

Part I: The Non-Model Program Investments

Data Collection

The GOAP requires quarterly and semi-annual fiscal reports for each non-model project. These reports generally track flow-of-funds with minimal reporting on goal achievement or impacts. Annual programmatic reports require project managers to provide a brief status report on goals and objectives, estimate the percentage of project completion to date, scope of project (i.e. number of farmers, counties, and youth impacted to date as well as total sales, net profit, etc.), a listing of which terms have been achieved and how they were achieved, and statement of any revisions or lessons learned. These reports are sent electronically to the GOAP's project compliance specialist. If the project manager or contact person fails to do this, the compliance specialist will contact them, in writing, requesting the necessary reporting information. Reporting must be in compliance in order for the project to receive or continue to receive funds.

Once the compliance specialist receives a project's report, the data are reviewed for compliance with terms and agreements of the specific project and then the data are entered into the GOAP's reporting database. If the project is not meeting compliance requirements, the compliance specialist contacts the project's manager or contact person to discuss the problem issues and advise for improvements. Finally, all hard copies of reporting data are filed in the specific project's folder at the GOAP office. All reporting is done by the project owners or management administration. The report is accepted as submitted. Information in the report is only verified by the GOAP if a discrepancy is apparent.

An Evaluation Team student intern was placed in the GOAP during the summer of 2007. During this time she collected data and information from GOAP files for non-model projects funded during 2001-2006. This information consisted of comprehensive lists of all state and county non-model projects funded, individual project documentation on all medium and large projects, as well as application and monitoring process information. Background folders were created for each large and medium project from these files. The folders contain the project application, agreement, request for disbursement of funds, terms and conditions, county prioritizations forms, any reports (i.e. programmatic updates, annual or quarterly reports, and forgiveness details submitted to the GOAP), as well as any other documents relevant for the evaluation team to better understand a project.

The data collection effort revealed that most project files were incomplete and only meeting minimal reporting efforts. Quarterly fiscal reports were documenting flow-of-funds but there were few serious attempts to actually document achievements, other than completion of construction or installation of new equipment. It was clear that an effective evaluation would require additional information collected through surveys and site visits.

Evaluation Criteria for Non-Model Investments

The UK Evaluation Team examined the ADB's investment philosophy, Long-Term Plan Priorities, and Guiding Principles to identify the essential criteria for measuring performance of the Non-Model Projects. The ADB's investment philosophy contains the overall goals for fund investments:

“The Kentucky Agricultural Development Board will invest monies from the Kentucky Agricultural Development Fund in innovative proposals that increase net farm income and effect tobacco farmers, tobacco-impacted communities, and agriculture across the state through stimulating markets for Kentucky agricultural products, finding new ways to add value to Kentucky agricultural products, and exploring new opportunities for Kentucky farms and farm products.”

Four of the ADB's Long-Term Plan Priorities appear to apply directly to the investments in Non-Model Projects:

- Priority #1– Marketing and Market Development
- Priority #4– Farm Family Education and Computer Literacy
- Priority #5– Supporting Local Leadership
- Priority #6– Research and Development

Therefore, the evaluation criteria for the Non-Model investments were focused on attempting to measure the performance of the funded projects in contributing to the attainment of the overall investment philosophy and the four priority goals. In each site visit and interview, participants were not only asked whether their project met its stated goals but also specifically asked to read the investment philosophy and indicate whether or not the ADB's use of funds was consistent with this philosophy. Detailed impact questions were included in the questionnaire to assess outcome and impacts of projects, including quantitative measurements, where possible. Although the Non-Model investments are a heterogeneous group of projects, all participants were asked to identify and explain the nature and extent of the following possible impacts of their project:

Created a new market for KY agriculture products
Provided support for agricultural entrepreneurship
Increase net farm income
Developed new products

Added value to KY agriculture products
Expanded an existing market for KY agriculture products
Enhance an existing farm enterprise
Created new jobs in the economy
Enhanced the viability of young farmers
Enhanced the viability of part-time farmers
Helped tobacco farmers
Helped tobacco-impacted communities

Based on data in the project files, information from the site visits and survey questionnaire, and analysis from Expert Groups, the performance of the Non-Model investments is measured and reported in this evaluation in three separate dimensions: (1) New Markets or Expansion of Existing Markets, New Products, New Jobs, Farm Income Generation, Leveraged Resources, Entrepreneurial and Leadership Development, Education and Computer Literacy, Youth, and Tobacco Farmers; (2) Ranking of all Large and Medium Non-Model Projects based on achievement of goals and documented impacts to-date; and (3) Estimated impacts on key sectors of Kentucky's agricultural economy (Livestock, Horticulture, Value-added Processing, Marketing and Promotion, Education and Leadership).

Survey Questionnaire

A survey was developed by team members to gather information from project fund recipients regarding their project's activities and results. The survey questionnaire included several sections about the project and participation with the agricultural development fund. Survey sections included background information about the project and project objectives, qualitative information about the Agricultural Development Board investment philosophy and investment priorities, specific contributions to expected impacts of the project, and opinions about the agricultural development proposal process and the role of Agricultural Development Funds in carrying out the project.

The survey was tested in the initial interviews, and minor modifications were made to make it consistent with the information needed to assess the projects. The use of the survey form allowed the interviewers to collect the same information from all of the fund recipients, and standardize the interview process for all projects. The survey is included in the appendix.

Information was collected regarding specific results and impacts achieved by each project in a separate impacts table. The impacts table summarized specific project impacts and when combined, was used to estimate the total impacts of all of the ADF investments. Additional documentation of results and impacts was also collected if it was available from the individual projects.

Site Visits and Interviews

A total of 89 personal interviews were conducted with recipients of ADF non-model project funds including all 33 medium (\$100,000 - \$499,000) and 31 large (\$500,000 and over) projects that

were awarded state funds from 2001 - 2006. Interviews were conducted on site, using the standard survey form. The interviews of large and medium projects were conducted during the summer of 2007 by the UK Evaluation Team. Small project site visits and interviews and County Council interviews were conducted in 2008.

Conducting the interviews on site provided several advantages for the evaluation. The interviews were conducted in a familiar setting for the award recipients. In most cases, the UK Evaluation Team participants were able to see first hand the nature of the project activities. This approach also minimized the time that the respondents had to give for the interview due to not having to travel. Visiting all of the large and medium non-model projects and a sample of the small non-model project provided the evaluation team members with first hand knowledge of the nature of the Agricultural Development Fund projects.

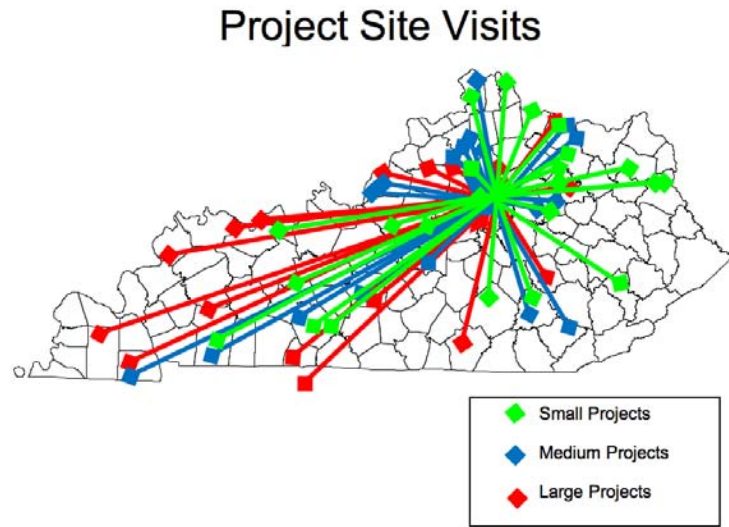


Figure 2: Large, medium, and small non-model project site visits.

Survey Briefs and Impact Data

After each survey visit, a detailed survey project brief was compiled for the project. This brief included the amount and type of the Agricultural Development Funds received, a description of the project, the project goals as stated on the project proposal, how the project addressed the four key questions of the evaluation effort, and what supporting documents were received regarding project operations and impacts ¹.

¹Copies of abbreviated survey project briefs are attached in Appendix B.

Survey Results

Survey Response Summary

Respondents were asked to review the statement of investment philosophy of the Agriculture Development Board and were asked if they agreed that the ADB's use of funds has been consistent with this philosophy. Over 70% strongly agreed that the use of funds is consistent with the investment philosophy.

Table 1: *Responses to: "Based on my experience, the Ag Development Board's use of funds is consistent with the Board investment philosophy."*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	81%	82%	48%	72%
Agree	13%	12%	40%	20%
Disagree	3%	3%	12%	6%
Strongly Disagree	3%	0%	0%	1%
N/A	0%	3%	0%	1%
Total	100%	100%	100%	100%

Six major priorities were identified by the Agricultural Development Board for project funding. Respondents were asked which of the main priorities does their project addresses. Three fourths of respondents (75% overall; 77% large, 61% medium and 92% of the small non-model projects sampled) identified marketing and market development as the main priority. Secondary priorities that the projects contributed to were research and development (30%), farm family education and computer literacy (34%), supporting local leadership (22%), improving access to capital (13%), and financial incentives for environmental stewardship (9%).

The ADB had also outlined several potential impacts that ADF projects might have. Project recipients were asked which of these potential impacts applied to their project. Most common impacts reported were: increased net farm income for local farmers (93%), provided support for agricultural entrepreneurship (83%), added value to Kentucky agricultural products (82%), and enhanced the viability of part-time farmers (81%). For each of the impacts that respondents indicated the UK Evaluation Team asked for more detailed information. Frequently projects had impacts recorded under several categories. Many of the projects did not have specific numbers for their impacts and many lacked documentation for impacts.

Respondents were asked about the status of meeting the project goals and objectives that were outlined in their agricultural development proposals. According to recipients, 48% of the large projects, 33% of the medium projects and 72% of the small non-model projects sampled have met all of their goals and objectives, while 48% of the large projects, 64% of the medium projects and 28% of the small non-model sampled have met some of their goals and objectives.

Table 2: Responses to: “The ADB has six major priorities or goals. Which of these is the main priority or goal that your project contributes to?”

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Marketing and market development	77%	61%	92%	75%
Improving access to capital	7%	12%	4%	9%
Financial incentives for environmental stewardship	0%	3%	0%	1%
Farm family education and computer literacy	10%	9%	4%	8%
Supporting local leadership	3%	3%	0%	2%
Research and development	3%	9%	0%	4%
N/A	0%	3%	0%	1%
Total	100%	100%	100%	100%

Table 3: Responses to: “Please identify which outcomes and impacts apply to your organization.”

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Increased net farm income for local farmers	97%	85%	100%	93%
Provided support for agricultural entrepreneurship	90%	82%	76%	83%
Added value to KY agriculture products	94%	67%	88%	82%
Enhanced an existing farm enterprise	84%	79%	84%	82%
Enhanced the viability of part-time farmers	81%	82%	80%	81%
Expanded an existing market for KY ag products	84%	67%	84%	78%
Created a new market for KY agriculture products	74%	64%	84%	73%
Created new jobs in the local economy	84%	70%	64%	73%
Enhanced the viability of young farmers	74%	76%	60%	71%
Developed a new agriculture related business	71%	64%	68%	67%
Developed new products	77%	48%	48%	58%
Supported local leadership development	61%	52%	52%	55%
Conducted new ag research and development	71%	58%	24%	53%
Made loans or grants to farmers	45%	12%	4%	21%
Increased farmer computer literacy	35%	12%	8%	19%

Respondents overwhelmingly felt that their projects have helped tobacco farmers and tobacco impacted communities (98% overall). Most project recipients also indicated that their projects had affected farm youth, although few of the projects had a specific youth component. Most of the impact on youth was related to impacts educational efforts and youth oriented organizations such as FFA, 4-H and vocational agriculture classes.

Table 4: *Responses to: “Have you met some or all of your goals and objectives outlined in your ADF proposal?”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Yes	97%	97%	100%	98%
No	3%	3%	0%	2%
Total	100%	100%	100%	100%
All	48%	33%	72%	50%
Some	48%	64%	28%	48%
None	4%	3%	0%	2%
Total	100%	100%	100%	100%

Table 5: *Percent of yes responses to: “Has this project helped tobacco farmers, and tobacco impacted communities?”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Tobacco farmers	100%	94%	100%	98%
Tobacco impacted communities	100%	94%	100%	98%

Table 6: *Responses to: “How many farm youth are affected by this project?”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
0	0%	9%	0%	3%
1 to 10	3%	24%	36%	20%
11 to 25	14%	7%	24%	14%
26 to 50	3%	9%	4%	6%
51 to 100	10%	6%	8%	8%
More	35%	15%	12%	21%
N/A	35%	30%	16%	28%
Total	100%	100%	100%	100%

Some of the project recipients received outside technical assistance at some stage of their project development or implementation. Slightly less than half of all of the projects received assistance with proposal preparation (32% of large, 55% of medium, 48% of small sample). During initial project implementation, most common types of outside technical assistance were in the areas

of financial planning and marketing. Almost half the large and medium sized projects responded that outside help was enough, while only one-quarter of the small projects felt they had enough help during the project implementation phase. (Table 7)

Table 7: *Responses to: “What type of outside assistance did you receive during the initial implementation of your project?”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Preparing proposal	32%	55%	48%	45%
Initial implementation	35%	52%	24%	38%
Financial planning	45%	18%	12%	26%
Marketing	32%	42%	12%	30%
Crop or livestock production	35%	27%	20%	28%
Processing	29%	21%	24%	25%
Product development	26%	15%	8%	17%
Leadership development	42%	3%	12%	19%
Other	26%	12%	16%	18%

Respondents were also asked a series of opinion questions about Kentucky’s use of the Agricultural Development Funds and the process of implementing their projects. (For the responses to all of the opinion questions, see following tables.) Ninety-one percent of those interviewed either agreed or strongly agreed that the agricultural development fund money was a critical component to starting the projects. Eighty-six percent agreed or strongly agreed that the business or project would be able to continue after the agricultural development fund money has ended. With regard to the agricultural development funds in Kentucky, 98% of those interviewed agreed or strongly agreed that the Agricultural Development Fund investments have benefited Kentucky and 96% agreed that the agricultural development fund investments have been an effective use of tobacco settlement (Master Settlement Agreement) funds.

Table 8: *Responses to: “The ADF money was a critical component to starting this project.”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	81%	79%	64%	75%
Agree	13%	18%	16%	16%
Disagree	3%	3%	12%	6%
Strongly Disagree	3%	0%	8%	3%
N/A	0%	0%	0%	0%
Total	100%	100%	100%	100%

Table 9: *Responses to: “My business or project will be able to continue after the ADF money has ended.”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	69%	64%	60%	65%
Agree	16%	24%	28%	22%
Disagree	6%	9%	4%	7%
Strongly Disagree	6%	3%	4%	4%
N/A	3%	0%	4%	2%
Total	100%	100%	100%	100%

Table 10: *Responses to: “The ADF investments have benefited Kentucky.”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	81%	82%	72%	79%
Agree	19%	12%	28%	19%
Disagree	0%	0%	0%	0%
Strongly Disagree	0%	0%	0%	0%
N/A	0%	6%	0%	2%
Total	100%	100%	100%	100%

Table 11: *Responses to: “The ADF investments have been an effective use of tobacco settlement (MSA) funds.”*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	65%	70%	60%	65%
Agree	35%	24%	36%	32%
Disagree	0%	0%	4%	1%
Strongly Disagree	0%	0%	0%	0%
N/A	0%	6%	0%	2%
Total	100%	100%	100%	100%

Analysis of Impacts from Non-Model Investments

This evaluation focuses upon the outcomes and impacts of the Agricultural Development Fund projects. The UK Team specifically avoided the use of the term “successful” or “unsuccessful” to describe projects because of the subjective nature of the term. Most projects in the study had positive outcomes. Most projects in the study also achieved at least some of the objectives of their project proposals. Some projects did not maintain all of their outcomes in the long term. However, one must also consider that the nature of the Agricultural Development Fund and its funding goals included projects that were innovative, new to Kentucky, and often were accompanied by some risk in achieving the project objectives.

Thus, even for projects that did not achieve all of their objectives or did not continue to operate in the long term, there were still lessons learned and often many positive indirect outcomes. Some of the projects to form cooperatives are examples of this. Most of the co-ops that were funded are no longer operational. However, much was learned about how co-ops can and cannot function in Kentucky. Farmers continue to produce and sell many new products that otherwise they would not have, if the co-op projects had not been implemented. Therefore, rather than labeling individual projects in this evaluation as successful or unsuccessful, we leave it to the readers to determine whether in total the Agricultural Development Fund programs have been successful or not.

Expert Groups

To assist in analyzing major impacts of the Non-Model investments, the UK Team assembled five different groups of well-informed individuals who could potentially evaluate the consequences of the Non-Model investments. There were five different expert groups, focused on Horticulture, Grains, Cooperatives, Livestock, and Marketing and Promotion. Approximately ten to fifteen experts in each area were invited to attend the meetings. These experts included academic specialists in each field, industry professionals, Farm Bureau members, and relevant organization’s representatives. Some experts are affiliated with ADB funded projects and some are not. The complete list of attendees at each expert meeting is included in Appendix C.

The objective of these meetings was to help answer the key question: “Where would Kentucky Agriculture be without the ADF investments?” Each group was asked to examine the summary brief compiled for each project and the indicated impacts. Discussions at each meeting focused on the impacts on the industry by all related projects. Projects were categorized by agriculture sectors. Some projects were discussed at more than one meeting if they fell into more than one category.

Each expert meeting began with a short introduction of the team members and invited experts and an overview of the team’s work to date. The experts were then given packets to review with briefs on all projects to be discussed. After the participants had time to review the information, a short presentation about the industry trends was then given. Following this presentation, a discussion of the projects and their impacts on the industry began and continued for the duration of the meeting.

The Horticulture expert meeting took place on November 9, 2007. Fourteen experts were present to discuss twelve projects totaling \$23,629,836. All the people present felt that the ADF investments have had positive impacts on the Horticulture industry. In fact one suggested that more than half of the growth in the Horticulture industry could be attributed to ADF investments. Most also felt that the majority of these impacts could not have happened without the ADF investments. ADF investments in Horticulture were successful because they focused on three key areas - education, infrastructure, and marketing and promotion. The group agreed that the Horticulture Council and the Grape & Wine Council have produced great impacts on the industry from their ADF money. Many also felt that although most of the cooperatives have dissolved, they had positive impacts because many of the former members individually continue to grow produce and nursery crops. Cash receipts for produce farm marketings were noted to have increased 70% during the ADF funding period (2001–2006).

The Grains expert meeting took place on November 20, 2007. Ten experts were present to discuss five projects totaling \$12,954,669. All five projects have had positive impacts on-farm income to varying degrees. Several projects have created new markets in the state as well. The grain related project impact results have been incorporated into the value-added category of projects for this report.

The Cooperatives meeting took place on November 21, 2007. Eleven experts were present to discuss eight projects that totaled \$10,222,743. Although all but two cooperatives have ceased operations, they have had and continue to have positive impacts because many former members are still growing produce, nursery and aquaculture crops on an individual basis. Many in the group felt that the cooperatives were given unattainable expectations and too short a timeframe for success. In some cases the co-ops had poor business plans, and underestimated the importance of sound management. Both of these factors contributed to the co-ops demise. However, the big picture is that the cooperatives have contributed to agriculture diversification away from tobacco. This was accomplished by providing education, technical assistance and marketing support for new growers.

The Livestock meeting took place on November 29, 2007. Nine experts were present to discuss 18 projects totaling \$18,528,073. The livestock projects were discussed by sector; aquaculture, beef, dairy, goat and sheep, horse, pork, and poultry to help facilitate discussion. Most felt that ADF investments in the Livestock industry have been very successful and would not have happened without the investments. The Beef Network in particular has had a very positive impact by providing education, technical assistance and marketing support for beef cattle production. Several of the livestock projects appear to have great potential but are too new to have confirmed impacts.

The Marketing and Promotion meeting took place on December 13, 2007. Ten experts were present to discuss three projects totaling \$10,620,861. Everyone present felt that the Kentucky Proud program has been extremely successful and has had a large and positive impact. Many of these impacts can be seen at the family farm level. Much of these impacts can be attributed to the Kentucky Department of Agriculture and their staff. Allied Food Marketers West has also contributed to the success of the Kentucky Proud program. A major concern for many individual producers was the desire to preserve individual identity of their products within the Kentucky Proud promotion. A similar concern of these producers was the promotion of the Rebekah Grace Company as the primary marketing and logistics solution offered to independent producers. For those businesses wanting to maintain their own product's identity this was not a solution to their

logistics problems. Logistics was mentioned repeatedly as a significant barrier for independent producers trying to service their wholesale and retail customers.

One reoccurring concern at all of the expert meetings was the competing objectives among some projects. For example, the ADB has funded multiple compost, shrimp hatchery, and grain processing projects which have resulted in some negative competitive impacts. Several projects were started in close proximity to an existing and previously funded ADF project that would have to compete for the same customers. Several experts, as well as project participants, felt the ADB should take these cross-competitive impacts into consideration during project feasibility analysis.

Review of Major Specific Impacts

The UK Team devoted specific efforts to documenting the important potential impacts from all the large, medium and small investments. The purpose was to address Key Question #2, “What have been the quantitative and qualitative impacts of the ADB investments?” During site visits and interviews, specific questions were asked and information was collected on the following potential impact categories: New Markets or Expansion of Existing Markets, New Products, New Jobs, Farm Income Generation, Leveraged Resources, Entrepreneurial and Leadership Development, Education and Computer Literacy, Youth, and Tobacco Farmers.

Using survey interview data, site visits, input from the Expert Groups, and other documentation, an attempt was made to quantify the impacts of the Non-Model investments. The large and medium projects were analyzed individually but the UK Team identified a representative sample of the 111 small non-model projects (<\$100,000) for analysis. In order to quantify the potential impacts from all 111 small non-model investments, results from the sample interviews were multiplied by 4.343 in order to extrapolate the estimated impact of small non-model investments.

New and Expanded Markets

New markets created or existing markets that were expanded as a result of the ADF non-model small, medium and large projects were tallied by category and size of the project award. One hundred forty eight markets were created or expanded as a result of the non-model funding (Table 12).

The horticulture sector created the largest number with sixty-one new or expanded markets. The small non-model investments created most of the new horticulture markets. Typically the small non-model projects are individual small businesses such as wineries and roadside markets that also purchase local farm products for their use or sale. The larger horticulture investments tended to involve multiple horticulture producers who market their products together. Examples include three new produce markets; the Buffalo Trace Produce Auction, Bath County Produce Auction and the Southeast Kentucky Agriculture Cooperative. Four wholesale vegetable marketing co-ops were also awarded ADF money for expansion purposes. Jointly the produce co-ops found wholesale markets and shipped fresh produce to customers in 23 states. Two other large projects that had horticulture components were the Kentucky Department of Agriculture Marketing Office and the

Table 12: *Estimated number of markets created by project category and size.*

	New or Expanded Markets			
	Large	Medium	Small	Total
Livestock	5	4	22	31
Horticulture	7	2	52	61
Marketing	18	1	22	41
Value-Added	5	6	4	15
Other	0	0	0	0
Total	35	13	100	148

Kentucky Horticulture Council. Both of these projects developed new markets for Kentucky grown produce and nursery crops.

The marketing and promotion projects created the second most new or expanded markets (41). Most of these are small non-model projects that are individually owned and benefited from promotional efforts that advertise their agri-tourism business. The large non-model projects in the marketing and promotion sector were created to promote Kentucky food and agricultural products to consumers. For example, some of the market development project successes include: an expanded retail market for Kentucky Proud products (Kentucky Proud products in over 100 retail stores), a new market for Kentucky products with Levy Restaurant at Churchill Downs, the promotional work of the Kentucky Grape & Wine Council to expand the markets for Kentucky wine, Kentucky Department of Agriculture (KDA) and Allied Food Marketers West tradeshow promotions both in and out of state to develop new markets for a wide variety of Kentucky agriculture or food products, expanded restaurant markets with the Restaurant Rewards Program, and the expanded markets for locally grown items at farmers' markets through out the state. An exact count of new or expanded markets for each product or outlet utilized is not possible. Obviously the nature of marketing campaigns is to broaden market access and improve sales of existing outlets. There is evidence that this is happening and having a very positive impact.

The livestock sector created thirty-one new or expanded markets for their products. Three new and potentially large markets were created for Kentucky grown livestock; Processed Verified Program (PVP) Cattle (60,000 head of cattle), Little Kentucky Smokehouse making hams and purchasing Kentucky hogs, and the Purchase Area Aquaculture Co-op processing and marketing Kentucky grown catfish. Six livestock markets that involved many different farmers were expanded. The market for Kentucky Feeder Cattle was expanded greatly through CPH-45 sales (516% increase from 2000 to 2006). Other expanded markets include: contract raising of over 6,000 dairy heifers, two aquaculture processing and marketing ventures and two USDA inspected slaughter facilities funded to expand the opportunities to direct market meat.

The value-added processing sector created fifteen new or expanded markets for Kentucky agriculture products. This was generally accomplished by purchasing Kentucky agriculture products and transforming them into new value-added products such as naturally cured hams, ethanol, cider, wine, shelf-stable foods and industrial products.

Examples of New Markets:

Seimer Milling—new market for low quality wheat to make industrial glue products
 Little Kentucky Smokehouse—new market for Kentucky hogs to make naturally cured hams
 Horticulture Council—New markets developed in northern states for Kentucky nursery crops
 Beef Network—New markets developed for Process Verified Program (PVP) Cattle
 Roundstone Native Seed—New market for native seed production

Examples of Expanded Markets:

Evans Orchard—expanded market for apples to make cider
 Beef Network—Expanded markets for Kentucky feeder cattle with CPH-45 sales
 Boones Abattoir—Expanded market access for direct meat marketing by farmers
 KDA & Allied Food Marketers West—expanded retail markets for Kentucky Proud Products
 Kentucky Forage & Grasslands Council—Expanded market for quality hay

New Products

The ADF funded non-model projects created an estimated 522 new products (Table 13). The different types of products created as a result of ADF investments is wide. This is not surprising given the range of projects that were funded. Only actual new products and new services were counted in the estimate. Projections and plans for new products were not included.

Table 13: *Estimated number of new products by project category and size.*

	Products			
	Large	Medium	Small	Total
Livestock	15	6	30	51
Horticulture	31	40	239	310
Marketing	34	0	0	34
Value-Added	17	5	78	100
Other	11	16	0	27
Total	108	67	347	522

In livestock, new aquaculture products include frozen prawn tails, catfish, hybrid striped bass, Kentucky Spoonfish Caviar, marinated spoonfish fillets, and juvenile prawns for pond stocking. Other products include processing and retailing goat, lamb, buffalo, pork, beef, and rabbit processing, Kentucky smoked hams and ready-to-eat meal products, and poultry chicks and supplies. New services include electronic tagging of beef cattle for age, source, and process verification, milk improvement educational programs and services for Kentucky dairymen.

New products in horticulture include new produce varieties, two compost products, new wines, various value-added apple products, disease resistant and locally adapted queen bees, bee pollination services, starter bee hives, a special decision support system for grape growers, blue-

berries, and blackberries. New products from co-op projects include sorghum suckers and syrup, lettuce packing, personal size watermelons, celery, ornamental and deciduous shade trees.

In marketing, new products include bottled milk, salsa, apple butter, and some Rebekah Grace products. In value-added they include bagged deer corn, ethanol, dried distillers grain, carbon dioxide and crude corn oil for poultry feed, soy oil, soybean meal and soy hull pellets, and new glue products made from wheat.

Examples of New Products:

Seimer Milling—Industrial glue products made from KY wheat
Little KY Smokehouse—Naturally cured hams and fresh meal solutions
Roundstone Native Seed—Native grass and forbs seed
Ale-8-one salsa made with KY grown produce
Katelyn’s Honey—Private label products: salsa, tomato sauces, apple butter, relishes, jams, etc.
Commonwealth Agri-energy—Ethanol, crude corn oil, and distillers grain products
Evans Orchard—Private label apple cider
35 Active KY Wineries—Producing over 60,000 cases of Kentucky made wines
Thoroughbred Shrimp—Aquaculture seed stock: prawns, large bass, striped bass, and tilapia
Four Seasons Marketing—Livestock mineral products
Rebekah Grace—150 Kentucky made food products marketed to retailers
Central KY Growers Co-op—Romaine lettuce
Shrock Dairy—Bottled milk

Finally, new products in the other category include licking blocks, tubs and bagged minerals for livestock, technical assistance for accounting and business development, hydroponic tomatoes, new hay certification, custom vocational agriculture curriculum, new native seed lines, and several other value-added food products.

Farm Income Generation

One of the investment criteria stipulated by the ADB was to affect net farm income in a positive way. Net farm income refers to income after all expenses have been paid. Ultimately a farm business will not be able to survive unless it can generate enough net farm income to reward the owners and operators sufficiently to continue operations. The UK Evaluation Team had no way to winnow out net farm income from each project participant or customer. Instead we attempted to estimate the gross farm income generated by each project on an annual basis. Estimates were derived from sales data collected by the UK Evaluation Team from the projects, GOAP reports on file, expert group sessions and individuals with first hand information. Based on the above information annual farm income generated by the ADF large, medium and small non-model projects is estimated to be \$42.5 million in 2006 (Table 14). As a cross-check, rounding this annual farm income estimate to \$40 million, results in an estimated 1% increase in Kentucky’s current \$4 billion agriculture economy. Intuitively this appears to be an estimate of impact that is plausible given the size of the ADF investments and the extent of the agriculture industry in Kentucky. The small, medium and large non-model projects required an investment of approximately \$86 million over the six year period. The resulting total farm income estimated from these investments amount to

\$161 million dollars over the period of 2001–2007. (Note: Not all projects included in site visits were in operation for the entire period.) This amounts to \$1.87 in farm income generated for every \$1 of ADF money invested in large, medium and small non-model projects.

Looking at the large project investments separately, an investment of \$74.3 million of ADF funds resulted in farm income generation of \$136.4 million or a return of \$1.84 per one dollar of ADF funds spent. The medium non-model projects required an investment of \$7.9 million and returned \$12.2 million in farm income or \$1.55 for every one dollar of ADF funds spent. The small non-model projects received \$4.3 million in funding and are estimated to have generated \$12.8 million in farm income, or \$3.00 for every one dollar of ADF funds invested. Assuming the sample showed representative results for this level of investment, the smaller funded projects generated the most farm income per dollar invested from the ADF. The small non-model survey results do indicate that small non-model projects are effective in generating farm income at a greater rate than most of the large or medium projects combined.

The largest farm income generator was the livestock sector of ADF investments, estimated to be approximately \$18 million per year. The Kentucky Beef Network and the Kentucky Cattlemen's Association projects are estimated to have produced the most new farm income from livestock. Another successful livestock income generator is the Little Kentucky Smokehouse which purchases over one million hams annually, the majority of which are from Kentucky raised hogs.

The next largest farm income generator was the marketing and promotional sector with an estimated \$8 to 12 million in new farm income generated annually. Dr. Harry Kaiser from Cornell University was hired as a consultant to the UK Evaluation team. Dr. Kaiser was asked to estimate the impact of the Kentucky Proud state branding campaign and the impact of Allied Food Marketers West technical assistance and promotional work. Dr. Kaiser concluded that the Kentucky Proud state branding program run by the Kentucky Department of Agriculture is having a positive impact of generating new farm income, with an estimated \$2.89 to \$4.65 of farm income generated for each dollar spent on the program. In looking at results from commodity promotional programs both at the national and international level, it was determined that the returns to technical assistance expenditures are typically not as large as returns to promotional campaign investments in terms of income generated per dollar invested. Dr. Kaiser estimated the returns to technical assistance to be \$2.86 in additional farm income generated for each dollar invested in technical assistance. The UK Evaluation Team cross-checked these results with additional farm income estimates for each project. The results from combining the projects yielded a return of \$3.19 in additional farm income (for the period 2001–2007) per dollar invested from the ADF.

The value-added sector projects have resulted in an estimated \$6.1 million increase in farm income. The projects generating the largest additional farm income are purchasing commodity grains and converting them to ethanol, bio-diesel, industrial glue products, soy oil and soybean meal. The Commonwealth Agri-energy Cooperative returned exceptional patronage dividends to its farmer members during the first three years of operation (44 cents to \$1 per bushel). The cooperative ownership structure has facilitated more farm income generation as profits have flowed back to the farms from their ownership stake in the business. Current high grain prices have reduced the profitability of ethanol production. Experts estimate there is approximately \$7.00 worth of ethanol per bushel of corn. With corn prices over the \$5.00 mark it is difficult to make a profit processing ethanol at this time. Several other value-added businesses that received ADF

assistance pay a premium above market price when purchasing Kentucky agriculture products. In many cases the ADF award was structured as a forgivable loan with the forgiveness mechanism a set write-down on the premiums paid per bushel or the amount of produce purchased from Kentucky farmers.

The horticulture sector projects have increased farm income by an estimated \$7.5 million. The largest income generators were the five produce marketing cooperatives and the Kentucky West Nursery Co-op. Together these horticulture projects generated approximately \$2.7 million in new farm income annually. For reasons discussed further in the horticulture impacts section, all but two of these cooperatives have ceased operations. However, neither produce nor nursery crop farm cash receipts have declined in the post horticulture co-op era. This is because most of the former co-op growers have continued to produce and market horticulture crops. The other horticulture project that is having a positive impact on farm income is the Horticulture Council, which is estimated to have generated approximated \$2.5 million in additional farm income annually. The main effects of the Horticulture Council have been to expand the knowledge and skills of new and existing fruit, vegetable, greenhouse and nursery producers through focused on-farm, regional and university research trials and consultations and focused marketing assistance from the Kentucky Department of Agriculture. The technical knowledge and experience of Kentucky’s horticulture producers has been greatly improved, resulting in more farms producing horticulture crops successfully. This is evidenced by a 47% increase in horticulture cash receipts in Kentucky from 2001 to 2006. This is 21 percentage points over the national horticulture cash receipts statistics (see the horticulture impact section for further discussion).

Table 14: *Estimated annual additional farm income generated (2006 estimates).*

	Farm Income Generated Annually			
	Large	Medium	Small ^a	Total
Livestock	\$15,440,000	\$2,534,833	\$1,903,463	\$19,878,296
Horticulture	\$5,642,611	\$108,500	\$1,821,889	\$7,573,000
Marketing	\$8,633,333	\$150,000	\$66,231	\$8,849,564
Value-Added	\$5,254,000	\$557,588	\$325,725	\$6,137,313
Other	\$23,000	\$52,500	\$0	\$75,500
Total	\$34,992,944	\$3,403,421	\$4,117,308	\$42,513,673

^a Small project results extrapolated from sample.

New Jobs

Jobs created by ADB projects are classified here as either part-time year-round, part-time seasonal, full-time year-round, full-time seasonal, or non-specific. The total number is underestimated since in several interviews respondents indicated jobs had been created without providing any specific numbers. These were jobs created directly as a result of projects; many more jobs have been created indirectly from ADF investments.

The larger number of small non-model projects (111), not surprisingly, created the greatest number of jobs. There was almost twice as many jobs created by the 31 large projects than the 33 medium projects. Clearly, the small non-model projects have been especially successful in creating jobs at low investment costs to the ADF. (Table 15).

Table 15: *Estimated number of jobs created by project size.*

	New Jobs			
	Large	Medium	Small ^a	Total
Part-time year-round	20	28	65	113
Part-time seasonal	0	11	304	315
Full-time year-round	255	69	165	489
Full-time seasonal	190	29	178	397
Total	465	137	712	1314

^a Small project results extrapolated from sample.

The most jobs were created in the horticulture sector (501), followed by the livestock sector (412). The value-added sector produced the most full-time year round jobs (184). These jobs can have a significant effect on local economies, especially in rural areas. Nearly 35% of the jobs created were full-time year round and many provide benefits. Few jobs were created by the two large marketing projects. However, job creation may not be a good indicator of a project's impact. Furthermore, creating jobs was not a primary goal for those projects. Overall, the impact of the ADF investments on job creation has been significant. (Table 16).

Table 16: *Estimated number of jobs created by project category.*

	New Jobs					
	Livestock	Horticulture	Marketing	Value Added	Other	Total
Part-time year-round	67	23	17	4	0	111
Part-time seasonal	93	102	5	117	0	317
Full-time year-round	100	157	184	12	35	488
Full-time seasonal	152	219	13	13	0	397
Total	412	501	219	147	35	1314

Overall, the impact of the ADF investments on job creation has been significant. Nearly 90% of the jobs created were full-time and many provide benefits. In terms of return on investment, the average annual cost for each job created is less than \$15,000. This is considerable given that the long term individual and social benefits of a full-time job with benefits far exceed the one time cost of these investments.

Tobacco Farmers

One of the main tenets of the Agricultural Development Fund is to develop alternative farm enterprises other than tobacco. It follows suit that tobacco farmers should be involved in new agriculture opportunities developed with the ADF investments. In order to focus assistance to this group, many of the forgivable loan provisions developed for the ADF funded projects state that tobacco farmers will be provided services or products at a reduced cost. In some cases it is stipulated that ONLY tobacco farmers can participate. An example of the latter is the computer and welding courses offered exclusively to tobacco farmers by the Kentucky Community and Technical College System. Other examples are livestock processing discounts only for tobacco producers and ADF loan forgiveness based on purchasing products from tobacco farmers. The UK Evaluation team was informed during several different interviews across the state that the focusing of monetary benefits solely to tobacco farmers has created hard feelings in some communities. This exclusion is being implemented commonly by non-model projects and sometimes by County Councils. The debate, then, is whether to specifically help tobacco farmers or to help all farmers wherever agricultural income and diversification opportunities may exist.

It is impossible to get an exact count of how many current or former tobacco farmers have been impacted by the ADF investments. Each of the non-model projects was asked during the interview and site visit, “have they impacted tobacco growers and if so how many”. Depending on the nature of the project, we would get back either a specific number of farmers or a very broad estimate of approximately what percent of their customers or members were tobacco growers. Using the project interviewee’s estimates, approximately 50,000 tobacco farmers have been impacted or involved in some way with the ADF large, medium and small non-model programs (Table 17). This may be an over-estimate, because producers could have been involved in more than one non-model funded program at the same time, such as a cattleman who also has a horticulture enterprise, attended a community college training program or was a member of the KY Proud marketing effort. The Kentucky Beef Network and the Kentucky Cattlemen’s Association have had an impact across the entire Kentucky beef industry. They estimate that three-fourths of the Kentucky’s 40,000 cattle producers have also raised tobacco at some time.

Table 17: *Estimated number of tobacco farmers impacted by project category and size.*

	Number of Tobacco Farmers			
	Large	Medium	Small ^a	Total
Livestock	31,376	3,446	1,373	36,195
Horticulture	4,362	256	573	5,191
Marketing	2,390	19	213	2,622
Value-Added	3,762	353	43	4,158
Other	1,665	244	0	1,909
Total	43,555	4,318	2,202	50,075

^a Small project results extrapolated from sample.

Overall, the large projects have had the most impact on tobacco farmers. This is due to the larger number of farmers affected by these projects, not to focusing specifically on tobacco farmers. Large groups that have been impacted by projects include: beef and dairy producers, forage producers, corn and soybean growers, goat and sheep producers, horticulture farmers and Kentucky Proud program participants.

In summary the ADF investments impacted a large number of Kentucky tobacco farmers by involving them in other agriculture opportunities being developed with the assistance from the Agriculture Development Fund.

Part-time Farmers

There were more part-time farmers impacted by the various projects in the livestock category than in any other. In livestock more than 32,000 part-time farmers were impacted, while in horticulture there was an estimated 3,746 (Table 18).

Table 18: *Estimated number of part-time farmers impacted by Project category and size.*

	Number of Part-time Farmers			
	Large	Medium	Small ^a	Total
Livestock	30,028	1,943	521	32,492
Horticulture	2,245	251	1,250	3,746
Marketing	2,390	25	343	2,758
Value-Added	100	286	25	411
Other	3,310	2,456	0	5,766
Total	38,073	4,961	2,139	45,173

^a Small project results extrapolated from sample.

Youth

Several projects directly impact youth and many others do so indirectly. Although monetary (farm income) impacts on youth are not a large component of the ADB funded projects, educational programs have certainly made a positive impact from many youth contacts (100,000+). Seven large and medium projects with over \$10 million in ADB funding either focused on impacting the youth of Kentucky or have had a direct impact in some way (Table 19).

Some highlights of youth impacts from these projects include:

- Kentucky FFA, Inc. used approximately 25% of their funds for Project LEAD which went to youth scholarships in 2005. FFA also matched grants to local FFA chapters for Ag curriculum and computers. There are approximately 14,000 FFA

Table 19: *Estimated number of youth impacted.*

	Number of Youth			
	Large	Medium	Small ^a	Total
Livestock	50,000	767	521	51,288
Horticulture	291	64	70	425
Marketing	20	80	343	443
Value-Added	520	100	25	645
Other	23,025	24,243	0	47,268
Total	73,856	25,254	959	100,069

^a Small project results extrapolated from sample.

members in Kentucky from 115 counties and FFA camps host between 1,500 and 1,800 youth per year.

- Friends of Kentucky 4-H, Inc. hosts a Biotechnology camp where youth conduct research and development. 4-H also has a Science, Engineering, and Technology (SET) initiative, project power point, and a GIS project geared toward youth in the state. All of these programs combined affect approximately 7,000 youth from 2,149 families in 99 counties.
- The Kentucky Cattlemen’s Association provides Ag education in approximately 200 to 300 schools throughout the state. They also provide and/or support programs through COSI, the state fair, and Gourmet Garden. These programs reach thousands of youth.
- The Kentucky Vocational Agriculture Teachers Association provides a modern agriculture curriculum to 24,000 Ag students across the state.
- The Kentucky Dairy Development Council supports the Kentucky KATE program, which is a demonstration effort, geared to youth to educate them about the dairy industry. 125,000 people see the exhibit at events throughout the year.
- The UK Research Foundation Entrepreneurial Coaches program challenges youth to create inventions and enter a writing contest about entrepreneurship. Around 100 students have participated in these challenges.
- The Community Ventures Corporation has a Farm Youth Program where they make loans to high school students for on-farm projects, equipment, or infrastructure. So far they have made 11 loans to 6 youth in Taylor County.

Forty-eight large, medium and small projects have had a variety of indirect effects on Kentucky youth. Indirect effects include: youth involved in a project, a project financially supports youth programs, youth are employed (mostly part-time) by an ADB recipient, youth are a part of the farm families effected by projects, youth are educated through project demonstrations or a project being part of the Kentucky State Fair, youth have been a part of agri-tourism by visiting or touring project sites and related activities.

A select group of major impacts from the state non-model investments are summarized in the following table. There were positive impacts for all sizes of non-model investments. These investments had an impact across all of the sectors of agriculture that were evaluated.

Tobacco Impacted Communities

The \$86 million invested in non-model projects has generated additional farm income of about \$42 million per year (or approximately \$161 million over the study period). Since most of the non-model projects were located in rural areas, there has been an obvious secondary impact on businesses and institutions in many rural Kentucky communities. The non-model projects created additional output and jobs as a direct impact of the investment. The secondary impact in the communities comes from purchases of inputs, related jobs, and new income created among all of the businesses associated with the operation of the new non-model project.

The secondary impact of the non-model investments can be measured by economic multipliers. Dr. Alison Davis at UK has estimated various multipliers using IMPLAN data to analyze agricultural industries (see “The Importance of Agriculture” by Dr. Davis, UK Department of Agricultural Economics, 2007). For production agriculture, the value-added (or income) multiplier for Kentucky is 2.02 and for agri-processing businesses, the multiplier is 2.21. Therefore, the IMPLAN data for Kentucky suggest that when production agriculture realizes a \$1 change in income, total income in the study area changes by \$2.02.

Most of the non-model investments have been related to production agriculture or agri-processing and located in central and western Kentucky counties. Thus, the rural community impact of the \$86 million invested in non-model projects, based on the \$161 million of additional income generated, is about \$325–355 million. This is a measure of the impact on the rural communities from the ADF investments in non-model projects. Since the multiplier effect will generally increase for the first three years and then begin to level-off, it can be expected that the positive impact on communities will continue 5–7 years after the project reaches full operation.

There are also employment multipliers which measure the number of new jobs created in industries and businesses linked to the new ADF-funded projects. However, job creation has been low and primarily seasonal or part-time. Only 488 of the estimated 1,300 jobs created by the non-model projects were “full-time, year round” jobs and these were created in a large number of locations. Thus, the UK Team did not feel it would be appropriate to use multipliers to estimate the indirect or secondary impact of job creation in communities.

The loss of tobacco production affected a large number of Kentucky communities, especially in eastern and central Kentucky where the historical marketing quotas were tied to land ownership. It is clear that the non-model investments have had some positive impacts on income in these communities where new projects have been created. However, it is also apparent that there has been relatively little non-model investment in counties in eastern and northeastern Kentucky. Since production agriculture is primarily small-scale and livestock-oriented, it would appear that assisting communities in these regions will require somewhat broader, community-based economic development activities which reach beyond production agriculture and value-added processing.

Leverage of ADF Funds

One of the ADF funding criteria is that most projects must at least match the ADF money awarded with a minimum of a dollar for dollar match. Over 70% of the participants interviewed indicated that the ADF money helped them leverage other funds and this was particularly the case on the large projects where 71% of the participants “strongly agreed.”

Table 20: *The ADF money helped me leverage other funds for this project.*

Response	Large (N=31)	Medium (N=33)	Small (N=25)	Total (N=89)
Strongly Agree	71%	45%	8%	44%
Agree	19%	24%	40%	27%
Disagree	6%	21%	32%	19%
Strongly Disagree	3%	3%	12%	6%
N/A	0%	6%	8%	4%
Total	100%	100%	100%	100%

When evaluating the overall efficiency of the ADF it is important to note the total amount of funds the projects included (leverage for ADF investment). During the course of project interviews, site visits, and referencing ADF applications and reports, the UK Evaluation Team identified approximately how much additional capital went into each project besides the ADF award. For the large, medium and small non-model programs an investment of \$86 million in ADF funds was made. This money was matched slightly over dollar for dollar by the projects with \$96 million of outside capital (Table 21). In some cases the match was a bank loan, in other cases it was capital contributed by the on-going business. In the case of public institutions, the ADF funds were matched in-kind with staff salaries and expenses. The large projects did not match the ADF investment dollar for dollar. Rather they matched \$0.95 cents per dollar of ADF funds. This is partly due to the \$4 million in ADF investments in youth groups which required no matching funds. The medium size projects leveraged \$2.14 per ADF dollar spent and the small projects \$2.01 per ADF dollar spent.

Additional leverage of the ADF investments occurred at the project level. Some projects level generated additional matching funds that were not measured for this report. It is likely that the numbers reported here is a conservative estimate of actual leverage. For example, the Kentucky Department of Agriculture matched the Kentucky Proud Program ADF grant with in-kind salary and expenses for their personnel. That amount is accounted for here. However, KDA went further and leveraged the Kentucky Proud advertising money by requiring participating retailers to provide matching funds for joint advertising. Many of the retailers over matched the KDA advertising money by paying for larger promotions and more media exposure. Another way that KDA was able to leverage additional advertising funds was to provide celebrity endorsements (which were donated at no charge to KDA) in exchange for the retailer’s commitment to pay for advertising that promotes Kentucky products.

Table 21: *Estimated additional funds leveraged.*

	Additional Funds Leveraged			
	Large	Medium	Small ^a	Total
Livestock	\$8,212,767	\$9,425,633	\$3,424,456	\$21,062,856
Horticulture	\$15,090,997	\$1,301,000	\$4,258,963	\$20,650,960
Marketing	\$5,329,300	\$249,171	\$677,508	\$6,255,979
Value-Added	\$38,118,309	\$3,836,192	\$243,208	\$42,197,709
Other	\$4,031,465	\$2,173,545	\$0	\$6,205,010
Total	\$70,782,838	\$16,985,541	\$8,604,135	\$96,372,514

^a Small project results extrapolated from sample.

The greatest leverage to ADF money occurred in the value-added processing sector. This is due to the size of the enterprises involved such as ethanol manufacturing, flour milling and bio-diesel production. These ventures require large capital investments of which the ADF money would be only a small part of the total financing needed. Approximately \$2.29 of additional funds was leveraged by the value-added sector for every \$1 of ADF invested.

In summary, the Agriculture Development Board’s investment criteria of requiring at least a dollar for dollar match for ADF funded projects appears to be met. All of the non-model projects together matched the ADF funding \$1.11 per one dollar invested.

Summary of Specific Impacts

The specific major impacts by project category and size are summarized in the following table. For all 175 non-model projects, the estimated annual additional farm income is \$42 million for a total income impact over 2001-2007 of \$161 million. That represents \$1.87 of farm income generated per dollar of ADB investment in non-model projects.

Large and Medium Project Rating System and Results

The Non-Model Projects represent a broad array of investments with widely diverse goals and activities ranging from large and small capital-intensive value-added processing (e.g., Little Kentucky Smokehouse, Commonwealth Agri-energy, Siemer Milling or Boones Abattoir); to technical assistance/education/marketing “packages” of assistance to a group of producers (e.g., Horticulture Council, Beef Network); to cooperative marketing projects for horticulture, aquaculture, or nursery crops; to purely educational/training programs (e.g., Digital Ag Curriculum, Welding and Diesel training). Since all the large and medium projects were visited by the UK Team, a rating system was developed to summarize relative performance despite the diversity in scale of investment or nature of activities.

Utilizing data from the survey questionnaires and information from the site visits, each investment was initially ranked based on activities initiated, goals achieved, and evidence of positive

Table 22: *Non-model projects specific impacts by sector and size 2001-2007.^a*

	No. of projects	Amount of Award (millions)	Amount Leveraged (millions)	Income Generated: ^b		Income Generated ^b per \$1 of Investment	New or Expanded:			Tobacco Farmers Impacted
				Additional Annual (millions)	Total 2001-07 (millions)		Markets	Jobs	Products	
Large/Medium Projects by Sector										
Livestock	18	\$18.5	\$17.6	\$18.0	\$58.3	\$3.15	9	117	21	34,822
Marketing and Promotion	3	\$10.6	\$5.6	\$8.8	\$33.9	\$3.19	19	8	34	2,409
Horticulture	12	\$23.6	\$16.4	\$5.8	\$32.0	\$1.36	9	232	71	4,618
Value-Added Processing	16	\$18.0	\$42.0	\$5.8	\$24.2	\$1.35	11	210	22	4,115
Education, Leadership, Other	15	\$11.4	\$6.2	\$0.08	\$0.24	\$0.02	0	35	27	1,909
Impacts by Sectors	64	\$82.2	\$87.8	\$38.4	\$148.6	\$1.81	48	602	175	47,873
Projects by Size										
Large Projects	31	\$74.3	\$70.8	\$35.0	\$136.4	\$1.84	35	465	108	43,555
Medium Projects	33	\$7.9	\$17.0	\$3.4	\$12.2	\$1.55	13	137	67	4,318
Small Projects ^c	111	\$4.3	\$8.6	\$4.1	\$12.8	\$3.00	100	712	347	2,202
Est. Total Impact	175	\$86.4	\$96.4	\$42.5	\$161.4	\$1.87	148	1,314	522	50,075

^a Projects that were awarded funds in 2007 are not included.

^b Estimates.

^c Small project results extrapolated.

impacts. Since some projects were only recently funded, no rating (NR) was given to projects which were not yet in full operation or implementation. The project rating system includes one to five “stars,” indicating relative performance in achieving goals and having positive impacts:

- ★ = *few or no goals accomplished; no positive impacts*
- ★★ = *most or all goals attempted; limited evidence of positive impacts*
- ★★★ = *most or all goals accomplished; evidence of positive impacts*
- ★★★★ = *all goals accomplished; clear, documented positive impacts*
- ★★★★★ = *all goals accomplished; evidence of sustained positive impacts; indications that benefits are greater than ADB investment*

As the Expert Groups were convened to assist the UK Team with additional perspective on key sectors of Kentucky’s agriculture, insights from those discussions were used to adjust the rankings for various projects. Five projects were given an NR-rating because of their recent funding date and short period of implementation.

The results of the project ratings are contained in the following tables. The general pattern of relative performance is a “normal” distribution centered on three stars. Nineteen of the 31 large projects and 20 of the 33 medium projects received a rating of 3, 4, or 5-stars, indicating strong performance on both goal achievement and documented positive impacts. Only 6 projects (8%) received a 1-star rating, indicating nonperformance. Some of these projects are defunct (e.g., KentuckyVirtual.com) or have abandoned implementation of project goals (e.g., Burns Larkin Farm, Pig Improvement Corp.).

In determining these project ratings, the UK Team was aware that there is a time-frame consideration in the emergence of outcomes. In the initial evaluation proposal, the evaluation model was presented that included short term, medium term, and long term outcomes. This was done because the ADF has only been operational since 2001, and projects included in the study have

been awarded through 2006. Current information was included, if available, through the time of the interviews, which occurred in 2007. The agricultural development fund, therefore, has not been in existence long enough to determine the final or long term impacts of most of the projects. Thus, this rating system should be considered “fluid,” recognizing the dynamic nature of the investments and potential outcomes. The reader should consider this evaluation as a picture of activities and progress in the summer and fall of 2007.

In gathering the evaluation data for the projects, the evaluation team did not categorize the outcomes and impacts as short term, medium term, or long term. Rather, all outcomes and impacts were considered to the extent that they were reached at the time of the evaluation study, during 2007. However, the model that recognizes that project impacts will continue to be realized over time is very important to remember. When looking at the project impacts reported in this study, it is also important to keep in mind the time frames of the ADF system as a whole as well as the time at which the individual projects received their funds. It must be recognized that the true long term impacts of agricultural development funds are still emerging, and that long term impacts will have to be determined by future studies in five years, ten years, or perhaps even longer.

Given more implementation time, certainly some of the 2-star rated projects have potential to reach a higher level of performance but most of the other projects with this rating have not been able to achieve goals and will not have appreciable impacts on Kentucky agriculture.

Table 23: *Large project performance ratings.*

Recipient	Project Description	Award	Year	Rating
Commonwealth Agri-energy	Ethanol Plant	\$9,311,000	2003	★★★★★
Kentucky Horticulture Council	Marketing and Technical Support	\$8,685,671	2001, 2003 & 2005	★★★★★
Kentucky Beef Network	Beef Cattle Marketing & Technical Support	\$8,545,863	2001	★★★★★
Kentucky Dept. of Agriculture	Marketing and Promotion	\$5,329,300	2003 & 2006	★★★★★
Little Kentucky Smokehouse	Ham Processing Expansion	\$1,950,000	2003	★★★★★
Siemer Milling	Wheat-based Glue Extender Facility	\$1,000,000	2004	★★★★★
Kentucky Cattlemen's Association	Collaborative Marketing	\$1,930,000	2003	★★★★
KCARD	Center for Cooperative Development	\$1,250,460	2001 & 2003	★★★★
Buffalo Trace Area Development District	Agricultural Revolving Loan Fund	\$1,000,000	2003	★★★★
Boone's Abattoir	Livestock Slaughter and Processing Facility	\$572,676	2004	★★★★
Kentucky Thoroughbred Owners and Breeders	MRLS Research I & II	\$501,200	2001 & 2003	★★★★
UK KECI	Entrepreneur Development	\$1,282,206	2003	★★★
Lake Cumberland Milling	Grain Milling	\$1,165,000	2004	★★★
Kentucky Community and Technical College System	Computers for Farmers - 2	\$1,155,000	2005	★★★
Central Kentucky Growers	Cooperative Management Recruitment and Equipment	\$1,033,988	2001 & 2004	★★★
KY Grape & Wine Council	Technical Assistance for Grape and Wine Production	\$785,125	2003	★★★
Creech Services	Compost Production Expansion	\$618,309	2005	★★★
Kentucky West Nursery Co-op	Nursery Stock Cooperative	\$26,350	2001	★★★
Allied Food Marketers West	Agribusiness Incubator Development	\$4,891,561	2005 & 2006	★★
West Kentucky Growers Cooperative	Cooperative Development and Expansion	\$3,760,326	2001	★★
Friends Of Kentucky 4-H	Youth Endowment Program	\$2,000,000	2001	★★
Kentucky FFA Foundation	Youth Endowment Program	\$2,000,000	2001	★★
Bath County Agricultural Extension Foundation	Agricultural Education & Marketing Center	\$1,520,000	2002 & 2003	★★
Green River Produce Marketing Cooperative	Cooperative Operating Capital	\$1,258,946	2001 & 2003	★★
Purchase Area Aquaculture Cooperative	Cooperative Storage and Handling Facility Improvements	\$1,191,525	2001	★★
Cumberland Farm Products	Cooperative Equipment and Operating capital	\$684,649	2001 & 2006	★★
Pig Improvement Company	Facility Construction	\$800,000.00	2004	★
Knotwood Craftsmen Investments Corporation	High-tech Woodworking Facility and Woodworking School	\$642,000	2005	★
Kentucky Dairy Development Council	Infrastructure Development	\$2,450,170	2006	N/A
Owensboro Grain Company	Biodiesel Facility and Equipment	\$1,151,250	2006	N/A
Kentucky Ag Heritage Center	Study and Design	\$1,000,000	2006	N/A

Table 24: *Medium project performance ratings.*

Recipient	Project Description	Award	Year	Rating
Burton Livestock	Dairy Heifer Custom	\$424,818	2006	★★★★★
Equus Run Vineyards	Winery expansion	\$263,825	2001	★★★★★
Evans Orchard and Cider Mill	Apple Cider Processing	\$122,923	2001	★★★★★
Katelyn's Honey	Value-added food products	\$293,850	2006	★★★★★
Murray State University Foundation	Ag Diversification, Demonstration & Education	\$257,995	2003	★★★★★
Kentucky Vo-Ag Teachers Association	State-wide Digital Ag Curriculum	\$250,000	2003	★★★★★
Roundstone Native Seed	Native Grass Seed Production	\$202,600	2002	★★★★★
UK KALP	Leadership Development Program	\$146,360	2006	★★★★★
Thoroughbred Shrimp Company	Freshwater Prawn Seedstock Hatchery	\$125,000	2003	★★★★★
Aquaculture of Kentucky	Hatchery & value-added fish products	\$411,500	2003	★★★
KY Forage & Grasslands Council	Forage Education & Extension Marketing Assistance	\$362,561	2003	★★★
Christian County Grain	Specialty Grain Marketing	\$327,419	2001	★★★
Shuckman's Restaurant Service	Smoked Fish Aquaculture Products	\$300,000	2002	★★★
Kentucky State University Bee Project	Honey Extraction Facilities	\$292,750	2002	★★★
Community Ventures Corporation	Ag Micro-Loan Program	\$275,000	2002	★★★
KY Highlands Investment	Ag Micro-Loan Program	\$158,750	2002	★★★
Maysville Community and Technical College	Welding & Diesel Courses for Farmers	\$124,800	2006	★★★
Fishmarket Seafoods	Freshwater Prawn Processing & Marketing	\$109,250	2003	★★★
Kentucky Poultry Federation	Poultry Indemnity Fund	\$102,000	2006	★★★
Goodinview Farms	Vegetable Packing Facility Equipment & Operating Losses	\$439,537	2003	★★
In Town Winery	Winery Development (Equipment)	\$295,509	2003	★★
John's Custom Meats	Livestock Slaughter & Processing Facility	\$250,000	2005	★★
Commodity Growers - Buffalo Trace Auction	Produce & Hay auction	\$220,000	2003	★★
Elmwood Stock Farm	On-Farm Compost Manufacturing	\$143,100	2001	★★
Shady Lane Poultry Farm	Poultry Hatchery for Pastured Poultry Production Seedstock	\$105,000	2002	★★
Kentucky Beekeepers Association	KY Adopted Honey Bee Development	\$100,103	2002	★★
Appalachian Sweet Sorghum Marketing Association	Sorghum Processing & Marketing Cooperative	\$100,000	2001	★★
Southeast Kentucky Agriculture Cooperative	Vegetable Marketing Cooperative	\$352,525	2003	★
Burns Larkins Farm	Goat Demonstration Farm	\$259,910	2002	★
ApoImmune	Bio-research - medical use compounds from tobacco plants	\$255,000	2002	★
KentuckyVirtual.com	Internet Marketing	\$250,000	2001	★
Agri-tourism Interagency	Develop & promote agritourism in Kentucky	\$400,000	2006	N/A
Kentucky Sheep & Wool Producers	Goat & Sheep Industry Development Office	\$184,000	2006	N/A

Estimated Impacts on Key Sectors

The final step in analyzing outcomes and impacts of the ABD investments examines the impact by key sector. To address the key question of “Where would Kentucky’s agriculture be without the ABD investments,” requires an overview of the changes occurring during 2001–2006 in key parts of agriculture and agribusiness where the major investments have been targeted. In the following sections we examine the situation in the following sectors: Livestock, Horticulture (including a review of investments in marketing cooperatives), Value-Added Processing, Marketing and Promotion, and Other (a category including education, leadership, and other projects difficult to categorize).

Livestock

There were 18 large and medium livestock related projects funded with ADF money during the 2001–2006 period. Four of these projects related to aquaculture; two projects each related to beef, dairy, poultry, forage and custom meat processing; and one project each for equine and pork. The total ADF livestock investment in these projects was \$18.5 million. Table 25 below lists the livestock related projects.

The livestock industry is a key sector in the Kentucky farm economy. With gross farm receipts in Kentucky exceeding \$4 billion, livestock accounts for nearly two-thirds of all cash receipts. Kentucky’s livestock cash receipts grew approximately 20% over 2001–2006, as compared with 12% growth in national livestock receipts. In comparison, the neighboring state of Tennessee (with a similar climate and land base) saw their livestock industry grow at a slower pace of 4% for the same period of 2001–2006 (Figure 5).

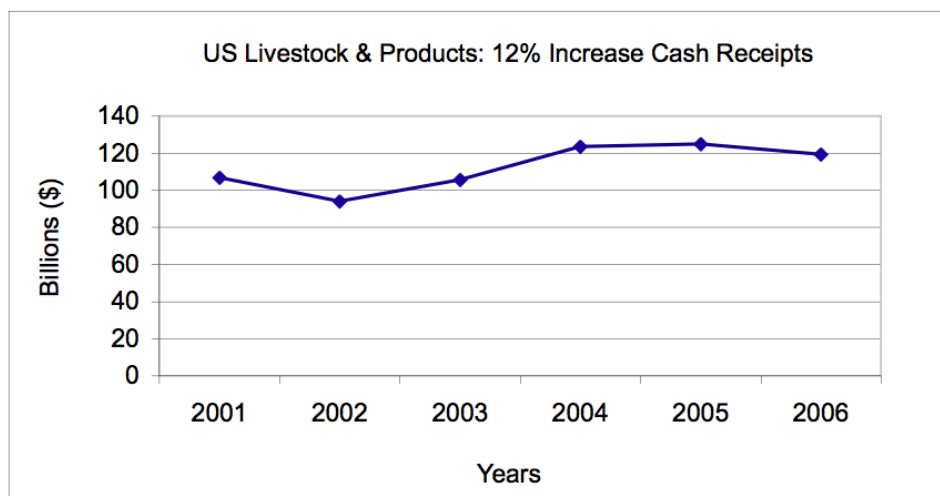


Figure 4: *Cash receipts for US livestock and products* (Source: USDA, ERS statistics).

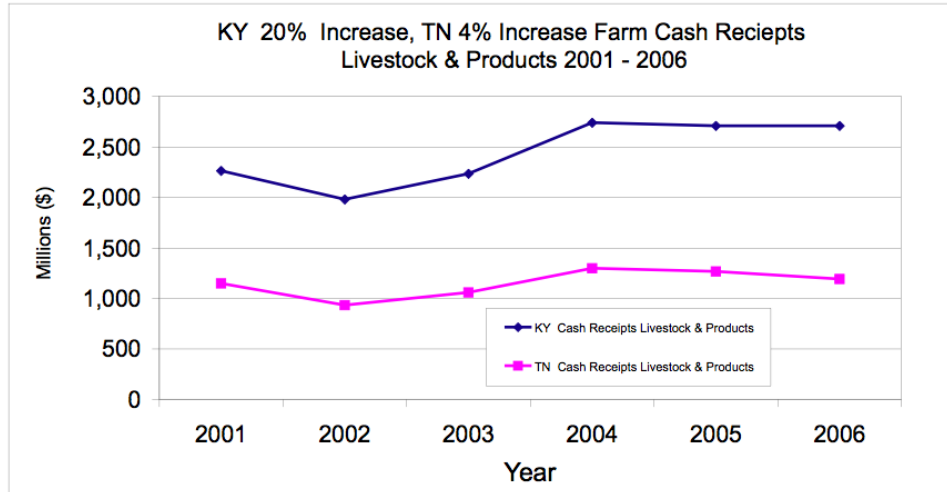


Figure 5: Cash receipts for Kentucky and Tennessee livestock and products (Source: USDA, NASS statistics).

Table 25: ADF livestock related investments 2001–2006.

Recipient	Project Description	Award	Year(s) Awarded
Kentucky Beef Network	Beef Cattle Marketing & Technical Support	\$8,545,863	2001
Kentucky Dairy Development Council	Infrastructure Development	\$2,450,170	2006
Kentucky Cattlemen's Association	Collaborative Marketing	\$1,930,000	2003
Purchase Area Aquaculture Cooperative	Cooperative Storage and Handling Facility Improvements	\$1,191,525	2001
Pig Improvement Company	Facility Construction	\$800,000	2004
Boone's Abattoir	Livestock Slaughter and Processing Facility	\$572,676	2004
Kentucky Thoroughbred Owners and Breeders	MRLS Research I & II	\$501,200	2001 & 2003
Burton Livestock	Dairy Heifer Custom	\$424,818	2006
Aquaculture of Kentucky	hatchery & value-added fish products	\$411,500	2003
Kentucky Forage & Grasslands Council	Forage Education & Extension Marketing Assistance	\$362,561	2003
Burns Larkins Farm	Goat Demonstration Farm	\$259,910	2002
John's Custom Meats	Livestock Slaughter & Processing Facility	\$250,000	2005
Roundstone Native Seed	Native Grass Seed Production	\$202,600	2002
Kentucky Sheep & Wool Producers	Goat & Sheep Industry Development Office	\$184,000	2006
Thoroughbred Shrimp Company	Freshwater Prawn Seedstock Hatchery	\$125,000	2003
Fishmarket Seafoods	Freshwater Prawn Processing & Marketing	\$109,250	2003
Kentucky Poultry Federation	Poultry Indemnity Fund	\$102,000	2006
Total Awarded		\$18,528,073	

Equine—The horse industry in Kentucky is the leading farm cash receipts earner at \$1.1 billion in 2006. Horse and mule sales have lead Kentucky’s livestock sales for the last ten years. Thoroughbred horses for the “sport of kings” in Central Kentucky are a major industry, but other breeds of importance are being bred, raised and sold, as well. The ADF funded project that related to the equine industry in Kentucky was a \$501,000 grant to the Kentucky Thoroughbred Owners & Breeders Association. The purpose of the grant was to provide an immediate source of funds to address an equine breeding stock health risk of potentially large proportion. The funds were matched more than one to one by the industry and used to contract research with the University of Kentucky. The goal was to discover the cause of the problem (Mare Reproductive Loss Syndrome—MRLS) and to develop successful control strategies. The goals were accomplished and confidence in Kentucky’s horse industry remained intact thereby insuring the continuation of this very important sector of Kentucky agriculture. The impact is a continuation of a \$1 billion dollar equine industry in Kentucky.

Poultry—The poultry industry has a similar story to tell, as the second leading Kentucky livestock enterprise. Poultry and egg cash receipts have risen 19% during the period and accounted for \$711 million in 2006. One ADF poultry related project was a \$102,000 grant to the Kentucky Poultry Federation which was matched by the industry. The fund was used to start an indemnity fund to facilitate the purchase and destruction of any non-commercial poultry flock that presented a disease health risk to the commercial poultry flock. The fund was established, resulting in making the substantial poultry sector of Kentucky agriculture more secure. A second ADF poultry related project was a forgivable loan of \$105,000 to establish an in-state hatchery and breeding facility to supply stock for pasture-raised poultry enterprises. To date, pasture-raised poultry production in Kentucky has not caught on in a significant way. Although, there are signs this aspect of poultry production is gaining in popularity. Evidence of this is that the only custom FDA approved poultry processing facility in Kentucky is fully booked for the 2008 processing season.

Cattle and Calves—Cattle and calves are the third leading livestock enterprise in Kentucky with sales of \$608 million in 2006. Cattle and calf sales in Kentucky are primarily beef cattle but there are some dairy cattle raised for herd replacements and steers backgrounded for beef. A significant effort has been made to assist the beef sector of Kentucky agriculture. This effort has had a large impact in moving the state’s beef industry forward. Kentucky has seen a 22% increase in cattle and calves cash receipts from 2001 to 2006. This increase is in line with the national figure of a 21% increase in cattle and calves receipts and considerably larger than Tennessee’s growth rate of 18%.

The two projects that directly impacted the beef industry in Kentucky are the Kentucky Beef Network and the Kentucky Cattlemen’s Association. These two groups made a joint effort to “raise the bar” on Kentucky’s beef industry.

The Kentucky Beef Network (KBN) is a limited liability company whose sole membership is made up of the Kentucky Cattlemen’s Association. The Kentucky Beef Network’s goal is to improve cattle health, genetics, forages and marketing opportunities for Kentucky beef producers. The Kentucky Cattlemen’s Association is a non-profit producer association with 93 member chapters across the state representing the 40,000 or more cattle producers in Kentucky. Together these two organizations received \$10.5 million of ADF grants to implement a comprehensive strategy to grow the beef sector of Kentucky agriculture. KBN has taken a multi-faceted approach to fulfilling

its mission. KBN has hired facilitators to work directly with cattle producers to assist with genetic selection, production efficiency improvements, targeted marketing efforts, data collection and management and cattle grading for CPH-45 sales. They have also provided cost-share funds to assist Kentucky stockyards to adopt the latest electronic cattle tracking and data management techniques in order to provide process verified program cattle (PVP) to fulfill specific market demanded opportunities. KBN facilitated and funded state-wide in depth cattle production educational workshops such as the Master cattlemen's (3,000+ participants), Master Grazer (600+ participants) and Cow College workshop series in order to build the human capital of the state's beef industry. These educational programs have undoubtedly increased the effectiveness of the county model programs offering cost-share for cattle handling equipment and bulls or semen for genetic improvements.

The KBN efforts have had a large positive impact on Kentucky's beef cattle industry by improving the Kentucky cattlemen's knowledge base, leveraging the impact of model program cattle investments and focusing on emerging markets such as the CPH-45 sales and the PVP cattle sales. The impact of these two marketing efforts provided specific measurements showing growth and is illustrative of the success and forward momentum being built by Kentucky's beef industry.

One of the focuses of the KBN is the promotion of Certified Pre-conditioned for Health (CPH-45) feeder calf sales as a way to add value to Kentucky Cattle. A multi-pronged approach was taken by offering on-farm consultations on CPH-45 program requirements, cattle grading, and record keeping. Kentucky livestock auctions were provided cost-share funds to install electronic animal ID readers to efficiently manage CPH-45 sales and other animal ID verified marketing programs.

Through the Cattlemen's Association ADF grant of \$1.9 million for promoting Kentucky's beef, pork and vegetable industries, the CPH-45 sales were heavily promoted to both in and out of state cattle buyers. The sales have gained support of both producers and buyers. CPH-45 feeder calf sales numbers have increased dramatically, (516%) since 2000. Calf sale numbers went from 5,396 calves sold in 2000 to 33,241 calves sold in 2006. KBN estimates producers average a \$40.95 per head premium by selling through the CPH sales. This estimate amounts to an extra \$1.35 million annually in farm income from CPH sales.

A second market development effort was under taken to develop an electronic ID system to verify individual animals and their age, origin and any other attributes of interest to buyers and sellers. This Process Verified Program (PVP) was deemed essential to develop export markets for high value cattle. The KBN therefore provided a cost-share program of \$2 million to provide technical assistance and cost-share for upgrades to Kentucky livestock markets and collection points. The new equipment made possible individual animal source verification, internet livestock sales, and the collection of carcass evaluation data for specific feeder cattle. As of June 2007, twenty-one livestock markets have completed updates to make them electronic animal ID ready. In conjunction with this equipment, KBN offered data management and ID verification services to Kentucky cattle producers via an internet based proprietary system. This combined effort resulted in 60,000 head of Kentucky PVP certified (Process Verified Program) cattle which KBN estimates receive an average premium of \$12 / head, which equates to \$720,000 in additional farm income, annually.

There appears to be clear evidence of positive impacts on Kentucky's cattle industry from the Model investments:

1. Direct measures: The most direct measurement of impacts of the ADF funded KBN and Cattlemen’s Association projects is the increase in CPH-45 feeder calf sales numbers which generated an additional \$1.35 million in annual farm income. The PVP cattle program added value of \$12 per head, resulting in an additional \$720,000 in annual farm income. Both of these farm income increases are a direct result of the ADF funded programs.
2. Indirect impact measurements: Only a small percentage (5%) of Kentucky feeder cattle are sold through the CPH-45 sales . If Kentucky’s reputation for providing quality cattle has improved overall (as a result of gains in producer knowledge and management operations, animal genetics, record keeping and livestock market efficiencies), the overall price of Kentucky feeder cattle in comparison to competing supply areas may have improved. Dr. Lee Meyer an Agricultural Economist at the University of Kentucky did an analysis of the basis for Kentucky 7-8 weight feeder cattle over the period (2002–2007). Dr. Meyer found that starting in 2005 the basis for Kentucky cattle has improved relative to the basis from other southeastern states of Alabama, Georgia and Tennessee (Figure 6). The data suggests a 2% basis improvement for Kentucky feeder cattle. Using 2006 cattle and calves cash receipts of \$608 million, a 2% improvement in prices relative to other suppliers, results in an estimated \$12.2 million increase in annual farm income.

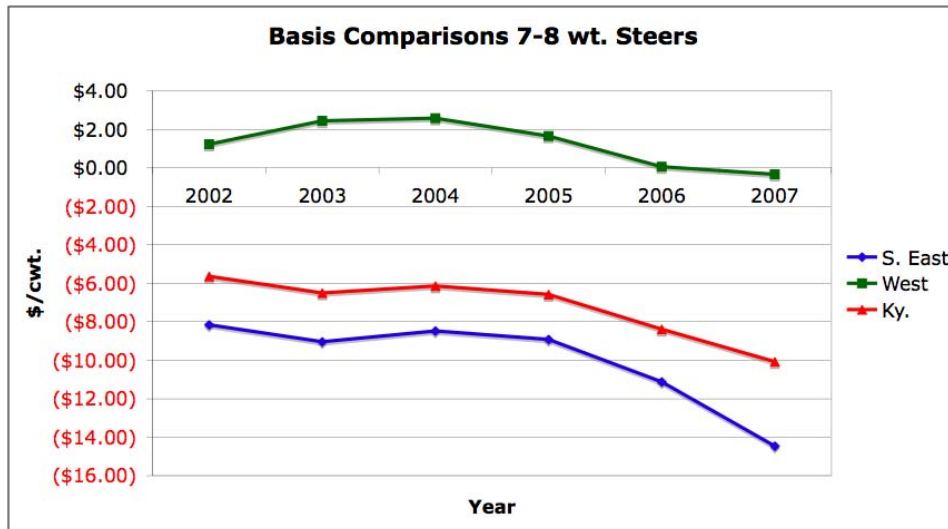


Figure 6: *Basis comparisons for southeast, west, and Kentucky* (Source: Dr. Lee Meyer, University of Kentucky).

3. A third approach is to compare Kentucky and Tennessee cash receipts for cattle and calves for the period 2001 – 2006. During that period Kentucky’s cattle and calves cash receipts increased 22%. During the same period Tennessee cattle and calves cash receipts increased 18%, or 4% less than Kentucky (Figure 7). If we attribute 50% of the improved Kentucky cash receipts to the ADF funded efforts, then a 2% change was brought about. This approach also results in an estimate of \$12.2 million in added annual farm income from cattle.

Forages—Two ADF funded livestock projects were related to forages; the Kentucky Forage & Grasslands Council, and Roundstone Native Seed. A total of \$565,161 of ADF were invested in the two projects. Kentucky Forage & Grasslands Council received a grant to hire a Hay Marketing

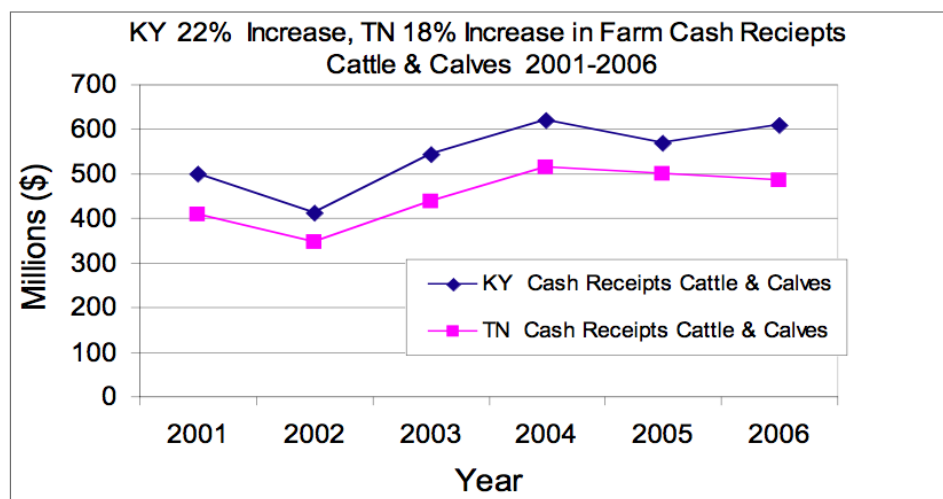


Figure 7: *Cattle and calves cash receipts for Kentucky and Tennessee*(Source: USDA, NASS statistics).

Specialist to educate Kentucky forage producers about quality hay production, grading and marketing. Producers were taken to see successful hay production systems in other areas, provided up to date Kentucky specific forage variety research information, presented workshops at conferences and regional field days and offered hay marketing assistance. Kentucky livestock producers were provided with hay nutritional evaluation techniques and knowledge of the hay grading classifications. Impacts were estimated based on the potential savings generated from producers purchasing hay based on its nutritional attributes and from an estimate of additional income generated by new and existing hay producers who produced better quality hay and sold it for better prices. The producer educational efforts of the Forage & Grasslands Council have gone hand in hand with the model programs for hay storage, forage improvements and shared use equipment. The two efforts have brought about real changes in farming practices and improved efficiencies.

Roundstone Native Seed is a privately owned venture that received a forgivable loan for equipment and facilities to establish a business of growing and marketing native grass seed. Native grasses are gaining in popularity due to their excellent habitat for wildlife and their ability to provide top notch forage crops during the heat of summer when most of Kentucky’s cool season forages are dormant. They have developed a market for their seed and are working with other farms in the area to have a multitude of native grasses and forbs seed grown. While the acreage of native seed is not large compared to other forage crops, the value per acre and the niche market should provide additional farm income for those farms involved in this venture for the long term. Forty-two farms produced seed for Roundstone Native Seeds in 2007.

Dairy Sector—Dairy farming is the fourth largest livestock enterprise in Kentucky, with cash receipts of \$179 million in 2006. Approximately 1,100 dairy farms are currently operating in the state. There has been a long term decline in the number of dairy farms in Kentucky and the nation. Part of the decline can be explained by industry consolidation with fewer farms managing a larger number of milk cows per operation. Dairy farming is a labor and capital intensive enterprise

that has faced large swings in milk prices and rising input costs. These two factors make dairy farming a difficult industry for mid-sized farms to compete and for young people get a started.

The Kentucky Dairy Development Council (KDDC) is similar to the Beef Network—it is a non-profit producer organization with a mission to improve the profitability of Kentucky dairy farming. After a one year initial start-up and a comprehensive needs assessment study, the Kentucky Dairy Development Council (KDDC) was awarded \$2.5 million of ADF grant money.

The long term goal of KDDC is to slow or stop the dairy industry decline in Kentucky and retain young farmers in the Kentucky dairy industry. To accomplish its goals, KDDC has undertaken the education of Kentucky producers on federal milk marketing order issues, improved milk production techniques, better record keeping and to be a resource to help individual dairy operations improve net farm income.

The KDDC was fully funded in December 2006 and has essentially been fully operational for only one year at the time of the site visit and interview. The long term impacts of the Kentucky Dairy Development Council cannot be measured at this time because the project has not had time to develop measurable production impacts over time. In the short run the KDDC has increased farm income \$140,000 in July 2007 by awarding Milk Incentive Leadership Program (MILK) incentive payments to 40 farms. This was the first quarterly payment for a potentially \$2 million, two year program (50% funded by industry) to provide incentives for comprehensive management changes that result in increased quality and output from Kentucky dairy farms. KDDC impacts Kentucky youth by funding “Kentucky Kate” a dairy cow educational interactive display which is seen by approximately 125,000 people in the course one a year.

Burton Livestock is a privately owned former dairy farm. They have stopped milking cows and now raise replacement dairy heifers on contract for dairies in the upper mid-west United States. Burton Livestock applied for and received an ADF forgivable loan of \$424,818 in order to greatly expand their replacement heifer business. Burton Livestock purchases new born dairy heifer calves from dairies and raises them to the bred heifer stage. He then sells the heifers back to the dairy farm where they were born. Burton Livestock works with other farmers in the area to have the calves bottle fed, backgrounded, and then bred before they are ready for sale. Burton Livestock obtained an ADF forgivable loan to expand their facilities and partial financing through the Kentucky Agricultural Finance Corporation for an operating line of credit. In the process they have hired 11 additional full-time employees and contracted with 35 – 40 other farms to raise bottle calves or background heifers. Mr. Burton states the business currently pays out \$1.4 million annually to contracted farmers for livestock raising

Pork Sector—Pig Improvement Corporation (PIC) was a for-profit corporation registered in the State of Wisconsin. Since the ADF award, PIC has been purchased by Genus to become part of a larger, internationally operated dairy, beef and swine genetics supplier. PIC literature states that PIC was the leading worldwide supplier of swine genetic improvement to the pork chain.

An \$800,000 ADF forgivable loan was awarded and paid to PIC in 2004 for the purpose of rebuilding one of PIC’s breeding swine genetics farms in Franklin, Kentucky. PIC was to provide discounts to Kentucky pig farms that purchase PIC boars or semen. They were also to develop a proprietary line of Kentucky specific pork genetics for the purpose of marketing Kentucky Pork. Neither of these goals has been met. After PIC was purchased by Genus they moved their head-

quarters to Hendersonville TN and laid off most of the personnel involved with the ADF forgivable loan. Genus then informed the Governors Office of Agricultural Policy that they cannot fulfill the terms of the agreement as written. Impact on the Kentucky pork industry is zero.

Sheep and Goats—According to the National Agriculture Statistics Service (NASS) there were 37,000 head of sheep in Kentucky in 2007. Goat numbers are not available from NASS but for our purposes are estimated at approximately twice as many goats as sheep—about 74,000 head. Both enterprises have enjoyed favorable prices for their livestock in recent years. Meat goat numbers in Kentucky have increased rapidly with demand for goat meat outstripping the current domestic supply.

The Kentucky Sheep and Wool Producers Association in cooperation the Kentucky Goat Producers Association submitted an application to the ADB in August of 2006. The purpose of the request was to form a jointly owned development office with a full-time paid co-executive director to represent and further the small ruminant industry in Kentucky. The Kentucky Sheep & Goat Development Office was formed and an \$184,000 ADF grant was awarded in September 2006. The two associations hired an Executive Director and an office was in place beginning in May of 2007.

The goals of the Sheep & Goat Development Office are to give producers a unified voice and to improve the profitability of sheep and goat production by educating new and existing producers on production and marketing. Impact: The Kentucky Sheep & Goat Development Office is too new to measure an impact of their efforts to date.

Burns-Larkin Farm (BLF) was a for-profit farm located in Mercer County, Kentucky, that focused on Boer Goat production for breeding stock. During its operation the BLF was the largest goat farming operation in the state. A business plan was developed to increase the size of the breeding flock, build additional facilities and work with the University of Kentucky to provide a goat demonstration-farm facility to advance Boer Goat production throughout the state. An ADF award of \$259,910 was awarded in September 2001 of which \$77,250 was a grant to set-up, staff and equip a goat demonstration-farm. The remaining ADF funds were awarded as a loan at 3% interest. Four years into the project the farm owner decided to sell the farm and repay the ADF loan. Impact: The goat demonstration-farm came into existence during a critical time in the development of the goat industry in Kentucky. The demonstration aspects of the farm were funded with a \$77,500 grant. The four years of operation and availability to “show and tell” meat goat production to new and beginning Kentucky goat farmers created farm income savings by avoiding costly mistakes.

Aquaculture—Four projects related to aquaculture were funded with ADF money from 2001 to 2006, totaling \$1.8 million. Two projects were hatchery/nursery businesses. One was a catfish processing cooperative and the other a comprehensive marketing effort for Kentucky freshwater prawns.

In order to produce aquaculture products farmers must be able to purchase good quality seed stock that can be successfully transported and stocked into farm grow-out ponds. Two hatcheries were funded with the ADF funds; Thoroughbred Shrimp Co. (freshwater prawns) and Aquaculture of Kentucky, LLC (hybrid striped bass, large mouth bass, tilapia, and catfish). The ADF funds have had an impact on Kentucky aquaculture by creating a nearby source of quality aquaculture seed

stock. The farm income generated by sales of (their customers) aquaculture products is estimated to be over \$500,000 annually.

An ADF forgivable loan was awarded to Fishmarket, Inc. of Louisville, Kentucky in 2003. For two years (2004–2005) Fishmarket coordinated the purchase, transportation, processing and marketing of Kentucky grown, freshwater prawns. They purchased prawns pond side from contracted Kentucky farmers and transported the product to the processor. They later marketed the de-headed, packaged for retail, frozen prawns. The product was well received in the market place but the price was too high compared to the price of similar but imported frozen prawns. The Kentucky freshwater prawns were therefore not competitive. Beyond two years of sales the Fishmarket project took a comprehensive approach to market development of a new Kentucky grown product. Unfortunately the market economics proved to be below the cost of production for Kentucky farms. The impact of this effort is to rule out Kentucky grown freshwater prawns as a potential crop for large scale production. The ADF funds were (in the UK Evaluation team's opinion) appropriately used to bear the risks of this new venture and test the wholesale market for Kentucky raised freshwater prawns.

An aquaculture processing and marketing cooperative was started in the Purchase Area of Western Kentucky in 2000. Simultaneous to this the Kentucky State Legislature established a \$4 million aquaculture infrastructure fund of which \$2 million was allocated for a cost-share program to construct aquaculture ponds. The Purchase Area Aquaculture Cooperative (PAAC) purchased land and constructed a medium sized processing facility to process catfish grown on members farms. An ADF forgivable loan was awarded in 2001 for the purpose of expanding the processing facility with the goal of being capable of processing 4 millions pounds of fish annually. Price competition from cheaper imported fish, start-up business production, management bumps, and less than adequate fish supplies eventually caused the cooperative to close in 2005.

At its peak, PAAC employed 46 full-time employees and processed fish from 436 acres of catfish production ponds for 34 member farms. An estimated 300 acres of catfish production are still being produced by former PAAC members. At current (2007) market prices the farm income from these ponds is estimated to be \$900,000 annually. There are now 3-4 times more fish growers and 3 times more catfish acres in Western Kentucky than before the PAAC Co-op was started. Fish farms have stayed in business in Western Kentucky, marketing their fish to live haulers for pay lakes and in some cases selling to out-of-state fish processing plants.

Direct Marketing of Beef, Pork and Lamb—Two ADF funded projects are related to processing livestock for retail meat sales. Boone's Abattoir in Bardstown and John's Custom Meats in Smith's Grove, Kentucky, were awarded forgivable loans totaling \$822,676. The forgivable loans were for construction or expansion of their processing facilities. The forgiveness mechanism was tied to providing USDA or custom meat processing at a discount for farmers who wish to direct market meat rather than sell live animals.

Both of these businesses have hired additional full and part-time personnel to handle the increased work load. Five additional full-time jobs and seven or eight part-time jobs have been created by the expansion of these businesses. Additional farm income has been generated by having the processing value-added service available for Kentucky farmers. Together these two businesses expect to service approximately 100 farmers who direct market their products, in addition to their

normal clientele. The estimated value-added to cattle for these direct marketers is estimated to be \$500,000 per year. In addition there are also hogs, lambs and rabbits processed for farm customers.

Table 26: *Estimated quantitative impact of livestock investments.*

No. of Projects	Award	Amount Lever-aged	Estimated Additional Annual Farm Income Generated	Farm Income Generated Per \$1 of ADF Investment	Tobacco Farmers Impacted	New or Expanded Markets
18	\$18,528,073	\$17,638,400	\$17,974,833	\$3.15	4,878	9

Horticulture

The ADB has invested nearly \$24 million in twelve projects related to horticulture between 2001 and 2006. Of the twelve projects, eight were focused on produce, one on nursery/landscape, one on honey bees and two on education, research and promotion. Five of the projects were organized as grower cooperatives. Table 27 contains a list of the specific projects and the amounts awarded.

Table 27: *ADF horticulture related investments 2001–2006.*

Recipient	Project Description	Award	Year
Kentucky Horticulture Council	Marketing and Technical Support	\$8,685,671	2001, 2003 & 2005
West Kentucky Growers Cooperative	Cooperative Development and Expansion	\$3,760,326	2001
Bath County Agricultural Extension Foundation	Agricultural Education & Marketing Center	\$1,520,000	2002 & 2003
Green River Produce Marketing Cooperative	Cooperative Operating Capital	\$1,258,946	2001 & 2003
Central Kentucky Growers	Cooperative Management Recruitment and Equipment	\$1,033,988	2001 & 2004
KY Grape & Wine Council	Technical Assistance for Grape and Wine Production	\$785,125	2003
Cumberland Farm Products	Cooperative Equipment and Operating capital	\$684,649	2001 & 2006
Goodinview Farms	Vegetable Packing Facility Equipment & Operating Losses	\$439,537	2003
Southeast Kentucky Agriculture Cooperative	Vegetable Marketing Cooperative	\$352,525	2003
Commodity Growers - Buffalo Trace Auction	Produce & Hay auction	\$220,000	2003
Kentucky Beekeepers Association	KY Adopted Honey Bee Development	\$100,103	2002
Kentucky West Nursery Co-op	Nursery Stock Cooperative	\$4,788,966	2001
Total Awarded		\$23,629,836	

The horticulture industry in Kentucky consists of produce, greenhouse, nursery, sod and floriculture crops. On a national level, horticultural sales have been expanding. Produce, particularly fresh produce, is in demand due to health attributives and a more ethnically diverse U.S. population. Ornamental horticulture and nursery crops are in demand for new housing and commercial developments and recreational pursuits. Cash receipts for all U.S. horticulture crops have risen 26% during the period 2001-2006, when the ADF was funding projects (Figure 8).

Compared to surrounding states, Kentucky’s horticulture industry is smaller (e.g., about one-fourth of Tennessee horticultural sales) but has experienced growth in cash receipts of 47% over 2001–2006 (Figure 9). This is significantly above the national industry growth rate. In comparison, Tennessee is a state with a similar climate and land base, has a horticulture industry considerably larger than Kentucky’s but grew at a lower rate of 20% during the period. The growth of horticulture cash receipts are shown on the two charts below.

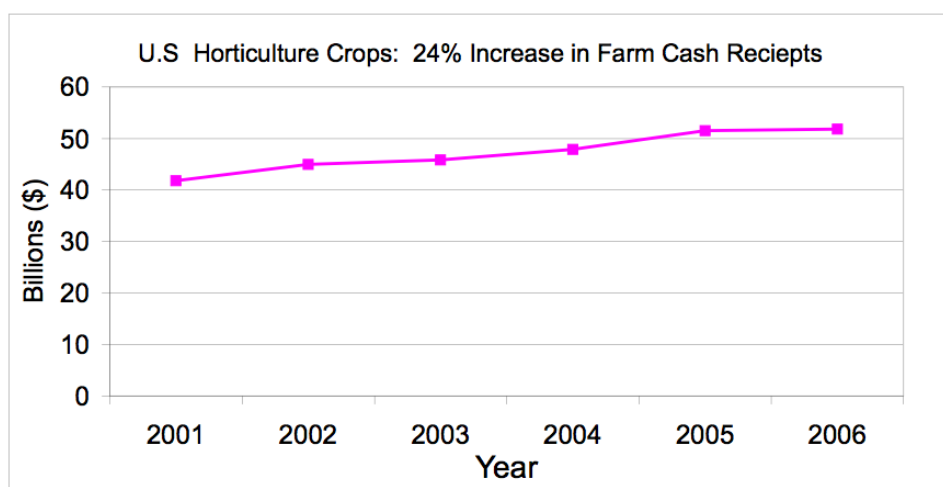


Figure 8: *Cash receipts for US horticulture crops*(Source: USDA, NASS statistics).

Grower associations, extension specialists, and state agriculture officials have recognized the horticulture industry opportunities and have worked together to try to stimulate more horticulture production within the state. The largest horticulture project funded by the Agriculture Development Board is the Horticulture Council.

The Horticulture Council is an industry group composed of producer representatives from all of the Kentucky horticulture professional associations. The Council has received ADF funding for a comprehensive industry development strategy designed to provide on-farm technical assistance, up to date production research, marketing, and advertising assistance. The Council has contracted most of the services to the University of Kentucky and the Kentucky Department of Agriculture. New and existing vegetable, fruit, wine grape, wine makers and nursery producers across the state have benefited from the higher level of targeted extension out-reach in the form of on-farm consultations, on-farm demonstrations and regional field days. This work has been backed up with on-going university research into variety selection and production system improvements. As new production has occurred, the Kentucky Department of Agriculture has promoted

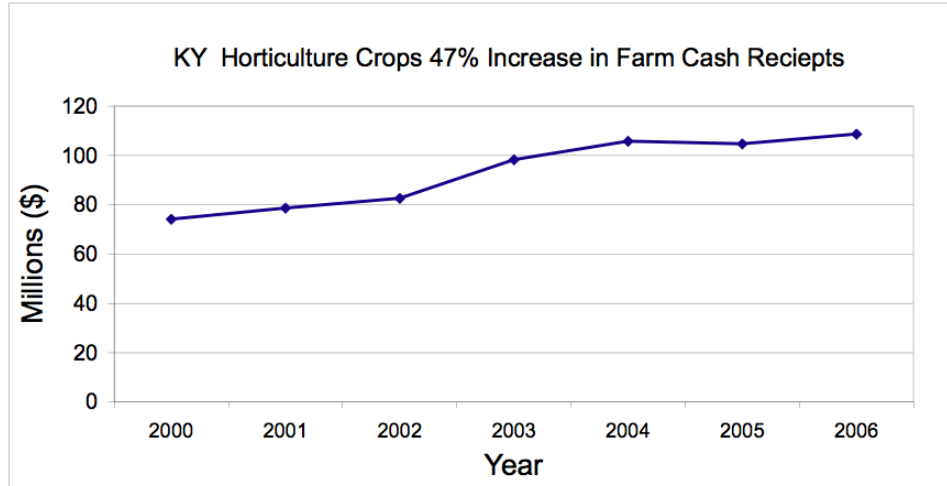


Figure 9: *Cash receipts for Kentucky horticulture crops*(Source: USDA, NASS statistics).

Kentucky grown products through the Kentucky Proud branding campaign. KDA has also offered tradeshow promotional assistance, producer directories and cost-share money for tradeshow booths and advertising.

The comprehensive approach to industry development funded by the ADB has had a significant positive impact on the horticulture industry in Kentucky. This can be illustrated by reviewing specific components of the horticulture sector:

Produce Sector—Nationally, produce cash receipts rose 24% over the study period, while Kentucky’s rose 70% and Tennessee’s rose 28% during the period 2000–2006. Clearly there is significant growth occurring in produce production in Kentucky. Implications are the ADF projects have had an impact here. Of the ten projects effecting produce crops, five were vegetable marketing cooperatives, one a private vegetable grower/shipper (packing shed), two produce auctions, and two technical assistance/research and promotional projects.

Vegetable Marketing Cooperatives—Five vegetable marketing cooperatives received ADF awards, all in the form of forgivable loans for a total of \$7.1 million from 2001 to 2006. [A separate, more detailed discussion of cooperatives concludes the horticulture sector summary.] Four of the five vegetable marketing cooperatives were in operation before the Agricultural Development Fund came into existence. Only the Southeast Kentucky Agriculture Cooperative began operation during the period 2001 to 2006 time frame and used ADF money to build their initial facility.

During the period 2000–2005 when four of the five produce co-ops were in operation they generated over \$26 million in sales for 155 farm members. The co-ops provided a wholesale marketing outlet for small and beginning produce farms that did not have the packing, cooling or volume marketing abilities on their own. Rather than the individual farm having to invest a substantial amount of money in post-harvest handling equipment and facilities, the co-ops provided these functions. Many farmers benefited by being able to learn how to grow produce and find out what kind of crops, quality and yields they could expect to produce as a result of initially growing for one of

the co-ops. Produce sales in Kentucky have risen 70% from 2000 to 2006. These are a result of more farms growing an increased amount of produce. Despite the closing of all but two produce co-ops, Kentucky farmers have continued to increase their vegetable production and are marketing through a diverse mix of direct markets, retail stores, wholesalers and produce auctions. Most of the former produce co-op members continue to grow produce crops.

The impact of the ADF money invested into the produce sector including the co-op investments has been significant and will continue into the future. This is evident by the continued rise in the Kentucky produce cash receipts, the gaining strength of Kentucky's direct markets (farmer's markets and roadside markets), the rapid growth of both the Fairview Produce Auction and the Lincoln County Produce Auctions, the increase in wine grape acreage and the continued interest of large scale produce buyers to contract with Kentucky farmers.

Produce Auctions—The popularity of locally grown produce among consumers and the growth of direct marketing outlets have created a customer base for produce auctions that can consistently offer good quality fresh produce. Two of the produce auctions operating in the state, the Fairview Auction in Christian County and the Lincoln County Produce Auction have grown dramatically. Both of these facilities are privately owned and are located where there is a significant Amish or Mennonite farm population. Both of these auctions had sales of over \$1 millions in 2007.

Two start-up, publicly-owned, produce auctions were funded through the ADF. These are the Buffalo Trace Produce Auction in Maysville and the Bath County Agricultural Marketing Center in Owingsville. Approximately \$1.7 million of ADF money was invested to construct the two facilities. The Bath County Agricultural Marketing Center accounted for most of the funding (\$1.5 million) and the Buffalo Trace Auction at \$220,000. The produce auction facility is only a small part of the Bath County Project. Other components are a commercial kitchen, large meeting facility, farmers market, and proposed retail store. During the first three years of operations the Bath County Produce Auction generated approximated \$74,000 in produce sales. The Buffalo Trace Auction generated approximately \$170,000 in sales of produce and hay. Both of these auctions are newly built facilities that were conceived as a way to open opportunities for local farms to grow produce crops. At present both auctions are struggling to attract buyers and sellers due to a low volume of production in the area. The difficulty with starting a new produce auction is having enough produce to attract buyers.

Grapes and Wine—There has been a strong resurgence of interest in locally produced “boutique” wines. This trend is evidenced by the rapid growth of new small wineries both nationally and in Kentucky. Kentucky went from having 115 acres of grapes in 2002 and 8 licensed wineries to having 700 acres of grapes and 44 licensed wineries in 2007. Clearly there is something happening with grapes and wine in Kentucky. The ADF funded project that has addressed this opportunity for produce growers is the Kentucky Grape and Wine Council (KGWC), which received a \$785,125 grant in 2003.

The overall purpose of the KGWC is to create a comprehensive program to support and expand the emerging Kentucky grape and wine industry. The award was used to hire a viticulturist and an enologist (wine making specialist) to work directly with grape growers and wine makers to help them be successful. An organization director to coordinate the council activities and carry out promotional activities was also hired. Approximately \$200,000 went towards grape production system research and variety trials conducted by the University of Kentucky.

To date, not all of the vineyards have reached a harvestable stage (3 years), nor have all the licensed wineries begun production. UK extension grape and wine soecialists estimate when in full production, the farm gate value of the current 700 acres of wine grapes could be as high as \$3.7 million annually and the value converted to wine could be as high as \$26 million.

Nursery/Greenhouse Crops—Nursery, greenhouse and floriculture crop cash receipts for the nation grew 23% from 2000 to 2006, while Kentucky and Tennessee grew 40% and 33% respectively. Two ADF funded projects affected the Kentucky nursery industry: the Horticulture Council and the Kentucky West Nursery Cooperative.

The Horticulture Council provided on-farm consulting to new and existing nursery producers by contracting with the University of Kentucky to hire Extension Associates to extend research based knowledge directly to each nursery enterprise, as needed. The Horticulture Council also funded new nursery production system research, such as the pot-in-pot system. KDA provided marketing assistance by hiring a nursery marketing specialist and providing tradeshow promotions and cost-share, and publishing the Kentucky nursery plant availability guide each year. Kentucky nursery growers have particularly benefited by these programs and have successfully opened new marketing channels to the lucrative northern markets for landscape trees.

The second ADF funded project that affected the Kentucky nursery industry was the formation of the Kentucky West Nursery Cooperative (KWNC). KWNC was an effort primarily by tobacco growers in the western most counties to diversify their farming into additional high value crops. A \$4.8 million dollar forgivable loan was awarded from the ADF. The growers used the money to make loans to their members to purchase planting stock, jointly purchase planting and harvesting equipment, construct a marketing and logistics facility and to hire the necessary management and marketing personnel. The co-op helped new growers get a start in the nursery business by providing access to low cost capital and a coordinated approach to market entry. After a number of years the members concluded the co-op operations were not sustainable due to high overhead and less rapid growth in sales than predicted. The members voted to close the cooperative. The assets were sold and all of the ADF funds were repaid except for \$26,350 which was forgiven. Of the co-op's 22 original members, 15 are still in nursery production. Some of the 15 have expanded their plantings fivefold. This ADF funded project has had an impact by introducing a new high value enterprise to some Western Kentucky tobacco farms and supporting the effort with low cost capital access, on-farm technical assistance, university research trials and marketing assistance. At minimum, \$500,000 in additional annual farm income is estimated to occur as a result of this project.

Sector Impact—The ADB-funded investments have clearly had a positive impact on Kentucky's horticulture industry. We estimate that the 12 horticulture-related projects leveraged \$16.3 million in relation to the \$23.6 million in ADB funding, or about a 1:0.7 ratio. More significantly, we estimate annual additional farm income generated in the short-run to be in the range of \$5–6 million per year, representing a 24% return on ADB investment, including the income from all of the produce cooperatives. Farm income generated continues to grow even though three of the co-ops are no longer operating because most of the produce growers have continued to grow and market crops. In addition, the produce auctions, farmers' markets, roadside markets, and wholesale produce buyers have expanded the opportunities for all produce growers in the state.

Table 28: *Estimated quantitative impact of horticulture investments.*

No. of Projects	Award	Amount Lever-aged	Estimated Additional Annual Farm Income Generated	Farm Income Generated Per \$1 of ADF Investment	Tobacco Farmers Impacted	New or Expanded Markets
12	\$23,629,836	\$16,391,997	\$5,751,111	\$1.36	4,618	9

Special Discussion of the Farmer Marketing Cooperatives

In its early phase, the ADB purposely put a high priority on funding marketing cooperatives as an efficient and effective method for impacting multiple farmers with each project. Within a six year period, the ADB invested \$9.3 million (combination of state and local funds) into seven Kentucky cooperatives. Of this total investment, \$2.1 million were returned to the ADB, resulting in a net investment of \$7.2 million. Today, of these co-ops, only one is still operating as a co-op, two are operating in some other form and two have ceased operations or have sold their facilities to a related business.

Table 29 summarizes the ADB investments in cooperatives, including amounts that were returned to the ADB, as well as member investment statistics. For the produce co-ops (with the exception of the Southeast Kentucky Vegetable Co-op), for every one dollar of ADB investment, there were \$3.34 of sales generated and \$1.65 of those sales were returned to growers.

Table 29: *ADB investment in cooperatives statistics (includes all co-op investments).*

A	ADB Investments	\$9,303,861
B	Membership	247
C	ADB Investment per Member (A/B)	\$37,667
D	Amount Returned to ADB	\$2,122,73
E	Net ADB Investment per Member (A-D)/B	\$29,073

During site visits and interviews, the following comments were made that describe members' and directors' perceived benefits of the ADF investments in their respective businesses:

- ADF financed cooling equipment which provided the following benefits:
 - Improved the quality and volume of produce packed
 - Increased transportation efficiency through larger volumes
 - Increased marketing area of produce and aquaculture products
- Allowed for a “weeding out” period for members. Growers learned what worked and what didn’t work. The poorer growers left the co-op and the co-op is now operating with 10 farmers that are willing and able to produce quality produce.
- Expanded produce variety making the co-op more appealing to produce buyers.
- ADF assisted growers in getting through the 3-4 year start-up cycle for their business.

- ADB funds to the Kentucky West Nursery increased the co-op’s lending power and allowed them to expand much faster than a self financed start-up business.
- There are three to four times more fish farmers and three times the acres of catfish now than before PAAC.
- Kentucky aquaculture had to try and ultimately fail at a catfish processing facility in order to move past the idea and toward the live markets that have a greater chance of success.
- Approximately 75% to 80% of growers that were co-op members for at least two years are still growing vegetables.

As would be expected, there were many complaints regarding how the ADB handled the co-ops. Each of the co-ops that went out of business or significantly changed, did so for different reasons. Each co-op had strengths and weaknesses. There was no one factor that led to the co-ops ceasing operations. The following comments were also made by the co-op members interviewed:

- Forgivable loan program did not work. This created a tax problem as when forgiveness was met, the loan was considered income.
- County ADB funds were turned into a forgivable loan when they were intended as grant funds.
- Sometimes, the funds were too easy to get. If we had to go to a bank for the funds, then we would have been more likely to develop a more realistic business plan.
- Because the ADB wanted the co-op to expand into many counties, we were forced to work with inexperienced growers that should not have been growing vegetables. This dragged the entire co-op down.
- The ADB’s lack of knowledge of the vegetable market meant that they instilled unrealistic expectations. Some co-op members reported that GOAP staff dictated what goals the co-ops should include on their ADF forgivable loan application forms. These goals were often unrealistic for the businesses and were consequently not met.
- The overall time frame from co-op start-up to shut down was too short to work out the problems and achieve success.
- Non-funding of the state’s pond cost share program directly impacted the co-op’s ability to provide enough catfish for continued operations. Co-op believed that these funds were originally promised to them, but those promises were not kept.
- Member production was expanded, but the ADB funds for the needed processing equipment were not received in a timely manner. This resulted in product being sent to a landfill and members suffered “considerable losses”.

After interviews with former and current co-op management and the co-op expert panel, the UK Team identified the following lessons from the ADB funding of the co-ops:

- The ABD was willing to invest funds when the members were not. When the co-ops had tough business decisions to make, decisions were made knowing that they would not be losing the member’s investments. In some situations, co-op members believed that the ADF was really their money anyway and that the ADB had a responsibility to subsidize their business.

- The ADB was hesitant to fund personnel. Management was perhaps the main deficiency of many of the co-ops. Given the relatively small size of the businesses and their budgets, the co-op managers were expected to be plant managers, salesmen, financial officers and administrators. While each co-op had a manager that was qualified for one of these positions, none of them was qualified to successfully fulfill all of these roles. While the equipment purchased by the ADB was important for improved efficiencies of the businesses, without effective management even the most high-tech equipment cannot make sound business decisions. A complete copy of the Special Discussion of Farmer Marketing Cooperatives is included as Appendix D.

Added Value Processing

An important dimension of the ADF Priority #1, Marketing and Market Development, is value-added processing. The ADB has made 16 large and medium investments in projects which are primarily “value-added processing” ventures intended to support businesses and which will enhance Kentucky’s agricultural products and increase their value in the marketing chain (Table 30). On-farm and small firm value-added activities can increase farm income and diversification, while large-scale value-added businesses can produce jobs and related business activities which can potentially affect local and multi-county economies. Because value-added investments have the most potential to create jobs and associated economic activity, these investments most directly address the ADB goal of having an impact on tobacco dependent communities.

Table 30: *ADF value-added processing investments 2001–2006.*

Recipient	Project Description	Award	Year
Commonwealth Agri-energy	Ethanol Plant	\$9,311,000	2003
Little Kentucky Smokehouse	Ham Processing Expansion	\$1,950,000	2003
Lake Cumberland Milling	Grain Milling	\$1,165,000	2004
Owensboro Grain Company	Biodiesel Facility and Equipment	\$1,151,250	2006
Siemer Milling	Wheat-based Glue Extender Facility	\$1,000,000	2004
Knotwood Craftsmen Investments	Woodworking Facility and School	\$642,000	2005
Creech Services	Compost Production Expansion	\$618,309	2005
Christian County Grain	Specialty Grain Marketing	\$327,419	2001
Shuckman’s Restaurant Service	Smoked Fish Aquaculture Products	\$300,000	2002
In Town Winery	Winery Development (Equipment)	\$295,509	2003
Katelyn’s Honey	Value-added food products	\$293,850	2006
Kentucky State University Bee Project	Honey Extraction Facilities	\$292,750	2002
Equus Run Vineyards	Winery expansion	\$263,825	2001
Elmwood Stock Farm	On-Farm Compost Manufacturing	\$143,100	2001
Evans Orchard and Cider Mill	Apple Cider Processing	\$122,923	2001
Appalachian Sweet Sorghum Marketing	Sorghum Processing & Marketing Cooperative	\$100,000	2001
Total Awarded		\$17,976,935	

The ADB investments in value-added processing have included direct on-farm processing ventures like compost production (ESF Compost, LLC), apple cider production (Evans Orchard and Cider Mill, LLC), and wine production (Equus Run Winery). The compost production at ESF

Compost has not been successful, primarily because there is direct competition from the large-scale compost production at Creech Services (another ADB investment) in a neighboring county in which the forgiveness provision includes giving away compost to tobacco farmers. However, the modest investments in apple cider production have been a key component in the overall success of Evans Orchard and Cider Mill, which is both an on-farm processing facility serving eight orchards but also an agri-tourism business attracting hundreds of visitors each year.

The larger-scale ADB investments in value-added processing have, with only one exception, involved grain processing. This includes the largest award made by the ADB, over \$9 million to Commonwealth Agri-Energy for ethanol production; other investments in grain processing are: Siemer Milling (wheat-based glue extender), Christian County Grain, Inc. (specialty grain marketing), Lake Cumberland Milling (soybean meal production), Sorghum Marketing Association (sorghum syrup), and Owensboro Grain (soybean crushing for biodiesel production). The most successful project in terms of impact on farm income, local employment, and overall volume of production has been Commonwealth Agri-Energy. This plant was brought on-line just as the ethanol market was expanding and consequently it has been an aggressive buyer of corn, a successful producer of ethanol, and important employer in Hopkinsville. It has developed new value-added products like corn oil and wet feeds, which created a new market for Kentucky corn products. Since it was organized as a cooperative, the large patronage dividends (44 cents per bushel in 2006–07) has had an enormous positive impact on farm income.

Another very successful ADB investment in grain-based value-added was the new business created at Siemer Milling which processes low quality wheat into organic glue extender marketed to plywood and panel board manufacturers. Since Kentucky has experienced a problem with wheat quality, this investment enhances the value of low-quality wheat, creates new value-added production, and consequently has a large positive impact on farm income (approximately 12 cents per bushel in 2006–07).

The other investments in value-added grain processing have only been modestly successful. Lake Cumberland Milling, LLC is operating at less than full capacity and is finding it difficult to achieve the high-fat soybean meal production and marketing goals outlined in their proposal. Christian County Grain was slow to utilize the ADB award for improvements in their specialty grain marketing (white corn for snack chips, deer corn). Appalachian Sweet Sorghum Marketing Association involves only a few farmers and a small acreage, consequently the economic impact is low.

Owensboro Grain's biodiesel production facility received a large ADB investment of \$1.1 million and a KAFC (\$5 million) loan. At the time of the evaluation site visit, the production line was still under construction. Although this investment was predicated on the sluggish market for soybean oil resulting from consumer concerns about trans-fatty acids, the current market for soybean oil and soybean prices are at record high levels. Thus, the potential impact may be less than anticipated since the input (soybeans) will be at a higher cost level than predicted in the feasibility stage.

The ADB investment in Little Kentucky Smokehouse and Fresh Meal Solutions has had significant positive impact. Both of these businesses grew out of Jim David Meats and involve ham processing and fresh, microwave meals which are now being marketed in Kroger, Wal-Mart, and other retailers. These businesses are located in a rural part of Union County. Therefore the jobs

created (about 100) and the related economic activity (transportation, inputs, etc.) are having a significant positive impact on the local economy. In addition, Little Kentucky Smokehouse is a major buyer of Kentucky-produced pork, paying a premium for antibiotic-free hogs.

Two similarly successful but smaller scale projects are Katelyn's Honey, a food processing company in northern Kentucky, and Evans Orchard and Cider Mill in central Kentucky. Since both these ventures are located in expanding suburban markets, their economic activity will not have significant impact on the local economy. However, Katelyn's Honey is processing salsa, jams, sauces, apple butter and related products from Kentucky products and marketing them as private label products to a number of customers and the Rebekah Grace label. The value of the output is \$500,000 and growing. It is having an impact on farm income in the northern and central Kentucky area by buying locally-produced fruits and vegetables for value-added processing. Evans Orchard is a successful food processor and agri-tourism business that offers cider processing to apple producers in the central Kentucky area. This business is important to eight different apple growers because it allows them to market lower quality fruit as an value-added product (cider).

Two ADB investments in the wine industry are having significant positive impacts on Kentucky agriculture. Especially notable is the Equus Run Vineyard project, a full-service winery that has become a successful agri-tourism business. Equus Run is buying locally-produced grapes for their own wine production plus assisting other wine producers to create and market wines under their own private labels. The In-Town Winery is a modest wine production business in downtown Louisville which buys 100+ tons of grapes annually, of which 98% are grown by Kentucky producers.

Other value-added investments have had only modest impact on farm income and local economies. The KSU honey project, which provides leased trailers, honey extraction units, and education for beekeepers, is important in this era of declining pollination effectiveness due to hive deaths in the U.S. However, the impact on farm income has been modest since the 71,417 pounds of honey extracted at the twelve sites probably would have been processed anyway. Creech Services has built an efficient and large-scale compost production operation which is supplying a high-quality product to farmers in central Kentucky. The financial feasibility of this operation can only be proven over time, after producers field-test the product and analyze its impact on soil fertility and production. The ESF on-farm compost project is inactive due to competition from the Creech Services compost production, which gives away compost free as part of their forgivable loan agreement. Appalachian Sweet Sorghum is a project with admirable intentions but affects only 5 farmers and 30 acres of sorghum production.

Only one value-added investment has had no impact. The Knotwood Craftsmen project is no longer operational.

In summary, the \$18 million invested by the ADB in value-added processing projects represents the second largest component of the portfolio of large and medium investments. The ADB funds have been leveraged with over \$41 million in other funds (private equity, loans, etc.) for a leverage ratio of 1:2.2, representing a significant commitment of private capital in addition to the public funds used in these projects.

Based on the our survey results and further analysis, we estimate that the 16 large and medium value-added projects generate about \$5.7 million of additional farm income annually for Kentucky (Table

Table 31: *Estimated quantitative impact of value-added investments.*

No. of Projects	Award	Amount Lever-aged	Estimated Additional Annual Farm Income Generated	Farm Income Generated Per \$1 of ADF Investment	Tobacco Farmers Impacted	New or Expanded Markets
16	\$17,976,935	\$41,954,501	\$5,811,588	\$1.35	4,115	11

Value-added processing and related industries are a large portion of the Kentucky economy. While on-farm production agriculture generates about \$4 billion in cash receipts (about 3% of state gross product), the agricultural inputs, processing, and forestry sector generate over \$12 billion in economic activity, or about 11% of gross state product. Consequently, the \$18 million invested in value-added projects, and the resulting \$6 million in additional annual farm income, are small relative to the overall post-farm gate economy in Kentucky. However, it is reasonable to conclude that these investments have had a positive but marginal impact on the larger post-farm gate value-added economy in Kentucky. Certainly they have had a positive impact in local economies, especially some of the larger investments. When you consider the local economic impact, the expansion of new and existing markets, the jobs created and the number of tobacco farmers affected, the value-added investments have been effective use of the ADF.

Marketing and Promotion

The ADB has invested almost \$11 million in efforts designed to promote Kentucky agricultural and food products, a direct attempt to achieve improvements in marketing, which is one of the main priorities identified by the ADB. The bulk of these funds are involved in two major investments: (1) \$5.3 million grant awarded to the Kentucky Department of Agriculture and (2) \$4.9 million grant awarded to Allied Food Marketers West (Table 32). These resources have been used to promote and brand locally grown agricultural and food products in Kentucky under the “Kentucky Proud” campaign theme and to provide other marketing assistance directly to producers.

Table 32: *ADF marketing and promotion investments 2001–2006.*

Recipient	Project Description	Award	Year
Kentucky Dept. of Agriculture	Marketing and Promotion	\$5,329,300	2003 & 2006
Allied Food Marketers West	Agribusiness Incubator Development	\$4,891,561	2005 & 2006
Agri-tourism Interagency	Develop & promote agritourism in Kentucky	\$400,000	2006
Total Awarded		\$10,619,861	

An outside marketing consultant with considerable experience in state-branding research, Dr. Harry Kaiser of Cornell University, assisted the UK Evaluation Team in addressing three important issues regarding these marketing investments (Dr. Kaiser’s full report is contained in Appendix D):

1. How does the Kentucky marketing program compare to what other states are doing in terms of state branding and promotional efforts?
2. What evidence does existing research literature provide on the economic impacts of state promotional efforts similar to Kentucky Proud?
3. Based on the results of previous research, what are the economic impacts and returns to Kentucky Proud?

State Branding Programs—State-level marketing and promotion programs for agricultural and food products have become extremely popular in the United States. As of 2001, 43 states had adopted various forms of these branding programs. Several states had programs similar to Kentucky Proud, e.g., *Jersey Fresh, Grown in Georgia, Illinois Products, or Certified Product of Louisiana*.

There have been a number of studies about the economic impacts of state-level branding and promotion programs. The most comprehensive research effort was that conducted by Rutgers University of the “Jersey Fresh” program. Agricultural economists conducted several studies on the Jersey Fresh program, estimating in one study that this program increased the demand for New Jersey grown products by 5.5%. This study also estimated a rate of return to this program of 1 to 15.20 (every dollar invested in this program returned \$15.20 to farm income in the state). This estimated rate of return is clearly on the high side of what is typically estimated from other studies of generic advertising and promotion, but it does indicate that state branding can be an effective means to support state agricultural producers.

Wolfe and McKissick, from the University of Georgia, conducted a study on a \$100,000 promotional campaign for “Grown in Georgia.” This study relied on store-level data over a six-week period from a large chain supermarket. The authors compared produce sales from stores in Georgia (160 using the campaign) compared with stores in South Carolina (13 not using the campaign) and Alabama (3 not using the campaign). They found the campaign to be effective in increasing sales of Georgia produce. For instance, the Georgia stores experiences a 10% increase in total produce sales from 2000 to 2001 for the campaign period compared with only a 0.39% increase in South Carolina and Alabama. The authors estimated a benefit-cost ratio between 4.37 and 7.37 in terms of generating additional revenue to the stores due to the program.

A summary of the economic rates of return on various other studies of commodity generic advertising and promotional programs suggest a wide range of possible impacts. However, it seems clear from this published literature that state branding programs do have positive impacts in terms of increased sales for food and agricultural products.

Analysis of Kentucky Proud—The Kentucky Proud program has showed considerable growth in the last three years. As of December 2007 there were 1,035 Kentucky Proud members with approximately 300 members that had a retail product to sell.

The Kentucky Proud logo is becoming more visible and recognized by producers and consumers in Kentucky. KDA unified two different promotional logos into one more simplified design of Kentucky Proud. With assurance from KDA that they would not change the Kentucky Proud logo as long as the current Commissioner is in office, many more companies were willing to put the Kentucky Proud logo on their packaging. This resulted in the Kentucky Proud logo being more visible on products at the retail level. An independent consumer research study commissioned by KDA

found almost 40% percent consumer brand awareness of the Kentucky Proud logo in Louisville, Lexington and Northern Kentucky.

The membership criteria to be a Kentucky Proud Product does not require 100% Kentucky ingredients, but products do have to be made' in Kentucky. Besides farm impact, KDA considers the brand exposure benefits of a product as well. This second consideration is a significant change in the philosophy of Kentucky Proud from promoting strictly businesses that sell farm products raised locally to promoting food and agriculture products processed by larger corporate entities, such as Purdue Chicken and Dean Foods. The chickens and milk processed and sold by these companies include mostly Kentucky grown farm products. This has greatly increased the Kentucky Proud sales numbers and increased consumer brand exposure as well. Some farmers have been unhappy with the change, stating their 100% Kentucky grown/produced products have lost brand value by being associated with less than 100% Kentucky grown products now labeled Kentucky Proud.

KDA offers an advertising cost-share program which must be matched at least 1-to-1 by the retailer. This cost-share arrangement permits KDA to collect retail sales data. The total advertising cost-share dollars offered by KDA are figured at 3 cents per dollar of estimated Kentucky Proud products sales. Initially an estimate is made as to how much product will be sold as a result of the promotion. Based on that estimate an agreement is drawn up stating the sales expectation and the advertising money offered along with the reporting requirements. Quarterly reports of actual sales are required of the retailer in order to verify the sales of Kentucky Proud products. Based on the \$0.03 of advertising money per \$1 of KY Proud sales, the retailer is paid advertising cost-share.

KDA has retail sales figures for Kentucky Proud registered products that were sold by participating retailers. KDA has documented approximately \$37 million of Kentucky Proud products sold at participating retail grocery stores in 2007. Assuming 20% of the Kentucky Proud product sales were new sales as a result of the Kentucky Proud promotional effort, this produces an estimate of \$7.4 million in sales generated by the program in one year.

Analysis of Allied Food Marketers West (AFMW)—AFMW is a Louisville-based firm that received nearly \$5 million of ADF money for marketing support to Kentucky producers and for collaboration with KDA on the Kentucky Proud promotional effort. AFMW's main outreach effort was to provide technical assistance to new and existing Kentucky farm and food producers wanting to market their value-added products.

The estimated returns to technical assistance investments are typically less than returns from advertising and promotional programs. However, a lower return on investment does not mean the work is not needed or essential to get farm products into the market place. KDA personnel stated to the UK Evaluation Team that they were often frustrated by producers not being "retail ready" when a marketing contact was made. AFMW was envisioned to be an answer to this problem by being a source of focused individual help to get a producer's business ready and capable of marketing their products into the main stream marketing channels.

The UK Evaluation Team encountered serious issues in analyzing the actual work effort by AFMW. The AFMW project leaders were unwilling to give the Team functional breakdowns for the expenditures in "marketing research," "technical assistance," or even trade show and exhibitions. Thus, the UK Team and Dr. Kaiser had to make approximate allocations of AFMW expenditures based on very limited information and low confidence. During site visits and the Expert Group

meetings, Kentucky farmers and food producers across the state told us they have not felt they were receiving enough help from AFMW, particularly with logistic and transportation issues related to marketing their products. In addition, several producers raised numerous potential conflict-of-interest issues between the activities of AFMW and Rebekah Grace brands, a closely related food marketing entity. In several instances, Kentucky producers were told by AFMW that they had to use the Rebekah Grace packaging and label in order to receive any marketing assistance. When producers expressed reluctance, they reported to the Evaluation Team that AFMW discontinued assistance. In January, 2008, the UK Evaluation Team informed the GOAP about the problems with functional allocations of AFMW expenditures and the reported conflicts of interest.

AFMW claimed they helped market Kentucky Proud products worth \$4.1 million during the period 2005–2007. Unfortunately, the UK Evaluation Team could not verify the validity of the AFMW data. Cross-checking with participants resulted in widely varying estimates. Therefore, for purposes of the analysis of AFMW activities, we applied the same factor of 20% of sales being new sales generated by the promotional activity which resulted in an estimated \$820,000 in additional sales. Recognizing that AFMW was in the business of helping to bring new products to market that never existed before, perhaps 50% credit is more appropriate in this analysis. This would result in an estimated \$2 million of additional farm income generated during the three-year period, or about \$683,000 annually. Using the more generous figure of \$2 million in farm income generated, results in \$0.41 cents of farm income generated per \$1 of ADF investment.

Analyzing Economic Impact of Kentucky Proud—Three alternative approaches were used to estimate the probable economic impacts of the Kentucky Proud program, ultimately using data provided by the Kentucky Department of Agriculture and limited data from Allied Food Marketers West. It was difficult to fully categorize the Allied Marketers’ expenditure data due to incomplete explanations and overlapping expenditures.

Approach 1 is the most direct. This approach is based on the rate of return estimate that have been found for similar programs. Only two programs, Jersey Fresh and Grown in Georgia, have had studies that estimated their rates of return. Jersey Fresh had a very high rate of return estimated by Rutgers University economists, which was 15.2 in terms of farm income, and 46.9 for total impact on all agriculture and food sector. These estimates appear implausibly high, and therefore were not used in estimating the economic returns to Kentucky Proud.

The rate of return estimated for the Grown in Georgia program is 5.87 (average of 4.37 and 7.37). This is a gross return to grocery store revenue rather than farm revenue. In other words, every dollar invested in this program stimulated \$5.87 in grocery store gross revenue. Assuming an identical rate of return as estimated for the Georgia program implies that the total investment in the Kentucky marketing programs since 2004 (i.e., \$10.2 million in grants to the Kentucky Department of Agriculture and Allied Food Marketers West) generated \$60 million in additional gross sales revenue to the state. This estimate would amount to \$20 million in additional sales per year (2004–2006). One problem with this estimate is that it does not indicate how the state’s agricultural producers were impacted by the program. Hence, this is the least preferable estimate of the three approaches.

Approach 2 uses the results of a recent comprehensive study done by Global Insight, Inc. for the Foreign Agriculture Service of the U.S. Department of Agriculture. The particular focus of this study was the U.S. agricultural export promotion programs. The approach used by Global

Insight can be applied to the Kentucky Proud program because the collective activities in U.S. export promotion are very similar to those used by the Kentucky Department of Agriculture. One of the main purposes of U.S. export promotion programs is to brand U.S. agricultural and food commodities, this is precisely Kentucky Proud's purpose at the state-level. Furthermore, in this study, a broader benefit-cost ratio (i.e., rate of return) was computed that includes economy-wide effects of the promotion (e.g., agricultural and non-agricultural effects). Hence, this may be the best comparable rate of return for Kentucky Proud.

This study found a rate of return to the entire U.S. economy (agricultural and non-agricultural) from U.S. export promotion equal 1:5.2. That is, each dollar invested in U.S. export promotion returned \$5.20 in terms of total U.S. net economic welfare (net economic welfare can be interpreted as net benefits to the economy). Assuming an identical rate of return as that found for all U.S. export promotion program, would imply the Kentucky marketing programs generated \$53.1 million in economic benefit to the state of Kentucky since 2004.

In terms of impact on farm income, this study found a rate of return equal to 1:2.9. That is, every dollar invested in U.S. export promotion returned \$2.89 to cash income for farmers. Applying this figure to the Kentucky program implies that Kentucky Proud produced an additional \$29.54 million in farm cash receipts to the state (note that the \$29.5 million is included in the 53.1 million for the entire economy-wide impact). This estimate amounts to \$9.8 million per year in additional farm income (2004–2006).

Approach 3 relies on estimated rates of return for various marketing activities, and applies each of those to the same types of activities used in Kentucky Proud. In 13 different research studies, mostly on generic advertising and promotional activities, the average rate of return is 1:4.9, i.e., each dollar invested in generic advertising returns \$4.87 in farm revenue. Six studies on non-advertising promotional activities had an average rate of return of 1:2.7.

Based on these previous studies, an overall average rate of return for the Kentucky Proud marketing activities can be estimated by computing a weighted average of these rates of return, where the weights are equal to the expenditures on each of these activities. Based on the data provided by the Kentucky Department of Agriculture and less clearly defined data from Allied Food Marketers West, their expenditures were categorized by activity as follows:

Based on these budget percentages, the weighted average rate of return for the Kentucky Department of Agriculture using Approach 3 is 1:4.7. Based on these budget percentages, the weighted average rate of return for Allied Food Marketers West is 1:2.6. Based on these budget percentages, the weighted average rate of return for both organizations combined is 1:3.4. Using the 3.4 rate of return, would imply that the total investment in the Kentucky marketing programs since 2004 (i.e., \$10.2 million from the grants to the Kentucky Department of Agriculture and Allied Food Marketers West) generated \$34.7 million in additional farm income.

It seems reasonable to conclude that Kentucky Proud has had a positive and significant impact on both the agricultural and overall economy of Kentucky. In terms of economy-wide impacts, it was estimated that the total investment of \$10.2 million between 2004 and 2006 returned \$53.1 million. In terms of the agricultural sector, this investment returned \$29.5 million in farm income. Approach 3, which assumes similar returns as those found for generic advertising, promo-

Table 33: *Expenditures by activity for the Kentucky Department of Agriculture and Allied Food Marketers West.*

Kentucky Department of Agriculture	
Activity	Percent of Expenditures
Advertising	89.7%
Promotion	10.3%
Total	100%
Allied Food Marketers West	
Activity	Percent of Expenditures
Advertising	4.7%
Promotion	39.8%
Technical assistance	55.5%
Total	100%
Combined Programs	
Activity	Percent of Expenditures
Advertising	22.9%
Promotion	46.5%
Technical assistance	30.6%
Total	100%

tion, and technical assistance, indicates almost an identical number of \$34.7 million in additional farm income, or \$11.5 million annually.

The economic impact estimates from Approaches 1, 2, and 3, were cross-checked against sales data collected by the UK Evaluation Team from the ADB-funded projects, GOAP reports, Expert Group sessions, and individuals with first-hand information. Based on this information the farm income generated by both KDA with Kentucky Proud and Allied Food Marketers West was estimated to be \$8.8 million annually. With this additional information, it seems reasonable to conclude with some confidence that the combined marketing programs are having a very positive impact by generating from \$8 to \$12 million annually in additional farm and food sales.

Table 34: *Estimated quantitative impact of marketing and promotion investments.*

No. of Projects	Award	Amount Leveraged	Estimated Additional Annual Farm Income Generated	Farm Income Generated Per \$1 of ADF Investment	Tobacco Farmers Impacted	New or Expanded Markets
3	\$10,620,861	\$5,578,471	\$8,783,333	\$3.19	2,409	19

Education, Leadership, and Other Impacts

Several of the ADB projects targeted education, leadership, or other impacts that are important for the future of agriculture in Kentucky but do not have a short-term direct impact on farm income, sales, production, or marketing. Although it is not possible to assign a dollar value to the impacts of these types of projects, their goals remain consistent with the investment priorities of the Agricultural Development Board.

Fifteen large and medium non-model projects are included in this general area of education, leadership, and other impacts, accounting for a total investment of over \$11 million.

Table 35: *ADF education, leadership, and other investments 2001–2006.*

Recipient	Project Description	Award	Year(s)
Friends Of Kentucky 4-H	Youth Endowment Program	\$2,000,000	2001
Kentucky FFA Foundation	Youth Endowment Program	\$2,000,000	2001
UK Research Foundation	Entrepreneur Development	\$1,282,206	2003
KCARD	Center for Cooperative Development	\$1,250,460	2001 & 2003
KY Community and Technical College	Computers for Farmers - 2	\$1,155,000	2005
Buffalo Trace Area Development	Agricultural Revolving Loan Fund	\$1,000,000	2003
Kentucky Agriculture Heritage Center	Study and Design	\$1,000,000	2006
Community Ventures Corporation	Ag Micro-Loan Program	\$275,000	2002
Murray State University Foundation	Ag Diversification & Demonstration	\$257,995	2003
ApoImmune	Medical compounds from tobacco	\$255,000	2002
Kentucky Vo-Ag Teachers Association	State-wide Digital Ag Curriculum	\$250,000	2003
KentuckyVirtual.com	Internet Marketing	\$250,000	2001
KY Highlands Investment	Ag Micro-Loan Program	\$158,750	2002
UK KALP	Leadership Development Program	\$146,360	2006
Maysville Community and Technical College	Welding & Diesel Courses for Farmers	\$124,800	2006
Total Awarded		\$11,405,571	

The goals and impacts of these projects represent a wide range of approaches and subject areas. Including youth education, leadership development, entrepreneurship support, technical education for farmers, agricultural business support, and loan programs. Many of these projects represent unique approaches to increase knowledge and other support for those impacted by changes in the tobacco industry now and in the future. There are participation figures for most of these projects. Examples include:

- 24,000 Kentucky vocational agriculture students have been taught with updated curriculum
- 1,300 tobacco farmers received low-cost training in welding, computers, and diesel mechanics
- Over 9,000 youth have participated in youth educational activities
- 25 future agricultural leaders have completed a leadership course
- 40 business and community leaders have been educated as entrepreneurial coaches

Although the goals of these projects were not directly farm income related like many of the other project categories, Table 36 presents the summary information for direct impacts that could be documented. It should be noted that these fifteen projects leveraged over \$6 million in additional funding and had impacts on over 1,900 tobacco farmers.

Much of the leadership impact has occurred at the county level with the establishment of County Agricultural Development Councils and the administration of County Agricultural Development Fund projects. More results of leadership impacts related to the County Councils is included in the following section titled County Council and Leadership.

Table 36: *Estimated quantitative impact of education, leadership, and other investments.*

No. of Projects	Award	Amount Lever-aged	Estimated Additional Annual Farm Income Generated	Farm Income Generated Per \$1 of ADF Investment	Tobacco Farmers Impacted	New or Expanded Markets
15	\$11,405,571	\$6,205,010	\$75,500	\$0.02	1,909	0

County Agricultural Development Councils and Leadership

House Bill 611 which established the Agricultural Development Fund stipulated that 65% of the Tobacco Settlement money devoted to agriculture would be available for state wide projects through the Agricultural Development Board. The other 35% of the MSA funds for agriculture would be sent to the 118 counties in Kentucky that had some history of tobacco production. The county money is dispersed by a County Agricultural Development Council established for that purpose in each of the counties. The make-up of the Council is dictated by statute to be composed of:

- 2 farmers selected by the county Farm Service Agency Committee
- 2 individuals selected by the county Conservation District Board
- 2 individuals selected by the county Extension Councils
- 2 young farmers selected by the other six Council members (age 21–40)
- County Extension Agents for Agriculture and Natural Resources were designated to staff the County Council, and County Extension offices to support Council operations

County Councils make recommendations to the ADB for allotting the county’s ADF money. They can recommend non-model project funding as well as model project funding.

In order to obtain a clearer picture of how the county non-model funds are being spent, the UK Evaluation Team chose a representative sample of fifteen counties across the state to visit and interview the County Councils. The sample was chosen with regard to geographic location, amount of non-model investments, type of non-model investments and tobacco production history. Figure 2 shows the location of the County Councils interviewed.

Project Site Visits

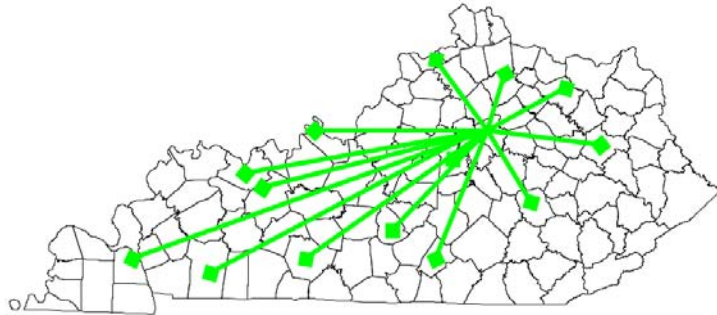


Figure 10: *County council visits.*

Survey Questionnaire—A standardized survey form was developed to guide the County Council interviews. The survey form is attached in Appendix A.

Site Visits and Interviews—Fifteen County Councils were interviewed separately across the state as well as County Agricultural Extension Agents in two different regional meetings.

The UK Evaluation Team met with the County Councils at their regularly called meetings or in a specially called meeting for the purpose of being interviewed for this evaluation. Both the County Extension Agent who works with the council (mostly the Agriculture and Natural Resources Agent but some Horticulture Agents) and the Council Members were interviewed as a group. All of the interviewed counties were active in ADF model programs and non-model programs as well. Each County Council was asked, “what have been the results of these investments in local agriculture”.

Analysis of County Council Interviews—Based on the site visits with County Councils and the interview/discussions, there are some general observations which can be made regarding leadership and education:

Leadership—County Council members were, for the most part, already in leadership roles or active in other agriculture related organizations before they became Council members. The nature of the appointment process assured that most if not all the council members were leaders in their local agricultural organizations. When asked if the Council members have assumed additional leadership roles as a result of serving on the County Council, most council members responded “no”. However, serving as a member of the County Agricultural Development Council has become an important leadership role in itself. Council members realize the importance of their positions, especially since the allocation of funds is involved. In addition, most County Council members are very conscientious in their service on the Council and participate regularly in Council meetings and other duties.

It seems clear that the council process has served to strengthen the relationships and to increase the understanding among the local agricultural organizations within most counties. Also,

because cost-share money from model programs was offered through various local agriculture organizations, this raised the farmer interest and participation level for local agriculture organizations such as the Cattlemen's Association.

Another leadership function for the County Agricultural Development Councils is the role of the County Extension Agents for Agriculture and Natural Resources in coordinating and staffing the Council, Council business, and activities. County Extension Agents also provide required educational programs and workshops, answer questions from farmers about program participation, and process program applications. In group interviews with County Extension Agents, it was estimated that they spend between 30% and 50% of their professional time on County Agricultural Development Council business and activities.

Education—The mandatory educational workshops necessary to participate in the model programs have facilitated a greater participation rate for farm focused extension programming than in the past. County Council members have stated they thought that educational programs offered along with the model cost-share programs have had a lasting impact by improving the farmer's production practices and the subsequent quality of their products.

Other general observations from the County Council interviews include:

- Cattle quality has been greatly improved with new sire genetics, improved livestock management techniques, and safer, more convenient cattle handling facilities.
- Hay and grain storage programs are permanent improvements that will continue to add to farm profitability into the future. Hay storage helped KY farmers weather the drought of 2007 by limiting the spoilage of the scarce hay available.
- The Ag Diversification program has provided a way to spread the opportunity to more of the farm community regardless of the type of enterprise the individual is involved with.
- County Councils across the state mostly have stuck to the scoring system as proposed by the ADB. Most councils award points for tobacco crop involvement, percentage of their gross income from farming and the person's farm experience.
- State-wide, the model program cost-share investments are the most visible local accomplishments of the ADF.

Interviews with UK County Extension Agents about County Councils—The Cooperative Extension Agents for Agriculture and Natural Resources play a key role in operation of the County Councils (and the entire ADF process). The UK Evaluation Team attended two different extension district staff meetings in order to survey UK County Agriculture Agents about county level ADF programs. After a short introduction on the research and ADF evaluation process under way, a survey form was handed out for the Agriculture Agents to complete before any discussions were held about the ADF programs. The surveys were completed before the discussion in order not to bias the participants with "group think" type conclusions. After the surveys were collected, a general discussion about the ADF County level programs ensued.

Extension Agent survey findings:

- On average, Agriculture Extension Agents report spending 30% to 50% of their professional time on ADF Programs.

- Extension office staff and resources are heavily used for Agriculture Development County Council business, i.e. ADF Model Program facilitation and oversight.
- Extension agents and staff are the primary contacts for the model program implementation. As such they field many questions about the ADF projects in particular, and about educational information needed to implement their project participation in general.
- Out of 37 Extension Agent surveys returned, 84% of the agents said “yes” the ADF has made a difference in agriculture in their county. Below is a ranked list of the most mentioned local impacts as noted by the agents.
 1. Infrastructure improvements—hay storage, grain storage, feed storage, fencing, cattle handling facilities
 2. Beef cattle enterprise improvements
 3. Better farm management
 4. Improved beef cattle genetics
 5. Cattle handling facilities (specifically mentioned)
 6. New enterprises started (diversification)
 7. Negative effects of developing a “farmer entitlement mentality” (i.e., wanting cost-share money to do any improvements)
 8. Improved profitability, brought new clients to extension programs, increased forage quality (all mentioned equally)

Analysis of County Non-Model Investments

A significant portion of the funds flowing to County Councils were used for “non-model” investments, as opposed to the menu-driven, cost-share “model programs” which are evaluated in Part II. Since this “county non-model” funding stream comprised 19% of the total funds flowing to County Councils, the UK Team examined how the County Councils allocated these “non-model” investments and their impacts. However, it is recognized that, generally, the County Councils have focused most of their attention on funding model programs that directly distributed cost-share funds to qualified farmers in their county.

Data Collection

Using data provided by the Governors Office of Agricultural Policy, the UK Evaluation Team constructed the following table to illustrate the County Non-Model spending results for the entire state. The table categorizes the projects by recipients or purpose.

Types of investments made in County Non-Model programs include: funds for model programs offered as a menu approach; funds for group marketing efforts or large processing facilities, education and youth development programs; Extension District construction projects for new facilities, county fair ground improvements, private business / agri-tourism ventures, field drainage tile cost-share programs, farmers’ markets and farmland preservation efforts.

Table 37: *County non-model program spending 2001–2006.*^a

	Dollars	Percent of County Non-Model Funds	No. of Projects
Menu Approach or Model Cost-share Programs	\$8,824,010	43%	97
Group Marketing and/or Large Processing Facilities	\$4,106,140	20%	181
Education and/or Youth Projects	\$1,814,084	9%	105
Other Projects	\$1,295,762	6%	44
County Fair Grounds Projects	\$893,779	4%	15
Field Drainage Tile Cost-share Programs	\$789,573	4%	9
Farmers' markets	\$676,441	3%	45
Shared Use Equipment	\$688,511	3%	52
Extension District New Construction Projects	\$684,500	3%	7
Private Business / Agri-tourism	\$650,833	3%	75
Farm Land Preservation	\$364,000	2%	2
Total County Non-model Funds	\$20,541,594	100%	638

^aCounty Non-Model Funds comprised 19% of the total \$107 Million Non-Model spending 2001–2006.

Types of Investments made in County Non-Model Programs

Model Programs—Forty-three percent of the County Non-model investment funds actually went onto model programs in the form of a “menu approach”. The menu approach is where qualified farmers choose which cost-share programs they would like to participate in up to the amount of funds they are allotted. This approach to funding county model programs was not available except under the non-model category. There were also some county specific cost share programs included in this category, (i.e: on-farm water development, precision agriculture technology, Farm Business Analysis and satellite internet access programs).

Group Marketing or Large Processing Facilities—The next largest spending category for County Non-Model funds was for projects that involved group marketing efforts or large scale processing ventures. There were 181 investments in this category comprising 20% of the funds or \$4.1 million. The large number of investments is not surprising, because this is a count of county investments. In many cases several counties made investments into the same large regional project. Examples of projects that received county non-model funds include produce marketing cooperatives, aquaculture processing or seed stock ventures, nursery production cooperative, bio-fuel manufacturing, specialty grain marketing, and grain value-added manufacturing. Almost all of these projects were funded in conjunction with state non-model project funds. The impacts of these projects have previously been analyzed in the state non-model sections of this report.

Education and Youth Development—Nine percent of the County Non-Model funds (approximately \$1.8 million), have gone into projects involving education or youth development. These projects typically were greenhouse or school farm projects at local high schools. There was, however, quite a range of educational endeavors funded, including support for Community College technical training related to agriculture, demonstration-farm ventures, heifer youth livestock programs, young farmer programs and youth Master Cattlemen classes.

Other Projects—The other projects category included county non-model funds to add to research on Mare Reproductive Loss Syndrome, a beekeeping initiative, a study on farm land preservation programs, debris removal after farmland was flooded, and a compost making facility.

County Fair Ground Improvements—Multi-purpose buildings for livestock showing and other events and livestock sales pavilions were the main projects funded under the county fair grounds category. Two of the projects totaled over \$100,000 each, with the remaining projects well under that.

Private Business / Agri-tourism Ventures—A wide variety of private businesses received some county non-model funds. These businesses were typically small, sole proprietary start-up companies involved in making value-added products such as jams, salsas, ice cream, wine, cider, BBQ and custom meats. A number of agri-tourism businesses received funds which they used to add a commercial kitchen to offer prepared foods to their customers.

Field Drainage—Tiling cost-share programs—Four counties funded field drainage tile cost-share programs; Daviess, Muhlenberg, Todd and Warren. Approximately \$790,000 was made available for field tiling cost-share.

Extension Districts—new facilities construction projects—Five counties invested Non-Model funds into new County Cooperative Extension Educational facilities including Anderson, Allen, Bath, Garrard and Jessamine. The other investments in this category involved educational field days.

Farmers' markets—Local farmers' markets were a popular place to invest county non-model funds. Nineteen permanent farmers' market pavilions were fully or partially funded with County Non-model funds, seven farmers' markets made improvements to their existing farmers' market site, seven received advertising funds and four purchased smaller items, like shade tents for booths, scales to weigh produce, etc. The remaining projects funded were for organizational and start-up costs for new farmers' markets being organized. Most of the farmers' market county non-model spending went hand in hand with some state non-model funds to carry out improvements.

The UK Evaluation team conducted a mail survey of KY farmers' markets that received some ADF funds in order to gauge the possible impacts for the funding. Looking at typical farmers' markets in the survey and using the nine markets that disclosed their annual sales figures an estimate of \$0.84 in annual sales were generated for each ADF dollar received. More farmers' market impact information is discussed in this report under the market development section. Also a complete report on ADF funded farmers' markets is included in the appendix.

Shared Use Equipment—Specialized farm equipment that many farmers could not afford or justify owning were purchased and rented on an as-needed basis to farmers in the county. Typically, these are no-till pasture renovation drills, hay and silage bale wrappers, lime and fertilizer buggies, cattle scales, portable squeeze chutes and corral panels.

Farmland Preservation Efforts—Shelby and Clark Counties funded studies to assess the potential to establish farmland preservation programs. Fayette County was the only county to put county non-model funds into an active program to purchase farm development rights. During the 2001–2006 period, Fayette County spent \$350,000 of non-model funds for this purpose.

Impacts of County Non-Model Investments

To better understand the impacts of the county non-model investments, the UK Evaluation Team interviewed fifteen County Councils and the respective County Cooperative extension personnel who assist them. The following table shows the types of non-model investments made by the fifteen County Councils interviewed.

Table 38: *ADF county non-model investments for 15 county sample.*

	Total (in hundreds of thousands)	Percent of Total	Number of Counties	Number of investments
Model Programs	\$2,093	42%	6	11
Marketing Initiatives, Processing Facilities	\$800	16%	9	17
Field Tiling Cost-share	\$737	15%	2	4
Youth Ag Programs	\$567	11%	15	27
Farmland Preservation	\$350	7%	1	1
Private Business Ventures	\$183	4%	6	12
Fair Barn/Livestock Show Facility	\$132	3%	3	3
Farmers Markets	\$94	2%	9	13
Other	\$28	1%	3	5
County Non-Model Investments Total	\$4,985	100%	15	103

The investment categories and the proportion of investment in each is roughly the same as the state wide non-model results. The field tiling cost-share and the farm land preservation categories are over-stated due to the coincidence that the two largest investors in field tiling programs and the largest funder of farm land preservation were included in the fifteen county sample.

Evidence of Impacts

When County Council members were asked to identify specific impacts of the non-model investments in their county, the following examples were mentioned:

- The Wilderness Trail livestock facility has made the local stockyards more competitive
- Local Farmers’ markets have been a good investment; more members and greater sales volume
- The Ethanol Plant increased farmer co-op member profits

- Siemer Milling created a market for all wheat (even lower quality)
- Technology cost-share programs have been very popular
- Field tiling made the difference between 75 bushel corn and 150 bushel corn
- The tiling program is a success with long term benefits
- County non-model funds given to Owensboro Grain for bio-diesel plant have resulted in a new production capacity but we cannot buy any bio-diesel locally. It all gets shipped overseas.
- Livestock facilities we funded are widely used by diverse groups
- Farmers' markets have been a big success
- There have been more educational programs in our county

Conclusions and Recommendations Regarding Non-Model ADF Investments

1. The ADF investments in Non-Model Projects have had a significant positive impact on agriculture and agribusiness in Kentucky. The \$86 million invested in the state non-model projects has resulted in an estimated \$161 million in additional farm income over the period 2000–2007, created or expanded markets for 148 products, generated about 1,300 new jobs, and impacted 50,000 tobacco farmers and over 100,000 youth. Thus, in large measure, the ADF investments have contributed to the overall goals contained in the ADB investment philosophy and long-term plan priorities.
2. On average, every dollar invested from the ADF in state non-model projects resulted in an estimated \$1.87 of additional farm income, with the small projects having the largest return—\$3 of new farm income per \$1 invested. In terms of key sectors in agriculture, the additional income generated was highest for investments in marketing and promotion (\$3.19:\$1) and livestock (\$3.15:\$1). Project participants leveraged \$96 million in additional funding for their projects, substantially more than the awards received from the ADF (\$86 million).
3. With regard to Marketing and Market Development, the investments in state non-model projects have clearly helped:
 - create new markets for Kentucky agricultural products, e.g., low quality wheat for industrial glues; hogs for naturally cured hams, out-of-state markets for PVP cattle, native seeds, and nursery crops;
 - expand existing markets, including Kentucky Proud identified products, apples for cider, CPH-45 feeder cattle, direct meat marketing, quality hay; and
 - develop new products including ethanol, wines, bottled milk, native seeds, salsa / sauces / relishes / jams, livestock mineral supplements, romaine lettuce, aquaculture seed stock. These positive market development impacts occurred across large, medium, and small investments.

4. The non-model investments have been successful in affecting tobacco farmers and a few tobacco-dependent communities. Approximately 50,000 tobacco farmers have been impacted by these investments, with the most impact coming from the investments in the Beef Network and the Horticulture Council. The non-model investments have had some positive impacts in selected tobacco-impacted communities, primarily in western Kentucky. However, there have been negligible impacts in northeast and eastern Kentucky communities where traditional burley production has declined in economic impact.

Recommendation: GOAP should encourage project proposals from regions where there has been relatively little ADF investment but where there exists potential for agriculturally-based ventures.

Recommendation: GOAP should encourage community-based economic development proposals focused on new ventures and job creation in tobacco-impacted communities in northeastern and eastern Kentucky.

5. The non-model investments have created jobs and affected youth in rural Kentucky. However, these investments have only been modest generators of new jobs, resulting in about 1,300 new jobs of all types (seasonal, part-time, full-time) over the study period. The large projects created the most full-time jobs (255) and the small projects created the most jobs of all types (712). However, the impact on youth has been broad with over 100,000 young people being affected, primarily by the Education and Leadership projects.
6. The ADF investments in “comprehensive approaches” which combined education, technical assistance, infrastructure improvements, marketing, and cost-share financing (with Model and Non-Model funds) have been effective and have produced broad positive impacts across key sectors of the agricultural economy, e.g., Horticulture Council, Beef Network.
7. For the large projects, 11 out of 31 investments have accomplished all goals with clear, documented evidence of positive impacts. For the medium projects, 9 out of 33 have accomplished all goals with clear, documented evidence of positive impacts. As would be expected in venture capital financing, there are “low performing or non-performing” investments. Nine of the large projects, representing \$16.7 million or 25% of total investments have serious performance issues. For the medium projects, 12 of 33 are low performing or non-performing, representing \$2.6 million or 33% of total investment.

Recommendation: The ADB should continue to fund risky new ventures which stimulate new markets, expand the value chain, and encourage in-state value-added processing.

Recommendation: The ADB should carefully examine the low-performing and nonperforming projects to determine the factors which have impeded achievement of goals and intended impacts.

8. The “failure” of some earlier investments (e.g., aquaculture co-ops, vegetable marketing co-ops) still resulted in advancements in new enterprises, new on-farm technology, continuing production of alternative crops, and contract marketing opportunities. It appears that emphasizing infrastructure expansion without comparable investment in management and training over the long-term may have doomed certain investments.

Recommendation: The ADB should establish practical, even if lengthy, timelines for project implementation with reasonable investment in management and training, if needed, to improve long-run project viability.

9. The non-model projects have had broad impacts across key sectors of the agricultural economy, including livestock, horticulture, value-added, marketing and promotion, and education and leadership:

- The \$18 million invested in livestock projects has resulted in an estimated additional livestock income of \$16 million per year, primarily through improved basis for Kentucky cattle, expanded CPH-45 feeder calf sales, new PVP cattle sales, improved direct marketing of meats, and an emerging aquaculture sector;
- The \$23.6 million invested in horticulture-related projects is generating an estimated additional \$5–6 million in farm income per year (a 24% return on ADF invested funds) and the comprehensive “package” approach (education, technical assistance, new technology, marketing, and advertising) accounts for about 50% of the annual growth in horticulture sales (8% per year);
- The \$18 million invested in value-added processing has leveraged an additional \$41 million in private investment, resulting in approximately \$5.7 million in farm income per year, an impact which is likely to increase as newer projects come in full production. The largest impacts have been in grain processing, ham processing, and wine production;
- Over \$10 million has been invested in marketing and promotion, primarily through two large projects. The Kentucky Proud state-branding program is among the most successful in the nation, generating an estimated additional \$7.8 million in farm income annually. The private sector marketing technical assistance had a more modest impact (about \$833,000 per year) but the combined impact of the marketing projects was positive: about \$3.19 of farm income generated per \$1 invested;
- The \$11 million invested in Education and Leadership Projects had modest impacts on farm income but positive impacts on the youth and farmers participating in the programs.

Recommendation: To continue the progress on improving marketing and market development, the ADB should seek a private sector-based partner

to collaborate with the Kentucky Department of Agriculture on supplying marketing assistance to small agricultural entrepreneurs.

Recommendation: The 5% of total funds invested in small projects should be increased since small projects with specific scopes and objectives have had high payoff.

10. It appears that earlier ADB investments were riskier, involving more nontraditional venture capital projects, compared to the more recent ADB investments. There are also significant differences in the amount of risk reduction offered to new ventures by the ADB versus KAFC (i.e., the forgivable ADF loans offer far more risk reduction than KAFC loans).

Recommendation: Seek collaboration between the Boards and staff of ADB and KAFC in providing coordinated financial assistance for new ventures which reduces risk through a blended strategy of grant and loan funding.

11. The non-model project reporting system (Semi-Annual Fiscal Reports, Annual Reports) is comprehensive in its expectations, but the GOAP appears to lack the staff necessary to properly utilize information from these reports or monitor the performance of all projects. Relatively too much staff time may be involved in feasibility analysis versus project monitoring. While forgivable loan repayments are tracked, there is insufficient attention paid to project reports submitted to GOAP, impact assessment, and post-award relationships with recipients.

Recommendation: GOAP staff should more carefully track and respond to fiscal and progress reports as part of routine, regular monitoring of award recipients in order to improve credibility of the reporting system and improve information management.

Recommendation: Site visits by GOAP staff and ADB board members should become a normal part of annual project monitoring and review in order for ADB to assess strategies and investment performance.

Recommendation: GOAP should contract with an outside entity for a major impact evaluation on a triennial basis.

12. There have been a few serious issues in program administration: (a) The large investment in private sector marketing assistance failed to fully accomplish its goals, proved to be a high cost project for the few successful ventures, and resulted in numerous conflicts of interest; (b) terms and conditions of “forgiveable loans” have lacked consistency and transparency for recipients; (c) there have been a few awards that created competitive projects in the same geographic region, resulting in negative interactions (e.g., compost in central Kentucky, grain processing in Christian County); and (d) there seems to be no coordination between ADB non-model project financing and KAFC loan financing.

Recommendation: Along with improved project monitoring, the ADB needs a clear policy on conflicts of interest for award recipients and needs to avoid competitive projects where possible. Recommendation: ADB needs to rationalize the provisions of the forgivable loan feature of project funding in order to provide more consistency and transparency.

Recommendation: The ADB and KAFC boards need to investigate opportunities for collaboration and mutual support in pursuit of the overall ADF goals.