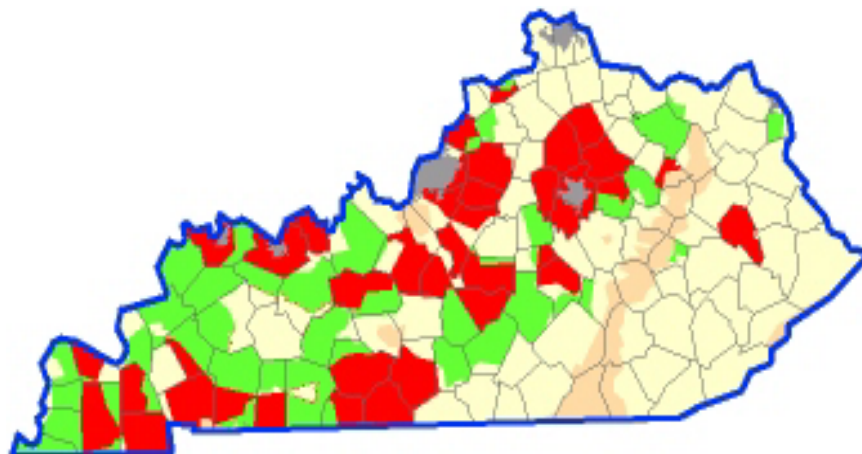


RURAL LAND PRESERVATION IN KENTUCKY



Source: USDA/NRI and American Farmland Trust

Red: High Quality and High Development
Green: High Quality and Low Development

Speckled: Federal Lands
Grey: Urban Areas
Cream: Other

Agricultural Economics — Extension No. 98-02 June 1998

By:

VALERIE L. VANTREESE, JERRY R. SKEES AND CRAIG L. INFANGER

University of Kentucky
Department of Agricultural Economics
400 Charles E. Barnhart Bldg.
Lexington, KY 40546-0276

Phone: 859-257-5762

Fax: 859-323-1913

<http://www.uky.edu/Ag/AgEcon/>

Rural Land Preservation in Kentucky

Valerie L. Vantreese, Jerry R. Skees and Craig L. Infanger
Department of Agricultural Economics
University of Kentucky
AEC Extension Series No. 98-02, June 1998

Table Of Contents

| | Page |
|--|------|
| I. Introduction | 1 |
| II. Is Rural Land Protection Needed? | 1 |
| Is Rural Land Protection an Economic or a Social Issue? | 3 |
| III. Farmland Loss in the US | 4 |
| IV. Farmland Loss in Kentucky | 6 |
| The Structure of Kentucky's Agricultural Sector | 6 |
| Land Use in Kentucky | 8 |
| V. Policy Alternatives for Preserving Rural Land | 12 |
| Federal Alternatives | 12 |
| State Alternatives | 14 |
| Agricultural Zoning and Right-to-Farm Laws | 14 |
| Agricultural Use-Value Tax Assessment | 14 |
| Certified Agricultural Districts | 15 |
| Land Acquisition and Trust Activity | 17 |
| Purchase of Development Rights | 18 |
| Other State's Experiences with PDR's | 20 |
| Transfer of Development Rights | 21 |
| VI. How Effective are Kentucky's Land Preservation Policies? | 22 |
| VII. Questions Remain | 25 |
| | |
| Appendix I: A Word About Data Sets | 27 |
| Appendix II: Prime Farmland | 28 |
| Appendix III: State PACE Programs | 29 |
| Appendix IV: Local PACE Programs | 30 |
| Selected Resources | 31 |

Charts and Figures

| | |
|--|----|
| Farms with Sales of \$10,000 or more (KY) | 7 |
| Rural Land in Kentucky (1967-92) | 8 |
| Prime Farmland in Kentucky (1992) | 9 |
| Major Land Resource Areas (KY) | 9 |
| Prime Farmland: By Region (1982 and 1992) | 10 |
| Land Use in Kentucky (1978) | 11 |
| Developed Land Use (1978) | 11 |
| Kentucky Agricultural Districts (1997) | 16 |
| Land Preservation Alternatives in Kentucky | 22 |

Rural Land Preservation in Kentucky

Valerie L. Vantreese, Jerry R. Skees and Craig L. Infanger

I. Introduction

From 1982 to 1992, 190,900 acres of prime farmland in Kentucky was converted to development and other uses. That amounts to a 3.2% decline in just 10 years; over 52 acres per day; 2.2 acres per hour. During the same time, over 4 million acres of prime and unique farmland in the United States was converted to rural and urban development. Is that a lot? Or less than you thought? What have we gained in return?

The “lost” farmland now serves us as additional housing, convenient shopping, new schools and more churches. But, is it the developers who are responsible for raping and pillaging the land? Or are *we* at the helm of land-use change through our desire for a foodmart on every corner and a Walmart for every community?

When asked directly, most people would profess to value the protection of farmland and scenic landscapes. But the question is *how much* do we value farmland protection? What would *you* pay to protect farmland in your county or state? One county in New Hampshire found that their residents would be willing to pay an average of \$31.23 per person per year to protect forested areas with conservation easements. A similar study by the University of Kentucky, funded in part by the Greater Lexington Chamber of Commerce, reported that Kentuckians were willing to pay nearly \$20 per person to prevent a 25% loss and \$70 to prevent a 50% loss in horse farms in the state. With a population of 3.7 mil in Kentucky, that’s a lot of money.

But willingness to pay, ability to pay and ability to extract payment are three different things. Although a majority of people seem to agree that farmland is worth preserving, farmland protection comes at a cost. Perhaps we should be asking: Does all rural land need protection? Who should pay to preserve this land? And, how can we best accomplish these goals?

II. Is Rural Land Protection Needed?

Rural land preservation has once again found itself in the public’s eye, with new national studies documenting the loss of farmland across the country. Recently, the American Farmland Trust predicted that so much farmland may be “lost” to development by the middle of the 21st century that the US may be forced to become a net food importer.

The loss of farmland is not a new phenomenon. Significant land use changes have occurred in the last 50 years. After WWII, the US moved into a period of renewed industrialization, which included the development of an extensive federal highway system, that encouraged massive suburbanization and absorbed large amounts of farmland. This phase of farmland consumption continued into the 1960s.

In the 1970s, the developing world was unable to feed their burgeoning population. US

agriculture responded enthusiastically with record crop plantings and exports to overseas markets. Simultaneously, environmentalism surged as Americans became increasingly aware of natural resource depletion and air and water pollution. The late 1970s sparked several national studies that documented resource degradation and the loss of prime lands. The federal government began taking a proactive role in slowing the conversion of farmland to non-farm uses and a variety of farmland retention policies appeared at both the local and national level.

However, the 1980s began with new research that criticized the “reactionary” studies that purportedly overestimated the loss of farmland. Further, US agricultural exports declined, as world demand fell and a strong US dollar overpriced US grain relative to world prices. Overproduction of agricultural commodities was now the problem and the US government began encouraging farmers to reduce crop acreage. Critics of farmland preservation policies became more vocal, claiming the dynamic land market reflects changing societal needs; technological advances; production costs and price expectations; and the relative returns from farming.

How serious is the loss of farmland? Conservationists argue that our natural resource base is finite and must be protected for generations to come. Furthermore, the loss of farmland to development is fundamentally irreversible, as industrialization and scatter development continue to absorb large amounts of farmland. Prime farmlands are the most efficient in producing food and fiber crops and land preservation is critical to safeguard our capacity to feed a growing world population.

Critics counter that overproduction continues to depress farm prices and technological gains in productivity have offset the loss of farmland. Furthermore, agricultural productivity continues to keep pace with world population growth. Total US acreage in cropland has remained unchanged over the last 50 years (about 465 million acres) and our ability to produce food and fiber does not appear to be impeded by our development on farmland. Some suggest that government policy has been far more influential in affecting food production in the US than any physical resource limitation.

US farm policy can be more powerful in determining food production than how much farmland we have.

Further, those interested in economic development see prime farmland as most desirable for new homes, industry and public facilities. And developing prime lands may best serve society because development costs are minimized. A dynamic land market is both necessary and desirable as the needs of society evolve. Land use change is simply allowing the free market to guide resource allocation, particularly at the rural-urban fringe.

But it is at the urban-rural fringe where the loss of farmland and open space is most visible and profoundly felt. The irreversibility of development and loss of pastoral scenes near many urban centers has continued to cause friction between land use planners, conservationists, government officials and developers. For the first time since the 1970s, the nonmetro growth rate has

exceeded the metro growth rate, further increasing the likelihood of scatter development across rural areas.

Is Rural Land Protection an Economic or a Social Issue?

As the economic debate surrounding the wisdom of farmland preservation continues, rural land protection has increasingly become a social issue. New arguments behind rural land protection have arisen. Many preservationists now argue that while total food supply may not be in jeopardy, the loss of farmland in specific locales has tremendous impact on our society. And, the free market does not always protect that which is most valuable to us. Proponents of preservation note the need to ensure environmental quality (not just protection, but improvement), the necessity of effective land use planning, the desire for lifestyle preservation (by farmers, rural and urban dwellers alike) and the need to maintain viable local agricultural economies.

The arguments behind farmland protection have moved beyond food security to green space preservation.

So which do we want -- farmland preservation or rural land protection? *Farmland preservation implies* that the land will continue to be farmed, thus preserving a traditional way of life. However, preserving farmland and preserving farming are not one in the same. Farmland preservation does not guarantee the land will continue to be farmed; it only promises that it won't be developed. *Rural land protection* acknowledges that although farming may not always be sustained, safeguarding rural lands, including scenic and historic spots, and open space is a worthy pursuit.

Increasingly it is the aesthetic amenities that rural lands provide us that motivate many preservationists. Many Americans continue to identify with agriculture as many of us are but one or two generations away from the farm. But beyond farming, rural lands are valued for the scenic vistas and green space our society needs to thrive. Just as sod busters of the last century moved on as soon as they could see the smoke from their neighbors' fire, many of us need the rural landscape to clear our minds and calm our souls. If we continue to lose rural lands, are we losing the very sustenance of our lives?

Rural land preservation on a local level may be desirable to provide the green landscapes our society needs to survive, to maintain viable local agricultural economies, and to add balance and sanity to our hectic lives.

Preserving farmland has become somewhat of a social litmus test for our society. For many it is evidence of the value we place on our agrarian heritage, the respect we hold for one of our greatest natural resources, and the desire we have to protect this resource for generations to come. Would rural land preservation serve the same goals?

To add to the complexity, farmland preservation is an inter-generational challenge. The following scenario is one that has played out time and time again. Mary and John have farmed all their lives. Upon retirement, they turn to their three children asking “Who will take over the family farm?”. Susan has moved to a nearby city to pursue her law practice; Dan works at a local manufacturing plant; and Jane is a housewife with no interest in farming. Since the family farm could support only one family, the second generation has moved off the farm to seek their fortunes elsewhere. Upon their parents’ death, the farm will probably be sold and the proceeds from the estate will be split among the children.

While one generation may savor farming as a way of life and go to great lengths to preserve the family farm, subsequent generations may hold different values regarding farmland preservation. It seems inevitable that at some point, some owner, may be lured by the economic profits that can be made by selling the land for development. How can the public influence the decisions of the private land owner?

Newer, more progressive strategies to preserve rural lands have a much stronger private sector focus. Nearly two-thirds of US land is privately owned and local zoning and land use regulations have struggled under the pressures of local politics. Public takings both with and without compensation have proven unpopular. To counter the local politics of zoning and to provide a more cohesive land-use strategy, various federal and state programs have been implemented to slow the conversion of prime farmland to development use and are well-documented elsewhere (for example, Nelson Bills work).

This paper discusses newer initiatives, particularly those which focus on voluntary landowner commitment and creative compensation to influence farmland preservation. In Kentucky, several state and local programs are working to preserve rural lands by providing financial incentives for landowners to slow the rate of development. The success of these programs relies on securing funding and attracting an increasingly diverse constituency.

Newer policy initiatives to slow the conversion of farmland rely on innovative compensation to the landowner through direct financial incentives and creative tax laws.

III. Farmland Loss in the US

Settlement patterns have frequently converted some of the “best” lands for development purposes, as commercial centers typically were located with excellent river port access and on flat, well-drained soils. Developers have always sought ideal locations, including soil structure, to maximize commercial potential and to minimize building costs. This trend of taking some of the best prime lands, delta areas and even wetlands for development has continued.

From 1982 to 1992, the US “lost” approximately 6 million acres of prime farmland, an area roughly equivalent to the state of Vermont. Of that amount, 4,266,000 acres of prime or unique

farmland was converted to rural and urban development. The remaining two million acres was actually prime lands put into forest, pasture, set-aside and other non-development uses. In total, the US has 334 million acres of prime or unique farmland, of which prime lands are 65% cropland, 14% forest land, 11% pasture, and 6% rangeland. The rest is other undeveloped rural land. In 1992, developed land totaled 92.4 million acres--nearly 5% of the U.S. land base. (*National Resources Inventory, USDA and Farming on the Edge, AFT*; Appendix I includes more information regarding data sources documenting farmland loss.)

By definition, prime or high quality farmland has the soil properties, moisture supply and growing season to produce high crop yields for a long period of time without losing its productivity potential. Thus, prime farmland is most suitable for producing food, feed, forage, fiber and oilseed crops. American Farmland Trust (AFT) has refined this definition to include unique farmland, defined as land used to grow vegetables, grapes and horticultural crops, including fruits, nuts and berries, that have unique soil and climatic requirements. (Appendix II contains a more complete definition of prime farmland.)

Importantly, AFT found that “The patterns of urban development are scattered and fragmented, thereby increasing the pressures on farmland beyond those acres actually lost...” Further, when AFT analyzed the agricultural production occurring on high quality farmland threatened by development, 79 percent of the total United States’ production of fruit, 69 percent of the vegetables, 52 percent of the dairy products, 28 percent of the meat and 27 percent of the grain are produced in counties where a greater than average amount of high quality lands are under the most intense pressure from development in each state. (*Farming on the Edge, AFT*)

Frequently, agricultural production moves from low value crops to high value and value-added crops as the value of the land increases as development pressures continue to bid up the price of the land. As evidence, some have noted the transition agricultural lands make moving from producing bulk grains to livestock to fruit and vegetable production to even horticultural tree crops prior to development.

It is tempting for opponents and proponents alike to use these same statistics to further their cause. A 4.3 million acre reduction in our prime farmland base is equivalent to losing 1,169 acres per day during this ten year period (1982-92). Alternately, 4.3 million acres is only 1.3% of our prime farmland base. Again, is that a lot?

Arguments have been made that the market votes with consumer dollars as development decisions reflect higher-valued uses. That is, if a developer is willing to pay a higher price for a parcel of land than a farmer is, shouldn’t the land be developed? If land is more highly valued for development purposes, isn’t that reflecting a greater need by society to develop land than to farm the land?

Conversely, what if the total costs of development are not completely reflected in the asking price of a parcel land? For example, development today could preclude the use of that land

tomorrow for food production. Or, a community could value rural land preservation but there is no market mechanism (such a tax policy to generate revenue) to preserve the land.

The extent to which the farmland preservationists will prevail depends upon their ability to convince policy makers to pass legislation to slow these conversion rates and their ability to convince taxpayers to support, or at a minimum tolerate, such policies. Different segments of the populace respond to different preservationist arguments - from preserving lifestyle choices to safeguarding food self-sufficiency to creating scenic easements. Further, the social issues increasingly take precedence over the economic arguments. To increase public support for farmland protection, preservationists have learned to use a variety of approaches to elicit the greatest support amongst an increasingly diverse constituency.

IV. Farmland Loss in Kentucky

Land use change depends largely upon the demand for land in alternative uses. All things equal, the relative strength of the agricultural sector will determine the rate at which farmland is converted to non-farm uses. Consequently, as the value of land for development purposes increases relative to its value for agricultural purposes, the pressure to convert farmland to non-farm uses increases. Simultaneously, as the pressure to convert increases, the price of the land subsequently rises.

Although Kentucky is perceived as a rural state, production agriculture contributes only about 3% of the state's gross product (GSP). If the processing of food, feed and fiber is included, then agriculture plays a much larger role in Kentucky's economy, contributing approximately 12% of Kentucky's GSP. Clearly, many of our rural counties are relying less and less on farming as the backbone of their economies. An overview of farmland use and the farm economy is useful to gain a perspective of how agriculture, thus the demand for farmland, is changing in Kentucky.

The Structure of Kentucky's Agricultural Sector¹

From 1940 to the present, the number of farms in Kentucky declined from 267,000 to 88,000 and total land in farms dropped from 20.7 million acres to 13.9 million acres. Consequently, average farm size has increased from 78 acres to 158 acres. This follows the national trend of declining numbers of farms and increasing farm size. Most of Kentucky's larger, commercial size farms

¹The data for this section was taken from various issues of the *Census of Agriculture* and *Kentucky Agricultural Statistics*. It is important to note a farm is defined as any establishment from which \$1,000 or more of agricultural products were sold or normally would be sold during the year. Thus a farm could make a loss several years in a row and still be classified a "farm" for Census purposes, as the \$1,000 figure only indicates sales and not profits. Traditionally, a commercial farm has been defined as grossing over \$40,000 per year. That definition is gradually changing to include farm operations grossing at least \$100,000 (which can vary by the type of operation) or where at least 75% of total farm household income is derived from the farm.

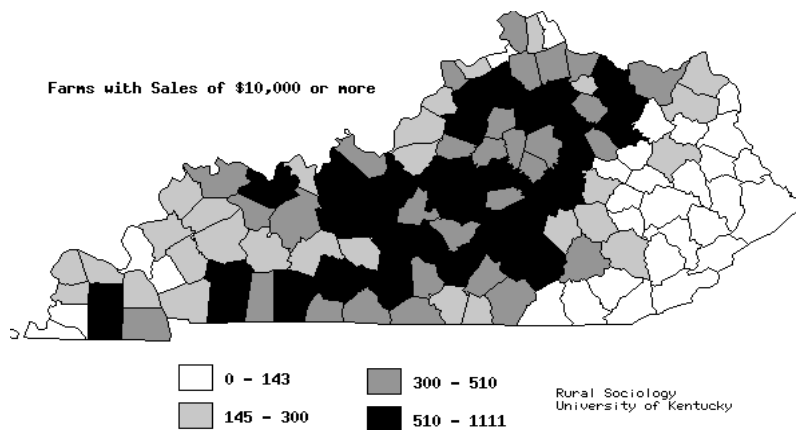
are located in the central and western regions of the state where tobacco, beef cattle and grain operations thrive.

In 1996, 54.5% of Kentucky's farms had gross sales (not profits) of \$1,000-9,999 and 45.5% had sales of \$10,000 or more. (Nationally approximately half of all US farmers had sales less than \$10,000.)

Kentucky's abundance of small tobacco and beef cattle operations sustains the trend toward part-time farming. The large number of small tobacco farms is largely due to the process by which quota is allocated and tobacco production is frequently combined with beef cattle production due to the complementarity in labor demand throughout the year.

Further, both of these farm enterprises can also be accommodated with off-farm employment. In 1996, Kentucky net farm income equaled \$1.05 billion dollars and averaged \$11,885 per farm. Over the last ten years, net farm income has remained quite stable in Kentucky, averaging \$10,800 per farm.

In a typical year, less than half of Kentucky's farmers gross more than \$10,000



Many other social factors are tied to Kentucky farm structure. Kentucky farmers are steeped in tradition and choose not just farming, but also particular enterprises (such as tobacco production) as a lifestyle choice. But, the inherent riskiness of farming has been compounded by uncertainties over the future of the tobacco program, fluctuating hog prices (over 100% in recent years), unprofitable dairy operations and the new market-oriented Farm Bill. A popular strategy to deal with farm income risk is to supplement farm wages with off-farm work, which also provides important benefits such as health insurance and retirement plans. Thus, the structures that allow Kentucky's part-time farmers to be economically viable may also lead to faster farmland conversion rates.

Kentucky's average farm size is significantly smaller than the national average (158 acres versus 470 acres) and average farmland values that are significantly higher (\$1,377 per acre in Kentucky versus \$890 in the continental US). However, Kentucky land values are significantly lower than surrounding states (\$1,801 per acre in Indiana; \$1,989 per acre in Ohio; and \$1,526 per acre in Tennessee). Again, it is the relative profitability of using land for farming rather than for development that greatly influences land-use decisions. Given that agricultural land values reflect projected returns from farming and the fact that Kentucky has an unusually large number of small farms operated by owners with significant off-farm income, "selling out" to development may be an attractive option for many farmland owners. With an aging farm

population, this trend may even accelerate in upcoming years as subsequent generations may not have sufficient interest in farming or as estate taxes force the sale of the family farm.

Zoning policies can also convert traditional farmland to rural land holdings, especially with 10-30 acre minimize lot size requirements, as has occurred in the golden triangle of Louisville-Lexington-Northern Kentucky. While designed to slow farmland development, farmland preservation advocates argue that 10-30 acre minimum lot sizes have actually increased the conversion of farmland to development. These “estates” do little to support the agriculture infrastructure and add to the collapse of the farm input sector, further increasing costs of doing business for the remaining farms. While it is tempting to assume that only the unprofitable, inefficient farmers are being nudged out of farming, much of the new development adjacent to urban centers has not spared large, commercially successful farms.

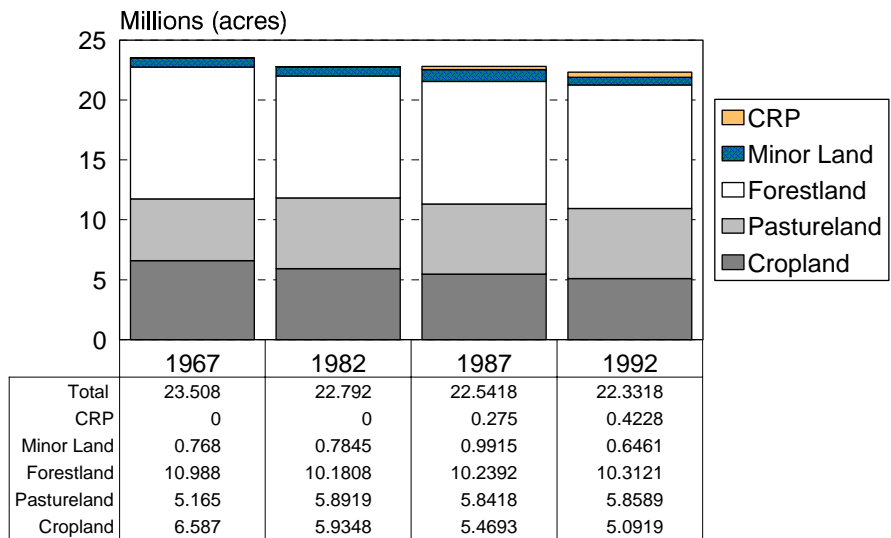
Consequently, the changes in Kentucky’s farm structure has important implications for land-use change. Evolving economies require changing resource allocations. Thus, public policies that influence farm structure and profitability will affect land-use patterns.

Land Use in Kentucky

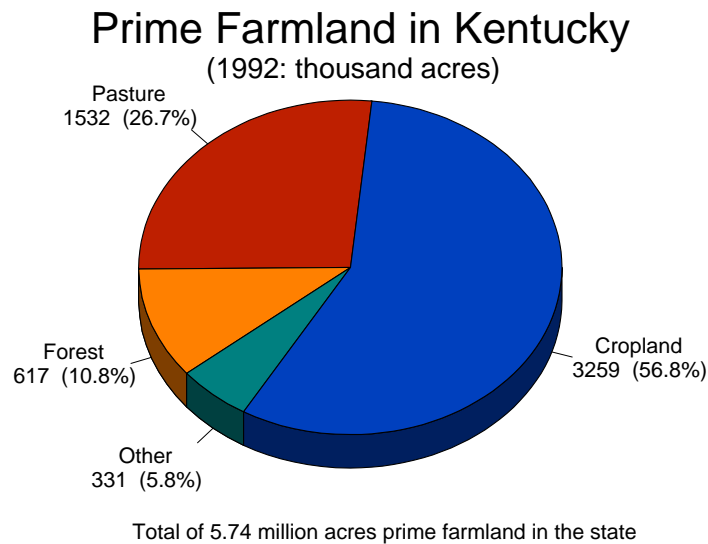
Agricultural land use patterns can be tracked using the National Resources Inventory (USDA) database (See Appendix 1). Of 25.9 million total acres in 1992, Kentucky had 1.65 million acres of urban/built-up and roads, 1.2 million acres of federal lands (mostly Daniel Boone National Forest) and 676.6 thousand acres of water. The remaining land is comprised of crop, pasture, forest, Cropland Reserve Program acreage (CRP) and other land (such as land in farmsteads, greenhouses, strip mines and wetlands) including over 14 million acres in farms. While acres in cropland and forestland declined from 1967-92,

the amount in pastureland increased. During the same time period, acreage in urban/built-up and roads increased from 836 thousand acres to 1.65 million acres; acreage in water increased from 120 to 676 thousand acres (due to the building of several new lakes); and acreage in federal lands increased from 1.0 to 1.2 million acres.

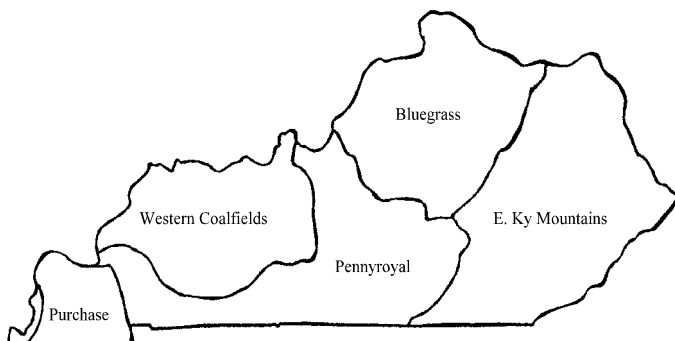
Rural Land in Kentucky (excludes urban and federal land)



In 1992, Kentucky had 5.74 million acres of prime farmland of which 56.8% was cropland, 26.7% pasture, and 10.8% forest. Another 6% was CRP and other lands. From 1982 to 1992, Kentucky lost 190,900 acres of prime farmland to development and other uses, a reduction of 3.2 percent. However, the loss in prime farmland appears to come primarily from our cropland base. The number of prime farmland acres used in cropland declined 13.2% during this ten year period, while the prime land acreage in forest increased by 9.8% and in pasture increased by 2.9%. (There is a common misperception that prime farmland must be cropland. Prime lands can be utilized for pasture and forestry purposes and the “loss” of prime cropland may simply be a change to another agricultural use.) The Cropland Reserve Program began in 1985 and will be discussed in a later section.



The loss in prime farmland is evenly distributed across the state in terms of percentage of regional land area, but not in terms of total acreage. Unfortunately data at the county-level is not reliable due to sampling procedures. However, data at the Major Land Resource Area (MLRA) can give us some insights into regional patterns.



Kentucky is represented by 6 MLRA's, colloquially referred to as: Purchase (comprised of two smaller MLRA's, both located in the far western part of the state); Western Coalfields; Pennyroyal; Bluegrass (the latter two located in central Kentucky); and the Eastern Kentucky Mountains.

| Prime Farmland by Region (1,000 acres) | | | | | | |
|--|--------------|---------------------|--------------|---------------------|-------------------------|-------------------|
| Region | 1982 (acres) | % of land in region | 1992 (acres) | % of land in region | Prime land lost (acres) | % Prime land lost |
| Purchase | 709.7 | 48.1% | 694.1 | 47% | 15.6 | 2.2% |
| Western Coalfields | 1667.2 | 37.3% | 1635.7 | 36.6% | 31.5 | 1.9% |
| Pennyroyal | 1794.6 | 28% | 1742.4 | 27.2% | 52.2 | 2.9% |
| Bluegrass | 1240.8 | 22% | 1172 | 20.8% | 68.8 | 5.5% |
| E. Ky Mountains | 518 | 6.6% | 495.2 | 6.3% | 22.8 | 4.4% |
| Total | 5930.3 | | 5739.4 | | 190.9 | 3.2% |

The greatest loss in prime farmland acreage was in the Bluegrass (68,800 acres), followed by the Pennyroyal region (52,200 acres) or 36% and 27.3%, respectively, of the total loss in prime farmland in the state. The Bluegrass and Eastern Kentucky Mountains regions lost the greatest amount of prime farmland on a percentage basis. From 1982-1992, the Bluegrass region lost 5.5% of its prime farmland, while E. Ky. Mountains lost 4.4%. Notably, while nearly half of the farmland in the Purchase and Western Coalfields is considered prime, these regions lost relatively smaller amounts. These regions are under relatively weaker development pressures and commercial agriculture remains strong.

The Bluegrass region lost the greatest amount of prime farmland in the state, both in absolute terms (68,800 acres) and percentage-wise (5.5%) from 1982 to 1992.

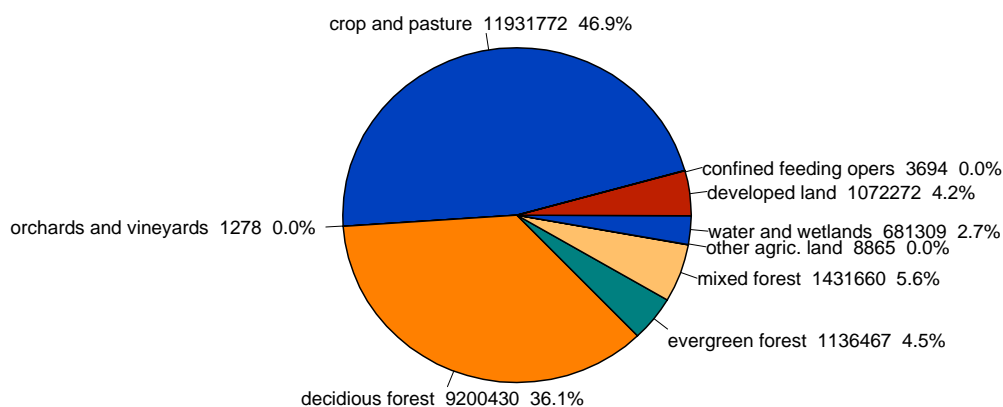
There appears to be some inconsistency in the reported loss of prime farmland in the state. While the NRI reports a reduction of 190,900 acres of prime farmland in Kentucky from 1982-92; AFT (which used NRI data for its study) reports a loss of 127,000 acres of prime or unique farmland *to urban uses*. The NRI data may be capturing prime farmland that was converted to non-agricultural and non-urban uses such as rural residential, rural commercial (including public buildings), farm buildings, or the creation of lakes and ponds. For example, the difference could be, in part, the growing number of small (5-30 acre) residential plots that are springing up in rural areas, outside of urban boundaries. Also, the AFT report was published in March 1997 and the 1992 NRI statistics reported in this paper were gathered in July 1997, after the data set was further refined. This point is made to remind the reader of the ease and danger of misinterpreting statistics and news releases.

As noted earlier, the loss of farmland can be troublesome at several different levels. From a productivity perspective, prime farmlands are the most “efficient” in producing food and fiber crops, particularly from a sustainable point of view. However, can future gains in agricultural productivity keep pace with global population challenges? If planted all in corn, the loss of

190,900 acres of prime cropland would require average corn yields to increase by about 0.15% per year to keep total corn production constant. The actual trend in yield increases has been closer to 2% per year, given the achievements in seed genetics and production techniques, and the amount of farmland taken out of production through various farm programs. Thus, new technology has allowed farmland preservation to be less of a food security issue and has made open space and rural land preservation a reflection of societal values.

The most detailed source of “development” land data is from the Geographic Information Retrieval and Analysis System (GIRAS), US Geological Services. Although this data is old, it is useful in identifying more detailed urban or developed land uses. In 1978, approximately 92% of Kentucky’s 26 million acre land base was in farm and forest land, with an additional 681 thousand acres in lakes, rivers, streams and wetlands. A little over 1 million acres of Kentucky’s land base (4.2%) was used for development.

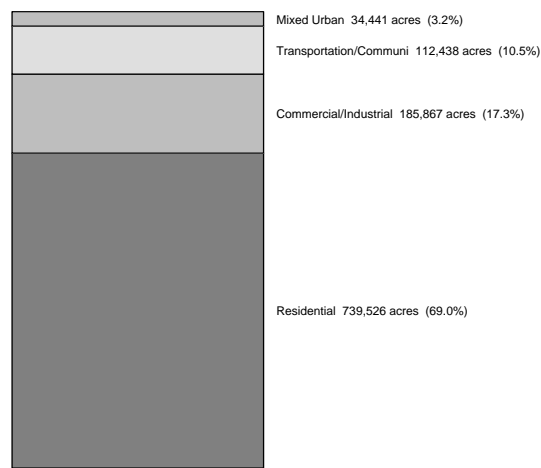
Land Use in Kentucky (1978 acreage)



Note: Other includes strip mines, quarries, gravel pits and transitional lands

Over two-thirds of the developed land in Kentucky in 1978 was used for residential purposes (740 thousand acres or 2.9% of our total land base), with the remainder divided between industrial, commercial, transportation and communication purposes. While the NRI focuses on our natural resource base, the GIRAS data covers a wider assortment of land covers.

Developed Land Use (1978)



This data base is expected to be updated using 1994 landsat information and should be available in summer 1998. Although the information presented here is dated, the GIS database can provide much more detailed land cover information. With the integration of the 1994 data, very detailed change analysis could highlight exactly where land use transformations are occurring. This is extremely important as farmland preservation has become a more community-based issue. Some local Property Value Assessor offices (such as Fayette county) are moving to GIS data systems to improve inventory and appraisal of real estate.

From an economic perspective, as the returns to farming diminish relative to other alternatives, the likelihood that farmland will be developed increases. Landowners on the rural-urban fringe must evaluate the competing demands, thus income streams, from keeping their land in agricultural uses (for example, the horse and tobacco industries in the Bluegrass) versus the value of their land for development purposes. As the return from agricultural use diminishes *relative* to the return from development, land use change is inviting.

From a more personal perspective, both urban and rural non-farm dwellers are attracted to the pastoral scenes offered throughout Kentucky. As we all know, the hints of a bucolic life that attracted many newcomers to the state is a double-edged sword; threatening that which we value. The viewscapes of rural Kentucky influence residential and commercial location decisions, attract tourism dollars, and increase property values. To what extent does the pastoral landscape of Kentucky make our lives richer and more sane? In short, measuring the value of prime farmland is not simple.

V. Policy Alternatives for Preserving Farmland

Put simply, it is the job of government to allow the market to work or to correct the market where it fails. Farmland preservation may not occur naturally in the market place if the true “costs” of development are not fully reflected in market prices. If landowners have shorter time horizons than society, or if members of society are willing to pay for farmland preservation but the mechanism to do so does not exist, then we have market failure. Various coalitions have had varying degrees of success in slowing or redirecting the path of development. The following section highlights some of the traditional tools of farmland conservation, but focuses on newer preservation initiatives.

| |
|--|
| Will the market assure that “sufficient” farmland is protected? |
|--|

Federal Alternatives

Over the years, the US government has operated programs designed to encourage farmland preservation and conservation, with various degrees of success. Prior to 1996, US farm policy supported farm income by reducing acres farmed (to deal with overproduction) in exchange for commodity program benefits (such as price supports). Farmers have been inclined to set-aside their more marginal lands (for example, more highly erosive acres) and permitted them to lie

fallow with cover crops in place. In some cases, conservation was encouraged by withholding program benefits to those not in compliance with appropriate soil and water stewardship. Current farm policy allows farmers greater planting flexibility and transition income support unrelated to production decisions. These transition payments will be reviewed in 2002. In 1996 USDA implemented a new pilot program for farmland preservation and continued both the Conservation and Wetlands Reserve Programs.

Starting in 1985, the *Conservation Reserve Program (CRP)* permitted voluntary farmland owners to receive payment from the US government to divert environmentally sensitive land from crop production. The primary goals of the CRP are both environmental (reducing soil erosion, improving water quality, and providing wildlife habitat) and economic (preserving long-term production capacity, reducing production of surplus commodities, and providing price/income support for farmers). Notably, CRP is a conservation program and does not address farmland preservation directly. In fact, it is intentionally targeted on cropland with high slopes, subject to wind erosion or with other unique characteristics.

It appears the CRP has been successful, although current total acreage under the program has declined from 36 million to 27.6 million acres (about 6% of our cropland base). Most farmland enrolled in CRP lies in the Northern and Western Plains (where greater amounts of erodible cropland is found), with the lowest participation rates in the far west and along coastal areas. The average rental value is \$39/acre and has a typical use-restriction period of ten years. The 1996 Farm Bill limited CRP enrollment to 36,400,000 acres through the year 2002, and actual enrollment will be much less due to budget constraints.

In Kentucky, over 234 thousand acres were enrolled under CRP in the contract period that began fall 1997 (1-2% of Kentucky's farmland base). Rental rates in Kentucky average \$66 per acre.

The *Wetlands Reserve Program (WRP)*, established in 1990, restores and protects wetlands and their unique flora and fauna through the purchase of conservation easements from landowners. With conservation easements, the owners retain title to the land, but development is restricted for 30 years or into perpetuity as defined in the contract (with the latter requiring public access). As of 1996, 392,104 acres were enrolled at an average cost of \$600 per acre. Most WRP acreage is located along the Mississippi River, throughout the Corn Belt and eastern coastal areas (where historic wetlands have been converted to hydric cropland). In Kentucky, 16,830 acres are currently enrolled in this program.

The new *Farmland Protection Program*, sanctioned through the 1996 Farm Bill, increases the role of the federal government in acquiring farmland conservation easements. Utilizing up to \$35 million in funding over a 6 year time period, which must be matched by state and local monies, USDA is authorized to protect 170 to 340 thousand acres of prime or unique farmland. Nearly half of the money (\$14.5 million) was allocated to 18 states in the first year of the program to protect 50,000 acres of farmland on 103 farms. Kentucky received \$400,000 of these funds.

The federal government also has an important indirect role in farmland retention through *income and estate tax benefits* that are available to landowners who donate or sell conservation easements to qualified private (such as the Nature Conservancy, American Farmland Trust, or the Montana Land Reliance) or public (the National Park Service, the Natural Resources Conservation Service, or the Lancaster County Agricultural Preserve Board) nonprofit organizations. *New tax reform* as a result of recent budget negotiations may also impact land use decisions. Beginning in 1998, farmland owners may exempt up to \$1.3 million of the value of their farm from estate taxes (up from the previous \$600,000 general exemption). More generous capital gains exemptions will also provide more support for the agriculture sector.

State Alternatives

In addition to federal alternatives, many states (including Kentucky) have passed legislation to stem the loss of farmland in our farmland base, such as exclusive agricultural zoning, the Right-to-Farm Law, agricultural use-value tax assessment and the agricultural district program. Although each of these policies has had some success in slowing the conversion of farmland to nonfarm uses, they function most effectively when operating together.

| |
|--|
| Farmland protection initiatives work most effectively when they work together. |
|--|

Exclusive *agricultural zoning* has been justified in the best interest of both farmers and urbanites who rely on a healthy farm sector and as a means to efficiently allocate land for development. But the reality is one of intense local politics and inadequate compensation to farmland owners who are denied the right to develop their land. Zoning has the effect of unevenly distributing capital gains as some agricultural areas are selectively zoned for development and developers frequently have more financial and political backing than environmentalists. In many communities, zoning alone has become inadequate to deal with the pressures of urbanization, and the complexities of resource allocation and changes in property values.

The *Right-to-Farm Law* provides legal protection to farm operations from complaints concerning machinery noise and offensive odors when non-agricultural areas are developed nearby. Since 1973, nearly all states have adopted a Right-to-Farm law (including Kentucky: Ky. Rev. Stat. Ann. sec. 413.072). But, this legislation has provided little real protection to the farm sector. Unfortunately for farmers, the right to go to court does not cover the cost of going to court. And constant complaints, increased traffic, and animal control problems arising from rural fringe neighbors can be too much for the farmer to resist, hence they sell the farm. Ironically, the barking dogs, lawn care chemical run-off and congested traffic created by rural-fringe neighbors frequently destroys the bucolic life suburbanites seek.

Agricultural Use-Value Tax Assessment

Agricultural use-value tax assessment has been adopted by all 50 states, many of which have stiff tax penalties if development occurs. By taxing farmland at its agricultural value, regardless of location and zoning status, farmers can lower their overhead costs, making it easier for them to stay in farming.

In Kentucky, the county Property Value Administrator's office is responsible for assessing property use and value, and applying the correct property tax rate. According to the state Revenue Cabinet, Kentucky had \$10.0 billion worth of farmland in 1994 (compared to assessed values of \$53.4 billion residential; \$22.3 billion commercial and industrial; \$617.2 million oil, minerals and timber rights; and \$666.4 million leasehold). Unfortunately, the state does not collect data regarding how many acres of land are assessed at the agricultural-use rate and only some counties maintain that data. In Jessamine county, for example, 94,019 acres in the county are assessed at their agricultural use value (*Jessamine Co. PVA, 1996*), compared with 98,545 acres in farms (*Census of Agriculture, 1992*).

Each county also charges its own assessment rate. For example, Fayette County charges \$7.76 per \$1,000 on agricultural land and \$9.915 per \$1,000 for basic residential and commercial property. Thus, a 100 acre farm in Fayette county may have an appraised agricultural value of \$200,000 and pay annual property taxes of about \$1,552. If that same farm was assessed at its current fair market value of, say \$500,000, the annual property tax due would amount to \$4,957.50. Consequently, agricultural use value tax assessments lower both the assessed value and the tax rate on farmland. While the lower tax rate is arguably applied to landowners with fewer services (such as sewer and garbage pick-up), the lower assessed value is clearly a policy attempt to slow the conversion of farmland to non-agricultural uses.

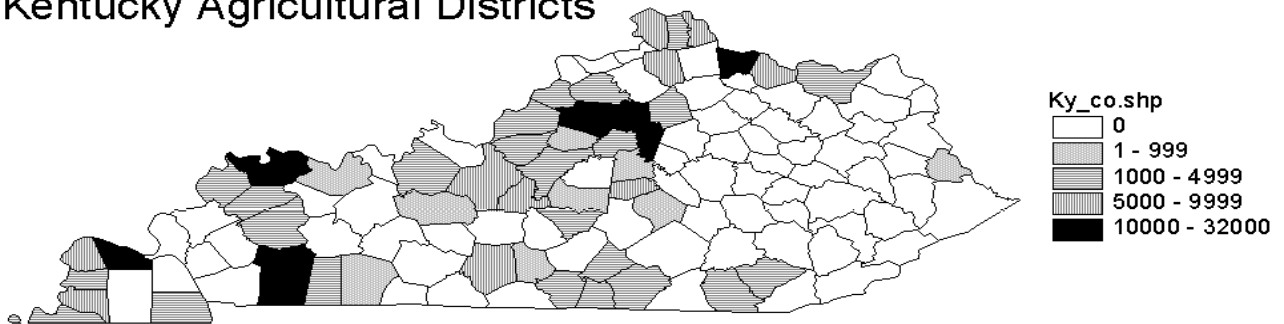
| |
|---|
| Agricultural use-value tax assessments lower both the assessed value and the tax rate on farmland, regardless of development pressures. |
|---|

However, the tax benefits may become insufficient to equalize the returns from farming versus development as growth pressures increase. Further, tax penalties are frequently too low and/or not consistently applied, leading some states, such as Kentucky, to repeal the provisions since county officials were not collecting the tax penalties. Alternately, too high of tax penalties may discourage farmer participation in the first place. Thus, agricultural use-value tax assessments alone are inadequate to prevent the conversion of farmland to nonfarm uses.

Certified Agricultural Districts

The use of *certified agricultural districts* is an attempt to give farmers additional protection from development pressures by shifting some of the "zoning" power from local governments to private landowners. Since 1982, Kentucky has used agricultural districts to preserve farmland across the state.

Kentucky Agricultural Districts



contain any agricultural districts due, in part, to the complexities surrounding the rural-urban county government structure and previous legal restrictions on parcels that are part of a 201 planning district (land identified suitable for future development as the urban service area boundary expands).

Thirty-eight landowners have withdrawn their land from the program since its inception, totaling about 3,229 acres. These are also some of the counties under the greatest development pressures, particularly Nelson county, where over 1,390 acres have been withdrawn from the program.

What happens to farmers who want to withdraw their land from a certified agricultural district prior to the end of the 5-year period? When the agricultural district program was first implemented, a roll-back tax provision was put in place requiring those farmland owners to repay a portion of the tax they would have been responsible for without the lower agricultural-use value assessment. However, few property value administrators applied this ruling and the tax has been repealed.

How do the formation of agricultural districts impact economic development since cities can not annex agricultural districts? Have agricultural districts protected the investment of the landowner? Several counties, such as Webster, Henderson, Muhlenberg and Hopkins are good examples of the tension that can be created between developers and conservationists. In the city of Sturgis, existing agricultural districts have conflicted with proponents of a proposed poultry facility and may prevent poultry growers from expanding in the county.

Land Acquisition and Trust Activity

Farmland can be purchased directly from private landowners by private non-profit organizations for preservation purposes. Many states are using locally-raised funds to leverage the limited amount of federal dollars available for land preservation. Some of the states with more aggressive programs include Maryland, Vermont, California and Florida. Each state funds their acquisition program differently; Florida, for example, has passed several bond issues to purchase wetlands in the Everglades. Begun in 1969, the Maryland Environmental Trust land acquisition program raises approximately \$50 million per year through a real estate transfer tax. This money is divided between the state (for public acquisitions) and the counties (for local projects such as parks). This program has been very successful because it has been so strongly funded, and both the revenue extracted and the benefits paid are felt at the local level.

The Land Trust Alliance (LTA), a national consortium, surveys trusts and other land conservation groups triennially to monitor activity in each state. The last study was done in 1994, when over 1,145 land trusts reported protecting over 4 million acres in the US (a 49% increase since 1990), including 772 thousand acres under easement. (The results of the 1997 survey should be available in summer 1998). According to LTA, in 1994 eight land trusts operating in Kentucky were responsible for protecting 9,144 acres (up from about 360 acres in 1990), including 264 acres under easement. A telephone survey in 1997 identified ten land trusts with jurisdiction in the state, with about 9,000 protected acres.

Over 9,000 acres have been protected in Kentucky through 10 different land trusts.

In Kentucky, land acquisition programs include those administered by various national (such as the Nature Conservancy and American Farmland Trust) and local entities (including the Kentucky Heritage Council and Riverfields). Each of these non-profits has targeted objectives: the Kentucky Heritage Council focuses on properties of historical importance; Riverfields (located in Louisville) targets the Ohio River corridor; and the Nature Conservancy (Kentucky chapter) utilizes fee simple, rather than easement acquisition, to purchase lands. It appears that these entities network well together to complement, rather than compete with, one another.

The largest acquisition program in Kentucky is operated by the Nature Conservancy, with about 6,000 acres of owned land and about 120 acres in easements (to be discussed subsequently). The American Farmland Trust holds about 500 acres in easements (all of which were donations). All the other players combined hold about 2000 acres.

A rather unique (and most generously funded) government program is the Kentucky Heritage Land Conservation Fund. This fund is financially supported the unmined minerals tax, environmental fines, fees collected from special license plates, and interest earned on the fund itself. Administered by the Department for Natural Resources, the fund has collected about \$12 million since 1995; approved approximately 16,000 acres for acquisition in 20-25 counties around the state; and appropriated money to actually purchase 1,740 acres. About half of the money goes to other state agencies and the remainder to local governments, universities and

other groups. Lands purchased may include those needed to protect rare and endangered species, areas important to migratory birds, and lands used for public use including outdoor recreation and education.

The Trust for Public Land, a national non-profit organization, assists public agencies and other non-profits in acquiring land for public use, such as community gardens, wilderness areas, national parks and ball parks. By providing expertise in real estate appraisal and tax law, this organization has assisted Kentucky land trusts acquire almost 200 acres in the state.

Purchase of Development Rights

A farmland protection tool relatively new to Kentucky is the *purchase of development rights (PDRs)*, also referred to as conservation easements or partial interests. PDRs rely on the farmland owner voluntarily selling or donating the right to develop their land, yet retaining ownership of the land itself. Further, the easement holder who acquires the development rights (whether obtained through purchase or donation) does not have the right to develop that parcel and is responsible for assuring that the land is not developed by anyone else; rather, that development right is extinguished. (Note: The purchase of development rights and conservation easements are one in the same and the two terms will be used interchangeably.)

The key to understanding PDRs is recognizing that land ownership is actually a bundle of property rights. Hence, the value of a parcel of land is equal to the combined value of each property right associated with that parcel. This concept has been commonly used in both eastern and western Kentucky where the sale of mineral and logging rights have been sold separate from the land itself. The PDR concept separates the agricultural value of land from its value for development purposes. For example, if the current agricultural value of an acre of land is \$1,000 and the value of that same acre for development purposes is \$1,500, then the value of the development right is \$500.

Farmland owners need to know the agricultural and developed value of their land. As discussed previously, land may be taxed differently depending upon its current use and an agricultural-use tax assessment is typically less than a full-value assessment. Or, if a landowner submits a zoning request to develop a piece of farmland and the request is denied, the owner essentially “loses” (or cannot capitalize on) the development value of the land. When farmland is sold or passed to the next generation, a large capital gain may be realized if the development value of the property has dramatically increased (although the new owners may prefer to continue to farm the land). It is not uncommon for all or part of a farm to be sold so that the heirs can pay the inheritance tax on the property.

Landowners wanting their land to remain in agricultural production, as open space or for preservation, can sell or donate the “development right” of their land. Using the example above, the landowner could sell the \$500 asset, donate the \$500 to an authorized trust or engage in some combination of sale and

| |
|---|
| The tax benefits and capital gains liability of a PDR transaction must be carefully evaluated by the landowner. |
|---|

donation. This would have the effect of preserving the land in its agricultural state, raising capital for the farmer (which could create a capital gain for income tax purposes), providing the owner with a tax deduction to offset some or all of the capital gain (in the case of a donation), and reducing the inheritance tax or capital gain when the land is sold. Whether the development rights are sold or donated, the landowner retains title to the land and public access is not permitted unless specified as part of the transaction.

PDR programs typically require that landowners receive full compensation for the value of their development rights in exchange for accepting certain land use restrictions (particularly development restrictions) into perpetuity or for a predetermined amount of time (such as 30 years). However, many land preservation organizations can rarely pay the full market value of the development right and must rely on the tax benefits as outlined in Section 170 of the Internal Revenue Code which offers landowners income and estate tax benefits. In either alternative, the land trust that purchases or receives (in a donation case) the value of the development rights acts as a steward to insure that development does not occur. (Some limited amount of development may be acceptable as part of the settlement. For example, a landowner may be permitted to build new farm buildings.) This entails routinely monitoring the land for the agreed upon time period. Under donation programs, a charitable cash contribution from the landowner is often requested to cover administration and monitoring costs of the trust.

Farmland owners can be very creative with selling or donating development rights. For example, a farmland owner could sell or donate only a portion of the development rights associated with a property; the owner could reduce the development density of the land, say from 5 acres per residential unit to 10 acres, and be reimbursed for that reduction in asset value. Alternately, the landowner could sell or donate the development rights on one-fourth the property, leaving the remainder intact.

Importantly, while a PDR agreement may pledge that no development takes place, there is no assurance that the land will remain in agricultural production. Or, that the land will ever be farmed again. While a PDR contract may improve the cash flow of the current and perhaps subsequent generation, those proceeds may be invested in another asset (such as a retirement fund) or distributed amongst heirs. PDRs do not assure land stewardship nor do they guarantee the continued economic viability of farming the land – they only preclude development.

PDR programs do not guarantee the continued viability of farming.

What happens to the property if the land trust becomes defunct? In Kentucky, the state will “defend the easement” or attempt to find another land trust to administer the program. Consequently, landowners should be very careful in selecting which land trust they work with to preserve an easement.

Other States Experiences with PDRs

Less than half of the farmland preserved through PDR agreements is accounted for by state programs. County and local programs and private nonprofit organizations account for the remainder (Wiebe, et al). The purchase of conservation easements (or development rights) is

PDR programs required more resources than just those needed to purchase the development rights. PDR programs also require up-front overhead costs and continued monitoring and enforcement costs as long as the easement is held.

attractive because they avoid the full-cost of purchasing the entire parcel outright and land-use regulations can be tailored to each agreement. However, there are administrative costs to include. For example, in Lancaster County Pennsylvania up-front overhead costs (including surveying, title search,

insurance, and the appraisal) averaged about \$83 per acre (in 1993) or approximately 4% of the value. Once the deal is complete the trust must also cover monitoring and enforcement costs to ensure the parcel is not developed.

The first local PDR program was established in Suffolk County, New York (on Long Island) in 1974 and the American Farmland Trust began utilizing PACE agreements (Purchase of Agricultural Conservation Easements) in 1983. As of mid-1996, 14 states and 14 local communities had implemented PACE programs, preserving over 406,000 and 84,000 acres, respectively (see appendices 3 and 4). In total, over \$800 million has been spent through PACE programs. Many states and locales have received federal monies through the Federal Farmland Protection Program. Other common sources of funding include state appropriations, lottery proceeds, state and municipal bonds, and taxes (real estate transfer, property, sales and cigarette taxes).

Nationally, over 490,000 acres of farmland have been protected using PACE programs, at a cost of more than \$800 million.

Maryland continues to have the strongest PACE program, in terms of acres preserved (128,000 acres, at a cost of \$140.6 million to date). Average cost per acre has varied considerably in each state, ranging from \$425 to \$20,000 per acre in Suffolk County, NY. Importantly, the most active PACE programs continue to turn away farmers due to lack of funding.

Under Kentucky's new Purchase of Agricultural Conservation Easement (PACE) program, a small pool of money is available (\$800,000 from combined state and federal sources) to purchase development rights. Farmland owners must apply and the property be evaluated using several different criteria (such as soil type, proximity to urban areas, and utility access). The development value of the land is then calculated by a certified property assessor. If accepted, the PACE program will pay the landowner the difference between the agricultural and the development value, with the owner agreeing to retain the property in an approved agricultural use for a minimum of 30 years (as required by the federal monies) or into perpetuity (as preferred by

the PACE board). The PACE program began accepting applications from farmland owners in late spring 1997. To date fourteen applications have been received and six parcels have advanced through the evaluation process. The PACE program can also accept donations of development rights.

Transfer of Development Rights

Conservation easements are transferred or shared amongst land trusts for a variety of reasons -- to consolidate land holdings, to share or shift administrative costs, or for strategic purposes. A very different transfer of development rights (TDRs) involves the

TDRs involve the sale of development rights from farmland designated for preservation to land allocated for development.

purchase of a development right for the intent of actually developing land elsewhere. While PDR programs preserve farmland through the dissolution of development rights, TDR programs transfer development rights from one parcel to another. The basic foundation is that some parcels of land are granted “development rights”, but cannot be developed (referred to as sending areas); and other parcels (zoned for development) are designated with receiving rights. Those land owners in the sending areas can *sell* their development rights to those wishing to develop land in a receiving area.

Of those states that have experimented with PDR programs, only a few have attempted TDR programs. To date, over 40 local jurisdictions have adopted TDR programs, protecting about 55,000 acres. Most local governments need enabling legislation from their state legislatures to use this tool. Kentucky state government has recently passed a resolution permitting limited taxing powers by urban county governments to raise money to purchase development rights. Fayette County is the only locale in Kentucky with an urban county government and is currently exploring a PDR program.

On the surface, TDRs have tremendous appeal. Those farmers not zoned for development can still capitalize on the “development” rights they are delegated. After selling these rights the landowner has a cash influx, the guarantee of an agricultural use-value tax assessment, a smaller capital gain when selling the land or bequeathing the land to heirs, and greater assurance that the adjacent land will remain in farming. Developers and urbanites can also win under a TDR program. Development will be optimized according to long-range planning and designated natural areas can be preserved, with the costs of doing so transferred to the private sector.

On the other hand, the process of establishing sending and receiving areas, like zoning, can be quite political. The few TDR programs that are successful rely on a special pool of money that can be used to add liquidity to the process. Surprisingly, these programs have not attracted any “speculators”, nor have any secondary markets developed to buy and sell TDRs.

Despite these concerns, TDR programs represent one of the most sophisticated methods of resource preservation. Notably, while PDR programs rely heavily on public-sector funding, TDR depend on private sector transactions. It has yet to be determined whether TDR programs will preserve farmland over the long run.

Due to the complexity of TDR and PDR programs, the general populace has difficulty accepting these farmland retention tools. Shifting the cost of land protection between the private and the public sectors is an important issue.

VI. How Effective are Kentucky's Land Preservation Policies?

The following table divides Kentucky's farmland protection policies into conservation-oriented and preservation-oriented programs.

| Type | Description | Acres Affected in KY |
|---|---|--|
| Conservation-oriented Conservation Reserve Program Wetlands Reserve Program | Long-term rental contracts Purchase easements | 234,235 acres, avg \$66/ac 16,830 acres, avg. \$600/ac |
| Preservation-oriented / short-term Certified Agricultural Districts Agricultural Use-Value Assessment Right-to-Farm Law Income and estate tax benefits | Precludes development Reduced tax value and rate Protection from neighbors Donation/sale easements | 248,000+ acres \$10 billion of farmland all farmland eligible unknown |
| Preservation-oriented / long-term Purchase by Land Trusts PACE (Purchase of Agric. Easements) Transfer of Development Rights Exclusive agricultural zoning | Easement/land acquisition Purchase easements Proposed in Fayette county Precludes development | 9,000+ acres none to date none to date unknown |

In Kentucky, about 250,000 acres of land is enrolled in the CRP and WRP conservation programs. While CRP protection is only temporary and was not designed as a farmland protection program *per se*, farmland stewardship is an important goal. Due to its physical characteristics, much of this land is not suitable for development or would require higher development costs.

The CRP program in Kentucky cost nearly \$9.5 million in 1997, plus administrative costs at both the federal and local level. The WRP program in Kentucky has purchased \$10.1 million of conservation easements thus far, plus paid administrative overhead. Both the CRP and WRP programs are contingent upon continued federal funding and the continued use and costs of these programs may change as the farm policy legislation is renewed in 2002.

Preservation-oriented programs tend to be either short-term or long-term in scope. Currently, about 248,000 acres in Kentucky are directly protected from development through the Certified Agricultural District program. This program protects a large number of acres at a relatively low cost (primarily administrative at the state and local level), but falls under the short-term category since landowner commitments are for only 5 years and development pressures (and monies) can easily lure farmland owners out of the program.

It is not clear what effect the Certified Agricultural District program has had on slowing the development of farmland. Farmers can easily remove their land from an agricultural district or simply not renew an existing contract. This has been made even easier since the roll-back tax provision has been repealed. Obviously a re-instated roll-back provision that is both severe *and* enforced would be a much more powerful farmland preservation tool, although participation rates would drop.

In certain counties such as Webster, Henderson, Muhlenburg and Hopkins (including Sturgis and Sebree) local economic development efforts have been constrained by agricultural districts. For example, one local community's efforts to attract new poultry investment was foiled when the city was unable to annex local lands that were protected under an agricultural district. Thus, at the margin, certified agricultural districts can be an effective land-use tool.

But the reality is that under this program farmland preservation continues to be a personal decision of the landowner, coupled with local politics. When the economic returns from development exceed the returns from agriculture, the landowner will develop and land use will change if local zoning boards are given the green light. Those desiring farmland preservation do not have a formal mechanism *to pay* for protection (short of out-bidding the developers) -- they can only lobby on the farmland's behalf. This leaves rural communities outside of farmland preservation decisions and lets the free market guide resource allocation.

Similarly, agricultural use-value assessments are short-term in nature. While they certainly facilitate a farmland owner's cash flow, assessments can change from year to year. And, again, without a roll-back provision to catch the parcel's acceleration in value prior to development, the public is left with reduced tax revenue. Furthermore, the decision to develop continues to be a personal decision. These same criticisms can be levied against the income and estate tax benefits that apply to the agricultural sector – perhaps these policies are just slowing the inevitable hand of the market.

It is not known how many farmland acres assessed at agricultural use-value are under pressure from development or what the actual fair market value is for the \$10 billion of farmland in the state. Assuming all 14 mil acres of farmland in Kentucky are assessed at their agricultural value, this averages \$714 per acre. If five percent of Kentucky's farmland is under strong development pressure, using a modest 200% fair market value and an average tax rate differential of \$2 per \$1,000 (the difference between the agricultural use versus commercial/development use rate), the state is forfeiting at least \$5.5 million in property taxes each year. This amount becomes an important subsidy to those land owners under the most intense development pressure and is a

direct cost of farmland protection in the state. Again, the public loses the additional property tax revenue as land accelerates in value as development draws closer.

Of course, at the time of sale or bequeathment, farmer's who have enjoyed the luxury of an agricultural use-value assessment may be hit with a large capital gains or estate tax. While this tax affect should be considered when setting the sale price, indexing

Certified Agricultural Districts and Agricultural Use-Value Assessments result in lower property tax revenues, is a direct cost of farmland protection in the state, and ultimately leaves farmland preservation decisions up to individual landowners and local zoning politics.

capital gains to inflation may actually speed up development rates, while alleviating some of the estate tax pressure on those wanting to keep the land in farming.

Right-to-Farm Laws are ineffectual in slowing the conversion of farmland to development. Farmer's do not have the time nor the resources to legally battle the nuisances caused by neighbors and most simply tolerate city folk and their intrusions. Through group efforts, such as the Kentucky Farm Bureau (major proponents of the Right-to-Farm Law), farmers have been more effective in having their voices heard.

The outright purchase of rural lands or their development rights appear to be the only farmland preservation tools that have a longer (perhaps infinite) time horizon. While the 9,000 acres protected under various land trusts in the state may not appear to be overly significant, many of these acres are strategically located in high development areas (such as Jefferson county) or in ecologically fragile terrain (such as the palisades along the Kentucky River). While these acres are not always of "agricultural" importance in terms of productivity, they are highly valued for their conservation, historical and aesthetic appeal. Notably, few, if any, acres in Kentucky have been preserved because they are *prime farmland* – that just isn't enough of a selling point.

The costs of land trust activities in Kentucky is also not known. Land preservation by purchase is a very expensive proposition and land stewardship into perpetuity a serious commitment. For those lands safeguarded through trusts, protection is better guaranteed, but this is a very small amount of land and future purchases hinge upon public will and the capacity of organizations to raise funds. While each land trust appears to have different objectives and geographical interests, monies are scarce (with the exception of the Kentucky Heritage Land Conservation Fund) and some administrative functions are being duplicated. While consolidation of many of these land trusts might lower overhead costs, their ability to raise funds from the private sector and other non-profit organizations is directly tied to the strength of their relationship with their particular constituency.

So what about the Kentucky Heritage Land Conservation Fund? With over \$12 million in funds (a nice endowment even if new revenue ceased), state government has only appropriated money to purchase 1,740 acres, but has approved the acquisition of 16 million additional acres. Understandably, many land transactions take considerable time (negotiating purchase price, time

of transfer, and so forth). Although the Fund has a strong focus on education and the protection of natural habitats for rare and endangered species, their goals also include “Areas to be preserved in their natural state for public use, outdoor recreation and education.” While differences exist, there is some overlap in land preservation goals of the Kentucky Heritage Land Conservation Fund and the state PACE program.

The purchase and transfer of development rights, while showing promise, have their own challenges. How are development right values calculated? The choice of alternative future uses and the expectations of when and in what sequence land use will change will produce varying PDR values. For example, if a parcel of land is expected to be re-zoned for residential development in three years, then the value of that parcel is based on the stream of agricultural rents earned in years one through three and the stream of income earned from residential use after year three and into perpetuity. If that parcel of land were later re-zoned for business or office space in year 10, yet another PDR value would be calculated. Finally, differing expectations of the capitalization rate, which would include an expected interest and inflation rate, would produce different present values.

How are development rights allocated? More sophisticated allocation schemes reward parcels with better road and utility access, prime lands (to reduce building costs and avoid environmentally sensitive lands) and proximity to existing commercial centers. The number of rights required for development can also be quite complex. For example, high-density residential areas might require a greater number of development rights than estate homes. But, what if the farmer has sold his or her development rights and the returns from farming no longer are sufficient to keep the farm viable?

How are the number and location of sending and receiving sites determined? Unfortunately, long-range comprehensive plans are frequently short-sighted plans that are developed within the political economy. Artificially setting the supply and demand of sending and receiving sites and setting the number of development rights both allocated and required will manipulate the value of development rights. What if in 15 years it is determined that too many development rights are required for commercial development? For illustration, in 1983, Montgomery County, Maryland TDR transaction prices began at \$2,500 per acre. By 1997, the demand for TDRs outpaced the supply of TDRs and prices rose to \$10,500 per acre. Or, what if too many farmland owners have been allocated development rights and the supply is too large, forcing the value of development rights down and increasing the rate of development itself?

VII. Questions Remain

As development pressures continue to mount in Kentucky, the costs of agricultural land preservation will continue to climb. If farmland stewardship is encouraged by national policy and state regulations, and the country’s food supply is not being threatened, then it is the local preservation issues that will drive the movement, and find the money, to preserve rural lands. Can open space preservationists be politically successful if future agricultural productivity continues to outrace population growth? As citizens continue to push for creating and sustaining

green space, preserving pastoral scenes, and supporting local agricultural communities, choices must be made.

The not-for-profit land trusts have been fairly successful in preserving moderate amounts of land that is of local value, historical significance, or ecologically fragile. Funding has come from private individuals, corporate good-will and public sector grants. It is uncertain if this level of funding can sustain itself over the longer haul (let alone, increase) and if the trusts themselves can provide the stewardship and administration required for land preservation into perpetuity.

The PACE and PDR programs have also been moderately successful at the local level in several states. But, again, the future funding and longevity of these programs remains uncertain. States have already spent over \$700 million and local governments \$165 million on PACE programs. The oldest of these programs is barely 20 years. Binding restrictions on future landowners and future land uses may become more controversial as population and development forces continue to pressure the land base. What happens to the land when it is no longer economically viable to farm?

Land preservation costs something – the money to purchase land or easements outright, higher food costs, and higher development costs. But, not preserving land also costs society by the extent over-development is irreversible and to the degree it diminishes our well-being. Carefully selecting *which* lands to preserve is key to getting the most out of our preservation dollars invested.

Do we want to preserve farmland? Or farming? Or only lands that are important for their historic, ecological or green space value? Who should pay for farmland preservation? And, how much funding will it take to preserve “just the right amount” of farmland, rural lands and open space?

There is no agreement on the question posed above. In fact, we have only begun to ask the right questions. Many of the costs and the benefits of rural land preservation are intangible. As with many natural resource problems, the issue of who pays and who benefits is always a delicate quarrel.

Appendix 1: A Word About Data Sets

A word of explanation regarding land use data sources. There are two primary data sets that are valuable in tracking land use patterns, the National Resource Inventory (NRI) and data using Geographical Information System (GIS) technique, such as GIRAS.

The NRI is an inventory of land cover and use, soil erosion, prime farmland, wetlands, and other natural resource characteristics on nonfederal rural land in the United States, providing a record of trends in the nation's resource base over time. Using survey sampling technique, data collection for the NRI is conducted by the U.S. Department of Agriculture's Natural Resources Conservation Service every five years, beginning in 1967. Data cover the 48 contiguous states, Hawaii, Puerto Rico, and the U.S. Virgin Islands, but exclude Alaska. (Alaskan NRI data are being processed now and will become available in 1998.) The 1992 inventory collected data on primary sampling units (each approximately 160 acres), equivalent to about 4% of the area of Kentucky. The 1997 survey is currently being conducted. The advantage of this source is it's timeliness; the disadvantage is it's scale which prevents reliable county or smaller analysis.

Land use and land cover data can also be obtained from the US Geological Survey, Geographic Information Retrieval and Analysis System (GIRAS). Using aerial photography and landsat data, GIRAS utilizes 37 different land use and land cover attribute codes to identify various polygon area shapes, down to a 10 acre minimum. Although this data set is extremely detailed, it's major limitation is timing -- the current data available are from 1978, although major efforts are being undertaken to update GIS data for Kentucky. Murray State University and the Natural Resources Cabinet (Kentucky) are working together to incorporate 1994 landsat data to monitor changes in land use and land cover categories. Despite these limitations, this data set can provide a base scenario of development in Kentucky beyond agricultural land use, including water forms, land in highways and various types of development. Thus, the advantage of this information source is it's scale and detail; the disadvantage is it's expense and the length of time between surveys and the availability of utilizable data.

Appendix 2: Prime Farmland

The USDA Natural Resource Conservation Service has a very explicit definition of prime farmland used in soil mapping and the for survey work such as the NRI. In general, prime farmland is:

“land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber and oilseed crops, and is available for these uses (the land could be cropland, pastureland, rangeland, forest land, or other land, but not urban built-up land or water). It has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields of crops when treated and managed, including water management, according to acceptable farming methods.”

In addition, more technical soil criteria are employed which includes the pH level, salt or sodium content, permeability, soil depth, slope and rock fragment qualifications.

The AFT, which utilizes NRI data in their farmland loss studies, also includes a definition of “unique lands” previously defined as “land used to grow vegetables, grapes and horticultural crops, including fruits, nuts and berries, that have unique soil and climatic requirements”.

GIS data can be evaluated with user-defined definitions of prime farmland that may or may not coincide with the criteria stated above.

Appendix 3: State PACE Programs

| State Agricultural Conservation Easement Programs (1996) | | | | | |
|---|------------------------|-----------------|--------------|---------------------|-----------------------|
| State | Year First Established | Acres Preserved | Number Farms | Funds Spent to Date | Average per Acre Cost |
| Maryland | 1977 | 128,031 | 884 | \$40,637,690 | \$317 |
| Massachusetts | 1977 | 39,334 | 430 | 95,000,000 | 2,415 |
| Connecticut | 1978 | 25,566 | 169 | 74,835,100 | 2,927 |
| New Hampshire | 1979 | 11,732 | 57 | 10,449,008 | 891 |
| Rhode Island | 1982 | 2,429 | 31 | 13,199,525 | 5,434 |
| New Jersey | 1983 | 34,972 | 234 | 167,826,221 | 480 |
| Pennsylvania | 1988 | 91,813 | 730 | 186,000,000 | 2,026 |
| Vermont | 1988 | 54,466 | 162 | 29,071,276 | 534 |
| Maine | 1990 | 464 | 2 | 430,000 | 927 |
| Delaware | 1991 | 15,961 | 65 | 18,950,000 | 1,187 |
| Kentucky | 1994 | 0 | 0 | 0 | – |
| Colorado | 1994 | 1,878 | 3 | 610,000 | 325 |
| Michigan | 1994 | 79 | 2 | 709,600 | 8,982 |
| California | 1995 | 0 | 0 | 0 | – |
| Total | | 406,725 | 2,769 | \$737,718,420 | \$1,814 |

Source: *Farmland Preservation Report*; Thompson; *American Farmland Trust* and calculations by the authors.

Funding sources and number of states utilizing each source:

- Federal Farmland Protection Program (11)
- State bonds (8)
- State appropriation (4)
- Real Estate transfer tax (2)
- Agricultural transfer tax (1)
- County allocations (1)
- Lottery proceeds (1)
- Cigarette tax (1)
- Withdrawal penalties from state circuit breaker program (1)

All but New Hampshire relied on two or more funding sources.

Appendix 4: Local PACE Programs

| Local Agricultural Conservation Easement Programs (1996) | | | | | |
|---|------------------|-----------------|--------------|----------------------|------------------------|
| State | Year Established | Acres Preserved | Number Farms | Funds Spent to Date | Average per Acre Costs |
| California | | | | | |
| Marin County | 1980 | 25,504 | 68 | \$17,000,000 | \$667 |
| Sonoma County | 1990 | 22,850 | 60 | \$34,000,000 | 1,488 |
| Colorado | | | | | |
| City of Boulder | 1984 | 1,092 | 6 | \$6,833,732 | 6,258 |
| Florida | | | | | |
| Green Swamp | 1994 | 12,826 | 22 | \$10,500,000 | 819 |
| Michigan | | | | | |
| Peninsula Twnsp | 1994 | 724 | 10 | \$1,253,000 | 1,731 |
| New York | | | | | |
| Southampton | 1980 | 765 | 19 | \$5,640,000 | 7,373 |
| Southold | 1986 | 627 | 24 | \$5,010,000 | 7,990 |
| Suffolk County | 1974 | 5,568 | 139 | \$26,000,000 | 4,670 |
| North Carolina | | | | | |
| Forsyth County | 1986 | 1,236 | 20 | \$1,869,965 | 1,513 |
| Pennsylvania | | | | | |
| Buckingham Twnsp | 1996 | 137 | 3 | \$1,100,000 | 8,029 |
| Virginia | | | | | |
| Virginia Beach | 1995 | 48 | 1 | \$267,016 | 5,563 |
| Washington | | | | | |
| King County | 1979 | 12,691 | 209 | \$54,113,724 | 4,264 |
| San Juan County | 1990 | 670 | 5 | \$1,419,401 | 2,119 |
| Wisconsin | | | | | |
| Dunn | 1996 | 174 | 1 | \$260,000 | 1,494 |
| Total | | 84,912 | 557 | \$165,266,838 | \$1,946 |

Source: *Farmland Preservation Report*; Thompson; *American Farmland Trust* and calculations by the authors.

Funding sources and number of localities utilizing each source:

- Federal Farmland Protection Program (5)
- Municipal bonds (4)
- Property tax increase (3)
- State bonds (2)
- State appropriation and grants (2)
- Sales tax (2)
- Real Estate transfer tax (1)
- County allocations (2)

All but 3 localities relied on two or more funding sources.

Selected Resources

1992 Agricultural Atlas of the United States. United States Department of Agriculture.
<http://www.nass.usda.gov/census/census92/atlas92/html/index.htm>

American Farmland Trust. Home page. <http://www.farmland.org/>

Bills, Nelson L. *Farmland Preservation: Agricultural Districts, Right-To-Farm Laws and Related Legislation.* Department of Agricultural Resource, and Managerial Economics, Cornell University. SP 96-01. February 1996.

The Conservation Easement. <Http://www.olympus.net/community/saveland/>

Gettman, Jon; Button, Kenneth; and Roger Stough. *Assessing Purchase of Development Rights (PDR) Policies.* The Institute of Public Policy. George Mason University. June 1997. Draft.

A Guide to Conservation Easements. Farmland Information Library.
<http://www.farmland.org/farmland/>

Kentucky Agricultural Statistics Service. National Agricultural Statistics Service. United States Department of Agriculture. <http://www.nass.usda.gov/ky/>

Kentucky Heritage Land Conservation Fund. Home page.
<http://www.state.ky.us/agencies/nrepc/dnr/dnrhlc.htm>

Land Trust Alliance. Home page. <http://www.lta.org/index.html>

Small, Stephen J. *Preserving Family Lands: Essential Tax Strategies for the Landowner.* Boston: Landowner Planning Center.

Social, Natural and Agricultural Resources Information Laboratory. Rural Sociology Program. College of Agriculture. University of Kentucky. <http://snril.ca.uky.edu/index.html>

Sorensen, A. Ann; Greene, Richard P; and Karen Russ. *Farming the Edge.* American Farmland Trust. Center for Agriculture in the Environment. March 1997.

Vantreese, Valerie L.; Skees, Jerry R.; and Craig L. Infanger. *The Agricultural Land Market - Farmland Protection Update.* Department of Agricultural Economics, University of Kentucky. Extension No. 58. November 1985.

Vesterby, Marlow; Heimlich, Ralph E; and Kenneth S. Krupa. *Urbanization of Rural Land in the United States.* AER-673. USDA/ERS. 1994.

Wiebe, Kenneth; Tegene, Abebayu; and Betsey Kuhn. *Partial Interests in Land: Policy Tools for Resource and Conservation.* USDA/ERS. No. 744. November 1996.