farm acreage, although all states in the region experienced a decrease in the number of farm acres. This finding demonstrates that Maryland's initiatives are generally unsuccessful at protecting farmland, as the percent lost in acres is similar to surrounding states.

Furthermore, Maryland's program may encourage small farms at the expense of large farms. A recent USDA report stated that even though large-scale farms (those with sales

more than \$250,000) only make up 10 percent of the nation's agriculture industry these firms account for 75 percent of the value of production (Shelsby, 2007). With the number of large farms decreasing in Maryland there are significant consequences for the economic viability of agriculture in the state. If the goal of farmland protection is to further the production of food and fiber, the initiatives fall short.

The reduction in number of acres in farms proves unsurprising in light of data on growth within the state. Although 72% of new lots are located within Priority Funding Areas, about 76% of acres consumed by new development lie outside of Priority Funding Areas (http://www.mdp.state.md.us/msdc/dw_pfa.htm). Low density, large lot development outside of Priority Funding Areas appear to be creating rural sprawl (Knaap, et al. 2003). Some researchers suggest that Maryland's growth constraints may be pushing growth further out instead of concentrating development in urban areas (Ibid).

Economic Viability

Traditional farmland protection programs focus on protecting agricultural land often omitting consideration of farm profitability. Lawrence Libby (1997) asserts that a successful farmland protection policy must "acknowledge that a farm is more than land. A program that focuses on land, but overlooks the management part of the farm is bound to fail. It may keep land from being developed, but will not retain economically viable open land with the opportunities and incentives that make land a farm" (Libby, page ?)

Maryland's Smart Growth centers on protecting agricultural lands but fails to focus on the economical viability of Maryland farms. As shown on Table 7, the market value of agricultural products sold³ in Maryland decreased by 5.7 percent from 1997 to 2002. In contrast, in the period before the initiatives (1992-1997), the market value of agricultural products sold within Maryland increased by 17.3 percent.

The only other state to see a significant decline in the market value of agricultural products sold between 1997 and 2002 was Delaware, which saw a dramatic decline of 19.3%. The market value of agricultural products sold in Virginia during that period decreased by 1.4%. In contrast the market value of agricultural products sold in West Virginia and New Jersey increased by 5.1% and 6%, respectively, during that time period.

³ The market value of agricultural products sold represents the gross market value before taxes and production expenses of all agricultural products sold or removed from the place in 2002, regardless of who received the payment. It is the equivalent of total sales. However, this category does not include income from payments received in participation from some federal programs and data may include sales from crops produced in earlier years by may exclude some crops produced in 2002 but held in storage but not sold.

Conclusion

Although the rhetoric suggests that Maryland's Smart Growth protects working farmland, the state fares poorly in each of the areas examined in this paper to measure success. The number of farms, acres in farms and market value of agricultural products have all declined in Maryland. Moreover, the performance in Maryland falls short of other states in the region, some of which are not known for farmland protection or smart growth.

The focus of Maryland's Smart Growth initiatives proves too narrow. Land is only one input in the agricultural production process (Duncan, 1987). Programs, like Maryland's, that espouse agricultural protection by using traditional land use tools fail to maintain viable commercial farmland operations. This is evidenced through the noteworthy differences in the market value of agricultural products sold. Both New Jersey and West Virginia experienced an increase in market value of agricultural products sold while Virginia's decrease is significantly lower than Maryland's. This illustrates that Maryland's initiatives fail to consider farm profitability and productivity.

Conclusions

Although the literature considers Maryland as a leader in farmland protection, an examination of data that best measure the promotion of the economic activity of agriculture shows that Maryland falls short of the praise. Maryland shares the shortfall of most farmland protection programs across the country in failing to consider the economic viability of agricultural operations in the formulation of policy. In addition farmland, open space, forestland and other resource lands are lumped into one category instead of separately addressed.

Working lands differ greatly from other resource lands in that the protection efforts seek, at least rhetorically, to advance an economic activity. Merely protecting land fails to advance the economic activity and may hinder that activity.

To truly protect farmland as a working landscape, Maryland policies should address agriculture as an industry and seek to promote that industry. Program evaluation should consist of more than just counting the number of acres and number of properties permanently barred from development.

Maryland's Smart Growth program has advanced the practice and policy and growth management across the country. The state deserves the accolades heaped upon it. However, room for improvement exists, particularly with respect to farmland protection.

Bibliography

- American Farmland Trust. (2002). "Fact sheet: The farmland protection toolbox." Retrieved from www.farmlandinfo.org/documents/27761/FS_Toolbox_10-02.pdf.
- Bolen, E., Brown, K., Kiernan, D., & Konschnick, K. (2002). "Smart growth: A review of programs state by state." 8 *Hastings W.-N.W. J Envtl. L. & Pol'y* 145.
- Clark, J.K., & Hall, P.K. (2005). "Does "AG" Stand for Anything Goes? The Status of Agricultural Zoning in Ohio." Prepared for OSU's Center for Urban and Regional Analysis, Columbus, Ohio.
- Cordes, M. (2002). Agricultural zoning: Impacts and future directions. *Northern Illinois Law Review*, Volume 22, pp. 419- .
- Daniels, Thomas L., "Where Does Cluster Zoning Fit in Farmland Protection", *APA Journal*, Winter, 1997, pg. 129.
- Duncan, M.L. (1987). "High noon on the Orgallala Aquifer: Agriculture does not live by farmland preservation alone", *Washburn Law Journal*, pp. 16- .18.
- Frece, J.W. (2005). "Symposium 2005: Twenty lessons learned from Maryland's smart growth initiative", *Vermont. Journal of Environmental Law*, Vol. 6, pp. 13-?.
- Fulton, William, Jan Mazurek, Rick Pruetz, and Chris Williamson, "TDRs and Other Market-Based Land Mechanisms: How They Work and Their Role in Shaping Metropolitan Growth", The Brookings Institution Center on Urban and Metropolitan Policy, 46 pp. (June 2004).
- Hellerstein, D., Nickerson, C., Cooper, J., Feather, P., Gadsby, D., Mullarkey, D., Tegene, A., & Barnard, C. (2002). "Farmland protection: The role of public preferences for rural amenities." *Agricultural Economic Report (815)*. Washington, D.C.: U.S. Department of Agriculture.
- Klein, Linda R. and John P. Reganold (January-February 1997)"Agricultural Changes and Farmland Protection in Western Washington", *Journal of Soil and Water Conservation*, pg. 12.
- Knapp, Gerrit, Jungyul Sohn, John W. Frece, and Elizabeth Holler. (2003). "Smart Growth, Housing, Markets and Development Trends in the Baltimore-Washington Corridor", The National Center for Smart Growth Education and Research, 31 pp.
- Lawrence, Timothy J. "Transfer of Development Rights", Ohio State University Fact Sheet CDFS-1264-98

Libby, L.W. (1997). Farmland protection policy: An economic perspective. [Working Paper] Center for Agriculture in the Environment, available <http://aftresearch.org/research/resource/publications/wp/wp97-1.html>.

Maryland Department of Natural Resources. "Brownfields." Retrieved July 18, 2007 from <http://www.dnr.state.md.us/education/growfromhere/LESSON15/MDP/BROWNFIELDS.HTM>

Maryland Department of Natural Resources. "Job creation tax credit." Retrieved July 18, 2007 from <http://www.dnr.state.md.us/education/growfromhere/LESSON15/MDP/TAXCREDIT.HTM>.

Maryland Department of Natural Resources. "Live near your work." Retrieved July 18, 2007 from <http://www.dnr.state.md.us/education/growfromhere/LESSON15/MDP/LNYW.HTM>

Maryland Department of Natural Resources. (2007). "Maryland's rural legacy" Retrieved July 20, 2007 from <http://www.dnr.state.md.us/rurallegacy/rlprogram/introduction.html>

Maryland Department of Natural Resources. "What is Maryland's smart growth?" Retrieved July 21, 2007 from <http://www.dnr.state.md.us/education/growfromhere/LESSON15/MDP/smartwhat.htm>

Maryland Department of Planning. "Smart growth background." Retrieved July 20, 2007 from <http://www.mdp.state.md.us/smartintro.htm>.

Maryland Department of Planning. "Smart growth priority funding areas act of 1997." Retrieved July 24, 2007 from <http://www.mdp.state.md.us/fundingact.htm>.

Maryland Department of Planning. "The economic growth, resource protection, and planning act of 1992." Retrieved July 23, 2007 from <http://www.mdp.state.md.us/planningact.htm>.

The Maryland Land Conservation Center. (2002). "Rural Legacy Program." Retrieved July 24, 2007 from <http://www.conservemd.org/purchased/rurallegacy/index.html>

National Center for Smart Growth Research and Education. "Smart growth in Maryland." Retrieved July 21, 2007 from <http://www.smartgrowth.umd.edu/smartgrowthinmaryland.htm>.

Nickerson, C. & Barnard, C. (2006, July 21). "Farmland protection programs." Agricultural Resources and Environmental Indicators. Retrieved from <http://www.ers.usda.gov/publications/arei/eib16/Chapter5/5.6/>.

Richardson, Jr., J.J. 2007. "Beyond fairness: What really works to protect farmland?", *Drake Journal of Agricultural Law* (forthcoming).

Richardson, Jr., J.J. (2006) "Conservation Easements: smart growth or sprawl promotion", *Agricultural Law Update*, Vol. 5, pp. 4-5.

Shelsby, T. (July 1, 2007). USDA report offers a snapshot of American farming. *Baltimore Sun*.

U.S. Department of Agriculture. (1998) "Land Resource Regions." Retrieved July 19, 2007 from http://www.soilinfo.psu.edu/soil_lrr/.

Virginia Chapter of the American Planning Association. (2002). "Virginia's growth management tools." [electronic version] www.vaplanning.org/pdfs/growthtools.pdf.

Figures and Tables

Figure 1: Maryland Department of Planning. "Map of Priority Funding Areas." Retrieved July 24, 2007 from http://www.mdp.state.md.us/pfamap_large.htm.

Figure 2: Maryland Department of Natural Resources. (2007). "Statewide Map of Rural Legacy Areas." Retrieved July 25, 2007 from http://www.dnr.state.md.us/rurallegacy/rlprogram/state_RL_05.pdf

Figure 3: U.S. Department of Agriculture. (1998) "Land Resource Regions." Retrieved July 19, 2007 from http://www.soilinfo.psu.edu/soil_lrr/.

Table 1: U.S. Census Bureau. (2002). State and county quick facts. Retrieved July 14, 2007 from <http://quickfacts.census.gov/qfd/index.html>.

Table 2: U.S. Department of Agriculture

Figures

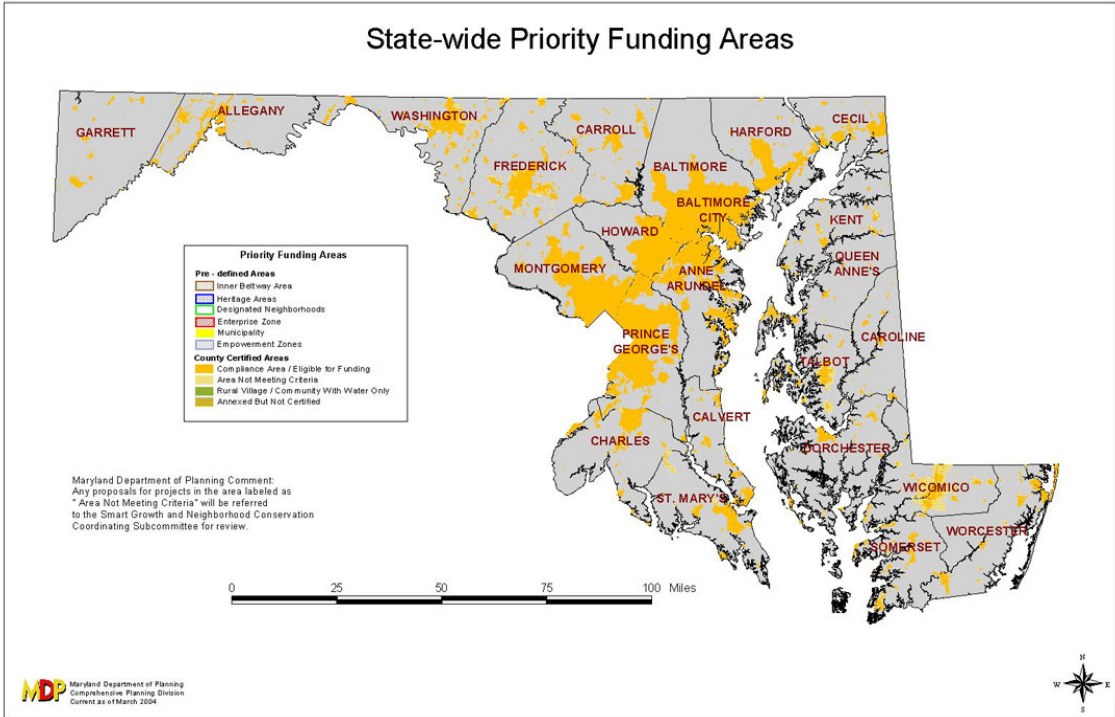


Figure 1

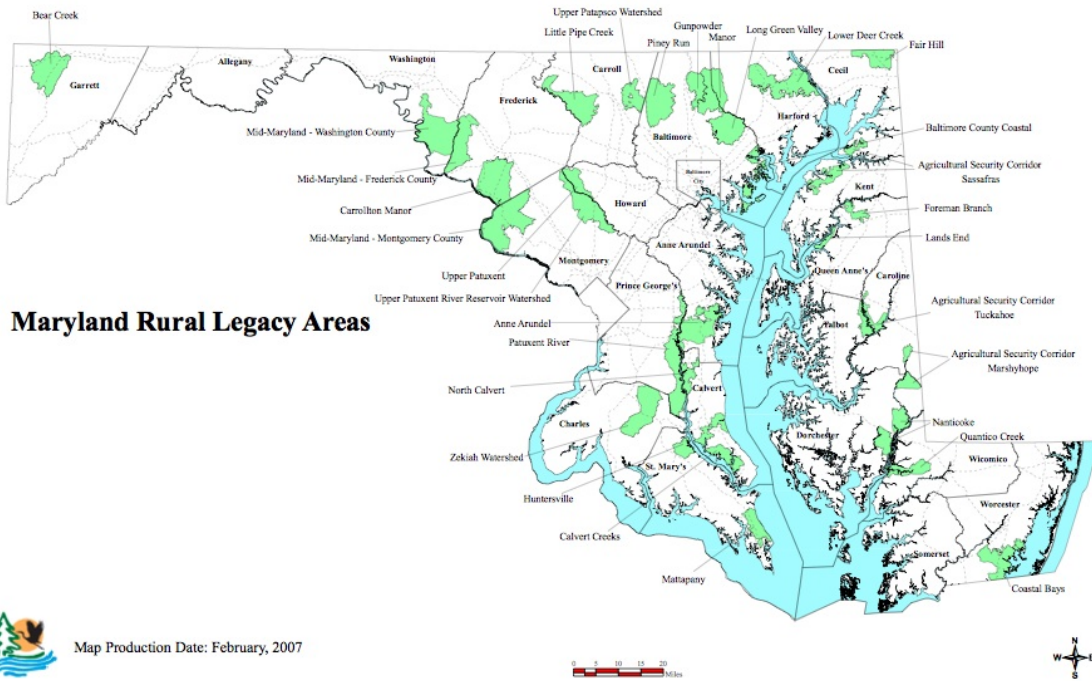


Figure 2



Figure 3: Land Resource Regions of the States Studied.

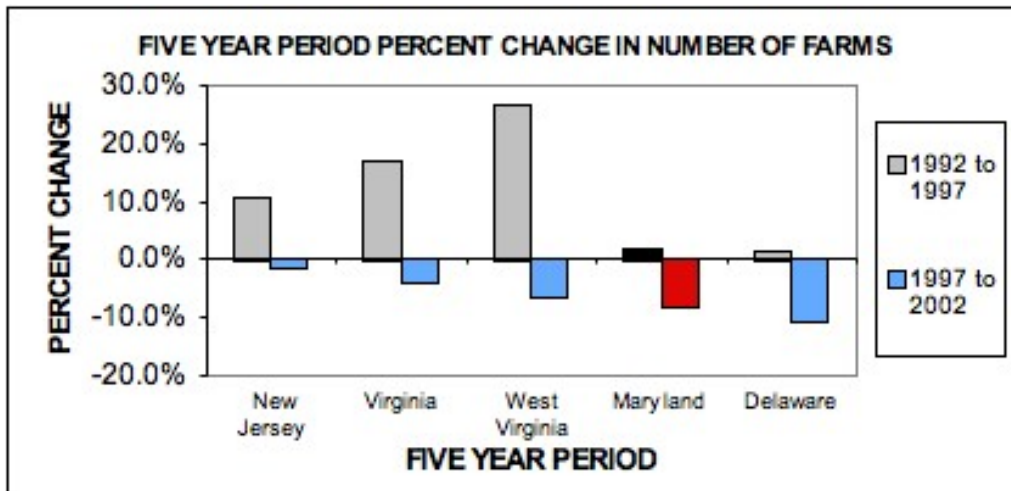


Figure 4⁴

⁴ Census of Agriculture.

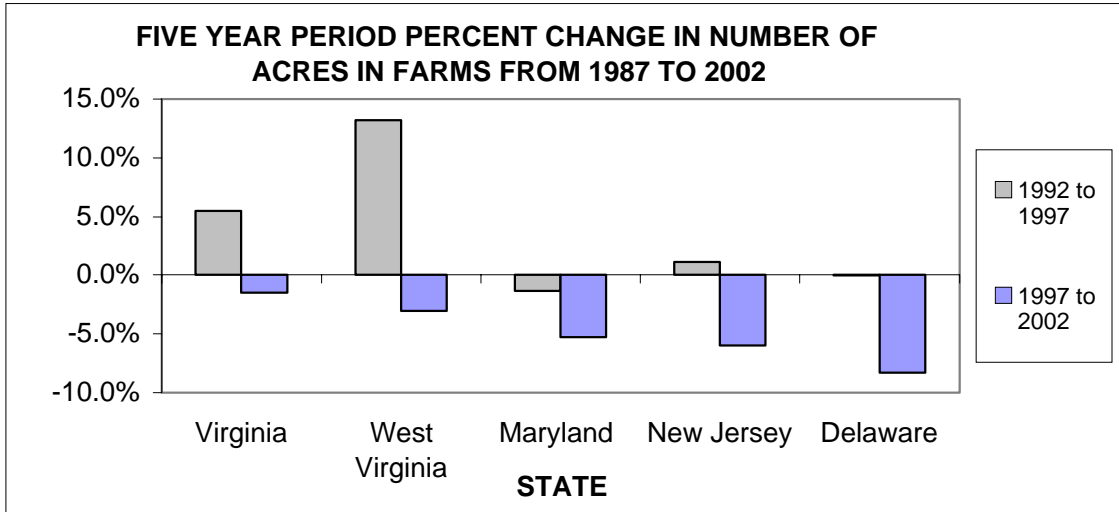


Figure 5⁵

⁵ Census of Agriculture.

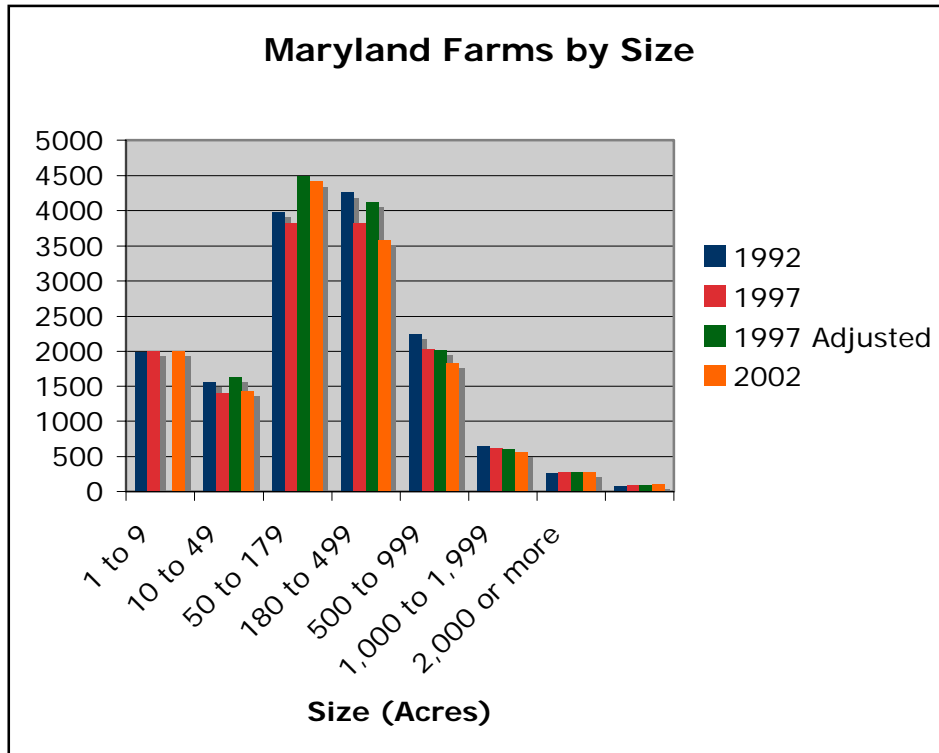


Figure 6⁶

⁶ Census of Agriculture. (2002). Historical Highlights. Note: Not Adjusted for Coverage

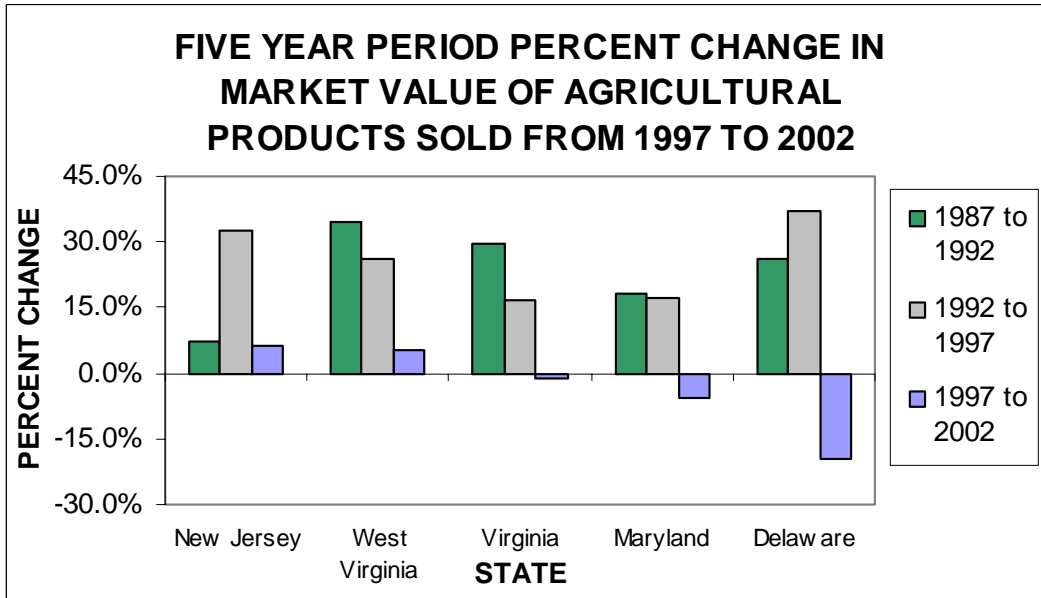


Figure7⁷

⁷ Census of Agriculture.

Tables

	Population (2000)	Land Area, 2000 (square miles)	Population Density-people per sq. mile
Maryland	5,296,486	9,773.82	541.9
Virginia	7,078,515	39,594.07	178.8
West Virginia	1,808,344	24,077.73	75.1
New Jersey	8,414,350	7,417.34	1,134.4
Delaware	783,600	1,953.56	401.1

Table 1

	<i>Maryland</i>	<i>West Virginia</i>	<i>Virginia</i>	<i>New Jersey</i>	<i>Delaware</i>
1. <i>Crop/Acreage</i>	Soybeans for beans/ 465,780	Forage-land used for all hay and haylage, grass silage, and green chop/ 562,810	Forage-land used for all hay and haylage, grass silage, and green chop/ 1,377,442	Forage-land used for all hay and haylage, grass silage, and green chop/ 119,052	Soybeans for beans/ 184,596
2. <i>Crop/Acreage</i>	Corn for grain/ 406,841	Corn for grain/ 29,123	Soybeans for beans/ 467,210	Soybeans for beans/ 96,032	Corn for grain/ 161,421
3. <i>Crop/Acreage</i>	Forage-land used for all hay and haylage, grass silage, and green chop/ 227,727	Corn for silage or green chop/ 18,964	Corn for grain/ 335,692	Corn for grain/ 66,128	Wheat for grain/ 53,497
4. <i>Crop/Acreage</i>	Wheat for grain/ 162,062	Soybeans for beans/ 16,359	Wheat for grain/ 174, 887	Vegetables harvested for sale/ 59,024	Vegetables harvested for sale/ 39, 208
5. <i>Crop/Acreage</i>	Corn for silage or greenchop/ 72,988	All land in orchards/ 9,495	Corn for silage of greenchop/ 139,420	Wheat for grain/ 30,460	Barley for grain/ 22,169

Table 2

	Change in # Farms (1987-1992)*		Change in # Farms (1997-2002)		Change in # of Acres in Farms (1987-1992)*		Change in # of Acres in Farms (1997-2002)		Change in Market Value (1987-1992)*		Change in Market Value (1997-2002)	
Maryland	-1,739	11.8%	-1,056	-8.0%	-173,153	7.2%	-115,433	5.3%	180,270	18.2%	-78,071	-5.7%
Virginia	-2,577	-5.8%	-1,760	-3.6%	-379,325	4.4%	-128,796	1.5%	467,188	29.4%	-33,868	-1.4%
West Virginia	-217	-1.3%	-1,349	-6.3%	-105,767	3.1%	-113,536	3.1%	93,564	34.6%	23,427	5.1%
New Jersey	47	0.5%	-121	-1.2%	-46,831	5.2%	-51,227	6.0%	36,985	7.5%	42,711	6.0%
Delaware	-333	11.2%	-280	10.5%	-19,056	3.1%	-49,027	8.3%	116,191	26.2%	-148,401	19.3%

*Not adjusted for coverage.

Table 3