
Cultivating Rural Prosperity:



Kentucky's Long-Term Plan for Agricultural Development

**Kentucky Agricultural Development Board
Governor Paul E. Patton, Chair**

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Dear Fellow Kentuckians:

The passage of HB 611 and the creation of the Kentucky Agricultural Development Fund during the 2000 session of the General Assembly created an unprecedented opportunity for the Commonwealth. For the first time in our history, we have had both the opportunity to develop a long-term plan for the future of Kentucky agriculture and a significant level of resources to begin the implementation of our plan. This plan will allow us to preserve the unique rural culture of our state which has been the mainstay of our values, the source of our work ethic and the strength of our people.

This document represents the first step in our long-term planning process. *Cultivating Rural Prosperity* identifies six major priority areas that need to be addressed to create and sustain rural prosperity in Kentucky. Our farm families have faced unprecedented reductions in their tobacco income and uncertainty about the future of our leading cash crop. This plan highlights the pressing needs for a comprehensive statewide market development effort, improved access to capital for individuals and value-added agri-business, financial support for environmental stewardship efforts, comprehensive farm family education programs, strong local leadership development programs, and cutting-edge research and development initiatives. The plan provides a blueprint for action over the next 10 years, and lays the groundwork for local and statewide action.

The Agricultural Development Board is responsible for ensuring the wisest use of the resources from the Agricultural Development Fund. Over the past year, the Board has become fully engaged in consideration of project proposals. As Board Chair, I am committed to ensuring that our decisions are made with an eye on the future of Kentucky agriculture. If we are to make the most of this unprecedented opportunity, then we must work to ensure that the Agricultural Development Fund is utilized to create new long-term earning opportunities for our farm families.

We face an arduous task. Working together, we can manage our way through the changes faced by our agricultural community to ensure a brighter future for the entire Commonwealth.

Sincerely,

A handwritten signature in black ink that reads "Paul E. Patton".

Paul E. Patton



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My fellow Kentuckians:

The Kentucky farmer of the 21st century will manage a diversified operation with the flexibility to adapt to changing market conditions. He or she will have numerous options in a state that will be known the world over for the quality and variety of its agricultural products. The process of attaining this goal already has begun, and in the pages that follow you will find a road map to the destination of making Kentucky agriculture second to none. As Vice Chair of the Kentucky Agricultural Development Board, I have had the opportunity to help develop this plan, and I am pleased to give it my support.

We must aggressively pursue new markets to make the goals of this plan a reality. The Kentucky Department of Agriculture is leading the way to develop markets for Kentucky farm products all over the United States and around the globe. Our marketing staff is opening doors for Kentucky farmers in beef cattle, fresh produce, aquaculture products, value-added goods and many other items.

A broad cross-section of Kentucky agricultural interests called for the expansion of the Department's marketing office in the Unified Proposal for Kentucky Agriculture that was the blueprint for the legislation that produced the Agricultural Development Board. In meetings across the Commonwealth, farmers consistently identified marketing as the leading component for the future growth of Kentucky agriculture. The Board, in its wisdom, appropriated \$13 million for finding, developing and expanding markets for Kentucky agricultural products.

The Department's Office for Agricultural Marketing and Product Promotion has never been stronger. We have assembled a staff of professional and experienced men and women with strong backgrounds in agriculture and business. We look forward to working with the Agricultural Development Board to achieve our mutual goal of providing opportunities for a bright and prosperous future for Kentucky farmers.

Sincerely,

A handwritten signature in black ink that reads "Billy Ray Smith".

Billy Ray Smith
Commissioner of Agriculture



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Acknowledgements

Of the people, by the people, for the people

Our government derives its powers from the consent of the governed. Thankfully, we live in a place in which the free exchange of divergent perspectives and ideas is encouraged. In this spirit of healthy democracy, the Governor's Office of Agricultural Policy designed a process to develop Kentucky's initial long-term plan for agricultural development. Over the past 18 months, meetings have taken place on local, regional and statewide levels involving hundreds of people committed to developing a common vision for rural Kentucky.

For the first time in our state's history, local agricultural development councils in every county of the Commonwealth have facilitated public discussions about the future of agriculture in their communities. The volunteer hours invested by council members and local forum participants represent a significant contribution to the civic and economic health of the state. The resulting county agricultural development plans constitute the foundation of this document.

The Governor's Office conducted a series of 11 regional meetings that attracted over 600 people. During these meetings, participants were asked to think across county lines and identify the most important issues related to long-term agricultural economic development in their regions. These results were also incorporated into this plan.

Our office held a series of state-level meetings involving agricultural and policy leaders from around the state and nation. Farmers, religious leaders, educators, business people, medical professionals and many others worked long hours confronting the issues facing Kentucky's farm families. They helped develop the solutions to these problems that have been summarized and presented here.

Once the draft document was completed, we conducted another series of regional meetings to share the draft with those people who will be most directly impacted by the implementation of this plan. As a result of these feedback forums, the plan was modified.

We are blessed in Kentucky with a naturally diverse agricultural economy, produced in large part by our diverse geography. The perspectives of the people who participated in the development of this plan are at least as diverse as our landscape. Diversity of perspective within a healthy democracy is a blessing.

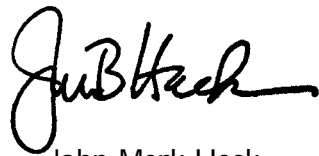
Our acknowledgements for the completion of this document are therefore extended to all those individuals, Kentuckians and others, who participated in this historic process. It has been a great honor for my staff and me to compile the input gathered over the past 18 months into the document you now hold.

Our attention now turns to the implementation of this common vision. Financial resources and political will are necessary ingredients in the plan to revitalize Kentucky's farm economy. Market development, improving access to capital for farmers and value-added processors, providing financial incentives for sound environmental practices, improving educational opportunities for farm families, committing ourselves to the further development of local leadership, and expanding our research and development capacity will require hard work and discipline, from the farm to the General Assembly to the Governor's office. We simply must unify around the principles articulated here and stay the course the plan offers.

This plan should be seen as a living document, a plan that will be regularly reviewed and modified as needs and conditions in Kentucky change. It represents our first step toward the development of a vibrant and prosperous agricultural economy. My hope is that those charged in the future with the review of this plan will adhere to the principles of participatory democracy that produced it. Rather than having a single author, *Cultivating Rural Prosperity* is truly a product of the people, by the people and for the people.

*What lies behind us and what lies before us are
tiny matters compared to what lies within us.*

- Oliver Wendell Holmes

A handwritten signature in black ink, reading "John-Mark Hack". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

John-Mark Hack
Executive Director/CEO

Kentucky Agricultural Development Fund

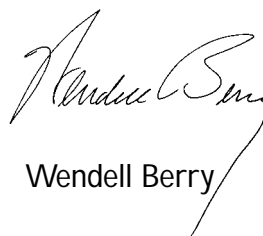
Foreword

Kentucky has been a state for more than two hundred years and it has never had, as a state, a plan to promote the good use of its fields and forests and the prosperity of its rural people. Now at last it has such a plan.

This plan is the result of a lot of effort on the part of Governor Paul Patton, the state legislators who passed House Bill 611, the Governor's Office of Agricultural Policy, the Agricultural Development Board, the County Councils, and hundreds of people who attended meetings held in all the regions of the state.

I believe that this project has already done a lot of good simply by stirring up a statewide conversation about the future of our forests and farmlands. That conversation is necessary, and we need to continue it. This plan is only the first accomplishment of our hope that the land of Kentucky and its rural communities can survive in good health as our shared sustenance and pleasure. It is a manual of possibilities, and the possibilities it deals with are real. It thus moves us a significant step away from the confusion and uncertainty many of us felt after the severe reduction of the tobacco economy, and it significantly increases the possibility of informed thought and coherent talk about our problems. Having this plan as a common point of reference will help us to do a better job of planning for our regions, counties, communities, farms, and woodlands.

This is a plan for everybody, compiled in consultation with everybody who wanted to be consulted. A plan for everybody cannot exactly please everybody. It is certainly imaginable that people may find something here to argue with or worry about. I, for one, am extremely uneasy about the science of biotechnology as commercialized by the agribusiness corporations. But I am content to have biotechnology included in the plan because I think the arguments for and against it need to be heard in Kentucky, and the plan properly calls for such a hearing. And so I affirm that it is possible to argue with this plan and yet to be grateful for it.



Wendell Berry

Executive Summary

This document is the result of a yearlong deliberation on how to maintain the economy of rural Kentucky while adapting to structural changes in the tobacco market, until 2000 the largest agricultural market in the Commonwealth. It is more a first step than the last word toward a blueprint for the future of Kentucky agriculture.

The aim of this plan is to preserve and enhance the social fabric of rural Kentucky while building a sustainable economic base rooted in local communities and maintaining the environmental integrity of the Commonwealth. The Agricultural Development Board (ADB) and the Governor's Office of Agricultural Policy have tried to be open and inclusive. Everyone's input was sought, and everyone who spoke was heard. Councils in each of Kentucky's counties submitted agricultural development plans. Regional and statewide meetings were held. This report is a distillation of that discussion with suggestions for the scale and direction of Kentucky agriculture.

Governor Paul Patton and the legislators supporting House Bill 611 initiated this effort with the appropriation of money awarded the state in settlement of its lawsuit demanding recompense for tax dollars spent treating tobacco-related diseases. The infusion of more than \$120 million for the development of crops and markets to fill the void left by tobacco's contraction spurred this initiative with matching cash for those with workable agriculture-based business plans, projects or ideas.

To date, most dollars from the Agricultural Development Fund have been spent to bolster production. In order to build a sustainable

agricultural system, Kentucky must begin to organize and construct markets for that production. These market systems should include county seat farmers' markets, regional markets to pack wholesale agricultural products, certified kitchens with labeling machines to process local food items and urban markets to showcase our best agricultural products.

Although money for production agriculture loans is available, funds for value-added agricultural projects and new farm-based enterprises are hard to find. The

Kentucky Agricultural Finance Corporation should be revived to provide financing options for farm and farm market development. Private and public lenders should be provided incentives to stimulate agricultural lending in areas considered "non-traditional" in Kentucky agriculture.

The Commonwealth should reward good stewards of the land and water with financial incentives to implement best management practices. Water quality and soil erosion management, timber stand management and farmland preservation efforts represent effective means of providing financial assistance directly to producers while creating a public good from the environmental benefits realized by such efforts.

Farm family education and computer literacy are important ways to improve farm business management. Programs aimed at improving farm family Internet access, developing farmer-to-farmer training, and efforts focused on farm accounting, business analysis and financial planning should be made more accessible.

Local leadership resources are important to the sustainability of Kentucky's effort to strengthen the



rural economy. Local leadership development programs, financial support for the administration of county agricultural development councils, and the enhancement of the Cooperative Extension Service through improved training and performance incentives for agents represent ways to cultivate local leaders.

Maintaining and expanding agricultural research and development efforts is crucial to providing producers the information they need to meet changing consumer demands. Such research should be targeted to the existing scale of Kentucky agricultural production.

The Kentucky Department of Agriculture should initiate an agricultural product certification program

as a prerequisite for access to state-funded markets such as schools, parks and prisons. This certificate should include a bar code listing point of origin and processor in order to qualify for national and international commerce.

The State Health Department's Environmental Health Management Information System database should be expanded to include USDA-inspected meat and poultry processing establishments. This database should be integrated with the Kentucky Department of Agriculture database and enhanced to include an inventory of state-certified agricultural products and direct sale capability. These products would then be eligible for state contracts and the producers would be linked to state, national and world markets.



Commonwealth Agriculture: Vibrant Economy, Thriving Communities, A Healthy Environment

Kentucky is a uniquely rural state. Our geology and geography have until now enforced a scale of agriculture and development that fostered numerous small communities. We have 120 counties - each county seat a theoretical day's ride from the next. We have more farms than any state east of the Mississippi River. Thanks to the cash crop tobacco, our rural economy has been maintained. Our farm products have a history.

Our cash crop is shrinking. The production of tobacco is being concentrated in fewer and stronger hands. The thousands of small-scale producers that knit the rural fabric of our Commonwealth are in need of replacement income. Any replacement enterprises should fit within the scale of the tobacco economy, use the existing agricultural land base, and provide a comparable income to tobacco.

While thousands of Kentucky farm families make their living as full-time producers, more than 50 percent of Kentucky farmers are part-time farmers. Farming accounts for less than 20 percent of the income of these farmers. Although markets for value-added products may eventually replace lost tobacco income, any plan for the long-term prosperity of rural Kentucky should make provisions for off-farm employment.

The Commonwealth has been blessed with both the political will and the financial means to redesign its rural economy. The preservation of our rural landscapes can be a valuable asset in preserving the social fabric on which rural economic health depends.

This plan seeks to adhere to three principles of sustainable development:

- Adding value to local agricultural products, exploiting market niches for pure and wholesome foods and promoting the rural landscape of Kentucky as an asset.

- Retaining the present scale and individual ownership of Kentucky agriculture by preserving working farms on Commonwealth farmland maintains our rural towns and communities.
- Minimizing the burdens on natural resources and rewarding good land stewards with a decent living will enhance the Kentucky environment.

There are three rural ecosystems in Kentucky - Eastern, Central and Western. Although the borders of these districts are not clearly defined, they are recognized by the residents. The state's long-term plan for agriculture should reflect these regional differences and provide solutions tailored to the local environment. The emphasis on certain enterprises in each area is not meant to proscribe other agricultural activity. There are tobacco farmers with 100,000 pounds of base in Eastern Kentucky. Western Kentucky has horses and tobacco. There are large-scale Central Kentucky grain farmers. What the plan attempts to identify are areas of concentration within each region.

East Kentucky

Timber

The Appalachian Mountains contain a significant hardwood reserve. More than ninety percent of this forest reserve is privately owned. Few of these owners actively manage their forests. Most of the trees are exported from Kentucky as logs. Kentucky timber competes in a global market. To capture value in this market we must recognize the worth of our hardwoods, improve our management of this asset, and improve our processing infrastructure. Our woodlands are undervalued and neglected. State foresters should undertake a county-by-county inventory using new digital and global positioning technology. This information should be catalogued in a state database.

There are excellent furniture craftsmen in the area. A furniture factory using craft association designs to manufacture Kentucky reproductions advertised for sale in literary and architectural journals could be the foundation of a high-end furniture industry. The Economic Development Cabinet and the Kentucky Department of Agriculture should continue to explore the market for furniture and other large-scale craft production.

Valuable symbiotic crops such as ginseng and mushrooms can provide a reward for good stewardship and should be encouraged. Funds should be made available for woodlot demonstration projects and to develop markets for these types of products.

Kentucky has more than 20 kinds of edible wild mushrooms. Shiitake and morels grow well in our woodlands and can return as much as \$1000 per acre



at harvest. New inoculants minimize the amount of labor needed to harvest a mushroom crop. A state database could connect restaurants and wholesalers with Kentucky mushroom producers.

Kentucky is a leading supplier of wild ginseng. Mature ginseng can bring \$400 per pound. The introduction of a market for “virtually wild” ginseng could provide a vehicle for establishing an Internet auction system and setting industry standards. Efforts to promote and create a transparent market for “virtually wild” ginseng should be encouraged.

Livestock, Vegetables and Other Opportunities

In the livestock industry, efforts are underway to provide market venues for preconditioned feeder cattle and the area's growing goat herds. ADB programs provide cost share dollars to upgrade herd genetics, build handling facilities and improve forage management. Eastern Kentucky initiatives like the Heifer Development Project complement efforts in other parts of the state to improve market opportunities for all types of livestock.

Cumberland Farm Products, a strong vegetable cooperative, is the heart of East Kentucky vegetable production. The cooperative has been awarded ADB grants for expansion. Diversification grants are available to new vegetable growers. The cooperatives should actively recruit new members as a condition of this funding.

Eastern Kentucky has good soils and growing conditions for wine grapes. The Equus Run Winery is recruiting growers in Eastern Kentucky. There is a ready demand for blackberries, strawberries and raspberries. Kentucky regional certified kitchens will let farmers convert these and other fruit and vegetable crops into value-added farm products. After KDA certification, these products could be available for sale on websites such as Kentuckyvirtual.com and included in a state database of agricultural products.

Tourism

The trend toward healthier living is illustrated by the growing amounts of money spent on health and sport. As people live longer, they are more concerned about health. A recreational infrastructure that makes use of Kentucky's rural landscape can attract both tourists and retirees. The Pine Mountain Trail is an excellent start toward a state-wide trail system. Kentucky projects are part of a national movement to develop hiking, cycling and horseback riding trails. A Kentucky trail from Pine Mountain to the Virginia Creeper Trail, which is just over the border in Wise County, Virginia, would connect Kentucky to the Appalachian Trail that runs

from Georgia to Maine. There is an extensive trail system including the John Muir Trail in the Daniel Boone Forest. The Mississippi River Trail runs through western Kentucky. West Virginia and North Carolina are developing trail systems.

A costs/benefits study of a state system to connect the major national trails in the state should be undertaken. Such a trail system could provide the infrastructure to support rural businesses including outfitters, tour agencies, tour guides, livery stables, bed and breakfasts, restaurants, bicycle shops and produce stands. The trail systems of England and Ireland are examples of the economic potential of walking, cycling and horseback riding tourism.

Both private and public initiatives support agri-tourism in the state. The South East Coal Company store at Seco has been converted into a winery, music venue and bed and breakfast. The Kentucky Department of Agriculture is developing an agri-tourism plan. These efforts should be supported and encouraged.

Information Technology: Knowledge-Based Small Farm Income Supplement

Many farmers or their spouses work off the farm to secure health insurance and extra income. For example, tech support, the person who answers questions about your new computer, provides jobs in East Kentucky. This is entry-level information technology. Information technology is non-polluting. The wages are adequate and companies offer health insurance. These companies can provide entry-level knowledge worker positions, farm family health insurance and the supplemental income to help keep rural communities intact. A coordinated effort with the Economic Development Cabinet is needed to find other non-polluting businesses that can supplement farm incomes.

Knowledge workers are the key players in the emerging information age economy. Knowledge workers have two basic needs: formal education to fit them to knowledge work and continuing education to keep that knowledge up to date. Much of continuing education can now be delivered electronically. A

radiologist or critical care nurse can practice their craft in any properly equipped facility. A programmer may need only a fast Internet connection to do their work. Sophisticated knowledge industries in the mid-twenty-first century will likely be able to locate wherever they can find and keep the knowledge workers necessary to run their operations.

The effort to preserve the rural landscape and human scale of the Commonwealth will complement the major investment Kentucky has made in education and provide another valuable recruiting tool for knowledge industries.

Central Kentucky

Horses

Horses are the premier agricultural product of the Commonwealth. The home of fine Thoroughbreds is an image projected by Kentucky to the rest of the world. The national and international horse operations in Central Kentucky support a large and profitable industry that includes veterinarians, farriers, feed dealers, trainers, grooms and others. The state should remain sensitive to the needs of the horse industry.



Pleasure horse numbers are growing. There are more gaited horses and Quarter Horses in Kentucky than Thoroughbreds. The development of county markets for horse quality hay should be encouraged. A trails initiative could boost the state's horse industry by opening new markets.

Tobacco

Tobacco will continue to be an important crop for Kentucky. Central Kentucky is the Commonwealth's Burley Belt. Farmers in the Licking River Valley, the Bluegrass Plateau and Barren River Basin will continue to grow the lion's share of Kentucky tobacco. The burley infrastructure is well developed in these areas.

The burley tobacco marketing system is changing. Cigarette companies are substituting grower contracts for the traditional auction system. By refusing to employ USDA tobacco graders, these companies could cause the loss of federal price supports and quota control for tobacco. Other companies have been willing to use USDA graders. Farmers will have a referendum in 2002 on the issue of USDA grading. Regardless of the outcome of this vote, the state should work with the Burley Tobacco Cooperative to see that the tobacco market system is fair and open and protects the economic interests of Kentucky farmers.

Hundreds of millions of dollars have been provided to tobacco quota holders and growers since the establishment of the National Tobacco Growers Settlement Trust (Phase II). Since December 1999, federal payments through the Tobacco Loss Assistance Program and annual payments from the Growers Settlement Trust will have provided by December 2001 over \$650 million in direct, unrestricted cash payments exempt from state income tax. Farmers are urged to use these resources to match Phase 1 money available to strengthen local agricultural enterprises.

Forages and Hay

The most direct route to improving animal performance is by improving forage management. Our pastures are dominated by Kentucky 31 fescue. Extension surveys estimate 8 million acres of fescue in the state.

The endophyte associated with Kentucky 31 fescue protects the plant at the expense of the animal. Eating endophyte-infected fescue raises cattle

body temperature in the summer and causes reproductive problems in both cattle and horses, according to University of Kentucky agronomists. When cattle are allowed unrestricted access to pasture they tend to select more palatable species such as clovers and other cool season grasses.

Innovative farmers have demonstrated that a rotational grazing regimen, one that mimics the natural movement of grazing herds to fresh pastures, encourages a healthy mixture of grasses and clovers in pastures and increases weight gain in all forms of grazing livestock. Rotational grazing, pasture renovation and soil-building techniques should be included in farm demonstration projects throughout the state.

Less than 15 percent of the hay used in the horse industry is from Kentucky, according to the Kentucky Department of Agriculture. The horse industry demands hay that has been properly cured, because a single moldy spot can result in a large vet bill or worse. Investments in improved forage production and handling practices could help open the horse hay market to Kentucky farmers. Efforts to create state certified hay markets should be renewed.

Feeder Cattle

Kentucky is the largest feeder cattle producer east of the Mississippi River. Because of favorable weather, soils, topography (and assuming the proper management of our forage base) Kentucky's feeder cattle production cost could be among the lowest in the U.S. The Beef Quality Initiative, the Kentucky Beef Network and the Master Cattleman program are part of a coordinated effort by the beef industry to address quality assurance concerns. These programs are raising the value of Kentucky cattle and should be supported and encouraged.

Kentucky is participating in the Five State Beef Initiative (FSBI). This system is designed to create an information-driven beef supply chain based on the electronic identification of each animal in that chain. This initiative is being driven by food safety, environmental considerations, and humane handling requirements in addition to traditional tenderness, flavor and leanness criteria. Major beef purchasers

including Burger King and McDonald's are already mandating higher environmental and humane standards. Participation in this system will increase rural incomes by allowing farmers to fill demands from premium feeder cattle markets for a certified calf from a verified source. This joint venture of the University of Kentucky, Western Kentucky University, the Kentucky Department of Agriculture, the Kentucky Cattleman's Association and Kentucky Farm Bureau should be encouraged. Similar quality control measures to include the states that are traditionally the market for Kentucky feeder cattle should be explored.

Lexington has one of the ten largest cattle markets in the U.S. at Bluegrass Stockyards. The stockyard is owned by e-Merge, an online cattle market. Internet, video, tele-auctions and graded pool sales make it possible for farmers or groups of farmers to sell pot loads of cattle. A pot load is 50,000 pounds - the legal capacity of a commercial trailer or pot. This is the package feedlot operators require. Traditionally, order buyers have put together pot loads by bidding on individual animals at a sales facility and adding value using the facility's pen space to group them in load lots. Video and Internet auction cattle might have come from 10 small herds and yet never set foot in a sale barn. This limits stress on animals and minimizes shipping fever and allows the cattle owner to capture added value.

Meat for Local Markets

Demand for farm-raised meat and poultry is growing as food safety concerns increase. Kentucky is in a good position to meet this demand. We have an excellent potential forage resource and a strong history of animal husbandry. A decentralized system of small-scale animal processors, or abattoirs, seems best suited for this trade.

Kentucky has 23 abattoirs that are inspected by the USDA for food safety compliance. Several of these plants are working with producers on branded products. These companies should be encouraged to upgrade facilities to maintain USDA compliance, to add lines for other species such as chicken and to search for innovative offal solutions.

Vegetables

We have major commercial vegetable markets in Kentucky. The nation's largest supermarket chain, Kroger, is headquartered in Cincinnati and has a major distribution center in Louisville. Wal-Mart has a produce distribution center in London. Castellini, a large wholesaler, is headquartered at Wilder and has a packing operation at Dry Ridge. Representatives from these companies have said they would like to increase their use of Kentucky produce. Kentucky should explore cooperation with these and other local businesses before recruiting outside interests.

To date few producers have been able to supply the quantity and quality demanded by these markets. Growers need training to succeed in vegetable production. Production and harvesting require precision to preserve the quality demanded by the market. Only top quality produce can be packed for sale. Present grower education programs should be expanded and should include trips to see successful growers and visits to successful packing operations.

There are many tobacco greenhouses in Kentucky that are used for only a small part of the year. According to the Energy Information Administration, Kentucky has the fourth lowest electric utility rates in the nation. Programs to retrofit these greenhouses to grow winter vegetables and flowers using our cheap electricity should be explored.

The fresh vegetable market is thriving. Farmers' markets exist in most county seats. There are 68 municipal markets and 44 roadside stands in the state. Restaurants advertise Kentucky fresh produce. A system of Kentucky Certified kitchens organized at the county and regional level would provide certified produce for farmers markets and ways to enter commercial markets. On-farm processing opportunities should be fully explored.

West Kentucky

The farm economy from the Mississippi River Alluvial Plain to I-65 is more like that of midwestern farms to the north and west of Kentucky. The farms are larger. Agricultural commodities like corn and

soybeans are major contributors to the farm economy. Farmers are less tobacco-dependent. Western Kentucky farmers have formed strong farm cooperatives like the Hopkinsville Grain Elevator. This co-op is developing a \$32 million dollar ethanol plant. Western Kentucky Growers Cooperative had produce sales this year of over \$3.7 million. The Purchase Area Aquaculture Cooperative has built a processing plant and is developing a market for fresh catfish and other products.

Value-Added Grain

Christian County Grain Company is expanding its capacity to clean food-grade corn from 200 bushels per hour to 500 bushels per hour. This will increase the number of farmers who can command a premium price for corn. Christian County Grain was the first supplier of corn to Golden Flake Foods for chips. The third generation family elevator has grown from a 15,000-bushel capacity in 1953 to over a million-bushel capacity today. Markets for edible soybeans and other food grade corn products should be explored.

Horticulture

Successful vegetable growers' associations and cooperatives should continue to be supported. Virtually all of the nursery stock in Kentucky is imported. Ways of opening the \$20 billion market for trees and ornamentals to Kentucky growers should be encouraged.

Other Opportunities

Bio-diesel production, manufacturing renewable fuel from vegetable oils or recycled restaurant grease, should be explored. City, state and county fleets could provide demand for a pilot bio-diesel project.



Marketing and Market Development - Priority #1

The term “marketing” means different things to different people, nonetheless there was broad agreement among participants in the long-term planning process that marketing should be a key component of any plan. The goal of marketing is product image - the creation of a trusted brand name that commands respect and a premium in the marketplace.

Marketing is also delivering products that meet consumer needs. Feedlots want a pot load of like-sized cattle. Supermarkets and vegetable wholesalers want boxes of washed and chilled USDA #1 produce. Restaurants want the prime cut of meat.

Marketing is exploring all possible niches when developing a new product, using existing infrastructure to test new products, and finding value-added uses for secondary products. The farmer who sells their tenderloin to the country club needs a market for hamburger.

The Commonwealth has a valuable asset in its rural landscape. The best way to take advantage of this asset is to preserve it as a working model of itself - as a self-sustaining rural economy. History is a guide. We should aim high. Kentucky's rural economy should have a wholesome image. We should align ourselves with healthy lifestyle trends. Clean and Green - A Human Scale - Authenticity - Food Purity - Craftsmanship should be our watchwords. A coordinated effort is required to build the market infrastructure needed to support this image with products. The creation of county, regional and state markets is an important first step in this direction.

The Kentucky Department of Agriculture has begun a state branding campaign and a “Buy Kentucky” program. Those campaigns should be coordinated with the private sector and other state offices. The creation of a quality assurance program for Kentucky agricultural products, with a state seal of approval guaranteeing that products were as advertised, would add value to Kentucky's brand and qualify our products for industries with strict product-tracking requirements.

Our rural countryside is a fast-appreciating asset as suburbs and strip malls claim chunks of farmland.

We can preserve this asset with profitable working farms. In the knowledge-driven economy of the twenty-first century, the knowledge worker may not be tied to a geographical location. If Kentucky is an attractive place, we will have a leg up in recruiting these knowledge industries.

Efforts to Develop Markets Have Taken Several Forms

In response to demand from producers at the county level, the ADB approved a series of state model programs aimed at allowing individual farmers to compete for diversification grants and addressing the need to upgrade production quality. The need to create a market for this production was clear at local, county and state meetings.

The Purchase Area Aquaculture Cooperative (PAAC) in Farmington is an effort in that direction. Graves County is on the peninsula formed by the Ohio, the Tennessee and the Mississippi Rivers. There is ample water to grow catfish in the Purchase.

PAAC was awarded an ADB grant to build a processing plant and to add freezing capacity in order to compete in the national market for frozen fish. The co-op has developed a profitable market for fresh fish, but price competition from long-established suppliers in Mississippi and from Vietnamese imports has forced the frozen fish business to operate at a loss. This illustrates the difficulty of competing in the global market.

BEPA is a small Christian County produce wholesaler operated by a young farmer who was squeezed out of tobacco when he could not find quota to lease. He went into the sweet corn business and was selling it successfully on the Internet, but he was unwilling to take the price offered for his remainders at the Fairfield Cooperative Market. In response, BEPA secured a fresh market with some local independent grocers, opened a vegetable stand on Ft. Campbell Boulevard in Hopkinsville and began competing for produce on the Fairfield Market with the brokers from Nashville and Louisville. BEPA was given a Christian County matching grant for another

refrigerated truck and a forklift to expand to meet new contracts.



Danny Townsend, a sorghum maker with 40 years' experience, leads the Appalachian Sweet Sorghum Marketing Cooperative, Inc., of Jeffersonville, Kentucky. The co-op received an ADB grant for planting, harvest and labeling equipment to meet expanded demand and bar code requirements from Kroger.

Other efforts to create and strengthen farmer market groups have included vegetable and nursery cooperatives. The Kentucky Center for Cooperative Development was funded to help new cooperatives. Tying these fledgling cooperatives to a central database would allow marketing efforts to be more closely monitored.

Projects under review include farm market showcases in Louisville, a marketing center and business incubator in Northern Kentucky, a farm center in Bath County, an agricultural complement to the new crafts showcase at Berea, and other regional marketing centers. The wine industry has proposals for supporting new grape production.

New Initiatives

The possibility of encouraging state-funded institutions such as school systems, state parks, prisons and other state agencies to give preference to Kentucky products should be explored by the General Assembly in conjunction with the development of quality suppliers for these markets. Providing access to such publicly funded markets can also serve to prepare producers to enter other commercial markets.

The creation of a market in hunting rights would require liability legislation and a registry and inspection system. This could provide significant income to state farmers while reducing the state's excess deer population and should be explored in coordination with state Fish and Wildlife authorities.

Building Kentucky's Agriculture Based Businesses

Agriculture-based business, agri-business, is crucial to the development of sustainable agriculture in the state. Kentucky-owned companies such as F.B. Purnell Sausage Co., Kerns Kitchen, Torbitt and Castleman, Buckner, Gethsemani Farms, Moonlite Barbecue Inn, Southern Belle Dairy, Dippindots, Inc., Ellis Popcorn, Hudson Brothers, Griffin Pie and Laura's Lean Beef in food processing; wood products companies like McCammish Manufacturing Co. and the Freeman Corp.; and processors like Owensboro Grain Edible Oils, Inc. and Weisenberger Mills add the most value to agriculture products.

We should look first to existing agri-business in the state. These businesses should be surveyed to ascertain possible areas for expansion and ways to increase the use of Kentucky products.

Existing incentive programs are based on job creation, job retention and expansion. These incentives should be modified to give increased weight to the use of Kentucky agricultural products by existing and new businesses.

In addition to helping established businesses, the state should be actively involved in recruiting and

developing new agriculture-based businesses, provided these businesses meet environmental requirements, provide innovative profit-sharing plans for farmers and fair labor conditions for employees.



Marketing Requirements and Feasibility Studies

A number of feasibility studies have already been undertaken. Some states have programs Kentucky could emulate; others have made mistakes we would do well not to repeat. Rather than recreate these studies for each new wave of agricultural development projects, an online catalogue of these resources should be created and maintained. Where there are gaps in this knowledge or questions unique to specific projects, the Governor's Office of Agricultural Policy has resources to commission studies.

Directions

Value-added markets demand a reliable supply and a predictable quality. The Kentucky agricultural community's record in meeting these demands varies from one commodity to another. The Thoroughbred horse industry more than meets this test as the standard against which the world market is measured. Efforts to market commercial vegetables have had mixed results.

Kentucky feeder calves are gaining a reputation in response to 20 years of herd improvement initiatives. New marketing methods allow cattlemen to capture the added value of providing uniform load lots to the buyer. The state is positioned to be a dominant player in the feeder cattle market.

A study of the feasibility of locating a feedlot industry in Kentucky (1996 Senechal, Jorgenson, Hale & Company, Inc.) suggested that the minimum economically feasible lot size was approximately 30,000 head. Our muddy winters and relatively high cost of feed put us at a competitive disadvantage, according to the study.

Likewise, the ability of the state to support a large-scale beef slaughter facility or cow kill plant has yet to be demonstrated. Because Kentucky has the largest cow herd in the east, the existing market for cull cows is strong.

The recent experience of North Carolina suggests that the effluent problems associated with large-scale confinement feeding operations can overwhelm a state's ecosystem. The drainage patterns of the underlying strata should be mapped before approving slaughterhouse locations, especially in karst regions. The employment problems associated with large-scale animal processors should be considered before recruiting such plants.

The poultry industry is concentrated in South Central and Western Kentucky. Poultry contributes more than \$300,000,000 in gross income to Kentucky agriculture. Expansion should be based on farmer profitability and weighed against company labor and environmental records.

The demand from individual livestock producers for small-scale processing is increasing as markets open for farm-raised beef, chickens, hogs, sheep and goats. Expanding existing facilities to meet this demand seems to hold the most promise in the short- to medium-term.

Financing the Future: Improving Access to Capital

Access to capital was identified as crucial to the support of agricultural entrepreneurship. Typically, farm production credit is readily available, while capital for value-added enterprises has been subject to high interest rates and strict covenants, making it unavailable to any but sophisticated borrowers. One of the goals of the Agricultural Development Board is to work with lending institutions and farmers to increase the access to capital by strengthening existing programs and developing new ones.

There exists within the lending community a number of sources of funds for various agricultural projects, both production and processing. There appears to be adequate capital throughout all areas of the Commonwealth. Preparing the prospective borrower to access these funding sources may be all that is required to answer the need for traditional agricultural capital.

New agricultural ventures have more limited options because of the unfamiliarity with new ventures by the lending community. Sources of equity capital exist, but are difficult to access in Kentucky even for non-agricultural projects.

The Agricultural Development Board has seen a number of creative ideas. Ideas, however, translate into viable businesses with difficulty. Some of these were sophisticated and required a large capital investment, others showed promise for added value with a minimal investment. The difficulty often lies in the ability of the producer to execute the business plan, if in fact a business plan even exists. To address this need, the Agricultural Development Board has entered into an agreement with the Kentucky Small Business Development Center that is cooperating with extension agents to offer business planning courses.

In order for a farm business to determine its profitability, the farmer needs accurate financial information. In its Model Agricultural Diversification Program, the ADB has agreed to underwrite 50% of the cost of the Farm Business Analysis program offered through the University of Kentucky's

Extension service. Continued support for producer participation in the Farm Business Analysis program should be encouraged and opportunities explored through county programs for making the service available to more producers.

Currently within the state there are a number of micro-lending agencies working with very small businesses, providing assistance in business development, and issuing loans of less than \$35,000. Funds are provided through the Small Business Administration (SBA), and include dollars both for loans and technical assistance. The technical assistance financing is based on the amount of outstanding loans (typically 20% of the portfolio annually), thus allowing for continued assistance after the loan is made.

SBA requires a match of 20% to establish a loan loss reserve in the micro-loan company. Regional micro-lending agencies offer low-cost capital, localized technical assistance, and leveraged federal funds. Agricultural Development Funds should be set aside to encourage the development of agricultural lending programs among these micro-lenders.

Providing Adequate Capital

The Kentucky General Assembly created the Kentucky Agricultural Finance Corporation (KAFC) in 1984 to address the unique financing needs of agriculture. It is currently inactive. This agency should be restructured to provide capital for agricultural diversification and infrastructure projects.

KRS 247.940 - 247.978 set the framework for the Kentucky Agricultural Finance Corporation. According to legislative findings set forth in 247.940 (2), a reason for the establishment of KAFC was the recognition that "...private enterprise and investment have not been able to produce, without assistance, the capital necessary to permit the small family farm operators to continue to compete successfully in agricultural enterprises." Included in the findings was the charge that KAFC would "promote new agricultural ventures."

As established in KRS, KAFC serves principally as a lender, providing either direct loans or loan guaranties. The organization has the ability to raise capital through issuance of revenue bonds, including the issuance of revenue bonds as allowed under KRS 103. Certain requirements in the act are intended to follow those in the Internal Revenue Code to permit the issuance of Agricultural Bonds for first-time farmers. The statute has a fairly broad definition of agriculture that includes diversification and alternative crop production. No specific mention is made of value-added processing. Clearly the value-added approach will allow for increased income to Kentucky producers.

The definition for "first-time farmers" must conform to the requirements of the Internal Revenue Code, in order to maintain the agricultural bond program allowed by that law. Provisions should be made to raise permissible income levels to take into account off-farm employment that enhances farmer income or provides health care and other benefits that otherwise would not be available to the farm family.

While the statute does contemplate assistance to any legally formed entity, the definition prevents assistance to newly formed ventures in that income must be generated in the year before the assistance is provided. Thus any new entity, for example one created for the purpose of value-added processing, would be ineligible for assistance under the current law.

Forms of Financial Assistance

Linked Deposit Loan Program

The KAFC statute is sufficiently broad to allow direct loans, loans through private lenders and loan guaranties provided by KAFC. A similar loan-to-lender program currently exists through the state's Linked Deposit Investment Program. As set forth in KRS 41.600 - 41.625, funds from the State Treasurer's unclaimed and abandoned property program are invested in financial institutions (including members of the farm credit system) at interest rates equal to the Prime Rate as published in the *Wall Street Journal* on the first day of each month, less 4% percent

(minimum rate no less than 2%). The bank then makes a loan at the Prime Rate (minimum interest rate of 5%). At the time of this writing, with the Prime Rate at 5.5%, the bank spread is 3.5%, the state receiving 2% for its investment.

Currently funds are available for both small businesses and agri-businesses, with a maximum loan amount of \$100,000 and a maximum maturity of seven years. The program is not a guaranty, but rather an investment in a bank. The credit decision when made by the lender is likely to be tied to risk aversion, since the ultimate responsibility for repayment of the investment to the Commonwealth lies with the financial institution.

The Kentucky Economic Development Cabinet (KEDC) administers the small business program, while the Kentucky Department of Agriculture administers the agri-business portion of the program. In the area of agri-business lending, the program has had modest success. It generally has been a program for higher quality borrowers, given the obligation of the lender to repay the investment.

The value-added lending function now administered by the Kentucky Department of Agriculture should be moved to KAFC and minor changes made to the eligibility requirements. Specifically the definition of "agri-business" includes persons engaged in agricultural endeavors (not defined) but requires at least one-half of annual gross income be derived from farming (gross earnings not to exceed \$1 million per year). Given the nature of family farm income, often with one spouse working off-farm, this 50% of income derived on-farm may be difficult to attain, and should be modified. Discussion also should focus on definition of agriculture endeavor, with a goal of conforming definitions in both the KAFC and the Linked Deposit legislation.

Direct Loans, Loan Purchases and Loan Guaranties

Currently KAFC has a direct loan fund. There was only \$500,000 in this fund at the beginning of 2002. As noted earlier, KAFC currently has authority in its enabling legislation to issue bonds for direct loans,

loan purchases from commercial lenders, and loan guaranties. Agricultural Development Funds could be used to capitalize the loan fund directly and could serve as leverage in obtaining other funds for the loan pool, for example, funds from federal agencies that become available from time to time for agricultural endeavors.

KAFC has the authority to provide below market financing by using tax-exempt financing for first time farmers in accordance with rules set out in the Industrial Revenue Code. KAFC also has the authority to issue bonds outside of the Internal Revenue Code requirements at non-tax-exempt market rates. This kind of debt issuance could be used to establish a larger revolving loan fund immediately, rather than to build up a loan fund with money set aside from Phase 1 dollars. The fund would require an annual set-aside of Agricultural Development Funds as the primary source of repayment for the bond debt service. This would allow the revolving loan fund to build up as repayments if principal and interest were made back to the fund.

Under this arrangement Agricultural Development funds could be used to service debt over the life of the bond issue, but the proceeds of the bond issue would be set aside exclusively for direct lending at rates conceivably below market, established by the KAFC board.

Since the bonds would be repaid with funds exclusive of the repayment from the individual loans, financings could be made available at rates different from the rates charged for the bond issue itself, thus providing additional flexibility to KAFC in structuring financings for farm-based and other agricultural businesses.

KAFC would continue to serve as issuer of financings for "first-time farmers" as set out in the Internal Revenue Code. In this case the agency would be a conduit for the financing and the underlying credit would be the assets being financed. Specifically there would be no liability for repayment by KAFC, and because the bonds could be issued as tax-exempt instruments, the borrowers would obtain below-market financing for sums potentially greater than

could be obtained through the agency's direct loan program.

The funds would be available for all agricultural borrowers, either as direct loans or as purchases of loans from commercial lenders, with the corresponding interest rate savings passed on to the borrower. Whenever possible funds should be used to complement funds from private sources.

The question should be asked whether KAFC should be making direct production loans, when the private sector is better suited for such activity. The private lenders are closer to the borrowers and thus have better ability to oversee the collateral being offered for loans. Indirect lending from KAFC likely is a better approach here, and in this instance a loan-to-lender program would be the more appropriate form of assistance, particularly if it could be tied to the Linked Deposit program. The borrower still would be able to benefit from below-market interest rates, while program administration costs would be reduced.

Some Phase 1 funds should be set aside exclusively for the purpose of loan guaranties. Such a program could function to establish, with participating lenders, a loan loss reserve into which KAFC would contribute some amount (perhaps less than 3% of the total loan), with comparable amounts being contributed by the lender and borrower. The loan loss reserve pool would build up as additional loans were made provided the default rate was kept to a minimum.

KAFC should explore lending part of the percentage of a loan not guaranteed through existing federal guaranty programs. The U.S. Small Business Administration and USDA's Rural Development Administration have programs that will guarantee a certain portion of a private lender's loan. Typically in the event of a default the lender goes to the federal agency and collects the guaranteed portion of the loan. The federal agency then allows for the liquidation of assets to collect the remainder of the loan. If there is a shortfall below the guaranteed portion, the federal agency absorbs the loss. The non-guaranteed portion is the lender's responsibility. A restructured KAFC could enhance the amount of guaranty by

participating in this portion of the loan and agreeing to share equally with the bank in any losses or recoveries that resulted from liquidation.

Venture Capital and Near Equity Type Programs

A separate pool of Agricultural Development Funds should be set aside to serve as equity or near-equity in agricultural ventures. An example of a near-equity participation might include a loan convertible to ownership based upon the occurrence of certain

events. All equity-type financing should be limited to innovative agricultural diversification, or new agricultural technologies with possibilities for significant return on investment which would not otherwise meet the security requirements for traditional lending. It should include agricultural research and development targeted by the Kentucky Innovation Commission, but based upon board approval could include other ventures as well. Any equity positions taken by a venture capital fund could return to the fund for reinvestment in fund-related activity.

Financial Incentives for Environmental Stewardship

The Commonwealth's long-term plan for agriculture recognizes the state's rural landscape and environmental quality as valuable assets in marketing both Kentucky and its agricultural products. To preserve this asset, we must re-evaluate farm management techniques for long-term sustainability. Certified sustainable programs and incentives must be encouraged. Kentucky should embrace national and international programs by rewarding farmers and state companies who follow approved practices and pressuring those who do not.

Regulations requiring farmers to limit livestock access to waterways and to plant riparian buffer zones are contemplated under the Agriculture Water Quality Act. The Kentucky Soil Erosion and Water Quality Cost Share Program was established by the 1994 General Assembly to assist Kentucky producers in meeting the requirements of this act. During the 2000 session of the General Assembly, \$18 million from the Agricultural Development Fund was appropriated to assist Kentucky's landowners through this program. This funding should be continued.

We have historically underestimated the economic, ecological, social and cultural values of forests. With 92 percent of these assets in private hands, primarily in tracts of less than 40 acres per landowner, fragmentation has made coordinated management difficult. The 1998 Forest Conservation Act was a step toward addressing this need by providing

training for loggers; however, the need for landowner technical assistance has been largely unmet.

The Forest Stewardship Incentive Fund was established by the General Assembly in 1998 to serve as a way to provide financial assistance to landowners for stewardship practices. This program has never been fully funded.



Farmland Preservation Programs

Complementary crops such as mushrooms and ginseng can provide rewards to individual woodlot owners for following sustainable practices. Forestry officials should be trained to recognize the value of complementary crops in woodlots.

The disposal of dead animals is an important element in environmental health. The Kentucky Department of Agriculture has completed a study of the removal of fallen livestock and pets.

Farmland preservation programs such as the purchase or donation of development rights can be a valuable tool for preserving agricultural assets, particularly those near urban areas. Currently the Kentucky Department of Agriculture's Purchase of Agriculture Conservation Easements (PACE) program and Fayette County's Purchase Development Rights (PDR) operate to preserve threatened farmland. These programs require coordination with county planning and zoning boards and combine government planning and market-based incentives. The governor's Smart Growth Initiative is also beginning to address this need.

Farm Family Education and Computer Literacy

Priority should be given to developing a state-wide online library of agricultural development resources and conducting farm business accounting and analysis programs. County Extension offices should be encouraged to expand county-based programs aimed at improving farm family Internet access, and developing farmer-to-farmer training programs. Programs that focus on the needs of farm families in the areas of financial planning, personal development and basic computer literacy should be made more accessible.

Kentucky farm families are in need of better access to GED programs, two-year and four-year degree programs and vocational training. The Workforce Development Cabinet, Kentucky Community and Technical College System (KCTCS), Kentucky Virtual University, Land Grant and Regional Universities, and the division of Secondary Vocational

Education can provide this access through short winter courses and night courses to better match the time available to farmers.

Information technology is an important component of the long-term plan. In order to participate in the proposed state electronic marketing system, farmers will need access to a computer and to be able to enter and receive product information.

The demands of product tracking placed on agriculture by increasingly strict food safety requirements will necessitate a bar code system for produce. Both the five-state beef cattle initiative and the statewide agriculture marketing system will require bar codes on products for sale. Farmers should be assisted to meet the demands of this new technology.

Supporting Local Leadership

Leadership Development

Kentucky's rural communities are in a state of transition. The decline in the economic significance of burley tobacco combined with the risk and uncertainty associated with agriculture in general has placed added strain on the rural economy. Funds

should be available in each extension area of the state to organize community-based leadership programs that emphasize skills related to farm-based business development.

County Agricultural Council Support

County Agricultural Development Councils have assumed substantial responsibility at the local level for the future of Kentucky agriculture. Limited administrative funds have been a handicap to the councils. A mechanism should be established to allow use of county Phase 1 funds for expenses associated with Council functions including:

1. Field days, training meetings, workshops or other events linked to Agricultural Development Board projects.
2. Regular meetings of the Council (including meal costs for members).
3. Community planning functions sponsored or co-sponsored by the Council.
4. Printing, publicity and information dissemination related to Agricultural Development Board projects and programs.
5. Communications and information technology costs related to the administration of the Council and its functions.

Enhancing the Extension Network

The Kentucky Cooperative Extension Service has been assigned new roles and assumed broad responsibilities under the Commonwealth's agricultural



development initiatives. The county agents' newly mandated functions include commitments to planning, implementation and evaluation of projects and programs of county agricultural development councils and the Agricultural Development Board. These functions spill over into the broader issues of

community economic development. State extension leadership and specialists are assuming responsibility for providing agents with the support required to meet these new challenges.

While the growth and viability of rural communities is ultimately dependent upon the ability and initiative of farm families and rural leaders, the extension system serves as a vital element of the infrastructure required to foster their success. Extension needs appropriate support for this mission in the future.

Enhanced training and continuing education for county personnel are the keys to improved job performance and program delivery. Clear standards for continuing education should be established. Extensions' communications and Internet technology infrastructure should be improved to better support both distance learning for agents and statewide access to educational programs. Kentucky agents hold fewer Master's degrees than their counterparts in other states. Masters' programs should be tailored to the extension agent's role. Public administration, community development, agricultural education, and business administration programs could be tailored for extension agents.

In order to recruit and train the best agents, salaries should be upgraded. Kentucky's extension agent salaries rank 47th in the nation, last among the University of Kentucky's benchmark institutions, and last in the Southern region. Salary issues will need to be addressed through recurring fund sources. If long-term funding is not available, consideration should be given to supporting an achievement and professional development-linked incentive program. This program should reward agents for achieving specific professional development and continuing education standards.

Kentucky's ability to seize opportunities depends directly on the awareness and responsiveness of local leaders to the issues confronting rural communities. Nurturing local leadership, adequately supporting County Agricultural Development Councils, and investing in the enhancement of the Extension Service network will better position rural leaders to create new opportunities in their communities.

Research and Development

Biotechnology, genetic engineering and molecular farming may hold promise for adapting agricultural crops and livestock to new purposes. Plants and animals may be engineered to produce a variety of valuable biological molecules ranging from vaccines to biodegradable plastics. The opportunities and risks presented by this technology should be carefully weighed.

While the commercial progress is exciting, molecular farming is still an emerging industry. As Kentucky seeks to take advantage of opportunities presented by molecular farming, it is imperative that policy makers recognize widespread concerns about the implications of these technologies. Issues raised by farmers, consumers and governments in Mexico, Canada, Brazil and Europe illustrate the international debate about biotechnology. Concern about human health and safety issues has arisen in European and Japanese markets. Food labeling, segregation of traditional and genetically altered crops, and environmental impacts are major issues in a number of countries.

Often purveyors of new technology seek to minimize ecological risks and maximize profit potential. The role of molecular farming in Kentucky should receive further attention, discussion and deliberation in open meetings. The economic and ecological stakes in agriculture require that the potential long and short-term risks and benefits of this technology be fully deliberated. Representatives of industry, farmers, researchers, ecologists, consumer groups, regulatory agencies and other interested parties should be included in such deliberations. One specific topic of public deliberation should be how to assure material benefit for farmers through novel models of intellectual property ownership and commercialization.

Large Scale Biology Corporation (LSB) operates a facility at Owensboro that has genetically engineered the tobacco mosaic virus to produce a vaccine that prevents recurrence of non-Hodgkin's lymphoma, a cancer of the lymph system. LSB is different from other biotech companies that engineer animals and plants into production systems. LSB has rejected permanent genetic modification of plants and animals. Instead, the company inserts genes that make a therapeutic protein into the tobacco mosaic virus. LSB then infects tobacco with the transgenic virus and gets the plant to serve as a temporary factory to produce the desired molecule. (Source: Scientific American, October 2001)



Ways to move the efforts of multidisciplinary research projects like the University of Kentucky's New Crops Opportunities Center, Kentucky State University's small farm research and other university research projects into production agriculture should be explored. Applied research efforts on existing Kentucky farm products should continue to be a high priority.

Conclusion and Summary of Recommendations from Cultivating Rural Prosperity

The aim of the plan is to preserve and enhance the social fabric of rural Kentucky while building a sustainable economic base rooted in local communities and maintaining environmental integrity. The Commonwealth has a valuable asset in its rural landscape. The best way to take advantage of this asset is to preserve it as a working model of itself - as a self-sustaining rural economy. The three distinct rural areas of Eastern, Central and Western Kentucky should focus on those farm products most suitable for their local environment.

The primary recommendations of this plan include:

- Creating a comprehensive local, regional and state marketing system for Kentucky farm products
- Creating a system to encourage a variety of forms of capital investment in agricultural enterprises
- Providing financial incentives for environmental stewardship measures such as the Soil Erosion and Water Quality cost-share program, implementation of best-management practices in timber stands, and farmland preservation efforts
- Strengthening and improving the accessibility of education and training programs tailored specifically for the needs of farm families
- Creating programs to develop local leadership, support county agricultural development councils, and enhance the Cooperative Extension Service network
- Maintaining strong commitments to applied research in existing farm product areas, and exploring the viability of high value markets in non-traditional areas

Specific recommendations within each of the above priority areas include:

- Instituting a state certification program that will allow certified agricultural producers access to state markets such as parks and prisons by providing a quality-assured product
- Expanding a state database to include all certified products, including meat and poultry
- Developing a county-based inventory of timber resources utilizing global positioning technology and catalogued in a state database
- Providing support for woodlot demonstration projects that include complementary crops such as mushrooms and ginseng
- Providing market venues for load lots of preconditioned livestock
- Studying the costs and benefits of a state system to connect the major trails in the state as part of efforts to develop agri-tourism
- Coordinating with the state Economic Development Cabinet to find clean industry to supplement farm incomes
- Urging farmers to invest payments from the National Tobacco Growers Settlement Trust (Phase II) in the diversification of their operations
- Enhancing demonstration projects to promote rotational grazing, pasture renovation and soil building techniques
- Investing in improved hay production and handling practices to open the market for horse hay to Kentucky farmers
- Encouraging programs that raise the value of Kentucky beef cattle
- Supporting and upgrading existing meat processors to open markets for farm-fresh livestock products

- Expanding vegetable grower education programs to open commercial markets
- Encouraging tobacco farmers to retrofit greenhouses to grow winter vegetables, flowers and bedding plants
- Seeking markets for edible soybeans and food-grade corn products
- Exploring the feasibility of renewable fuel production
- Developing a market for hunting rights in cooperation with state Fish and Wildlife authorities
- Building Kentucky's agriculture based businesses
- Providing adequate capital through the coordination of existing and new programs such as the Agricultural Finance Corporation, Linked Deposit Loan program, direct loans, loan purchases, loan guaranties, venture capital and near-equity programs

This document is intended to be Kentucky's first comprehensive plan for agricultural and rural prosperity, the first step in a process that by its nature requires a strong long-term commitment. As such, it raises a number of questions and presents a number of ideas that will need to be developed further if they are to be



acted upon. The Agricultural Development Board and the Governor's Office of Agricultural Policy recognize a responsibility to provide a blueprint to aid in the development of this plan. The Agricultural Development Board in collaboration with county councils, agricultural organizations, farmers and interested citizens will annually review this plan. It is the intention of the Agricultural Development Board that this review process will reflect the open and inclusive manner by which the plan was created. The staff of the Board will present a progress report on plan implementation annually.

Appendix:

Kentucky's Agricultural Assets

Although production agriculture accounts for only a little more than 3 percent of Kentucky's gross state product, more than 30 percent of the state's economic activity is agriculture-related. The following appendix contains a brief catalogue of the Commonwealth's agricultural assets.

Estimates of the total economic impact of Kentucky's agriculture and forestry industries are given in Table 1. Gross state product, personal income, and employment are given as three measures of economic impact. Gross state product is the sum of personal income, property income, and indirect business taxes; this measure of added value is essentially sales net of the cost of intermediate inputs. Gross state product is considered to be the best measure of economic impact because it avoids the problem of double-counting economic activity as is the case with commonly used measures like total cash receipts or sales. Personal income equals employee compensation plus proprietor income. Employment is a count of the number of jobs.

Agriculture (crop and livestock production) accounts for 6.3 percent of Kentucky's 2.2 million workers, 2.9 percent of the state's personal income, and 3.3 percent of gross state product. Adding in the direct, indirect, and induced effects of the agricultural input industry (feed, fertilizer, etc.), agricultural processing (poultry processing, cheese manufacturing, etc.), and forestry (sawmills, furniture manufacturing, etc.) means that this broader definition of agriculture accounts for 11.5 percent of employment, 8.4 percent of personal income, and 11.4 percent of the state's total economic activity. If food retailing is included in the analysis, the total economic impact of the food and fiber industry in the Commonwealth makes up 20.8 percent, 13.4 percent, and 16.4 percent, respectively, of employment, personal income, and gross state product.



Direct, Indirect, and Induced Economic Impact of Kentucky's Agricultural and Forestry Industries^a

Sector ^b	Measures of Economic Impact		
	Jobs ^c	Personal Income ^d (thousands)	Gross State Product ^e (thousands)
KY State Total	2,188,577 ^f	\$80,435,215 ^g	\$100,076,000 ^g
Production Agriculture	137,443	\$2,332,621	\$3,332,531
Percent of KY State Total	6.3%	2.9%	3.3%
Ag Inputs Production Processing & Forestry	251,905	\$6,724,384	\$11,428,679
Percent of KY State Total	11.5%	8.4%	11.4%
Ag Inputs Production Processing Forestry & Food Retailing	455,224	\$10,786,362	\$16,452,494
Percent of KY State Total	20.8%	13.4%	16.4%

^a Estimated using the Minnesota IMPLAN Group, Inc. input-output software, IMPLAN Professional 2.0.1011, and the latest available regional economic data for Kentucky.

^b Detailed sector definitions are given in the Technical Appendix.

^c Number of employees.

^d Sum of employee compensation and proprietor income.

^e Sum of personal income, property income, and indirect business taxes. This measure of value-added is also equivalent to sales less the cost of intermediate inputs.

^f Source: U.S. Department of Labor, Bureau of Labor Statistics.

^g Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Economic Sector	Sales Increase for every \$1,000,000 increase in agricultural sales
Transportation	\$ 75,930
Manufacturing	\$149,120
Banking and Finance	\$128,490
Retail/Wholesale Trade	\$ 89,690/68,390

Tourism and Entertainment

Tourism is a large and growing sector of the Kentucky economy. The most recent data from the Kentucky Department of Tourism shows nearly 19 million tourists visiting Kentucky in 1999, generating an economic impact of \$8.2 billion.

Interest in attracting more tourist dollars through the establishment of more permanent farmers' market facilities and expanded promotional programs continues to increase nationally. The states surrounding Kentucky have realized considerable success in this area. The 1997 Census of Agriculture indicated Kentucky ranked 43rd in direct sales per farm (\$2,723 per farm) and 31st in total direct marketing sales (\$4.7 million) reported for the state, despite a very high level of tourist activity.

Enhancing Existing Assets to Build Common Wealth

The Governor, the General Assembly and public agricultural agencies and institutions are providing a record level of resources and technical assistance to farm families. The amount of money committed to aid tobacco producers and their communities is led by Kentucky's share of the \$5.15 billion National Tobacco Growers Settlement Trust and Kentucky's \$3.5 billion share over 25 years of the 1998 tobacco Master Settlement Agreement.

Approximate future National Tobacco Growers Settlement (Phase II) payments to Kentucky tobacco farmers:

2002	\$148,000,000
2003	\$148,000,000
2004	\$148,000,000
2005	\$148,000,000
2006	\$148,000,000
2007	\$148,000,000
2008	\$148,000,000
2009	\$ 87,500,000
2010	\$ 87,500,000

State Agricultural Overview

Certain Kentucky agricultural sectors have consolidated considerably over the last 15 years. Cattle, dairy, swine, and sheep farms have diminished in number while the value of these livestock enterprises has generally increased to over \$2.16 billion in cash receipts in 1999, up from the \$1.39 billion in 1985 (KASS, 2000). The highest rates of growth have occurred among farms producing horses and mules.

Total farm product sales in Kentucky were \$3.61 billion in 2000. While tobacco accounted for Kentucky farm sales of approximately \$674 million in 2000, livestock enterprises generated \$2.47 billion in farm product sales. (KASS 2001), led by the equine industry at \$1.17 billion (Kentucky Thoroughbred Association estimate) and cattle at \$541 million. Forestland makes up 50% of Kentucky's land area. Over 400,000 individual landowners own ninety-three percent of this area. Forest resources produce an estimated \$4.3 billion in economic activity on an annual basis.

Other farm products account for significant receipts. Broilers accounted for \$344 million, and dairy products generated \$229 million. Corn (\$246 million), soybeans (\$164 million), wheat (\$58 million), and hay (\$48 million) are also widely represented in Kentucky.

Floriculture (\$28.7 million), nursery, greenhouse and sod production (\$27.2 million), vegetables, fruits, nuts and berries (\$15 million) all contributed to Kentucky's agricultural sales in 2000. There seems to be significant opportunity for growth in these areas. For example, fruit and vegetable production in Kentucky was less than 20% of that in neighboring states with similar resources.

Beef Cattle

There are 48,000 farms in Kentucky with cattle. The beef cattle enterprise provides a base income for many farms. It generates a return to labor and to the forage base on land with few other income opportunities. In 2000, cattle and calves generated \$541 million of gross receipts, compared to \$674 for tobacco.

Almost all dimensions of the livestock/meat sector are changing in response to new business structures (vertical integration and alliances, branding); food safety concerns; environmental interests; health issues and trade policies. These will continue to cause change in traditional enterprises.

Hay and Forages

Kentucky harvested 250,000 acres of alfalfa hay yielding 725,000 tons in 1999. All other hay amounted to 2.15 million acres yielding 4.08 million tons. Total hay harvested and yield per acre have increased steadily over the last 20 years, with yields and total acreage harvested more than doubling during this period. The value of all hay, according to KASS, was \$440 million in 1999 and \$491 million in 1998.

The actual sales of hay are considerably less than the total produced. The 1997 Ag Census indicated hay sales to be about \$58 million. A significant amount of hay is utilized on the farm in support of other farm enterprises. The most active forage areas parallel closely with the top tobacco areas. Improvements in forages lead to improvements in beef cattle, dairy, and equine in addition to adding more income resulting from direct sales.

Forestry

Forestland covers 12.5 million acres in Kentucky or 50% of Commonwealth land area. Ninety-three percent of this area is owned by over 400,000 individual landowners for an average of approximately 30 acres each. Ninety-three percent of this resource is composed of hardwoods and 7% of conifers. The predominant species are oak and hickory, with good quantities of yellow poplar, ash, maple, beech and walnut. While this area is the third largest hardwood forest in the country, past management has resulted in a resource base that is 72% grade 3 or worse (in which grade 1 is best, grade 2 next, then grade 3, grade 4 and cull). This situation means that on an average acre having 100 mature stems, 72 of them are low grade.

There are over 950 wood industry companies located in the state. The primary production segment is composed of 391 individual businesses with 560 secondary utilization enterprises contributing value-added production to the materials generated by the primary processors. These companies employ over 7,100 individuals in the primary sector and approximately 16,000 in the secondary. The market size for the industry is estimated at \$4.3 billion annually and increasing. Since 1994 an additional 7,250 new jobs have been created. Sixty percent of this increase has been a result of existing plant expansion. The other 40% has occurred with the establishment of 50 new plants of which one-half relocated here from out of state. These new plants reported an investment of \$286 million.

Grain

Kentucky ranked 14th in the United States in corn for grain production in 1999. Large crops in 1999 and 2000 nationally have depressed corn prices, but have led to very active export markets. Corn yields have driven steadily upward over the last 50 years as production technology has advanced. The acreage in the state dedicated to corn has been fairly stable for the last 12 years at around 1.2 million acres.

The number of farms growing corn has declined with each Agricultural Census over the last 25 years, falling to 11,021 farms in 1997 from 39,495 farms in 1974. Despite declining farm numbers and erratic prices, sales grew from \$346 million in 1987 to \$624 million in 1997.

Kentucky ranked 17th nationally in soybean production in 1999 with 24.15 million bushels of production. Wheat is also relatively important in value as a Kentucky grain crop. Corn (43.8%), soybeans (43.8%), and wheat (11.2%) together made up the largest sources of grain receipts in the 1997 crop year and continue as the major grain enterprises. Small amounts of sorghum, barley, and oats are also produced.

The number of soybean farms, much like corn, has also been in steady decline in Kentucky since peaking in 1982. Low soybean prices nationally, combined with poor growing conditions and yields in Kentucky, have led to declines in total production and total value for soybeans in the state. Acreage devoted to wheat production nationally continues to decline. U.S. yields, however, have been excellent. In Kentucky, winter wheat production has been up, hovering at around 25 million bushels in recent years.

Poultry

Poultry production has expanded at a rapid rate in Kentucky. Broiler production has grown from less than 3 million birds to 188 million birds in 10 years. The value of production has grown from less than \$5 million to \$363 million in 1999.

Dairy

There were 1,958 Kentucky dairy farms as of May 2000. The state lost 151 Kentucky dairy farms (7.2%) between January 1999 and May 2000. Kentucky dairy production is concentrated in Barren and Adair Counties. Other counties with over 75 dairy farms are Hart, Fleming, Lincoln, and Metcalfe. The average herd size in Kentucky is approximately 68 cows. 1998 average milk per cow in Kentucky was 12,214 pounds, compared to the national average of 17,192 pounds. Prices were lower than the 5-year average during every month of 2000. Between 1996 and 1999, prices were characterized by unprecedented volatility. The U.S. milk supply is growing very rapidly in the West, where production costs are under \$11/cwt. versus Kentucky production costs exceeding \$14/cwt.

Horticulture

Horticulture is a complex sector that involves a variety of specialized, high-input, high-value enterprises. Floriculture (\$27.4 million in sales), nursery crops (\$19.8 million in sales), vegetable crops (\$40 million in sales), fruit crops (\$13.3 million), and landscape, interior, and nursery sales and service (\$136 million) all contribute to total agriculture sales in Kentucky.

Horticulture has not been as big a sector in Kentucky as in neighboring states. Kentucky fruit and vegetable production is less than 20% of that observed in Indiana or Tennessee, states with very similar natural resources.

**Economic Impact of a \$100,000 Increase in Sales
Within Selected Current Commodities in Kentucky**

Commodity	Indirect Sales Impact	Induced Sales Impact	Total Sales Impact	Related Commodities Impacted	Ag Jobs Created	Total Jobs Created
Beef Cattle	34,497	68,880	207,377	Hay & pasture, Feed grains	3.6	4.8
Poultry	32,312	43,483	175,794	Food processing, Oil bearing crops	1.0	1.8
Pork	45,413	49,807	195,220	Hay & pasture, Feed grains, Food processing	2.5	3.5
Dairy	17,316	79,912	197,228	Hay & pasture, Feed grains, Food Processing	1.5	2.8
Tobacco	34,999	57,255	192,254	Ag services, warehouses	3.7	4.9
Oil Bearing crops	16,616	81,183	197,799	Food processing, Ag services	2.5	3.9
Feed grains	18,042	77,924	195,966	Food processing, Ag services	2.0	3.3
Food grains	20,073	76,662	196,735	Food processing, Ag services	2.8	4.1
Equine	30,176	60,919	191,095	Hay & pasture, Oil bearing crops, Feed grains, Ag services	2.0	3.1

Indirect effects measure impacts on upstream and downstream economic activity within each sector. Induced effects measure increased economic activity within the local economy outside of the commodity marketing channel. A summary of the indirect and induced effects within each of the general sectors by commodity is available upon request from the Governor's Office of Agricultural Policy.

Source: Analysis based on IMPLAN multipliers using 1997 Bureau of Economic Analysis data. For more information regarding IMPLAN, contact the Governor's Office of Agricultural Policy.

New and Emerging Products

New and emerging products are being explored in Kentucky. Many of these enterprises involve small-scale production targeted to niche markets. Production costs, market information, sources of competitive advantage, and prospects for growth are difficult to measure.

Selected New and Emerging Commodities Currently Being Produced in Kentucky	
Chestnuts	Specialty peppers
Pawpaws	Specialty produce
Pecans	Organic produce
Christmas trees	Ginseng
Wine grapes	Medicinal herbs
Table grapes	Edible soybeans
Blackberries	Sorghum
Raspberries	Floriculture
Freshwater shrimp	Native landscaping material
Trout	Sod
Catfish	Meat goats
Paddlefish	Dairy goats
Largemouth bass	Pastured poultry
Hybrid striped bass	Premium and organic beef

Food Processing and Value-Added Capacity

The production of food and related products is one of Kentucky's major industrial activities, ranking fourth in employment among the state's major manufacturing industry groups. The Kentucky Department of Public Health 2001 Establishment Profile lists 1049 food processing establishments in the state. This sector accounts for approximately 6.5 percent of the state's total manufacturing employees.

The meat products industry had the largest number of employees, approximately 33 percent of the Kentucky food industry's total employment. The food industry's second largest employer is bakery products with 26 percent of total employment. Following the baked goods industry in employment are the beverage industry, preserved fruits and vegetables, and dairy products.

From 1987 to present, the Kentucky Economic Development Cabinet announced 13 new food processing plants and 67 plant expansions for the state. This growth in the food processing industry is expected to create over 1,900 new jobs in Kentucky.



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