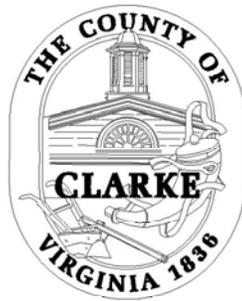


# AGRICULTURAL LAND PLAN

Adopted  
September 16, 1997



Clarke County  
Comprehensive Plan  
Implementing Component  
Article 1

# **CLARKE COUNTY COMPREHENSIVE PLAN**

## **CHAPTER III - 1**

# **AGRICULTURAL LAND PLAN**

## **PROTECTING RESOURCE LANDS AND MANAGING URBAN GROWTH IN CLARKE COUNTY, VIRGINIA:**

### **THE CHALLENGE IN 1996**

Adopted by Clarke County Board of Supervisors  
September 16, 1997

Prepared by  
*Coughlin, Keene & Associates*  
P.O. Box 8776  
Philadelphia, PA 19101

## TABLE OF CONTENTS

	Page
I. Introduction, Purpose and Scope	1
A. Recent County Actions	1
B. The Federal Agricultural Improvement and Reform Act of 1996 (The 1996 Farm Bill)	3
C. Outline of this Plan	4
II. The Clarke County Zoning Ordinance: The General Pattern	5
III. A Summary of Population, Housing Construction, and Employment Trends in Clarke County Since 1987	8
A. Population Growth	9
B. Subdivision Activity in Recent Years	11
C. Employment Trends	12
D. Implications for Farmland Conservation	12
IV. Clarke County's Agricultural Economy: Present Conditions and Future Prospects	16
A. Recent Trends in the Farm Land Resource Base in Clarke County and Other Northern Virginia Counties	20
B. Recent Trends in Agricultural Production in the United States, Virginia, and Clarke County	28
V. The Major Agricultural Sectors in Clarke County	40
A. The Livestock Sector	41
1. Major Trends in the U.S.	41
2. Trends in Consumer Preferences for Beef Products	47
3. Cow/Calf Operations in Clarke County	49
4. Issues and Recommendations	50
B. The Apple Industry in the United States and in Virginia	52
1. The Future of Virginia's Apple Industry: A Marketing and Distribution Perspective	52
2. Issues Facing Virginia Apple-Producers	53
3. The Apple Sector in Clarke County	57
4. Strengths and Weaknesses of Virginia's Apple Industry	58
5. Increasing the Stability of Virginia's Apple Industry	59
6. Conclusions and Recommendations of the 1992	

Apple Conference	61
C. Field Crops	66
1. Characteristics and Trends	66
2. Corn	66
3. Hay	68
4. Issues	68
5. Recommendations	68
D. Dairy Farms in Clarke County	69
1. Characteristics and Trends	70
2. Issues and Recommendations	71
E. Horses: The 1995 Virginia Equine Industry Study	72
F. Implications for Clarke County's Growth Management Program	73
VI. Clarke County's Farmland Conservation Policies and Programs: Recommendations	74
A. Summary	75
B. Priorities for the Next Few Years	77
C. Major Policies	78
1. Encourage and Expand the Activities of Agricultural Comm.	78
2. Include the promotion of Agriculture and Related Businesses	78
3. Keep Land Use Taxation	79
4. Consider Proposing Changes to State Agricultural District Regulations.	79
5. Encourage the Creation of a Clarke County Agricultural and Forestal Land Trust	80
6. Consider the Purchase of Agricultural Conservation Easements by the County	80
7. Require an Agricultural Disclaimer in Agreements of Sale for Land in the AOC Zoning District	80
8. Adopt Voluntary Site Planning Requirements for AOC and FOC Developments	80
9. Promote agriculture-related businesses in AOC	80
E. Conclusions	82
VII. Legal Developments since 1987	84
A. Review of Virginia Judicial Decisions Reviewing County and Municipal Land Use Control <b>Submitted earlier</b>	

- B. The Vested Rights Doctrine in Virginia **Submitted earlier**
- C. Evolution of the "Takings" Doctrine in the Decisions of the U.S. Supreme Court **Submitted earlier**
- D. Cost of Community Services Studies:
  - Farmland Subsidizes Residential Land **Submitted earlier**

## LIST OF TABLES

		Page
Table 1	Clarke County: Number of Building Permits Issued: 1989-1995	11
Table 2	Number of Lots and Acres in Approved Subdivisions in the AOC and FOC Districts, 1989-1995	12
Table 3	Lots/Acres in Approved Subdivisions, Clarke County, 1989-1995	15
Table 4	Acres in Farm, all Farms with More than \$1,000 in Sales, Northern Virginia Counties, 1959-1992	23
Table 5	Acres in Farm, all Farms with More than \$10,000 in Sales, Northern Virginia Counties, 1969-1992	25
Table 6	Clarke County: Number and Acreage of Farms by Size Class: 1978-1992	27
Table 7	States Ranked by Cash Receipts from Sales of Agricultural Products, 1992	29
Table 8	Virginia's National Ranking in Cash Receipts from Selected Agricultural Products, 1992 and 1993	34
Table 9	Clarke County's Agricultural Economy, 1992	35
Table 10	Clarke County: Land Use of All Land in Farms: 1982 and 1992	39
Table 11	Percentage of U.S. Slaughter by the Top Four Meatpacking Firms: 1978-1990	45
Table 12	The Virginia Apple Industry: 1982-1994	53
Table 13	The Virginia Commercial Apple Industry	54
Table 14	The Virginia Commercial Apple Industry: Acres and Number of Trees by County, 1982, 1987, and 1992	55
Table 15	Clarke County's Major Crops, 1993, and its Virginia Rankings	66

Table 16	Clarke County: Types of Farms: 1982 and 1992	67
Table 17	Horse Population and Equine Industry Employment in Selected Virginia Counties	73

## LIST OF FIGURES

		Page
Figure 1	Clarke County's Zoning Map	7
Figure 2	Population of Clarke County	10
Figure 3	Lots in Approved Subdivisions Located in AOC and FOC Districts, 1989-1994	13
Figure 4	Building Permits Issued for Residences and Commercial Structures, Clarke County: 1991-1994	14
Figure 5	Value of Product Flows in Virginia's Agricultural System	19
Figure 6	Area Including Clarke County and Northern Virginia Counties for which Agricultural Data are Presented	22
Figure 7	Land in Farms with More than \$1,000 in Sales, Northern Virginia, 1959-1992, Six Counties	24
Figure 8	Land in Farms with More than \$10,000 in Sales, Northern Virginia, 1969-1992: Six Counties	26
Figure 9	Percent of Land in Farms with Sales More than \$1,000, 1992, Six Counties	30
Figure 10	Cash Receipts from Agriculture, 1992: Leading States in the United States	31
Figure 11	Cash Receipts from Cattle and Calves: Leading States, 1992	32
Figure 12	Cash Receipts from Apples: Leading States, 1992	33
Figure 13	Virginia Agriculture: Distribution of Cattle, Dairy Cows, and Sheep, January 1, 1994	36
Figure 14	Virginia Agriculture: Acres Harvested, Hay, Winter Wheat, and Peanuts, 1993	37
Figure 15	Virginia Agriculture: Acres Harvested, Corn for Grain, Corn for Silage, and Soybeans, 1993	38
Figure 16	U.S. Beef Cow Inventory, 1970-1996	41

Figure 17	U.S. Cattle and Calves Industry, 1979-1996	42
Figure 18	Virginia Beef Cow Inventory, 1970-1996	42
Figure 19	Virginia Cattle and Calves Inventory, 1970-1996	43
Figure 20	Virginia's Cattle Inventory, 1995	43
Figure 21	Per Cent of U.S. Slaughter by Four Largest Firms, 1978-1990	46
Figure 22	Per Capita Consumption of Beef, Pork, and Broilers, 1960-1995	47
Figure 23	Per Capita Consumption and Deflated Retail Price for Beef, 1960-1995	48
Figure 24	Virginia Commercial Apples: Total Area and Trees per Acre, 1949-1992	54
Figure 25	Apple Production in Virginia, 1985-1994	56
Figure 26	Apple Production in the Shenandoah Valley, 1985-1994	57
Figure 27	The Dairy Sector in Virginia, 1974-1994: Number of Cows and Production	69
Figure 28	All Dairy Cows: Number on Farms, 1995	70
Figure 29	Land in Agricultural and Forestal Districts, and under Conservation Easement, 1995	76

## I. INTRODUCTION, PURPOSE, AND SCOPE

### A. Recent County Actions

This Plan updates and revises **Protecting Resource Lands and Managing Urban Growth in Clarke County, Virginia**, a study Coughlin, Keene & Associates undertook for the Clarke County Planning Commission in the mid-1980s. Like the earlier study, this Plan meets statutory obligations to keep the County's Comprehensive Plan current. In addition, this Plan helps the people of Clarke County achieve their aspirations for the nature and pattern of land development and the provision of public facilities. Then, and now, the citizens of Clarke County place high value on promoting agriculture within the County and protecting its agricultural, forestal, and environmentally significant land from inappropriate development. At the same time, they see the need to provide reasonable accommodation to new development at the most appropriate locations.

Clarke County has long been a leader among county governments seeking to conserve its valuable farmland and maintain its important agricultural economy. Together with the Commonwealth of Virginia, it has put together an integrated set of approaches designed to achieve these aims:

- sliding scale zoning,
- land use taxation,
- agricultural districts,
- right-to-farm protections against private nuisance lawsuits,
- the use of the Land Evaluation and Site Assessment Method to evaluate objectively owner requests for a change in permissible land use,
- limitations on the partition of land in the agricultural zoning district,
- the conservation easement activities of the Virginia Outdoor Foundation, and
- channeling residential, commercial, and industrial development into the Berryville area, and encouraging commercial development at the Berryville, Waterloo, and Double Tollgate arterial intersections.

Agriculture is a land-extensive industrial activity. It is based on reasonable land prices, and sometimes generates smells and inconvenience to people living nearby. There is an inherent conflict between the suburbanization of a farming area and the continuation of farming as an economic activity and a valued way of life. The county-wide growth management initiatives are designed to minimize the number of non-farm families that move into prime agricultural areas.

In recent years, communities like Clarke County have become more sophisticated in their understanding of the issues involved in agricultural and environmental conservation. They have come to realize that it is not enough to put together a set of individual techniques for conserving farmland. It is necessary to pursue serious programs for comprehensive growth management to limit the amount of non-farm development that takes place in prime farming areas. It is also necessary to take appropriate steps to help farmers increase the profitability of farming. This certainly includes reviewing county regulations to assure that they are as "farmer friendly" as

possible. It also involves treating agriculture as part of the economic base of the county and a proper concern for county economic development programs.

With these considerations in mind, this Plan focuses on current conditions and future prospects for the agricultural sector of the economy and the agricultural land resource base. It incorporates data from the 1992 U.S. Census of Agriculture, which documents changes that have occurred in the County's agricultural sector, (and to a lesser degree, the 1990 U.S. Census of population). The Plan makes extensive analyses of recent developments and future prospects in the major sectors of the County's agricultural economy. It also brings up to date a number of legal studies that the consultants carried out ten years ago.

This Plan is an integral part of the decade-long program, undertaken by the Board of Supervisors and the Planning Commission, of planning, policy development, and implementation. Some of major planning and regulatory actions that the County has taken in recent years are:

<b>Year</b>	<b>Action</b>
1987, 1993	The General Assembly designated the Shenandoah as a Scenic River
1988	Subdivision ordinance amended to require review of divisions of up to 100 acres.
1989	Formation of the Planning Commission Easement Committee
1990	The County began designation of Scenic By-Ways within its borders
May 1993	Establishment of Economic Development Committee to Develop an Economic Development Plan for the County
June 1993	Adopted Berryville Area Plan Ordinance
November 1993	The Greenway District, a rural area of some 30 square miles, was added to the National Register of Historic Places
May 1994	Received Garrow & Associates, Inc. Report: "The Historical Character of the Lower Shenandoah Valley: An Archaeological Assessment of Clarke County
August 1994	Approval of the 1994 Clarke County Comprehensive Plan, including: <ul style="list-style-type: none"> <li>- Goals, Objectives and Policies</li> <li>- Mountain Land Plan</li> <li>- Berryville Area Plan (amended in 1996 to include provision for senior housing</li> <li>- Framework for Business Area Plans</li> <li>- Historic Resource Plan</li> <li>- Public Facilities Plan</li> </ul>

- Capital Improvement Policy
  - August 1994 Adopted Mountain Land Plan Amendments to Zoning Ordinance
  - November 1994 Adopted Historic Access Corridor Overlay District Amendment to Zoning Ordinance covering defined properties along Virginia Route 7 and U.S. Routes 50/17, 340, and 522.
  - May 1995 Board of Supervisors adopted zoning amendments to Regulate intensive livestock, dairy and poultry facilities.
  - August 1995 Board of Supervisors approved Waterloo Area Development Plan and ordinances
- The County has two pending nominations for inclusion on the National Register:
1. The Cool Springs Civil War Battlefield Historic District;
  2. The Long Marsh Run Historic District.
- Summer 1995 Town of Boyce completed a high-level sewage treatment facility.

The County has established a strong Geographical Information Systems Operation, which has provided a wealth of timely and elegantly presented information on the spatial distribution of various types of data in the County. The 1995 Report of the County Planning Commission lists the many maps the GIS staff prepared during the year.

In 1997, the County plans to complete work on revision of the Comprehensive Plan's provisions for Agricultural Lands, Water Resources, and Economic Development. A Business Intersection Plan of the Double Tollgate Area, around the intersections of U.S. Routes 340 and 522, is scheduled to be completed in early 1998.

#### B. The Federal Agricultural Improvement and Reform Act of 1996 (The 1996 Farm Bill)

The Federal Agricultural Improvement and Reform Act of 1996 (referred to by its acronym, FAIR, or the 1996 Farm Bill) represents a major shift in U.S. agricultural policy. It replaces the existing commodity price support programs for wheat, feed grains, cotton, and rice with fixed payments that decline over a seven-year period. This "Freedom to Farm" policy stands in stark contrast to the government support subsidies that have been in effect since the New Deal era. It marks the beginning of a more market-oriented system in which farmers give up the guaranteed price support subsidies in exchange for the freedom to plant crops of their

choice. The bill establishes a \$40,000 per person per year limitation on the amount of payments that may be received under production flexibility contracts. And, it extends the provisions of current law that limit marketing loan gains and loan deficiency payments to \$75,000 per person per year.

The Farm Bill reauthorizes the food stamp, sugar, peanut, and dairy programs. It also eliminates the budget assessment on dairy producers and phases down the support price on butter, powder, and cheese over 4 years from \$10.35/cwt in 1996 to \$9.90/cwt in 1999. At the end of 1999, price support authority will be eliminated until 2002 when permanent parity-priced provisions will become effective. The Secretary of Agriculture is instructed to consolidate milk marketing orders from 33 to no more than 14 and no less than 10 in 3 years.

FAIR reflects a strong commitment to the conservation of farmland and to the protection of the environment. Title III of the Act authorizes more than \$2.2 billion in additional funding for conservation programs and includes the following conservation programs:

1. The Farmland Protection Program. A new program that provides up to \$35 million in federal funds to match state expenditures for agricultural conservation easements. It is the first significant federal effort to assistance communities to conserve prime farmland, and the USDA estimates that it may help protect between 170,000 and 340,000 acres of farmland.

2. The Conservation Reserve Program. This program pays farmers to take highly erodible land out of production. FAIR reauthorizes a cap of 36.4 million acres. The American Farmland Trust estimates that payments could reach over \$1.5 billion per year.

3. The Wetland Reserve Program. This program pays farmers to restore wetland areas on their farms. FAIR reauthorizes it through 2002 with a cap of 975,000 acres.

4. The Environmental Quality Incentives Program. FAIR created this new program (which combines four older programs) to provide financial, technical, and educational assistance to producers faced with the most serious soil, water, and other resource-related problems. It will be funded annually at \$200 million through 2002. Half of the funds are to be used to deal with problems of livestock operations, such as non-point source pollution from concentrated animal operations. It will provide cost-sharing for conservation practices and installations to protect environmentally sensitive lands.

---

American Farmland Trust, Statement on FAIR, April 1996

U.S. Department of Agriculture, Summary of FAIR, on the Internet.

U.S. Department of Agriculture, Summary of FAIR, on the Internet.

See American Farmland Trust, Summary of FAIR, April 1996

The 1996 Farm Bill has many additional provisions affecting a broad range of agricultural issues. A summary is available from the U.S. Department of Agriculture home page on the World Wide Web ([www.usda.gov](http://www.usda.gov))

### C. Outline of this Plan

This Plan is divided into a number of major sections. The next two summarize the general pattern of the County's zoning ordinance and recent trends in population growth and the pattern of land development. The fourth section addresses factors in the agricultural economy, at the national, state, and county levels. The fifth examines in detail the major sectors of Clarke County's agricultural activities: cow/calf operations, apples, field crops, dairy farms, and horses. The final section contains a number of recommendations for county actions to strengthen farming and conserve agricultural land.

## **I. The Clarke County Zoning Ordinance: The General Pattern**

Clarke County's two municipalities, Berryville and Boyce, both lie astride Route 340, Berryville at its intersection with Route 7, and Boyce at its intersection with Route 723. Each has its own relatively dense zoning regulations.

In broad terms, Clarke County's Zoning Ordinance establishes the following patterns of land use districts for lands outside the two municipalities. Most of the land on the slopes of the Blue Ridge east of the Shenandoah is zoned FOC. This area is the subject of the Mountain Land Plan, which includes policies and amendments to the zoning standards. See Figure 1. Most of the land west of the Shenandoah is in the AOC zone, and was studied in the 1987 agricultural land plan entitled Protecting Resource Land and Managing Urban Growth in Clarke County. The Zoning Ordinance provides that development in the AOC and FOC zones is subject to the sliding scale area-based allowance form of agricultural and forestal land zoning. The objectives of this zoning are to keep development density at low levels and to concentrate the development that does occur on a small percentage of the total tract to be developed.

In addition, there are a number of localized, area-specific zoning regulations for areas in and around existing settlements that reflect the policies of the Comprehensive Plan. They seek to take into account special conditions in the particular district and to encourage development near existing towns and villages. They are shown on the County's Zoning District Map:

1. **Berryville**: Areas to the north and south of Berryville are slated for annexation by Berryville. Battlefield Estates, a large subdivision is under construction to the northwest of Berryville, at the time of this Plan.

2. **Boyce**: An area east and south of Boyce is subject to a natural resource conservation area overlay, to protect the watershed of a public water supply facility.

3. **Waterloo**: An area at the intersection of Routes 50 & 340 is zoned commercial and is the subject of a Business Intersection Area Plan.

4. **Double Tollgate**: Another intersection of Route 340 with Route 522 near the southwestern edge of the County is zoned commercial. This will be the focus of another Business Intersection Area Plan.

5. **White Post**: An area along Routes 340 and 628 around White Post is zoned for rural residential and neighborhood commercial and is located in a local Historic Overlay District.

6. **Millwood**: The area around the intersection of Routes 723 and 255 are zoned rural residential and neighborhood commercial. It, too, is slated for conservation.

7. **Shenandoah Retreat**: North of Route 7 and east of the Shenandoah, the Shenandoah Retreat development is zoned rural residential. Part of the project is the reconstruction of an old golf course, scheduled to begin in late 1996.

8. **Route 340/7 Area**: The County considered a business intersection area plan for this area north of Berryville, and determined that the cost of utilities and services would be prohibitive.

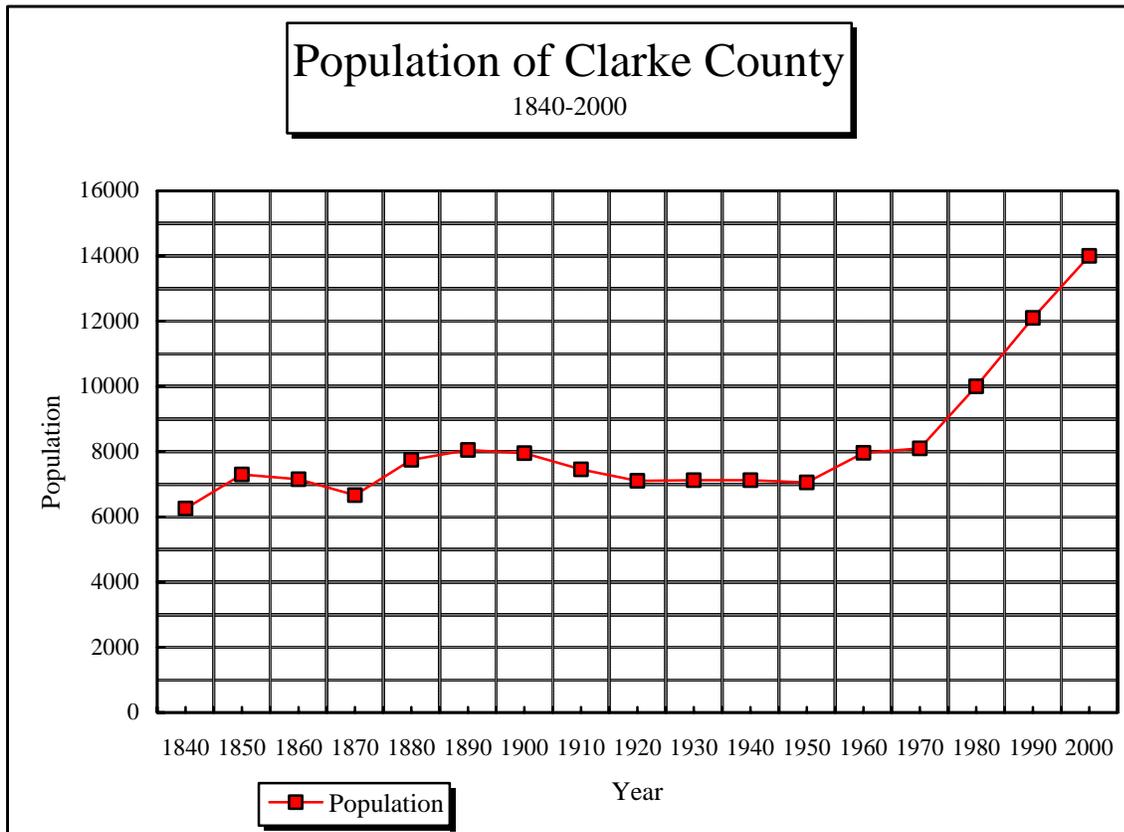
Figure 1  
Clarke County Zoning Map

### III. A Summary of Population, Housing Construction, and Employment Trends in Clarke County, since 1987

#### A. Population Growth

Basic demographic information was compiled 1994 Comprehensive Plan. After remaining relatively stable between 1880 and 1970, in a range between 7,000 and 8,000, the County's population has increased by about 2,000 per decade in the last twenty years. The Lord Fairfax Planning District Commission has projected a year 2000 population of 14,000 to 15,000 people. The County Planning Director expects that it will be closer to 14,000, a 16% increase since 1980. This growth rate would be in line both with growth over the last two decades and with the slow-down in building since 1989. Most of the population growth has been in the Battletown Magisterial District, in the northern part of the County. See Figure 2.

**Figure 2**  
**Population of Clarke County**



#### B. Subdivision Activity in Recent Years

After a burst of activity in the mid-1980s, the rate of construction has fallen to more

typical levels:

Table 1  
Clarke County: Number of Building Permits Issued:  
1989-1995

Year	Number of Permits
1989	82
1990	55
1991	38
1992	58
1993	52
1994	64
1995	80
Total	439

Source: Clarke County 1995 Annual Report of Land Development

An analysis of the location of subdivisions shows less than half of the approved subdivision lots were located in the AOC and FOC zones (based on 1989-1994 data contained in the Clarke County Planning Commission's 1995 Annual Report on Land Development). Some 45% of the approved lots and 94% of the land covered by the approved subdivisions were in these two zoning districts. In 1989, approximately 250 lots in the Battlefield subdivision were approved and more recently, 67 more, in the Apple Glenn subdivision, were authorized. These lots were not in the AOC zone and were scheduled to be annexed by Berryville. The average number of lots approved per year between 1989 and 1995 in the AOC and FOC districts was 43. These were concentrated on small fractions of the original tracts, and the rest of the tracts were left open, pursuant to the provisions of the AOC section of the zoning ordinance. One of the purposes of the AOC district regulations is to ensure that the density of development in farming and forested areas is kept low. One of the corresponding purposes of other county regulations is to channel most new construction into areas designated for development, such as the annexation area around Berryville.

**Table 2**  
**Number of Lots in and Acreage of Approved Subdivisions**  
**in the AOC and FOC Districts, 1989-1995**

	Lots	Acres

AOC District	247	4,555
FOC District	59	1,387
Sum	303	5,942
Total for Co.	654	6,271
% in AOC/FOC	45%	95%

Figure 3 shows the share of total approved lots that lots in the AOC and FOC districts constituted. The geographic distribution of building permits is shown in Figure 4. There is some concentration in the areas along Routes 7 and 632, and in Shenandoah Retreat Estates.

Table 3 shows, on a year-by-year basis, the distribution of lots and acreages in approved subdivisions among the AOC, FOC, RR, and other districts in the County.

### C. Employment Trends

Employment trends between 1980 and 1990 are summarized in the Comprehensive Plan, at page I-16. While total employment within the County increased 2.6%, from 5,186 to 5,304, there were dramatic shifts in various sectors. Farm employment declined 30.2% from 818 to 571. Employment in agricultural and forestry services increased over 70%, from 173 to 295, whereas federal government employment dropped drastically from 483 to 80.

### D. Implications for Farmland Conservation

This brief review of population growth, subdivision activity, and employment prospects confirms that Clarke County is experiencing modest urban development pressures. Most of it has taken place outside of the prime farming areas and the environmentally sensitive mountain areas on the Blue Ridge. And yet, if the citizens of Clarke County wish to conserve these areas to make it possible for farmers to continue their traditional livelihood, and to conserve the beautiful countryside that they value so highly, the County will have to pursue its growth management policies with continued vigor and imagination.

**Figure 3**

**Figure 4**

**Table 3**  
**Lots/Acres in Approved Subdivisions, 1989-1995**

**IV. Clarke County's Agricultural Economy:  
Present Conditions and Future Prospects**

-----

#### **IV. Clarke County's Agricultural Economy: Present Conditions and Future Prospects]**

Agriculture in Clarke County is a microcosm of Virginia's agricultural system that, in turn, is part of that of the United States and of the world as a whole. Fluctuations in supply and demand, and long-term changes in the structure of production and consumption in the nation and the world affect the fortunes of the County's farmers.

*The Virginia agricultural system is based on its 44,000 farms and 8.2 million acres of crops and pastures. But the farms are only the mid-point of a chain of economic activities that stretches from the producer of farm inputs to the distributors who put agricultural products in the hands of consumers. The system includes not only the State's farms but also the food, wine, and tobacco processors that manufacture Virginia's food and tobacco products for sale around the Commonwealth; the transportation, wholesaling, and retailing activities that distribute the processed and unprocessed products to consumers; and the producers and suppliers of inputs to the farms, processors, and distributors. This agricultural economic system, with its many linkages, touches the lives of every Virginian and contributes to every sector of the economy.*

---

Johnson, Thomas G., and Ernest W. Wade, The Economic Impact of the Agriculture Sector in Virginia (Department of Agricultural and Applied Economics, Virginia Polytechnic Institute and State University (March 1994)

This integrated system is set out in Figure 5.

Agriculture's importance to Clarke County is reflected not only in actual agricultural production, which is substantial, but also in the multiplier effects that it generates for the County's economy as a whole. The Virginia Tech Report points out that the labor force in the state's agricultural system is more than four times as great as the number of people actually employed in farming, and the same is true of the county's agricultural sector. The study used an input-output model to estimate the total contribution of the agricultural system to the Commonwealth's economy. The study found that agriculture contributed \$11 billion in value added, and generated \$25.2 billion in sales throughout the economy. For Clarke County, besides the purely economic benefits, the County's fields and pastures constitute an important component of the extraordinarily beautiful environment within which its citizens live, work, and play.

One of the central recommendations of this Plan is that the county must take actions to ensure that agriculture flourishes and is integrated into any future economic development plans the county may prepare. Just as the County has successfully endeavored to meet many of its comprehensive plan goals for conserving its farmland resource base, it must also take appropriate actions to promote the agricultural industry, and to increase the economic viability of farming, as it moves toward the 21st century.

---

Johnson and Wade, The Economic Impact of the Agriculture Sector in Virginia, p. 10.

**Figure 5**  
**Value of Product Flows in Virginia's Agricultural System**  
**(in millions of dollars)**

Source: Department of Agricultural and Applied Economics, Virginia Tech., "The Economic Impact of the Agriculture Sector in Virginia," (March 1994)

## **A. Recent Trends in the Farm Land Resource Base in Clarke County and Other Northern Virginia Counties**

The U.S. Agricultural Census provides a wealth of information about the status of agriculture in each of the states of the Union. Two of the most revealing sets for our present purposes are the tables showing the acreage of the land in farming in each county. These data are provided in two formats. The first is for all farms with more than \$1,000/year in sales of agricultural products. (N.B.: The definition of a "farm" has changed over the years and the changes are noted on Tables 4 and 5 that follow.) The second is for all farms with more than \$10,000/year in sales. (Again, the definition has changed, as noted on the second table.)

A map and several tables and graphs follow. Figure 6 is a map showing the northern Virginia counties for which data are graphed. Table 4 presents the data on the total acreage in farmland for farms with more than \$1,000 in sales for a number of northern counties. Figure 7 graphs these data for Clarke County and five nearby counties. Table 5 shows the data for those northern Virginia farms with more than \$10,000 in sales, and Figure 8 graphs these data for the same six northern counties. Figure 9 shows, for 1992, the percentage of land in farms with sales greater than \$1,000 for the six counties. Table 6 shows changes in the relative size/sales classes of Clarke County farms from 1978 to 1992.

While smaller farms with less than \$25,000 in sales may not provide their owners with a living, they still form an important element of the farmland inventory, for a variety of reasons. They embrace a significant, although small fraction of the entire farmland inventory. They patronize farm suppliers and service businesses. They provide an agricultural continuity in the interstices among larger farms. They are not a drain on the county tax base, because they do not make the same levels of demands on the county's schools, police, fire, and other service department. Thus, while these small farms may occupy an intermediate position in the land inventory between the large farms that are squarely in the agricultural land inventory and the non-farm residential properties that have clearly moved out of it, they serve an important function and should be protected to the greatest extent possible. It should be noted that the amount of land devoted to farming rose sharply in 1982, largely in response to federal farm policies, and then declined to more typical levels in 1987 and 1992.

Tables 4 and 5, and the accompanying graphs show that Clarke County had -- and still has -- substantial amounts of land in farms. In the surrounding counties, the story is mixed: Frederick County lost significant percentages of farmland between 1959 and 1974, and then again, between 1982 and 1992. Rappahannock County has much less farmland but has retained much of what it had 20 years ago. Warren County has relatively little farmland, and has lost large portions of it since 1964.

Table 5 presents data on farms with more than \$10,000 in sales. Although the smaller farms in this category are still not providing their owners with a living and they must have some form of off-farm income, the category comes closer to a measure of the farms that are viable economic units. The comparison with the first table is instructive. The rates of decrease in acreage for the larger farms in all of the counties are less than for all farms with \$1,000 in sales or above. In fact, in Clarke County, land in farms in this category only declined 11% between 1969 and 1992, and actually increased about 5% between 1987 and 1992.

Table 5 shows that the magnitude of farmland in farms with sales of more than \$10,000 for the six counties analyzed has remained remarkably stable since 1978. Of course, that can be explained in part by the fact that inflation has pulled smaller farms up into this category.

Table 6 shows a number of things: first, the number of large farms (260 acres or more) remained relatively stable between 1972 and 1992, declining by only three from 84 to 81. Second, a small percentage of farmers owned a large percentage of the farmland, in 1992: 10% owned 46.3% of the land, and 25% owned 71%.

Figure 6

Table 4

Figure 7

Table 5

## Figure 8

Source: U.S. Department of Agriculture, **Agriculture Fact Book, 1994**, Table 13

\*

\*\*

\* Rank: 24

\*\* Rank 32

**Table 6**

Table 6 # and acreage of farms

## **B. Recent Trends in Agricultural Production in the United States, Virginia, and Clarke County**

Agriculture is the most extensive land use in Clarke County. Not only does agriculture provide an important component of its economic base, but it is an essential element of the aesthetic qualities that make it a unique place in which to live and work. The citizens of the County have made it clear that its productive fields and wooded areas are resources that should be husbanded while, the County undertakes a serious economic development program for the towns and primary highway intersections.

Agricultural production in Clarke County takes place in the larger context of the United States' agricultural economy. Table 7 and the accompanying graph in Figures 10, present aggregate data on the ten leading agricultural states in the country, and show Virginia's production, where it is among the leaders. Figures 11 and 12 give a perspective on the magnitude of Virginia's production of cattle and calves, and apples.

**Table 7**

**Figure 9**

**Figure 10**

**Figure 11**

**Figure 12**

In 1992 and 1993, the Commonwealth of Virginia ranked among the top fifteen states in the United States in the production of the following crops, fruit, and livestock:

**Table 8**  
**Virginia's National Ranking in Cash Receipts**  
**for Selected Agricultural Products, 1992 and 1993**

<b>Crop/Fruit/Livestock</b>	<b>1992</b>	<b>1993</b>
Burley tobacco	3	3
Honey	3	3
Flue-cured tobacco	4	4
Tomatoes (fresh market)	3	4
All tobacco	5	5
Summer potatoes	3	5
Peanuts	5	7
Apples	6	6
Commercial hogs	6	7
Peaches	9	9
Broilers	9	9
Sweet potatoes	10	10
Corn for silage	11	13
Barley	12	13
Rye	12	17

(Source: Virginia Agricultural Statistics, 1992 and 1993 (VAS92, VAS93))

Table 9 pulls together a number of statistical measures of Clarke County's agricultural sector.

**Table 9**

Summary, Clarke

Figures 13, 14, and 15 give a picture of the geographical distribution across the state of Virginia of the crops that form the backbone of Clarke County's agricultural sector.

Table 10 presents data on the land use components of the Clarke County's farmlands, and how they changed between 1982 and 1992. Again, it should be noted that the acreage in farming was unusually high in 1982, so that trends during the decade are not representative of the longer term situation.

**Figure 13**  
**Virginia Agriculture: Distribution of Cattle, Dairy Cows and Sheep**  
January 1, 1994

**Figure 14**  
**Virginia Agriculture: Acres Harvested, Hay Winter Wheat and Peanuts**  
1993

**Figure 15**  
**Virginia Agriculture: Acres Harvested, Corn for Grain, Corn for Silage,**  
**and Soybeans**  
1993

**Table 10**

land use

## **V. The Major Agricultural Sectors in Clarke County**

-----

## V. The Major Agricultural Sectors in Clarke County

Clarke County's agricultural economy has five principal sectors: cow/calf operations, apples, field crops, dairy farming, and horses. The analysis that follows examines each sector. General recommendations follow at the end of the section.

### A. The Livestock Sector

#### 1. Major Trends in the United States and Virginia

The U.S. inventories of beef cows and cattle and calves, which peaked in 1975 and then dropped sharply until the mid-1980s, were recovering modestly through the end of 1995. See Figures 16 and 17. Virginia's inventory, by contrast, has been generally increasing in the last 25 years. See Figures 18 and 19. Rockingham and Augusta Counties lead the state, and much of the rest of the production is in the northwestern part of the state. See Figure 20.

**Figure 16**  
**U.S. Beef Cow Inventory, 1970-1996**  
**(million head)**

---

The graphs are supplemental to Purcell, Wayne D., Consumer Buying Behavior for Beef: Implications of Price and Product Attributes, Research Bulletin 1-93 (1993, 1996) (Blacksburg, Va.: The Research Institute on Livestock Pricing)

**Figure 17**  
**U.S. Cattle and Calves Inventory, 1970-1996**  
**(million head)**

**Figure 18**  
**Virginia Beef Cow Inventory, 1970-1996**  
**(Thousand head)**

**Figure 19**  
**Virginia Cattle and Calves Inventory, 1970-1996**  
**(Thousand head)**

**Figure 20**  
**Virginia's Cattle Inventory: 1995**

Source: 1994 Virginia Agricultural Statistics, p. 69

In the industry itself, after a decade in which little change occurred, dramatic consolidations occurred in the livestock sector in the 1980s. The shares of the four largest meat packers in the slaughter of steers and heifers, hogs, sheep and lambs, and boxed beef are shown in Table 11 and Figure 21. The "Big 3" firms, IBP, Conagra, and Excel (a subsidiary of Cargill), have come to dominate the industry.

The evidence is mixed whether or not the growing concentration of buyers in the meat packing industry has resulted in lower prices to the producer. The growing power of large retail chains and of food service firms, such as Marriott and ARAMARK, gives them a stronger hand in their dealings with the packers. The growing power of the packers is more likely to give them more power over the feedlots, and, that of the feedlots, greater power over the producers of feeder cattle. Ward notes that buyers from meat packing firms have more countervailing power than the firms that supply them.

There has been vertical integration in the beef slaughtering industry. Packers have begun to feed more of their cattle, procure cattle using forward contracts, and procure cattle using exclusive formula marketing agreements. Between 1989 and 1991, the 15 largest beef packers used captive supplies at the rate of 22.4%, 18.9% and 17.1%, respectively, and fed between 4.5% and 5.0% of their total slaughter in those three years.

---

The discussion that follows in this section is drawn largely from Purcell, Wayne D., ed., Structural Change in Livestock: Causes, Implications, Alternatives (Blacksburg, Va.: The Research Institute on Livestock Pricing, 1990) chapter 1, and Purcell, Wayne D., ed., Pricing and Coordination in Consolidated Livestock Markets (Blacksburg, Va.: The Research Institute on Livestock Pricing, 1992)

Purcell, Wayne D. reviewed a number of industry reports and a Government Account Office Report in "Pricing and Competition Issues in Concentrated Livestock Markets," in Purcell, Wayne D., Pricing and Coordination in Consolidated Livestock Markets, above, in n. 1.

Purcell, op. cit. at p. 16

Ward, Clement E., Meatpacking Competition and Pricing, (Blacksburg, Va.: The Research Institute on Livestock Pricing, 1988)

Schroeder, Ted, et al. "Implications of Captive Supplies in the Fed Cattle Industry," in Purcell, Wayne D. ed., in **Pricing and Consolidation in Coordinated Livestock Markets**, p. 19. (1992)

Rosendale, Virgil, in his keynote address, reported in the Proceedings of the 1992 National Conference on Pricing and Coordination in Consolidated Livestock Markets, at p. 4

**Table 11**  
**Percentage of U.S. Slaughter by the Top Four**  
**Meat packing Firms, 1978-1990**

Year	Boxed Beef	Steers and Heifers	Hogs	Sheep Lambs
1978	50	30	34	56
1979	51	35	34	64
1980	53	36	34	56
1981	57	40	33	52
1982	59	41	36	44
1983	60	47	29	44
1984	62	50	35	49
1985	62	50	32	51
1986	68	55	33	54
1987	80	67	37	75
1988	79	70	34	77
1989	79	70	34	74
1990	80	72	40	70

Source: Purcell, Wayne, Pricing and Coordination in Consolidated Livestock Markets, p. 2

**Figure 21**  
**Per Cent of U. S Slaughter by**  
**the Four Largest Firms, 1978-1990**

A 1992 analysis of relative prices in several markets did not produce significant evidence that the concentration of market power in packers or their securing greater control over supply resulted in lower prices to the producers.

*The impact of changing feedlot concentration on fed cattle prices was generally statistically insignificant or had unexpected signs. . . . The impact of forward-contracted cattle deliveries on weekly price levels was usually insignificant or had mixed signs, although the higher levels of contracting were associated with lower fed cattle prices in a small number of occasions.*

*The meat packing industry does not fit neatly into any textbook examples of oligopolistic (where a few suppliers control a market) and oligopsonistic (where a few buyers control a market) pricing models. However, it most nearly fits a dominant firm price leadership model, and may be moving further toward that model. The dominant firm may in fact be the three biggest firms, acting more or less in concert, and the model may resemble a duopoly, the Big 3 versus all other firms in the industry.*

Besides the number of buyers and the size distribution of buyers, other important factors are the extent of vertical integration by the major packers, and the extent of forward contracting, either alone or in conjunction with futures positions. Furthermore, there are only a few dominant companies, combined

---

Hayenga, Marvin, and Dan O'Brien, "Packer Competition, Forward Contracting Price Impacts, and the Relevant Market for Fed Cattle," in Purcell, Wayne D., ed. Pricing Coordination in Consolidated Livestock Markets, above, n. 1

Ward, Clement D., Meatpacking Competition and Pricing, at p. 206

with vertical integration and extensive forward contracting may make it virtually impossible for new companies to enter the market.

---

Ward, Clement D., Meatpacking Competition and Pricing, at p.207

## 2. Trends in Consumer Preferences for Beef Products

Demand and supply data for the consumption of beef and its competitors, poultry and pork, between 1960 and 1996 demonstrate that, per capita consumption of chicken has almost quadrupled since 1960, per capita consumption of pork has remain relatively unchanged, and per capita consumption of beef, after rising almost 50% in the mid-70s, has now declined to its 1960 level. See Figure 22.

**Figure 22**  
**Per Capita Consumption of Beef, Pork and Broilers.**  
**1960-1995**

Source: Purcell, Wayne, D., Consumers' Buying Behavior for Beef, 1996 supp.

A plot of per capita consumption of beef against inflation-adjusted cost per pound of beef from 1960 to 1995 shows, that for the period from 1979 to 1987, consumption remained steady, in the face of a decline of more than 30% in prices. See Figure 23. One would have expected demand to increase, as

---

Purcell, Wayne D., Consumers' Buying Behavior for Beef: Implications of Price and Product Attributes, Research Bulletin 1-93 (1993, 1996)

Purcell, Wayne D., Consumers' Buying Behavior for Beef: Implications of Price and Product Attributes, (1993, 1996) supplementary graph

prices fell. During the period from 1987 to 1995, prices remained essentially stable but per capita consumption declined further. How can these phenomena be explained?

**Figure 23**  
**Per Capita Consumption and Deflated Retail Price**  
**for Beef, 1960-1995**  
(CPI 1982-84 = 100)

There are three possible explanations: (1) Declining prices of beef substitutes, such as pork and chicken, drew consumer demand away from beef; (2) a decline in per capita disposable income caused a shift on demand away from beef, based on the established principle that demand for beef decreases as disposable income decreases (that is, the income elasticity of beef is positive); and (3) consumers have become more concerned about saturated fat, cholesterol, and calories, perceived negative characteristics of beef, and with ease of preparation, with the result that there was downward shift in the demand curve for beef.

Examination of the relative prices beef, on the one hand, and pork and poultry, on the other, showed that the decline in beef consumption could not readily be attributed to growing price attractiveness of the other two meats, because the ratios of their prices remained essentially the same. Furthermore, the fact that disposable income actually increased in the 1980s and early 1990s while beef consumption declined, negates the possibility that changes in disposable consumer income caused the

---

Purcell, Wayne D., op. cit. n. 14, supplementary graph

decline in beef consumption.

Thus, the data suggest that changes in consumer preferences are the root cause for the significant decline in beef consumption since it peaked in the mid-seventies. A 1992 survey revealed that there has been just such a change.

---

See Purcell, Wayne D, *op. cit.* n. 14

Purcell, Wayne D., *op. cit.* above, n. 14, at pp. 34, 36, 45

Between 1975 and the late 1980s, the U.S. beef cow herd declined by over 12 million head, and an estimated 300,000 average size producers were forced out of business by market forces. See Figures 16-20. It is too early to determine with certainty what the long-term effects of the drought in the area of the Oklahoma and Texas panhandles will be on the price of feed and the number of livestock. As we have noted, the number of beef cattle and calves in Virginia held steady at about 1,700,000 head from 1988 to 1994, and then climbed to 1,800,000 in 1996.

### 3. Cow/Calf Operations in Clarke County

Virginia Agricultural Statistics, 1994 shows that, as of January 1, 1995, Clarke County, although it has only 1% of the area and population of Virginia, had 21,000 head of cattle, or about 1.2% of the cattle in Virginia. Of these, 1,600 were milk cows, again, over 1 % of the state total.

In Clarke County, the cow/calf industry is stable, because it can do the beginning stages of the operation better than elsewhere. People find it aesthetically pleasing. While there is growing concern about some environmental regulations, there are no employees or workers' protection rules to worry about, as is the case with the orchard operators. Most cattle operations are family owned and operated. The soil is not as good as it is in the Midwest and farmers here simply cannot get the same corn productivity out of their land. Although, it is well-suited for growing grass, the main source of feed for cow/calf operations.

Beef cattle production can be broken down into a number of segments:

1. Cow/calf producers: until the cattle weigh 4-500 pounds
2. Backgrounders (stockers): the cattle are 500-900 pounds
3. Cattle-feeders/finishers: cattle are up to 1200-1400 pounds
4. Slaughterhouse
5. Meatpackers
6. Brokers, who sell it to retailers
7. Retailers.

Virginia is a leader in the cow/calf sector in the East. Virginia's inspection system is one of the best and its grading system is strong: it grades by weight, age, breed, muscle score, and soundness. The state supervises a strong vaccination program. In short, cattle-feeders trust the state's grading. As has been noted, the livestock industry is becoming increasingly vertically integrated, with meatpackers setting breeding standards, feed, etc., and searching for a consistent, tasty, tender product.

There are 8-10 major cattle operations in Clarke County. Numerous smaller producers produce a fair number of cattle on relatively small tracts, but they do not depend on livestock for their income. The small herds are not economically viable, but are kept for other, personal reasons. They contribute to the overall supply, and therefore weaken the price structure. Major producers do not consider that they are competing against each other, because they are price takers on a national market. Their challenge is to be the most efficient producer possible. The landowners that specialize in purebred animals are in a different market: their focus is on improved genetics, not producing beef. Unlike dairy farms, which are the primary source of income for their operators, cattle production is often undertaken as an income supplement, with the price of beef being the controlling factor for acreage expansion or contraction. Neither the Census of Agriculture nor the yearly Virginia Agricultural Statistics collect data on cattle farm acreage. The amount of acreage devoted to cattle production tends to vary with the price of beef.

Most of the suppliers to farmers are outside the County, in Winchester, Purcellville, and Warrenton. They are usually more competitive than local suppliers, because they charge wholesale, not retail, prices.

The major feedlots are now west of the Mississippi, with a heavy concentration within 100 miles of the Oklahoma panhandle. While feeder cattle used to be sent mainly to Pennsylvania feedlots, many of them are now being transported west to Kansas, Texas, Oklahoma, and Iowa for finishing. This additional transportation cost negatively affects the prices Clarke County farmers are receiving. Increased transportation also leads to more animal stress, disease, and loss. At present, few farmers in Clarke County finish their cattle.

#### 4. Issues and Recommendations

Decline of slaughterhouses -- Whereas there used to be slaughterhouses and packers in every town, there are very few left in or near Clarke County today. Their decline in the East has been attributed to increasing government regulations and to the unpopularity of slaughterhouses in areas that

are no longer rural.

Dietary concerns -- The decrease in red meat consumption has continued to affect the industry. Per capita beef consumption was at its height at 88.8 pounds in 1976. It has declined steadily to 75 pounds in 1986 and 61.5 pounds in 1993.

Increasingly complex federal government regulations -- Farmers need to understand the increasingly complex government environmental regulations, so that they can stay in compliance with them.

Recommendations:

1. Continue land use taxation. Beef cattle operations rely on relatively low land costs, for land that is either owned or rented. They benefit from the desires of landowners to lease land for grazing to qualify for land use taxation.

2. Encourage agricultural suppliers and service firms to remain in, and to locate in, Clarke County. The County's business development efforts should explicitly include conserving and developing the economic base that serves the County's extensive agricultural industry.

## **B. The Apple Industry in the United States and in Virginia**

### 1. The Future of Virginia's Apple Industry: A Marketing and Distribution Perspective

Several major issues face the Virginia tree-fruit industry. First, is the extent of the export market for apples. Of the approximately 235 million bushels of apples produced by the United States each year (about half of which occurs in the state of Washington, and about 4% in Virginia), less than 10% is exported. (Clarke County is one of leading apple-producing counties in Virginia, with annual production of over one million bushels.) In the five years between 1986-1991, the largest shares of apple exports went to Hong Kong and Taiwan, followed by Canada. The cost advantage and seasonal differences enjoyed by Latin American countries (which allowed them to dominate the European import market), European Union trade barriers, and unsettled conditions in Eastern Europe and Russia all tend to limit upside potential in those markets. The countries with the greatest potential appear to be the Asian and Pacific Rim countries with their burgeoning populations and industrializing economies. However, China is aggressively increasing the number of apple trees to meet their growing demand, and is now the world's leading producer of apples. In the internal U.S. market, about 60% of the sales were in the fresh-product form, and 40% for processing. In Virginia, the shares are reversed, with about 60% of the crop going to fruit processors. The processors use about half for juice and cider, a third, for apple slices and sauce, and the rest for frozen or dried products.

Second, Virginia's tree-fruit industry is well positioned in and near the New York/Norfolk megalopolis and is served by an excellent transportation system. It is within a 24-hour truck-drive of 150 million people, 60% of the population of the U.S. Virginia growers are interested in identifying or creating new marketing opportunities that meet emerging consumer needs or preferences. Furthermore, the industry has been urged to expand its "controlled atmosphere" storage capacity, because this would enable it to make the product available throughout the year.

Third, the Virginia tree-fruit industry can do little to influence wholesale or retail prices because it is such a small player in the national and international markets. Therefore, it must concentrate on reducing its costs in all sectors from production to marketing and distribution to the minimum.

---

See, Griffin, Clayton O., Charles W. Coale, Jr., and J. Paxton Marshall, eds., Virginia Fruit Futures Conference: Final Statement and Background Papers (Blacksburg, Va.: Virginia State Horticultural Society, 1992)

See Huehn, William G. and Charles W. Coale, "The Future of Virginia's Tree-Fruit Industry: A Marketing and Distribution Perspective," Virginia Fruit Futures Conference: Final Statement and Background Papers (Blacksburg, Va.: Virginia State Horticultural Society, 1992) at pp. 13-31

Huehn and Coale, article cited in previous footnote.

## 2. Issues Facing Virginia Apple-Producers

Over the last ten years, of the five apple-producing areas in Virginia, the Shenandoah Valley region (including Clarke, Frederick, Shenandoah, and Rockingham Counties) was the strongest. This region has about 60% of the trees in the state. While the number of orchards and of acres in production has decreased during that time, the number of trees actually increased. See Table 12. Most of the production in this region was for processing. All the processors in the state and a majority of the controlled atmosphere storage facilities are located in this area.

**Table 12**  
**The Virginia Apple Industry: 1982-1994**

Characteristic	1982	1987	1992	1994
No. of Orchards	492	343	315	
Acres in production	25,597	23,352	22,842	
No. of Trees (million)	1.54	1.55	1.96	
Bushels produced (1,000)		10,833	8,810	6,905
Production (million lbs)		455	370	290
Trees per acre	60	67	86	

Sources: Virginia Agricultural Statistics, 1993, pp. 49-52, and 1994, pp. 50-52  
1992 Virginia Apple and Peach Survey

---

Marini, Richard P. "Examining Some Issues and Problems Affecting Orchard Management in the Future," in Virginia Fruit Futures Conference (Virginia State Horticultural Society, Inc., 1992) p. 31

Marini, Richard P. Virginia Fruit Futures Conference at p. 32

**Table 13**  
**Virginia Commercial Apple Industry:**  
**Total Acres and Trees per Acre, 1937-1992**

Source: 1992 Virginia Apple and Peach Tree Survey, at p. 2

These data on Virginia's total acreage devoted to apple orchards and total trees per acre are shown graphically in Figure 24 and Table 14, and for counties, in Table 4.

**Figure 24**  
**Virginia Commercial Apples**  
**Total Acres and Trees per Acre, 1949-1992**

**Table 14**  
**Virginia Commercial Apples:**  
**Acres and number of Trees by County**  
**1982, 1987, and 1992**

Source: 1992 Virginia Apple and Peach Survey, p. 3

Total apple production (in bushels) in Virginia and the counties in the Shenandoah Valley, the most important apple-producing district in the state, are shown in Figures 25 and 26. Production in Clarke County and in other parts of the state experienced substantial shifts, peaking in 1987, falling drastically in 1990 and then recovering in the last five years.

**Figure 25**

Source: Virginia Agricultural Statistics: 1992, 1993, 1994

## Figure 26

Source: Virginia Agricultural Statistics: 1992, 1993, 1994

### 3. The Apple Sector in Clarke County

Virginia Agricultural Statistics, 1993 shows that in 1993, Clarke County, despite its small size, produced 1,130,000 bushels of apples, or 13% of the Virginia's total production of 8,810,000 bushels, placing it second among the counties in the state.

Virginia apple growers are in direct competition with those in Washington state. Because of the much better growing conditions, Washington can produce a Delicious apple for the fresh apple market that is consistently more attractive looking and more uniform than Virginia growers.

Moore and Dorsey, the last remaining packing house in Clarke County, closed in 1994, and there are only two packing houses left in Frederick County. Orchard operations rely on hand labor - as do tomato and cucumber producers -- and it is essential to provide residential facilities for the seasonal labor when they are here in July, August and September, and October. There is substantial turnover in the labor force during that time. There are a number of camps near: Gerrardstown, W. Va., Mount Jackson, Timberville, Rockingham County, etc. The laborers are mostly from Jamaica and are hired by contractors from that country. The federal government has a number of programs to protect the workers' health. The burden of enforcing the observance of safety measures is on the growers, and if the workers refuse to do so -- to wear goggles or protective clothing, for instance -- the grower pays the fine.

A number of changes have been occurring in the tree-fruit industry in Virginia:

1. In recent years, production costs have increased much more rapidly than prices, so that profit margins have shrunk.
2. The number of trees planted per acre of apple orchard has been increasing. However, this rate is not at the same as in other parts of the country, because much of Virginia's production goes for processing. And., processing does not support high enough prices to justify the capital costs of intensive planting.
3. Major changes have occurred in orchard pest management, as a result of uncertainty over the availability of effective pesticides and the Alar scare.

#### 4. Strengths and Weaknesses of Virginia's Apple Industry

According to one analyst, the strengths and weaknesses of the Virginia apple industry were as follows:

##### Strengths

Excellent location with good transportation access to three-fifths of the U.S. population.

Well-established service infrastructure, consisting of brokers, consultants, chemical suppliers, and equipment dealers.

Diversity of product, deriving from the fact that Virginia's apple crop is predominantly for processing means that it does not rely on a small number of apple varieties.

---

See Marini, Richard P., op. cit. at pp. 33-36

Marini, Richard P. op. cit. above, n. 23

## Weaknesses

Highly variable climate, with extreme heat and cold, heavy snows, shortage of rainfall.

Urbanization pressures that push up land values and bring in competing and often conflicting land uses, such as residential developments, and lead to the enactment of restrictive regulations on orchard operations.

The relatively small scale of Virginia orchard operations sometimes leads to varying quality of a pack, so that major buyers cannot buy large quantities of a consistent pack.

The aging of storage facilities, causing the need for modern controlled atmosphere systems.

Among the actions that could be taken to strengthen the Virginia tree-fruit industry are: (1) controlling per-bushel costs, (2) more aggressive marketing in both existing and new markets, (3) testing new varieties of apples that would lend themselves to orchard intensification, (4) expanded farm market sales in cities with high traffic volume, and (5) working to secure favorable legislation in the areas of land use controls, labor regulations, water pollution control, real property taxation, and regulation of agri-chemicals.

### 5. Increasing the Stability of Virginia's Apple Industry

One of the generalized conditions that faces the Virginia fruit tree industry, as well as other sectors of the agricultural economy, is "Impermanence Syndrome". This term was coined to describe the economic and psychological circumstances in which farmers on the edge of metropolitan areas find themselves. Faced with rising land values and uncertainties about the long-term prospects for agriculture, farmers begin to reduce investments in new technologies and in maintaining and improving the facilities of their farms that would allow them to become more competitive. This reduction in investment actually accelerates the decline of agriculture in the area, because it becomes progressively less able to compete with producers in other parts of the country or the world. Areas that are staying abreast of technological advances and new, more effective, ways of managing their operations. The result is instability, at the industry level, and only institutional change can reduce the instability. For instance, by comparison with apple producers in Washington, Virginia tree-fruit operators have invested less in irrigation facilities to mist blooming trees and to protect young trees against some of the major natural threats to continued profitability. Further investments in industry-wide improvements, such as input supply enterprises, output marketing, and processing enterprises, and state-of-the art storage facilities may also be called for. Professor Marshall advocated building dams to develop a supply of water that could be used for misting and general irrigation of orchards.

---

Marini, Richard P., op. cit. above, n. 23

Marshall, J. Paxton, "Increasing the Stability of Virginia's Tree-Fruit Industry," in Virginia's Fruit Futures Conference, at pp. 41-43

The opportunity cost of not selling an orchard for suburban development may be greater than the anticipated profits from continued operation as an orchard. If it is, the rational investor will be inclined to sell the land for development, rather than make additional investments in the operation to make it more competitive. Permitting residential development near orchards also increases the risk of harassment of the enterprise and of enactment of restrictive local regulations that seek to minimize air and water pollution generated by the fruit-growing operation. The opportunity cost of potential development and conflicts with newly arrived suburban neighbors can be reduced by:

1. sound growth management policies and regulations that seek to channel new development near existing developed areas and along transportation facilities, and away from prime agricultural land,
2. stronger right-to-farm laws that protect orchard operators against liability to neighbors if their operations comply with federal and state legal requirements,
3. the creation of new insurance arrangements that would protect farmers against the risk of harassment of their enterprises, and
4. securing an amendment to the state law authorizing the land use taxation program to permit tax credits against the state income tax up to the development value of the orchard land, in return for a long-term agreement not to develop the land for non-agricultural purposes. Michigan and Wisconsin have enacted laws of this type.

---

Marshall, J. Paxton, *op. cit.* above, n. 26

See Marshall, J. Paxton, "Increasing the Stability of Virginia's Tree-Fruit Industry."

## 6. Conclusions and Recommendations of the 1992 Apple Conference

The major product of the 1992 Virginia Tech/Virginia State Horticultural Society conference was a "Final Statement." It summarized the conditions facing the industry as follows:

*In recent years, the economic environment of Virginia's tree-fruit industry experienced dramatic changes. External factors far beyond the orchard enterprise challenged both the future and the profitability of the industry. Externally, advocate groups and consumers emerged to challenge and question the apple industry's traditional production methods and storage practices. Employers of migrant workers faced a hostile environment of accusations and costly litigation. Internal factors also challenged the industry. Internally, the apple industry struggled with low grower returns, adverse weather patterns of repeated spring frosts and severe summer droughts, and an unprecedented barrage of political and regulatory issues affecting all segments of operations.*

*[The 1987 Virginia fruit-tree survey showed that, since 1982, there had been] a 30% decline in the number of orchards engaged in commercial production and a 9% decline in total acreage in apple production. However the actual tree numbers increased. The average orchard expanded from 52 acres to 68 acres, and the average number of trees per orchard increased from 31,300 to 45,300. The survey's results revealed an apparent industry trend toward adopting cultural practices focusing on smaller trees in high-density plantings.*

*. . . Growers have become more aware of the fact that political and regulatory actions at the state, national, and international levels create issues that will have an impact on their future and on the climate in which they do business.*

*Virginia apple growers face increasing competition in the international and domestic markets. In the last decade, total U.S. apple production increased substantially. To further compound a challenging market situation, competition from non-citrus fruits and fruit from other fruit-producing countries, such as Chile, have emerged as major year-round factors in the world market. These increases in competition depressed market prices, creating lower returns for many growers.*

Those attending the conference identified five themes as most important for the future of the industry:

1. Greater industry involvement in the formulation of federal and state policies and in the enactment of federal and state laws and regulations affecting the industry;

---

Griffin, Clayton O., Charles W. Coale, Jr., and J. Paxton Marshall, eds., Virginia Fruit Futures Conference: Final Statement and Background Papers (Blacksburg, Va.: Virginia State Horticultural Society, 1992)

2. Greater collaboration in tree-fruit industry marketing programs;
3. Finding ways to increase the profitability of tree-fruit enterprises;
4. Assuring the availability of an adequate supply of competent labor for production and harvesting;
5. Greater centralization of those processes and procedures that are necessary for the growth of the industry.

The full text of the recommended actions and conclusions of the Conference follows.

**RECOMMENDATIONS OF THE 1992 VIRGINIA FRUIT FUTURES CONFERENCE**

## Recommendations



## C. FIELD CROPS

### 1. Characteristics and Trends

Field crops comprise a vital component of Clarke County's agriculture, especially in the southern part of the County. They include:

- corn for grain or seed
- corn for silage
- barley for grain
- wheat for grain
- soybeans
- all hay crops

**Table 15**  
**Clarke County: Major Crops: 1992 and 1993**

Source: Virginia Agricultural Statistics, 1993 and 1994

Table 16 presents, in summary form, information on the number of farms and acreage involved in the production of each of Clarke County's major crops.

### 2. Corn

Staying profitable in corn requires the production of yields that are high enough to compete with Midwest corn production. Anything over 100 bushels per acre in Virginia is considered good, whereas Mid-West farmers are often able to get 150-200 bushels per acre. In 1992, the average county yield per acre was 97 bushels. In 1993, that yield plunged to 57 bushels per acre, attributable to

that year's drought conditions.

Even though Midwest farmers can produce higher yields, Clarke County has two advantages over its Midwest competitors. Land rentals are significantly lower in the County than in the Midwest. A farmer can currently rent land for \$20 to \$25 per acre, as contrasted with \$100 to \$225 per acre in the Midwest. In addition, Virginia is considered a corn-deficit state and, therefore, corn

**Table 16**

producers in Virginia receive a 25 cent premium per bushel above Midwest corn prices owing to the absence of additional transportation costs.

Much of the corn produced in Virginia is marketed to the poultry industry that is centered in Augusta and Rockingham Counties. At least 100 train carloads of corn per day are delivered to the feed-mills around Harrisonburg. Corn is also marketed to feed-mills at Southern States and Purina, local mills in Culpeper, and a dogfood plant in Manassas.

Although 36 farms were reported as harvesting corn for grain in the 1992 Census of Agriculture, there are currently only a few full-time major grain producers in Clarke County.

### 3. Hay

In 1993, substantial areas of the farmland in Clarke County were devoted to the production of hay. There is a bright future for hay production in Clarke County. County soils are generally suitable for raising hay, especially timothy, for horses, and hay is produced throughout the county.

Hay is usually marketed directly from buyer to seller without an intermediary. Because horse farmers are going directly to producers, hay farmers can command a high price for this product.

### 4. Issues

Residential development impacts on farmlands and farming -- Residential development within proximity to farming areas, according to many farmers, exacts a high price from the farming community. As land prices are driven up, so too is the property tax burden. Some farmers wonder what kinds of services they are receiving in return for the increased taxes.

Residential development in farming areas also removes potentially leasable land from the agricultural inventory. Furthermore, increased population means greater difficulty in moving equipment on increasingly well traveled roads.

### 5. Recommendations

The County's policies that are designed to limit the amount of non-farm residential development in agricultural areas will support the production of field crops. Thus, it should continue to implement its agricultural protection zoning, agricultural districts, and land use taxation policies.

#### **D. Dairy Farms in Clarke County**

Over the last 20 years, the number of cows in Virginia has decreased from about 175,000 to 130,000, while production of milk has remained essentially steady averaging about 2,000,000 pounds. See Figure 27.

**Figure 27**  
**The Dairy Sector in Virginia: 1974-1994**  
**Number of Cows and Production**

Source: 1994 Virginia Agricultural Statistics, 1994, p. 76

According to the 1994 Virginia Agricultural Statistics, at the beginning of 1995, there were 1,600 milk cows in Clarke County, 1.2% of the total in the state, although local estimates are double that number. Rockingham County has 27,500, Augusta, 11,000, Franklin, 10,600, Fauquier, 5,900, and Washington, 5,400. The distribution of dairy cows in the Commonwealth is shown in Figure 10. That there are so few substantial dairy operations in the County suggests that the future of this sector will be determined largely by changes in the individual circumstances of the dairy farmers and their families.

**Figure 28**  
**All Dairy Cows**  
**Number on Farms: January 1, 1995**

Source: 1994 Virginia Agricultural Statistics

1. Characteristics and Trends

There are now less than a dozen dairying operations in Clarke County with about 3,500 dairy cows in Clarke County, about twice the number reported by the Virginia Agricultural Statistics, 1993. Several have gone out of business in the last few years. Many dairy farmers need to expand their base of operations so that they can realize economies of scale. However, they face a shortage of capital for expansion that would permit them to deal better with the challenges of contemporary dairying.

Growing urban development pressure from Washington, D.C. and the hostility of suburbanites to agricultural operations, especially animal confinement facilities like dairy barns, bring a new level of difficulty and aggravation to the dairy farmer.

The Virginia Department of Environmental Quality requires the farmer to prepare a nutrient management plan, as part of its compliance with the Chesapeake Bay Program's policy of reducing the flow of nitrates into the Bay by 40%. Environmental compliance has become a major area where dairy cooperatives are assisting dairy farmers.

Along with herd expansion, the acreage on many dairy farms has increased over the past 10 years, although it is difficult to obtain precise information about this, since neither the Agricultural Census nor Virginia Agricultural Statistics collects information about dairy farm acreage. Much acreage expansion has taken place on rented land because farmland is too expensive for dairy farmers to

purchase. The most important cause of expansion in the size of dairy farms is the price that farmers receive for their milk. The higher the price, the greater is their ability to expand. Other factors influencing acreage expansion are the price of land and labor availability.

## 2. Issues and Recommendations

Milk Production, 1985-1994 -- U.S. Milk production increased from 143,147,000 million pounds in 1985 to 153,622,000 in 1994. Of this, 85,537,000 pounds were used in manufactured products in 1985, and 91,825,000, in 1994. In these two years, 52,014,000 pounds and 54,664,000 pounds were available for fluid products. At the same time, per capita consumption of fluid milk and cream in the United States has been undergoing a steady decline. It dropped from 241 pounds per capita in 1985 to 226 pounds in 1994. Although there is greater national promotion of domestic dairy products, persistent health concerns, such as cholesterol risks, may lead to a changing product mix.

Possible changes in on-farm management; increased regulatory review -- Increasing the number of cows on a farm alters a farm's management structure. It leads to increased labor costs, changes in feeding practices (from pasture grazing to concentrated feeding), as well as to other on-farm requirements associated with safety and environmental regulations. There is also increased potential for nuisance complaints by non-farming neighbors.

### Recommendations

1. Develop land use and regulatory policies that do not hinder the expansion of individual dairy farms. -- Although dairy sector studies often recommend the expansion of dairy herd size, this is a decision to be made by each dairy farm. However, a dairy farmer's management ability is a more important determinant of economic viability than sheer size. For those farms that decide they must expand to survive, the County should take steps to ensure that such expansion can take place with as few hindrances and as little conflict as possible.

In May 1995, the Board of Supervisors passed an amendment to the Zoning Ordinance establishing requirements for large livestock facilities throughout the county. It established substantial set-backs for intensive livestock facilities from residential areas, areas scheduled for annexation, schools, and public water supplies. It required all such facilities to have an approved nutrient management plan in effect. However, only a very few of the county's dairy operations are big enough to be affected by the new regulations.

---

U.S. Department of Agriculture, **Agricultural Statistics, 1996**, Table 481.

U.S. Department of Agriculture, **Agricultural Statistics, 1996**, Table 483.

## E. Horses

In 1995, the Virginia Equine Education Foundation commissioned an extensive study of the nature and amount of the contribution that the equine industry makes to Virginia's economy. The Wessex Group, a consulting firm, developed, for the first time, a comprehensive set of data on this sector, using extensive mail, telephone, and personal surveys, and a regional input-output model. This study is especially useful because the U.S. Census of Agriculture and the annual Virginia agricultural statistics do not report fully on the economic activity in the horse sector.

The Report found that there were over 225,000 horses in the Commonwealth, owned by 2.65% of its households. They estimated, further, that Virginians spend on average \$2,800 per horse per year in support of the animals. These support and maintenance expenditures are spread among such sectors as payroll (13.9%), feed (13.6%), transportation (10.9%), boarding and training (10.3%), bedding, fencing, etc. (7.2%), veterinary and dental services (7.0%), blacksmith (5.9%), farm equipment (5.2%), and supplies (5.1%). When all the activities falling within the equine sector are taken into account, ranging from breeding to racing, recreational use, and horse shows, the total direct spending generated by the Virginia equine industry was estimated at \$730 million. The indirect economic impact added another \$300 million, making a total of more than \$1 billion per year. The study estimated that owners have a capital investment of some \$2.6 billion in horses (or about \$12,500 per horse), not including the value of the approximately 4.7 million acres of land used for horses.

The 1996 Profile estimated that there were 7,000 horses in Clarke County, providing jobs for 475 people. With an average direct expenditure of \$2,800 per horse, this means that the equine industry produces almost \$20 million of economic activity in the County each year. The number of horse and jobs for the leading equine counties are set out in Table 17.

---

Virginia Equine Educational Foundation, Inc., 1995 Virginia Horse Industry Profile (Warrenton, Va.: 1996) (hereafter referred to as the 1996 Profile)

**Table 17**  
**Horse Population and Employment in**  
**Selected Virginia Counties**

<b>County</b>	<b>No. of Horses</b>	<b>No. of Jobs</b>
Loudoun	19,800	2,480
Fauquier	12,550	3,020
Albemarle	12,200	1,015
Hanover	9,500	1,105
Suffolk	8,050	770
<b>Clarke</b>	<b>7,000</b>	<b>475</b>
Augusta	7,000	680
Fairfax	7,000	1,260

Source: 1995 Virginia Horse Industry Profile, Table A-4

#### **F. Implications for Clarke County's Growth Management Program**

This deeper analysis of some of the major trends in Clarke County's agricultural economy demonstrates what farmers well know: there will always be uncertainties facing them, whether they be caused by the weather, national and international competition, changes in consumers' tastes and buying propensities, evolving structures in agri-business, growth pressures resulting from urban development, or changes in technology. The analysis also demonstrates that Virginia's farmers are continually seeking ways to increase their market share -- in effect, to make these changes work to their advantage. As we have pointed out, among Virginia agriculture's strengths are:

Excellent location with good transportation access to three-fifths of the U.S. population.

Well-established service infrastructure, consisting of brokers, consultants, chemical suppliers, and equipment dealers.

Diversity of product, such as is the case in Virginia's apple industry.

Thus, the issue that faces county leaders is the degree to which they wish to maintain the county's substantial commitment to managing urban growth by guiding it into or near present settlements and away from prime farming areas. The County was one of the innovators in Virginia 15 years ago, when it initiated its agricultural zoning efforts and set up the current array of methods for assisting farmers to keep farming. It has continued to add to this set of programs and has taken a

number of other steps, as outlined at the beginning of this Plan to maintain that position of leadership. The analysis set forth in this Plan supports those efforts on the part of the County. It shows that, with initiative and enterprise, Virginia farmers should be able to meet the competition and continue to enjoy a solid agricultural economy.

**VI. Clarke County's Farmland Conservation Policies and Programs:  
Recommendations**

-----

## **VI. Clarke County's Farmland Conservation Policies and Programs:**

### **A. Summary**

In the last fifteen years, Clarke County, using powers delegated to it by the Virginia legislature, has developed a sophisticated and comprehensive set of policies and associated methods of implementation for protecting its highly valued farmland. In addition, the County has either completed or retained consultants to assemble the background studies needed to undergird its strategies. It has established a GIS capability that permits sophisticated data assembly, analysis, presentation, and retrieval.

The major components of this state/county farmland protection program are as follows:

1. Land Use Taxation.

2. Virginia Estate Tax. A state estate tax that simply "picks up" the available state death tax credit that is available under the federal estate tax. This means, first, that the state estate tax has no economic effect and, second, that executors of deceased farm owners' estates may soften the impact of death taxes by taking advantage of Sections 2033A and 6166 of the federal Internal Revenue Code. Section 2033A permits farm use valuation of eligible farmland, provided the estate and the deceased's family members can qualify for the special valuation. Section 6166 permits farm operations that qualify as closely held to defer payment of the estate tax over a period of fifteen years.

3. State right-to-farm protection against private nuisance lawsuits.

4. The agricultural and forestal districts authorized by state law give farmers who place their lands in them a number of benefits. These benefits include: eligibility for land use taxation, protection against unreasonable local regulations of farm practices and structures, special procedures with respect to the exercise of eminent domain by state agencies, and limitations on the imposition of local benefit assessments or special *ad valorem* levies for sewer, water, or electrical purposes. Approximately a third of the farmland in the county is in agricultural districts. See Figure 29.

5. Virginia Outdoors Foundation and private conservation easements. Approximately 7,335 acres of land have been placed under easement. See Figure 29.

6. Effective sliding scale area-based allowance agricultural zoning. See Figure 1. Virtually all the farmland in Clarke County is located in either the AOC or the FOC zoning districts. The generalized map of these two districts is found in Figure 1. Section 3-D-2 of the Zoning ordinance establishes a sliding scale area-based allowance for determining the density of residential development. The sliding scale limits development density to, for example: three units for a 50 acre tract, four units for a 125 acre tract, seven units for a 250 acre tract, eleven units for a 500 acre tract, etc., in addition to dwelling units that existed as of October 17, 1980. The minimum lot size is one acre and, for the AOC district, there is a maximum average lot size of two acres and an absolute maximum lot size of four acres. There are other important provisions in the Zoning Ordinance to limit development in the rural

areas of the County. For example, the County has established, in Section 3-D-7 of the Zoning Ordinance, its Land Evaluation and Site Assessment (LESA) system for determining what are the most important farmlands in the county for various zoning ordinance purposes.

**Figure 29**

7. Review of subdivision lots up to 100 acres in the AOC district by Section 3-D-6 of the Zoning Ordinance. Lots between 2 and 100 acres can only be created with a maximum lot size exception.

8. The three committees that participate in various ways in efforts to maintain a strong agricultural economy: (1) The Agricultural District Committee that advises the Board of Supervisors on matters affecting the Clarke County Agricultural District created through the Code of Virginia; (2) The County Planning Commission's Agricultural Committee that focuses on issues of land use policy and regulations, as they affect farming; (3) The Clarke County Farm Bureau's Economic Development Committee. The Farm Bureau Committee has sponsored a study, prepared by an expert from Virginia Tech, of the community services costs for the major sectors of the County and the corresponding real property tax revenues they generate. It is also looking into several issues related to the agricultural economy.

9. Ample provision in the Comprehensive Plan for protecting agricultural and mountain lands, on the one hand, and coordinating the control urban development and the provision of infrastructure, on the other. The intent of such policies is to concentrate new growth in and around the Town of Berryville and at arterial highway intersections.

Few jurisdictions in the country can match these accomplishments.

### **B. Priorities for the Next Few Years**

Because so much has been done, this Plan concentrates on two major themes: (1) the necessity of taking steps to strengthen Clarke County's agricultural sector so as to assure that farmers can continue to operate profitably, and (2) developments in the law that affect the capacity of the county to protect its farmland resource. Most of the specific recommendations that follow are directed to these themes.

As a general matter, the protection of the County's farmland resource base requires that new development be channeled away from prime farm areas and into those parts of the County that are more suitable for urban development and are well served by necessary infrastructure. In short, it is necessary to manage urban growth thoughtfully and effectively to protect natural and agricultural resources. The County should continue to articulate forcefully its policies for concentration of new building near existing settlements.

In addition, more attention should be paid to the design of the subdivisions, especially in the AOC and FOC districts, so that they are well laid out and their impact on the natural environment is minimized. The County should review its zoning and subdivision regulations and procedures to ensure that they contain policies and criteria that produce better-designed settlements while minimizing their negative impacts on surrounding areas.

## **C. Major Policies**

### **1. Encourage and Expand the Activities of Agricultural Committees:**

- **The Agriculture Committee of the County Planning Commission**
- **The Economic Development Committee of the County Farm Bureau**

Clarke County's agricultural community spans a broad spectrum of sector-specific concerns and needs. Yet beneath the dynamics of the agricultural sector described here are some universally shared concerns. Although many of those consulted expressed a positive outlook about the near future of agriculture, they also recognized that Clarke County is experiencing some of the same pressures of expanding development that are being experienced by neighboring Northern Virginia counties.

Farmers wish to be able to farm with as few hindrances as possible. They urge the resolution of land use control, taxation, and regulatory issues in ways that will keep their farm operations profitable. Many see the need for more effective communication with the County's growing number of non-farm citizens to inform them of the contributions that agriculture makes to the quality of life that attracted residents and non-farm businesses to Clarke County.

The Clarke County Planning Commission's Agricultural Committee serves as an advocate for agricultural interests. Its primary mission is advising the Planning Commission on all matters affecting agriculture in Clarke County. The committee brings issues of particular importance concerning agriculture to the Commission and other appropriate government departments, and it is available to comment on matters referred to it.

The Committee is also a catalyst for discussion among operators of farms about the different types of realistic and coherent approaches that address the obstacles and explore the opportunities for the betterment of all of Clarke County's farmers. The Committee should sponsor sector-specific workshops, as well as seminars and conferences on subjects such as agricultural policy, business development, marketing and promotion, estate planning for farmers, and alternative agriculture.

The Clarke County Farm Bureau's Economic Development Committee has sponsored a Cost of Community Services Study of Clarke County. The study's purpose is to reveal the extent to which the agricultural sector of the County's economy subsidizes the residential sector. The Committee is exploring the feasibility of (a) farm markets in the County, (b) direct beef and lamb sales to consumers, perhaps using a Clarke County label, (c) the extent to which agricultural suppliers can be encouraged to continue operations in the County, (d) direct hay sales from producers to equine consumers, (e) farm tours, and (f) the preparation of a guide book that would highlight the resources of rural Clarke County. It is also considering how it might better inform Clarke County citizens about the importance of the agricultural economy and the County's rural traditions.

## **2. Include the promotion of Agriculture and Related Businesses in the responsibilities of the County Economic Development Coordinator**

As one element in the enhancement of the County's business tax base, the Economic Development Coordinator (EDC) is charged with promoting agricultural businesses. This charge serves the dual purpose of enhancing the tax base by strengthening existing local businesses and promoting the economic viability of agriculture, the dominant land use of the County. If this dominant land use does not remain economically viable, land owners would turn to other uses, such as residential. Increased residential development would have a significant negative impact on the County's fiscal status and defeat the benefits from expanding the business tax base. Making this charge is also one way by which Clarke County implements the goals articulated in its 1994 Comprehensive Plan of protecting agriculture in the County.

The EDC should work closely with the Planning Commission's Agricultural Committee and the Board of Supervisors' Economic Development Committee to facilitate the goal of promoting the agricultural industry. This would be accomplished by attracting businesses serving agricultural activities in the County, developing and implementing promotional and marketing programs, assisting the County in the development of agricultural policy, and educating the non-farm public about the importance of agriculture. Agricultural business promotion by the EDC would not replicate existing agencies and functions, but would be guided by the Board to expand the tax base as well as serve the farming community. The EDC should work closely with existing federal, state, and local agricultural agencies to support Clarke County's farm community.

## **3. Keep Land Use Taxation**

All the farmers interviewed agreed that retention of land use taxation is critical to the all the major sectors of agriculture in the Clarke County, for a number of reasons.

First, as the Cost of Community Services Studies submitted to the Planning Commission as part of this Plan have shown, farmers subsidize owners of residential real property, even with land use taxation, because the tax revenues generated from agricultural, forest, and open land far exceed the allocated share of county expenditures, and thus create a net surplus for the County. Land use taxation reduces the degree of subsidization, but does not eliminate it.

Second, land use taxation keeps the tax liabilities of agricultural land in a range that is reasonably related to farm income. Farmers who own their land can expect to make a reasonable profit if nature and the markets do not interfere. Lessors have an incentive to rent the land at a modest rent to secure farm use value assessment. This has the result that farmers can keep their costs down and compete more effectively with producers from other parts of the country.

## **4. Consider Proposing Changes to State Agricultural District Regulations**

Agricultural Districts would be strengthened by providing an option for longer district terms. Agricultural Districts with terms greater than ten years would require a change in enabling legislation by the Virginia General Assembly. To encourage farmers to sign on for a very long term, such legislation should include incentives, such as: leasing of development rites for those in 20-year

districts. Leasing development rights raises a number of issues: (1) The level of the rental payments would have to be structured so as to provide the owner with a reasonable return on the development value of the land; (2) Criteria would have to be established to select the farms whose development rights would be leased, such as: soil quality, size, agricultural production, location, degree of urban development pressure, use of conservation and nutrient management measures, existence and implementation of a conservation plan; (3) The source of the funds used to pay the leasehold payments would have to be identified, such as tax revenues or bond issue; (4) The effect on the lease of the sale of the property, the death or bankruptcy of the landowner during the lease period would have to be determined.

**5. Encourage the Creation of a Clarke County Agricultural and Forestal Land Trust**

A private, charitable land trust can work closely with a county to offer landowners who want to protect their farm, forest, and open land effectively, a variety of options. Some, for instance, would rather "put their land in trust" with a private land trust, even if they do not receive compensation for the limitations on its use that that entails. They care about the land and about farming enough to insure that the land will not be developed. Others are more interested in receiving compensation for the development value of their land, even though they may share the same deep love of the land.

**6. Consider the Purchase of Agricultural Conservation Easements by the County**

A number of states in the northeast, such as Pennsylvania and Maryland have created major purchase of agricultural conservation easement programs (also known as Purchase of Development Rights (PDR) Programs. As of the spring of 1996, more than 400,000 acres have been protected at a cost of over \$700 million in the nine states and a number of counties that have such programs. Recently, Virginia Beach undertook an innovative program to protect 20,000 acres of good farmland in the southern part of the city. In May 1995, the city adopted its "Agricultural Reserve Program" and it went into effect in July of the same year. The City has approved a dedicated source of funds of approximately \$3.6 million per year for 25 years, through a 1.5 cent property tax increase, partial revenues from a cellular telephone tax, and payments in lieu of tax from the Back Bay National Wildlife Refuge. Appraisals began in the fall of 1995. Payments for the easements will be made on an installment basis.

**7. Require an Agricultural Disclaimer in Agreements of Sale for Land in the AOC Zoning District**

This disclaimer would provide a prospective buyer with notification that agriculture is the primary economic activity of the district and that homeowners may be subject to inconvenience or discomfort arising from generally accepted agricultural practices.

**8. Adopt Site Design Guidelines for Subdivisions in the AOC and FOC Districts**

There are currently minimal site design requirements or criteria for AOC or FOC subdivisions. Such guidelines should have development arranged in ways to minimize its impact on the

natural environment and nearby farmlands. The guidelines should seek to minimize the impact of development on the hydrological system of the site and to conserve such natural resources as wooded areas, steep slopes, and marshy areas. Currently, environmentally sensitive design is encouraged but there are no written guidelines. Often the controlling site design considerations are the requirements for the location of the drain fields, especially in karst soils. Voluntary site design guidelines should be included in the Subdivision Ordinance. They should include provisions to direct building to poorer agricultural soils, to avoid building on ridges, to cluster buildings, and not to build on a hill in the middle of a field. These guidelines should be voluntary, not mandatory.

**9. Promote agriculture-related businesses in AOC, such as pick-your-own operations, farm stands, and other ways of increasing farmers' agricultural income.**

Farmers living near major metropolitan areas have shifted to higher value, market-oriented products. Although the County already has a variety of horticultural operations, there are more market-oriented, alternative agricultural opportunities that farmers with traditional agricultural operations could explore. These include: exotic livestock, flowers, nursery production, and pick-your-own operations.

Clarke County should assist farmers in identifying increasing marketing opportunities through the activities of the Economic Development Coordinator. Clarke County could also work with the "Virginia's Finest" marketing program, to publicize how farmers could qualify to participate in this program, which could assist them in their marketing efforts.

Clarke County can also undertake a review of its zoning ordinance to ensure that there are no unnecessary hindrances to the marketing of farm products.

The County can also consider sponsoring a forum for farm and business interests to begin a dialogue about the ways in which each offers opportunities for economic development and to identify ways in which each group could work together towards addressing common concerns.

## **D. Conclusions**

This deeper analysis of some of the major trends in Clarke County's agricultural economy demonstrates what farmers well know: there will always be uncertainties facing them, whether they be caused by the weather, national and international competition, changes in consumers' tastes and buying propensities, evolving structures in agri-business, growth pressures resulting from urban development, or changes in technology. The analysis also demonstrates that Virginia's farmers are continually seeking ways to increase their market share -- in effect, to make these changes work to their advantage. As we have pointed out, among Virginia agriculture's strengths are:

Excellent location with good transportation access to three-fifths of the U.S. population.

Well-established service infrastructure, consisting of brokers, consultants, chemical suppliers, and equipment dealers.

Diversity of product, such as is the case in Virginia's apple industry.

The County was one of the innovators in Virginia fifteen years ago, when it initiated its agricultural zoning efforts and set up the current array of methods for assisting farmers to keep farming. The information contained in the 1990 U.S. Census of Population, the U.S. Agricultural Census, 1992, and analyses of the major sectors of Clarke County's agricultural economy, leads to the conclusion that Clarke County would be well-advised to continue the County's far-sighted efforts to protect the county's agricultural economy and to conserve its farmland base.

The analysis set forth in this Plan supports that position because it shows that, with initiative and enterprise, Virginia farmers should be able to meet the competition and continue to enjoy a solid agricultural economy. Orchard operators in the County, along with others in the Shenandoah Valley have been increasing the number of trees in their orchards. The County is well-positioned with respect to the apple processors and consumer markets of the Norfolk to Baltimore portion of the eastern megalopolis, and the tree-fruit industry is served by an excellent infrastructure. There are indications that some of the prime apple orchard areas of Washington state are coming under substantial urban development pressure. There may not be the same resolve to protect prime orchard land from suburban development in those counties as there is in Virginia. Virginia's apple growers have a number of options available to them to make their products more competitive. Thus, the County should continue its reasonable efforts to support the apple industry and to minimize non-farm development in prime orchard areas.

Virginia's beef cow inventory has grown over the last 25 years. It is difficult to predict what effects, if any, the recent drought in the panhandles of Texas and Oklahoma may have on northern Virginia's competitive position in the livestock industry. One view is that the misfortune of the western cattle operators may ultimately rebound to the benefit of eastern cow and calf operations. As the beef industry re-engineers its product to make it more attractive, and therefore more competitive with other livestock products, the opportunities for further growth appear promising. One of the functions of the Agricultural Committee can be to search for new marketing arrangements that eliminate some of the

middle-man operations in the process and take advantage of Clarke County's excellent location vis-à-vis metropolitan markets. These prospects clearly support further efforts by the County to protect lands used by cattle operations and to deflect exurban residential pressures to existing communities, such as Berryville.

Similarly, the other sectors of Clarke County's agricultural economy, sectors that lend a rich variety to the County's agriculture and countryside, are in a position to maintain their economic viability by working with the County's Agricultural Development Officer to develop innovative marketing techniques and special high value products that have appeal to the residents of suburban Washington and nearby communities in Virginia.

In summary, there should be an ongoing effort to implement programs to keep farmers farming and to conserve the county's good farmland. Agricultural protection zoning, land use taxation, agricultural districts, right-to-farm protection, acquisition of conservation easements, and comprehensive growth management, generally -- all work to make it possible maintain, and even strengthen, the county's agricultural economy, in the face of suburban development pressures, and the evolving competitive challenges that have always -- and will always -- confront farmers.

## **VII. Legal Developments**

Coughlin, Keene & Associates has submitted these separate memoranda:

- A. Review of Virginia Decisions on Zoning and Subdivision since 1987**
- B. The Vested Rights Doctrine in Virginia**
- C. Evolution of "Takings" Doctrine in the Decisions of the U.S. Supreme Court**
- D. Farmers Subsidize Homeowners through the Real Property Tax:  
the Findings of a Review of "Cost of Community Services" Studies**

Photo

To: To Clarke County File  
From: John Keene  
Subject: Conversations with Charles Coale, on apples, and Wayne Purcell, on  
Livestock  
Date: March 14, 1996

## **I. Charles Coale, on Apples**

Three years ago, Charlie and Paxton Marshall prepared a program on Va. apple growers, with 100 invitees from 6 different aspects, to look into the future of apple growers in the nation and the state. Using the nominal group technique, they put together a report on who's who in the industry and what their concerns are. He'll send me a copy. About the Tree food industry.

He and Waldon Kerns put together a conference on direct marketing more recently, with farmers, agri-business people, and retailers. It focused on direct marketing opportunities, and the need to find out what the consumer really wants. He'll send me a copy.

He expressed interest in collaborating with me and other institutions to look at agricultural economy viability, growth management, and possible research contracts.

## **II. Wayne Purcell**

(540) 231-7725  
FAX: 231-7622  
e-mail: purcell@VP.edu  
A very spirited and rapid fire discussion.

He has just finished a Rural economic analysis program report for their bulletin on the livestock industry. He'll send me a copy and put me on the mailing list.

Cow/calf operations in Virginia have not followed national trends in the last 25 years. Nationally, there were 132 million head of cattle in 1975, that was reduced to 95 million by 1990, and has now been rebuilt to about 104 million head, (though calf prices are "real bad" right now, and he doesn't expect that level to be maintained) This means that the plain has a negative tilt. . In southwest Virginia, there's a long tradition of farming, and the families have high degree of equity, and are therefore better able to survive tough times. In Clarke Co., it's different, though there might be some outside money in it that would allow them to weather tough times.

The problem with the cattle industry is that it has never been able to address its product offerings: it's as if GM were trying to sell 1975 model cars. Also product quality is inconsistent. National demand per capita for beef has been declining.

Land use taxation is under attack. It is differentially enforced around the commonwealth. Some counties let land stay on the rolls years after qualification: others, like Culpeper Co., go around periodically and check to see if the necessary farming operations are still being conducted.

He thinks that land use taxation has only delayed the time with the land exits into development. Whenever you have land values up to the \$6,000 to \$10,000 level, it's inevitable. It's hard for the farmers to withstand the pressure.

The 1994 right-to-arm amendments had an unexpected side effect. Many of the counties started enacting buffer and set-back requirements, which had the effect of increasing substantially the size of the tract that would be needed to run an efficient, modern pork processing operation. Wampler/Longacre put a plant in W. Va., because it can't afford the money, time, delay, needed to get the necessary permits. Hordes of people are moving out. The owners of Valleydale left. In short, the set-back requirements have blocked development of large facilities. IBP has been looking for a site for a modern, large, meat-processing facility in NC, Va., and SC, in the five county area in the "southend." -- west of I-95, where it is rural, sparse and in need of economic kick. But the patchwork of local zoning prohibits it, and it may go elsewhere.

Former tobacco raisers, looking for new crops, would be well-advised to consider a large, modern pork-processing operation. But environmental concerns may inhibit it.

He thinks the day may soon come when farmers will be required to fence their streams. If so, it makes a difference and it may drive some farms out.

One result has been that intensive livestock operations are moving from Va. to NC.

### **E. Minimizing Safety Hazards Resulting from the Use of Pesticides and Fungicides**

K.S. Yoder analyzed the issues of whether dangerous residues from agricultural chemicals remain on apples. Growers who shifted to "pesticide free" management found that disease and insect damage may make the crop less attractive and therefore less marketable than one that was grown using pesticides that might leave a residue but produced more attractive looking fruit. Some tree-fruit operators have found that cultural control practices, integrated pest management practices and pest monitoring have helped to convince the public of the safety of the product.