ECONOMIC ANALYSIS OF THE U.S. DEPARTMENT OF AGRICULTURE'S VALUE-ADDED PRODUCER GRANTS PROGRAM

by

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Abstract

The 2002 Farm Bill Rural Development Title created new programs to encourage the development of businesses designed to convert commodities to value-added products. This thesis identifies determinants of business development success for Value-Added Producer Grant (VAPG) recipients. Success is categorized in nine different stages of development:(1) creation of an idea, (2) formation of the idea into a written plan as a feasibility study, business plan, or marketing plan, (3) formation of an organizational structure for the idea, (4) the hiring of a manager or employees for the idea, (5) raise capital for the idea through equity drives, (7) creation of the idea into a product in a facility, (8) distribute and sell the product, (9) and whether the product was being sold in March of 2006. The data involves information on 621 grant recipients. Two econometric models are used to evaluate the data. The number of USDA Rural Business and Cooperative Employees, the value-added producer grant amount divided by the number of producers in the organization, the 2006 organizational sales divided by the number of producers in the respective organization, and the total production of the organization divided by the national production of the respective crop were significant variables. These four size variables had a negative impact on an organization being in steps one though eight, but a positive impact on being in step nine, which was the successful stage of business development. (such as dairy, flowers, fruit, nuts, specialty meats, wheat, and wine were positively associated with successful VAPG grant recipients. Illinois, Kansas, Minnesota, Missouri, and Wisconsin had significantly greater odds of success in business development also.

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CHAPTER 1 - Introduction

The United States Department of Agriculture (USDA) Rural Development division awarded $126,343,053 from 2002 through 2005 to qualified applicants of value-added agricultural products through the Value-Added Producer Grant (VAPG) program. The value of these grants given to value-added producers ranged from a minimum of $1,250 to a maximum of $500,000. These funds have been used to subsidize qualified farmers, ranchers, and producers (the word producers is used henceforth to denote all agricultural ranchers, farmers, and producers) to research ideas regarding the development and marketing of value-added agricultural products, aid in the development of value-added businesses, and assist with any other business related expenses including working capital.

The VAPG program was authorized in the 2002 Farm Bill and annual appropriations have been made by Congress for the competitive grants program. The program is administered by USDA within the Rural Business and Cooperatives program. The House and Senate versions of the 2007 Farm Bill contain additional language that would reauthorize the VAPG. As of December 1, 2007, the two bills only differ regarding the amount of annual funding being authorized.

The 2002 Farm Bill contained many new programs that were designed to encourage rural economic development in the Rural Development title. As is shown in this thesis, an economic evaluation of the VAPG program has not been preformed. Additionally, many departments of agricultural economics have received funding either directly or indirectly through the Rural Development title and many agricultural economists may be unaware of the funds available for

applied research in these programs. For example, the 2002 Farm Bill authorized funding for Agricultural Innovation Centers. Funding for ten centers with $1 million each was appropriated and seven of these ten centers were housed in departments of agricultural economics or relied heavily on agricultural economists in their programs (e.g., Cornell, Kansas State, Michigan State, North Dakota State, Penn State, Purdue, and Rutgers).

Furthermore, an analysis of new job postings by the American Agricultural Economics Association since 2002 suggests that economists doing work in value-added agriculture has been a major qualification in job descriptions for extension specialist positions and agribusiness economics research positions. From this information, we conclude that development of value-added agricultural businesses has become an important function for many departments of agricultural economics.

1.1 Background Information Leading to the 2002 Farm Bill

It is beyond the scope of this thesis to evaluate all the factors that led to the writing of the 2002 Farm Bill. However, it is widely known that rural economic development was on the minds of the writers of the 2002 Farm Bill as evidenced by the many new programs that were authorized in the Rural Development title. Congress passed the 2002 Farm Bill, as the President signed into law on May 13, 2002, which authorized $16.5 billion in agricultural subsidies and programs to producers.

The Rural Development division of USDA was created to help "improve the economy and quality of life in all of rural America."[1] The Rural Development Title (Title VI) of the 2002 Farm Bill was established in order to provide financial support for rural areas to "undertake strategic planning, feasibility assessments, and coordination activities with other local, State, and

[1] U.S. Department of Agriculture (2007c)

Federal officials" (Reeder). One such program is the VAPG Program. The VAPG program was enacted to provide assistance to value-added businesses and cooperatives. The grants are available to independent producers, farmer and rancher cooperatives, agricultural producer groups, and majority-controlled producer-based business ventures. In total, $40 million dollars were authorized annually to enable producers to help offset various costs associated with developing a new business and providing working capital. This money may be used in a variety of ways, including technical assistance, business and marketing planning, and other non-financial assistance to value-added businesses.

To define a value-added product the USDA Notice of Available Funding (NOFA) uses this definition of the term value-added as:

1. Expand the customer base for the product or commodity, and result in a greater portion of the revenues derived from the value-added activity that is available to the producer.
2. The product must then meet one of the following criteria to be eligible:
    a. The changing of the physical state or form of the product. Examples include: processing wheat into flour, corn into ethanol, slaughtering livestock or poultry, or slicing tomatoes.
    b. A product produced in a manner that enhances its value, as demonstrated through a business plan. An example is organically produced products.
    c. The physical segregation of an agricultural commodity or product in a manner that results in the enhancement of the value of that commodity or product. Examples: include an identity preservation system for a variety or quality of grain desired by an identified end-user or the traceability of hormone-free livestock to the retailer.

d. The term "value-added agricultural product" includes any agricultural commodity or product that is used to produce renewable energy on a farm or ranch.

   Examples: collecting and converting methane from animal waste to generate energy

The definition of value-added was refined over time in the NOFA, but no real changes were made since the original language.

1.2 Individual Sections of the Rural Development Title in the 2002 Farm Bill

Subtitle A was the Consolidated Farm and Rural Development Act. There are three main categories: 1) Rural Community Programs, 2) Rural Utilities Programs, and 3) Rural Business and Cooperative Development Programs. Water or Waste Disposal Grants was the first section. The Farm Bill authorized $30 million, for the fiscal years 2002 through 2007, for the purpose of improving rural water and waste systems. This was an increase of $7.5 million from the previous farm bill. Rural Business Opportunity Grants was the next section in the farm bill. This section allocated $15 million, for the fiscal years of 2002 though 2007, to be spent on rural businesses. Rural Water and Wastewater Circuit Rider Program authorized $15 million, for the fiscal years of 2003 and every year thereafter, to be used through the Rural Utilities Service as part of the circuit rider program. Emergency and Imminent Community Water Assistance Grant Program was the next section of the 2002 Farm Bill, and it authorized grant money of $35 million for the fiscal years of 2003 through 2007. Rural Business Enterprise Grants provided grant money to non-profit organizations to create, expand or operate value-added processing in production agriculture. Business and Industry Loans provides money to farmers, cooperatives, and businesses for business related expenses and $40 million was authorized.

Subtitle B, the Rural Electrification Act of 1936, provided funded dollars to be used on a not-for-profit basis, to make loans for electrification and telephone assistance. The Rural Broadband Access program did not set a limit on the allocations of these funds, only providing stipulation that there are enough funds provided to carry out the purpose of this section.

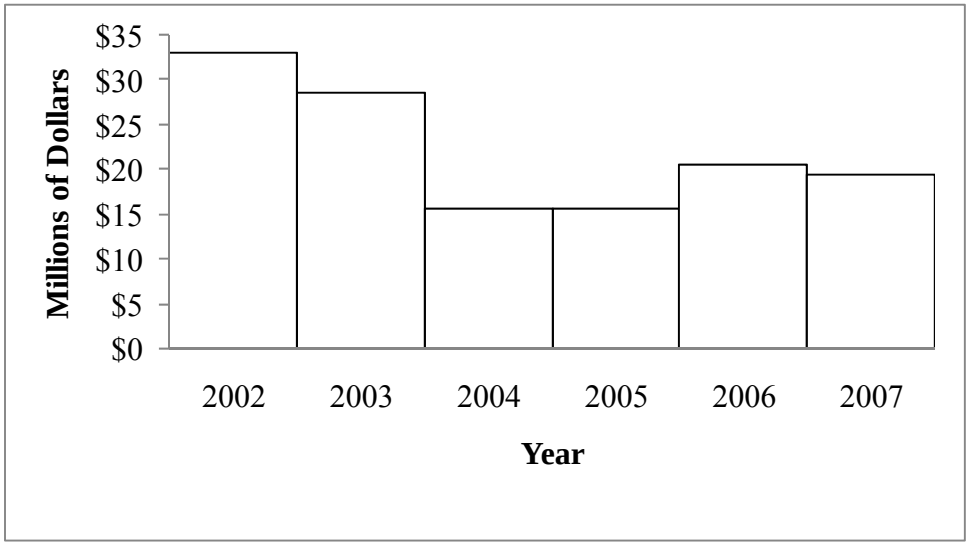
Subtitle C, Food, Agriculture, Conservation, and Trade Act of 1990 detailed additional agriculture and food programs. Examples of some categories under Subtitle C include commodity provisions, food stamps, conservation, organic food standards, crop insurance, and disaster assistance. Several other sections are included under Subtitle C. These sections included Rural Electronic Commerce Extensions Program, Rural Electronic Commerce Extension Program, and Telemedicine and Distance Learning Services in Rural Areas.

Subtitle D is the SEARCH Grants for Small Communities section. This division of the 2002 Farm Bill provided aid to small communities of 2,500 people or less for one or more environmental projects. Furthermore, the funds have to be used for feasibility and/or environmental studies, and the community must show that it has not been able to acquire funds from conventional sources. For this program, $51 million was authorized for the years of 2002 through 2007, of which individual grants may not exceed $1 million per state.

The next section in the 2002 Farm Bill was Subtitle E, Miscellaneous. This segment covered various grants and funding opportunities that are not applicable to other sections. Section 6401, Value-Added Agricultural Product Market Development Grants, was the first division of the Miscellaneous Subtitle. As defined previously, VAPG's are very specific in how they can be categorized. For this program, $40 million per year was authorized to be available annually for the years of 2002-2007, with the deadline for grant applications being October 1 of each year. In addition, no producer may receive over $500,000 per year for any VAPG. To be

eligible, a producer must be an "agricultural producer group, farmer or rancher cooperative, or a majority-controlled producer-based business venture" to qualify for a VAPG. Figure 1.1 shows the appropriated funds for the VAPG program by year. The amount varies annually based on the amount appropriated by Congress.

Figure 1.1 Total Grant Dollars Awarded by the U.S. Department of Agriculture's Value-Added Producer Grant (VAPG) Program 2002-2007



The U.S. Department of Agriculture did not include a Subtitle F in the 2002 Farm Bill. Subtitle G is the Northern Great Plains Regional Authority. This section detailed the aid provided to the states of Iowa, Minnesota, North Dakota, and South Dakota. The funds were used to implement recommendations of the Northern Great Plains Rural Development Commission, to acquire or develop land, carry out other economic development activity, and conduct research activities.

Subtitle H, Rural Business and Investment Program, was the next division in the Rural Development portion of the Farm Bill. The purpose behind this program was to promote economic development and generate wealth and jobs in rural economic area. Obtaining capital

investments in rural areas was one main goal behind this section of the farm bill. Companies that are eligible for this grant must be an incorporated body or a limited liability company and must carry out activities authorized by the farm bill. This program authorized $280 million in grant money for rural investment companies to invest equity in rural businesses. However, no funds were ever appropriated for this program.

Subtitle I was the Rural Strategic Investment Program. The principle behind this section is to help provide an investment program for rural America. Innovation Grants are an important function of the Rural Strategic Investment Program, as they were intended to provide aid to entrepreneurship activities principally to public-private partnerships. This curriculum authorized up to $3 million per year to help Rural Investment Boards. These boards obtained grant money to study rural economies to develop strategies and economic development plans for the betterment of local economies.

The Agriculture Innovation Center Demonstration Program was the next division of the Farm Bill. This segment is to help fund a demonstration program where agricultural producers are provided technical assistance, marketing assistance, organizational and developmental assistance to producer value-added products or commodities. The principle behind the Agriculture Innovation Center Demonstration Program was to facilitate agricultural producers to obtain assistance in producing value-added products through the USDA. The authorized funds were $3 million for fiscal year 2002, and $6 million for 2003 and 2004. Rural Firefighters and Emergency Personnel Grant Program authorized $10 million for 2003 through 2007 in order to provide training facilities, to train emergency personnel and firefighters at approved training centers.

Table 1.1 describes the authorized sections and annual appropriations of the 2002 Farm Bill for the years of 2002 through 2007. Note that in Table 1.1, the appropriations remained the same in some years. In these years, Congress passed its appropriations bills on a continuing resolution bill, which allocated the same amount of money as the prior year. A continuing resolution occurs when Congress cannot decide on the appropriate amount of funds to disperse by the end of the federal fiscal year of September 30th.

1.3 Thesis Objective and Hypothesis

More research is needed to determine how successful the 2002 Farm Bill programs were in stimulating rural community growth and providing farmers with increased incomes and reduced risk. An economic analysis of the VAPG program authorized in the 2002 Farm Bill has not been done. The objective of this thesis is to identify key determinants of business development success for VAPG recipients. These variables can be used to identify policies that have encouraged the development of value-added businesses. By identifying variables associated with the successful development of value-added businesses, it will be possible to provide policymakers with information regarding additional resources needed for these businesses. The hypothesis examined in this thesis is that size, human resources available for assistance with business development, amount of skilled labor in a rural community, crop type, type of value-added, organizational form, and state location are positive determinants of successful business development for a VAPG recipient.

Table 1.1 Farm Bill Programs Authorized in the 2002 Farm Bill and their Annual Appropriations

Program	2002	2003	2004	2005	2006	2007
Rural Community Programs Total	$83,545,000	$83,545,000	$75,919,000	$89,180,000	$82,620,000	$49,477,000
Rural Community Assistance Programs	$5,250,000	$5,250,000	$6,000,000	$5,600,000	$5,600,000	$5,600,000
Rural Economic Area Partnership Zones	$37,624,000	$37,624,000	$22,132,000	$22,166,000	$21,367,000	$22,800,000
Unreconciliable[a]	$40,671,000	$40,671,000	$47,787,000	$61,414,000	$55,653,000	$21,077,000
Rural Utilities Programs Total	$646,512,000	$646,512,000	$605,006,000	$552,689,000	$530,100,000	$561,252,000
Rural Telephone Bank Program	$174,615,000	$174,615,000	$173,503,000	$175,000,000	$2,475,000	$0
Distance Learning and Telemedicine Program	$300,000,000	$300,000,000	$300,000,000	$50,000,000	$25,000,000	$0
Local Television Loan Guarantee Program	$258,065,000	$258,065,000	$258,065,000	$258,065,000	$258,065,000	$258,065,000
Unreconciliable[a]	-$86,168,000	-$86,168,000	-$126,562,000	$69,624,000	$244,560,000	$303,187,000
Rural and Business Cooperative Development Programs Total	$109,500,000	$105,200,000	$92,000,000	$89,680,000	$89,221,000	$89,164,000
Rural Economic Development Loans	$14,966,000	$14,966,000	$15,002,000	$15,868,000	$25,003,000	$34,652,000
Rural Cooperative Development Grants (i.e., VAPG, CDC, etc.)	$40,750,000	$36,450,000	$23,250,000	$24,000,000	$29,488,000	$9,913,000
Rural Empowerment Zones and Enterprise Communities	$14,967,000	$14,967,000	$12,667,000	$12,500,000	$11,200,000	$11,088,000
Rural Development Loan Fund Program Account	$38,171,000	$38,171,000	$40,000,000	$34,213,000	$34,212,000	$33,925,000
Unreconciliable[a]	$646,000	$646,000	$1,081,000	$3,099,000	-$10,682,000	-$414,000
Total Consolidated Farm And Rural Development Act	$806,557,000	$806,557,000	$757,425,000	$716,049,000	$701,941,000	$699,893,000
New Programs						
Broadband Telecommunication Loans[b]	$80,000,000	$80,000,000	$602,000,000	$550,000,000	$500,000,000	0
Rural Strategies and Investment Program[b]	0	0	0	0	0	0
Renewable Energy Program	$0	$0	$0	$23,000,000	$23,000,000	$20,000,000

[a]Unreconciliable denotes that the author was unable to understand the language of the agricultural appropriations in order to better assign the figures.

[b]These programs were authorized in the Farm Bill for $280 million but appropriations were never made.

1.4 Summary

This chapter has discussed the Rural Development title of the 2002 Farm Bill which contained a significant number of new programs including the VAPG program. The next chapter provides a review of literature that provides economic reasons why these programs might have been enacted and how this thesis contributes to that literature. The third chapter discusses theoretical reasons underlying the economic justification of these programs. The fourth chapter describes the data and the fifth chapter discusses the economic model used in the thesis. Chapter six discusses the results and the last chapter provides conclusions and implications.

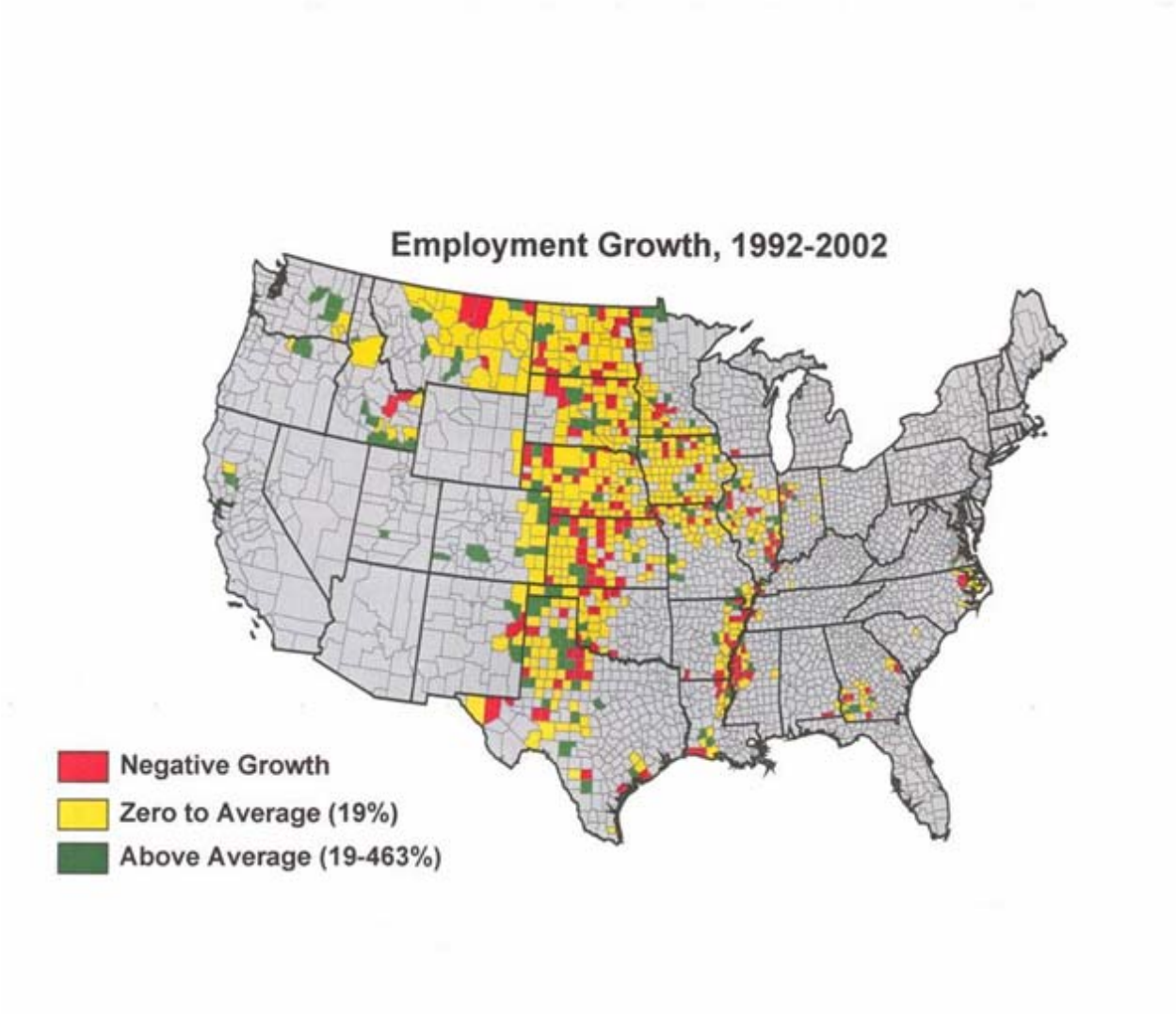
CHAPTER 2 - Literature Review

In this chapter, a review of the literature provides the economic justification for why these new programs, and in particular the VAPG program, were authorized in the 2002 Farm Bill. The literature review is built around four economic justifications for these programs: 1) lack of correlation between farm subsidies and economic development, 2) need to improve rural amenities, 3) desire to improve producer incomes through increased marketing margins, and 4) ability to improve employment in rural areas. These justifications are the opinions of the author based on the literature review. The University of Minnesota's AGECON Search and Econlit were the primary reference sites used to identify relevant research. It should be noted that the body of research by economists is small in this topic.

2.1 Lack of Correlation between Farm Subsidies and Economic Development

Data from the U.S. Department of Commerce suggest that job growth is low in counties that receive the largest share of agricultural farm payments. Figure 2.1 shows the top 25% of counties dependent on farm payments and shows the employment growth rate of individual counties using data from the U.S. Department of Commerce. The figure shows that the top counties receiving farm payments do not show significantly higher employment growth rates. A commonly asked question is whether agricultural subsidies create rural economic growth. In Mark Drabenstott's 2005 article about the 2002 Farm Bill he states that, "four-fifths of total spending goes directly to farmers. Meanwhile, only 0.7% goes to rural development initiatives." Further research by Drabenstott indicates that these farm payments do not necessarily increase the economic development in the rural areas that are most highly impacted by the payments.

Figure 2.1 Employment Growth in Top 25% of Counties Dependent on Farm Payments



Source: Drabenstott

The creation of jobs, and hence rural development, that was expected from agricultural payments to farmers has not occurred and in fact, appears to be negatively correlated with farm payments. Drabenstott states, "Still, farm payments appear to create dependency on even more payments, not new engines of growth" (p. 3). This research shows that farm payments are being given to rural counties that need them the most, but the payments appear to be not increasing economic

activity. The research question must be asked then, why are the payments not helping rural areas when they are being given to the people living in these rural areas.

Dr. Maureen Kilkenny in her 1993 article entitled, *Rural/Urban Effects of Terminating Farm Subsidies*, provides an argument in favor of the agriculture subsidy program. In this paper, she models the effects of regional factors and goods markets to provide realistic predictions of what would happen if farm subsidies were terminated. Assumptions for the economic benefit of terminating subsidies include frictionless labor and the increase in aggregate income providing increases in retail sales. In her study, she showed theoretically, "that the transfer of income from urban taxpayers through farm programs does stimulate some rural activity and that terminating subsidies would probably result in localized short-run losses" (p. 977).

Kilkenny found that rural activities are actually hurt by farm subsidies and that efficiency gains from an increase in farming do not offset tax and efficiency costs for the United States. To abandon the subsidy program would also hurt more than just farmers. The model found that rural industries linked to agriculture, household services, and business services would all suffer with a reduction in subsidy programs. Agricultural related areas would be hurt by "increasing costs, falling prices, and declining demand" (p. 978). Service areas would then be affected by decreases in "regional income and spending" (p. 978).

In contrast to hurting the rural economy, it was found that the manufacturing segment would expand with the termination of subsidies. One possibility is the growth of the manufacturing industry as jobs would move to rural areas due to cost factors, including cost of living, wages, and overhead costs. An opportunity is to reimburse rural areas in the short term to cover the loss of subsidies, which would be less expensive than the current subsidy program. The conclusion from Kilkenny's article suggests that there is no single answer of whether to keep the

farm subsidy program or to end it. It is a complicated problem with both positive and negative contributions from keeping the program or terminating it.

Maintaining the rural economy has been a major goal of the government since the 1950's. In the USDA's 2007 Rural Development executive summary, it is stated that "78 percent of farm-dependent counties lost population from 2000-2005."[2] Low job opportunities and insufficient amenities are the two main reasons that are cited for the decrease in population.

Rural development is a complex subject. In fact, rural development has changed dramatically over the past 50 years. The USDA's executive summary states that, "In 1950, about 40 percent of rural people lived on a farm…..Today, less than 10 percent of rural people currently live on a farm and only 6.5 percent of the rural workforce is directly employed in farm production." This change is very complex due to the fact that many farmers also have off the farm jobs to help supplement their total income. It has become very difficult for farmers to have an adequate lifestyle with only farming as their major source of income. Poverty rates in rural counties have grown, as well as employment growth and real per capita income have not kept current with metropolitan counties.

In general, rural development research suggests that government subsidies are based on the size of a farming operation. Higher payments go to farmers with more land. These payments encourage farmers to be low-cost producers and obtain economies of scale and size. These economies encourage land consolidation and fewer people living in rural areas. Thus, job creation does not occur and policies designed to increase farm income do not increase employment in rural areas.

[2] U.S. Department of Agriculture (2007d)

2.2 Need to Improve Rural Amenities

Over the past century, many rural communities have added manufacturing and service activities to counteract the loss of agricultural production. In a paper by Monchuk et al., *An Analysis of Regional Economic Growth in the U.S. Midwest*, the authors study county level economic growth factors in Iowa, Illinois, Minnesota, Kansas, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin. Their study found that over time, "Midwest farms have shifted away from value-adding opportunities in livestock production" (p. 36). Farms that took advantage of value-added livestock prospects had more economic growth than if they did not use value-added livestock production. Recreational amenities impacted county economic growth in a positive manner. The authors stated, "We anticipate that recreation amenities will have a more important role in the future as the demand for outdoor recreation grows with increasing incomes, leisure time, and population" (p. 36). The research found that older population counties also had slower, or even negative, economic growth.

One important implication of the paper suggests that as technology is improved and economies of scale increase, the need for a rural population to focus on agriculture is not needed. Many communities have converted to manufacturing and service activities to counteract the loss of agricultural business. One suggestion from the article is the idea of location characteristics. To help categorize location characteristics, Monchuck et al. indicated that "market access and close physical proximity to large metro markets may give a county a comparative advantage over a similar more remote county" (p. 21). To define location characteristics, several variables are included. These variables include proximity to a metro county, the percentage of the county population that commutes thirty minutes or more to work, and the presence of an interstate in the county. They also included several other variables to help capture the effects of location

characteristics. The study found that counties with higher amenities had a larger economic growth than counties with a fewer amenities. The recreational amenities were shown to not only have a positive effect on county income growth, but also were statistically significant. Counties that were less dependent on agriculture showed greater growth than counties that depended more on agriculture, except for counties that had a heavy dependence on value-added agriculture.

In Lorna Aldrich and Lorin Kusmin's Rural Economic Development paper entitled, *What Makes Rural Communities Grow*, the issue of developing rural communities is addressed. In the paper, they find factors during the 1980's that were associated with slow economic growth. These variables included low initial labor cost, retirement county status, high education spending per pupil, and the presence of passenger service airports within 50 miles. Positive rural growth was characterized by State right-to-work laws, high school completion percentage, and access to an interstate highway system. In their study, they show that regional trends and industrial composition of employment account for much of the variation in rural growth. Unquantifiable variables are also very important to take into account when considering variance in growth. These unquantifiable variables are some of the most important advantages regions have over other areas. In conclusion, local communities need to focus on unquantifiable factors (e.g., industry trends, industrial composition of employment), which change over time periods, in order to maintain growth for their community.

In a paper by Stephen Slivinski, he found that 1,339 federal programs served rural America in more than 800 USDA field offices. For fiscal year 2007, the net outlays for these three services totaled approximately $800 million. As defined earlier, these programs cover funding for broadband Internet Access to sustainable energy projects. The article quotes a study published by the Federal Reserve Bank of Kansas City saying that, "Job gains are weak and

population growth is actually negative in most of the counties where farm payments are the biggest share of income" (p. 1). Furthermore, "Job growth is decidedly weak in the counties most dependent on farm payments" (p. 1). The farm payments, which are intended to provide stimulants to rural economies, are connected with "subpar economic and population growth" (p. 1). Slivinski states that the USDA's loan program is inefficient in today's marketplace, as funding could be obtained from other financial institutions or other government programs in the Department of Commerce. Many of the new Rural Development programs authorized in 2002 duplicate existing programs in the Department of Commerce. Thus, USDA was given a mandate to create a new infrastructure in its Rural Development division to manage these new programs independently of the Department of Commerce.

To further explain rural amenities, it is useful to look at the Deller et. al. article, *The Role of Amenities and Quality of Life in Rural Economic Growth*. This paper describes how the rural community has changed over the past twenty years and discussed how "open space, natural amenities, and small town values" (p. 1) have been increasingly important to many people throughout the same time period. Quality of life factor has become more important as an economic growth factor, as people see this as a very positive aspect of rural communities. Deller et. al. state that 1.55 million people have migrated to rural communities during the 1990's, while 1.37 million people have left for urban areas during the 1980's. These numbers show that even though outward migration has occurred, there has been enough inward migration to cover the amount of people that have left the rural areas.

The authors believe natural amenities may have contributed to a growth of residents in rural areas. In fact, they found that "rural areas with lower levels of amenities tended to lose

economic activities to the nearby growing urban center" (p. 354). Further analysis shows that as wealth increases, requirements for both natural amenities and quality of life would rise.

Deller et. al. conclude that natural amenities need to be looked at more closely, as many rural communities are in good position to take advantage of their resources. In their study, five amenity characteristics were related to one or more determinants of growth. These five amenity variables are: climate, developed recreational infrastructure, land, water, and winter.

Climate is defined as the combination of the regions temperature, precipitation, sunny winters, and dry summers. The developed recreation infrastructure characterizes the outdoor activities available, such as historical markers, golf courses, or playgrounds. The land variable represents farmland, forestland, national parks and other land resources. The combination of water variables includes not only areas of lakes and rivers, but also resources for water activities like scuba diving and canoeing. Winter activities are the final set of variables. This set of variables aid in showing an areas winter activities, such as snow skiing and other snow related activities.

Many rural communities need to build upon their natural amenities to attract people to their communities. Tourism is one big factor as a community needs to generate more traffic to flow through rural societies. The results of this article show that natural resource amenities are an immense element of rural community growth. It is vital to show the other approaches to stimulating rural growth, without the use of agriculture related subsidy programs.

2.3 Desire to Improve Producer Incomes through Vertical Coordination

A publication by Boland, Barton, and Domine (1999) provides an overview of vertical coordination which the authors describe as including contracting and integration. Contract production and marketing refers to a firm committing to purchase a commodity from a producer

at a price formula established in advance of the purchase. A contractual relationship between producers and processors is a form of vertical coordination. Various contracts involve different levels of producer and processor responsibility.

Contracting increased between 1970 and 2002 (Martinez). In 1990, an estimated 30.5 percent of total U.S. farm output was contracted compared to 34 percent in 1997 (USDA ERS). Although these may not seem like significant changes, the authors show that the 3.5 percentage point increase between 1990 and 1997 was almost equal to the entire value of Kansas farm production in 1997. The most dramatic increase occurred in hogs, feed grains, and food grains. Since 1990, a reduction in government involvement in agricultural markets (e.g., the 1996 FAIR Act and the 2002 Farm Bill) has increased the risk exposure of producers to price variation from supply and demand conditions. Increased exposure to risk has likely led producers to further increase the use of contracts.

Integration is a method of vertical coordination representing the greatest degree of control that a firm can gain over the output from another stage of production. Coordination of two or more stages occurs under common ownership and management. There are many examples of integration in agriculture. Farmers who produce corn and hay as feed for their dairy operations are vertically integrated across the crop and livestock production stages. Producers engage in integration through group action. The most common form is a producer-owned cooperative. The more popular terms are traditional and new generation cooperatives. Closed or new generation cooperatives have very tightly coordinated marketing between the farm production stage and the next stage, such as assembly, storage, or processing.

In a new generation cooperative, a producer invests directly by purchasing stock and signing a uniform marketing agreement. This investment and agreement creates a “right and an

obligation" to deliver a certain number of units of production to the cooperative. In most cooperatives, there are a limited number of shares issued. Examples of producer-owned, vertically integrated cooperatives include Dakota Growers Pasta (owned by northern Great Plains durum wheat producers) and Sunkist (owned largely by California citrus growers).

Prior to the 2002 Farm Bill, a number of new-generation cooperatives had been established in the late 1990s and early 21st century. While it was uncertain whether these cooperatives would succeed, many appeared to be successful. In addition, an energy policy which encouraged ethanol production had resulted in many new ethanol cooperatives in Iowa, Minnesota, and South Dakota by 2002. It was apparent that the two main constraints on the development of vertical coordination efforts were access to working capital for the development of a plant and funds to research ideas for vertical coordination by producers. The VAPG Program addressed these issues.

2.4 Generate Employment in Rural Areas

Huang, Orazem, and Wohlgemuth's (2002) study discusses the issue behind the fear of depopulation in rural communities. While rural population has actually increased by 53% from 1950 through 1990, there is a fear that small communities will eventually reduce to a magnitude where they can no longer support themselves and will eventually fade away. While rural population has risen over the time period, the farm level population has fallen to a fraction of its level in 1900. Rural communities are shown to be very strongly tied to strong farm economies. Resent statistics have also shown that off-farm income contributes at least 50% of a farms total income. From this it can be concluded, that the financial well being of the farmer is both tied to the local economy and the strength of the farm itself. Agricultural policy needs to be focused on improving human capital in order to raise rural incomes, but concentrating on this may lead to

greater outward migration. The article tackles this issue, as well as the impact of rural income on rural population growth, rural community "brain drain" movement, and what should rural communities focus on in order to be successful.

Huang, Orazem, and Wohlgemuth conclude that there is a "brain drain" from rural communities to urban communities because human capital produces higher returns in urban areas. Education is very beneficial to rural communities, as highly educated populations experience a growth rate that is slower than lesser educated populated counties. Per capita income is shown to have a greater impact on rural economic growth as counties that had a higher per capita income grew 51-69% quicker every ten years in lower income counties. This effect led to a smaller decrease in rural population. Huang, Orazem, and Wohlgemuth found that "farm incomes do not raise nonfarm populations and vice versa" (p. 626). The multiplier effect is not effective, as proponents say that rural government policy has large multiplier effects. This presents a big issue for policy makers because increasing rural incomes may actually hurt the rural economy as returns on investment are higher in urban areas than in rural regions.

Dr. Bruce Gardner provides a detailed explanation of why farm subsidy programs do not lead to rural development with his 2000 Presidential Address to the American Agricultural Economics Association entitled *Economic Growth and Low Incomes in Agriculture*. In this paper, Gardner addresses how the state of rural communities and U.S. farm households has changed since 1950. Concentration in the agriculture industry has increased over the past several decades, as production technology has made great strides and economic organization of farms have led to consolidation and growth in the farm sector. One fact that Gardner presents is that in 1997, 25% of the total farms in the U.S. produced 90% of agriculture sales. This statement leads to the conclusion that small farms are suffering, but in reality the opposite is true. Gardner notes

that “household income of the small-farm group was $38,200 in 1994, compared to $42,500 for all farms” (p. 1061). The USDA’s Economic Research Service showed that only 5.5% of the small-farm group was deemed as being unstable financially.

Conclusions from Gardner’s paper show that there was, in fact, a definitive income increase in farm households, when compared to nonfarm households. Lower income levels experienced particularly rapid income growth. He argues that most of the poverty in rural areas is centralized in hired workers and rural nonfarm population. He hypothesizes that the leading reason behind rural poverty is that “the low-income farm population migrated out of agriculture at higher rates than the high-income farm population” (p. 1071). This phenomenon transferred poverty from the farm segment to the non-farm segment. Gardner notes the link between labor and farm policy programs. He states that labor-market developments have actually allowed small farms to continue with production, and argues that labor program policies would actually be more beneficial for rural communities than farm policy programs. The argument Gardner provides was used to help develop a rationale for the rural development programs created in the 2002 Farm Bill. Rural development policy would attract higher wage jobs, outside of agriculture, to rural communities, and off-farm jobs have actually increased the marginal product of labor in these communities. The jobs created by rural development labor policies would entice people to move back to rural areas, because of the increase in wages.

Gardner discusses the implications of these policies, noting that “agricultural market liberalization, institutions of private property, and improved incentives are the keys to solving the problem of low incomes in their rural economies” (p. 1072). Gardner does not support the claim that agricultural policies do more harm than benefit, but states that policies lead to income growth of farm households. He suggests that the economic benefit is based on the integration of

farms and growth in the non-farm economy in rural areas, not on government policies. Higher paying off-farm jobs have attracted people to leave the farm segment for better economical situations.

Rural population growth has always been an important topic for policy makers, as policymakers try to maintain a stable or growing population base. Policy cannot be made specifically to address certain rural businesses, as diversifying rural economies would lead to a faster population growth. If policy makers want to increase rural incomes, education is the main factor they should focus on. The research has shown that people are able to earn a higher salary in an urban area, so higher educational attainments lead to a "brain drain effect" for rural communities. In order to elevate rural incomes, a focus on human capital may be in order, but this could also lead to the movement of people away from rural communities. Multiplier effects for rural subsidies have been said to aid rural economies, but Gardner suggests that the data does not support this claim. One positive policy would be to increase transportation systems, as research has pointed out that local highway spending has a positive effect on local population growth.

2.5 Contribution of Thesis to Literature

Four reasons have been identified in the literature review as motivation for the new programs identified in the Rural Development title in the 2002 Farm Bill. These were 1) lack of correlation between farm subsidies and economic development, 2) need to improve rural amenities, 3) desire to improve producer incomes through vertical coordination, and 4) generate employment in rural areas. This thesis is examining one particular new program in that title which is the VAPG program. The motivation for this program was a desire to improve producer incomes through vertical coordination and generate employment in rural areas. The contribution of this thesis to

the literature is that it provides an economic evaluation of a specific business development program and identifies variables that are linked to the successful development of new businesses in rural areas. Explicit examination of this issue in this thesis is examined in the next chapter.

CHAPTER 3 - Economic Theory

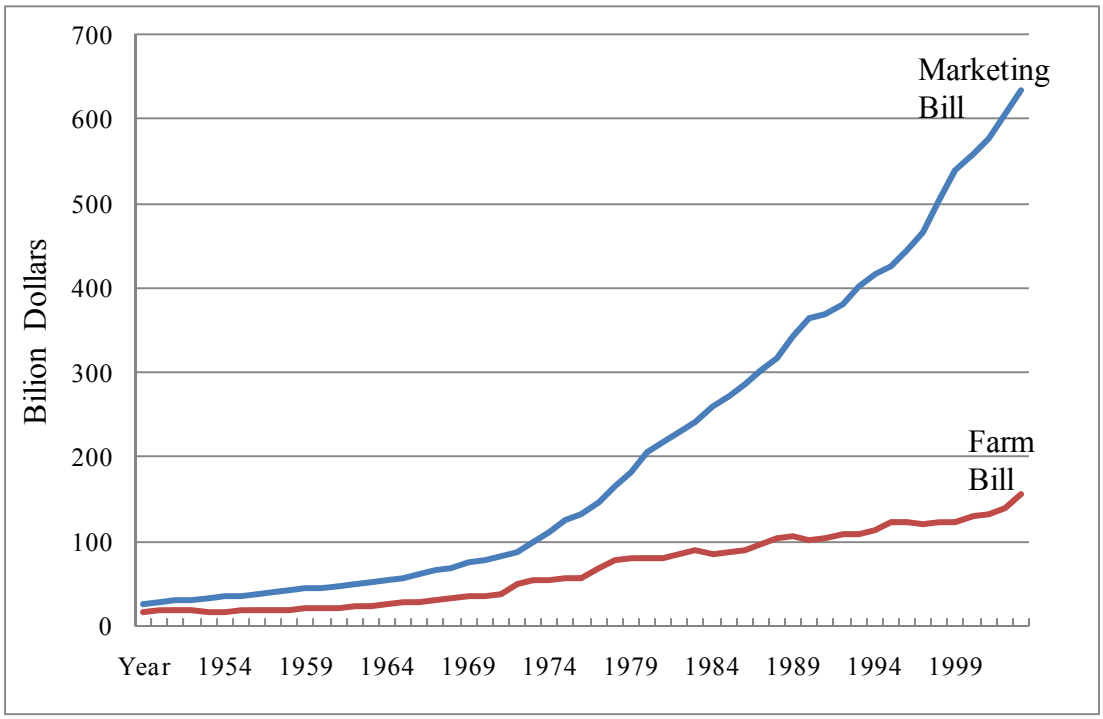
The VAPG program aids producers in processing raw goods into processed products and increasing the vertical coordination between the farm level and the processing level. Vertical coordination increases the farm's ability to decrease the farm-to-retail price spread, and shifts some of this margin and risk back to producers. The VAPG program attempts to increase vertical coordination at these two levels, which allows producers to receive a higher price for its products.

3.1 Marketing Bill

The food marketing bill is a measure of "aggregate food-marketing services added to purchases from U.S. agriculture" (Tomek and Robinson, p. 128). Figure 3.1 shows the marketing bill costs in dollars from 1950 to 2004. The marketing bill is an estimate of the total value-added by the marketing chain to agricultural products. The impact of rising marketing costs, affects both the farm and retail level prices. For example, in 2004, the retailer received a marketing bill value of $633.4 billion, and the farm value was $155.5 billion. The farm value is defined as the value of the farm products equivalent to foods purchased by or for consumers at the point of sale by farmers. The marketing bill value divided by the farm value is equal to 4.07. This suggests that the retailer is receiving 4 times the value that the farmer is receiving for services provided to market the farm products. As evidenced by Figure 3.1, the marketing margins have increased from a value of 26.0 in 1950, to a value of 633.4 in 2004. This value shows that distributors,

marketers, and retailers are meeting consumer's tastes and preferences, which is indicated by the substantial increase in the marketing bill.

Figure 3.1 Value of Marketing Bill, 1950-2004



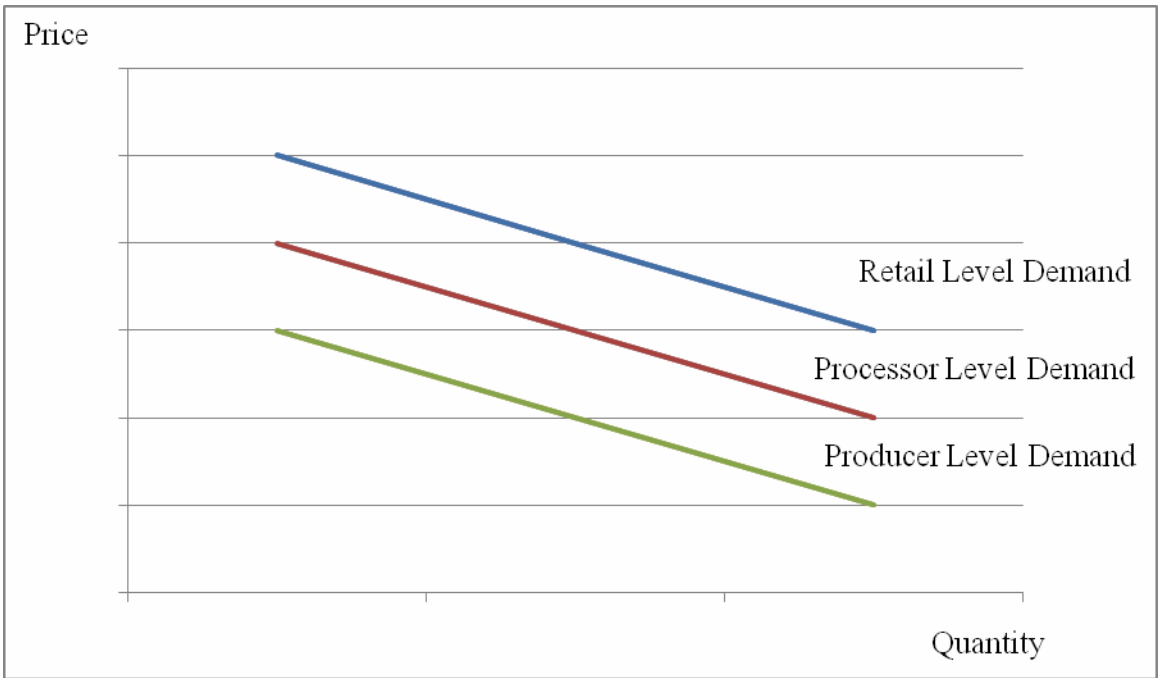
3.2 Vertical Coordination

Vertical coordination "occurs when successive stages of marketing and processing or of marketing and production are linked though ownership, rather than coordinated by markets" (Tomek and Robinson 1990, p. 123). For example, a vertically coordinated firm would produce and own some inputs that would be used to produce a final good. Forward integration is the specific type of integration the VAPG program is encouraging. In this type of integration, the producer level integrates with the next level upward in the marketing chain, which is the processing level. While forward integration occurs in most cases, producers are not only integrating with the processing level, but in some instances the retail level too. By forward

integrating, value-added producers are able to process and sell their own products and keep all price spreads within the company. This is the fundamental nature of the VAPG program; the fact that it helps reduce middle man market power and redistribute the profits or losses and risk to producers of value-added products.

Vertical coordination not only allows for greater control of supplies, but also provides a cost saving structure for an organization. By integrating the production and processing units, a firm is able to produce and process the products and by compensating themselves for the margins and sharing in the risk, normally earned by the processer. A graphical illustration of both cases is provided to better understand how the VAPG program influences producers. Figure 3.2, shows the retail, processor, and producer demands for goods under normal circumstances.

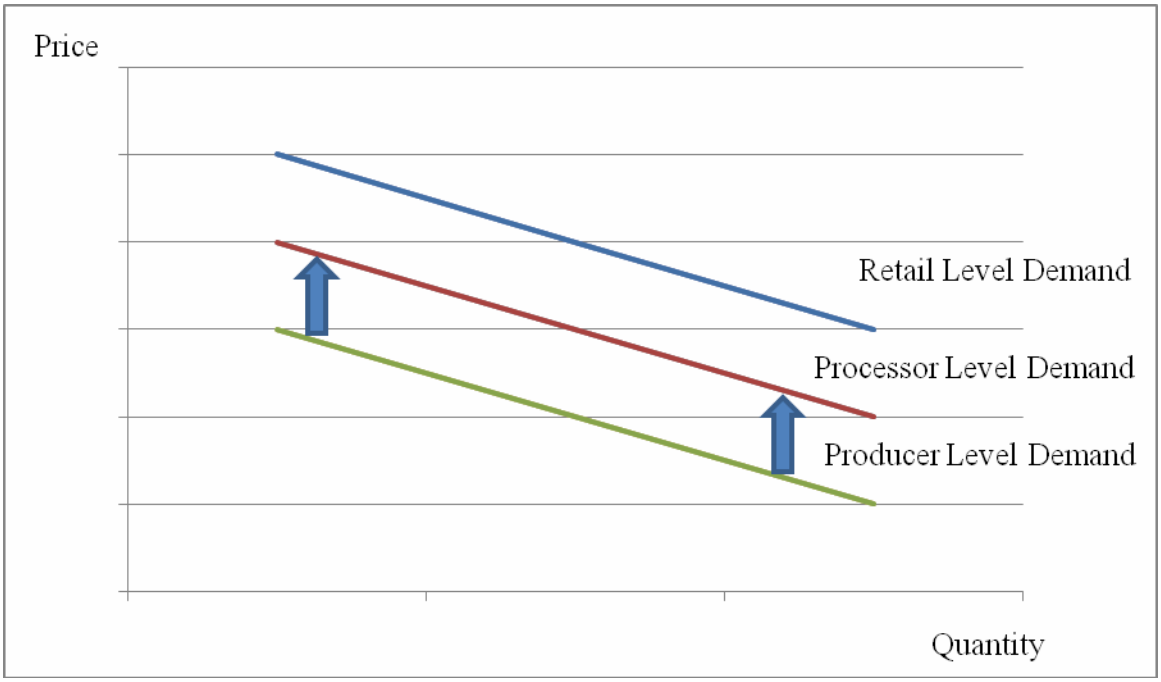
Figure 3.2 Retail, Processor, and Producer Levels Demand Graph



The VAPG program was designed for the purpose of integrating the processor and producer levels to shift margins back to producers. This allows VAPG recipients, or retailer of value-

added products that received grants, to receive a higher price for their goods and also to capture a higher margin, because of the elimination of the processor level. The following figure demonstrates how forward integration would affect the producer and processing levels.

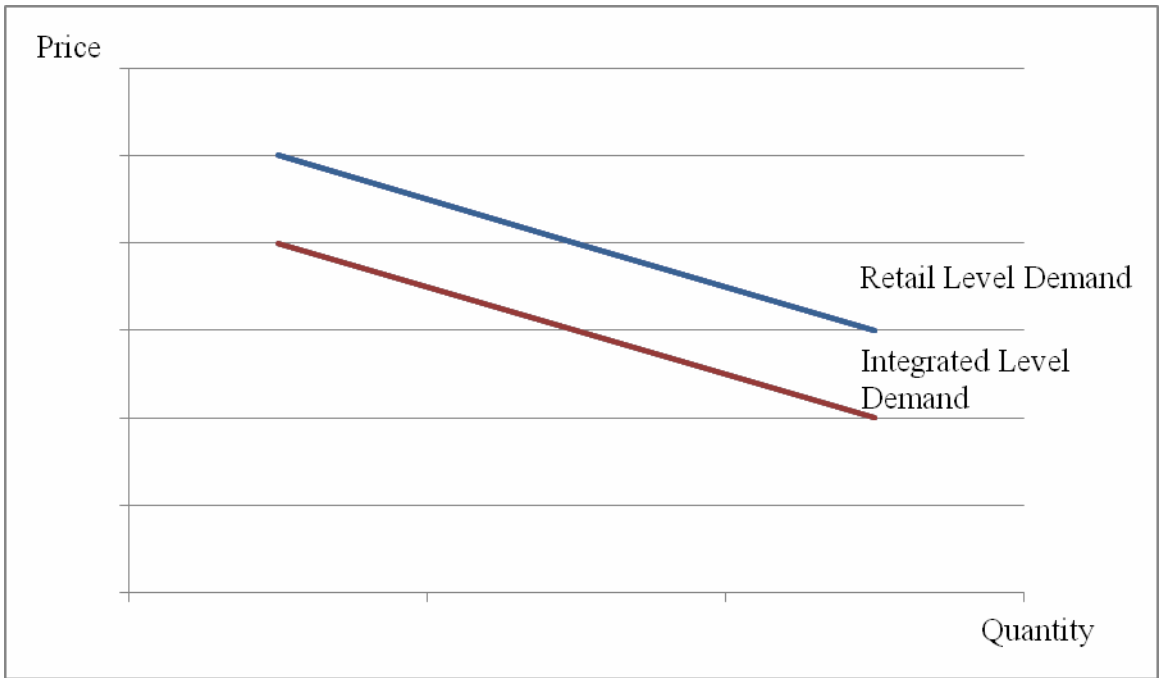
Figure 3.3 Retail, Processor, and Producer Levels Forward Integration Graph



In this case, the demand graph is picture in Figure 3.3. Notice that when compared to Figure 3.2, a higher price is received for the same quantity of goods demanded when the firm is integrated. This is the case because the company has integrated production with processing and added value to their product. This enables them to keep the margin and share in the risk that is normally retained by processors. Consumers that demand these value-added traits are willing to pay extra for products that offer these features. There are higher costs associated with vertical integration, but this is rewarded by eliminating the margin paid to processing firms. An example of a VAPG recipient that integrated processing with production is Naturally Iowa, LLC. Naturally Iowa received a $246,150 grant in 2003 to focus development of a dairy processing plant and product

development facility by integrating dairy producers with a plant. Naturally Iowa was successful in developing this process.

Figure 3.4 Integrated Producer and Processor Level Graph



In some cases, the VAPG program allowed producers to vertically integrate completely to the retail level. This is evident by VAPG recipients selling their products from stores located on their property, and also selling goods from internet websites. An example of a VAPG recipient that markets their products on the internet is the Harvest Lark Company, located in Chapman, KS. The Harvest Lark Company markets healthful bakery bars and nutritious snacks made from Turkey Red Winter Wheat. The Harvest Lark Company received a $72,600 grant and was successful in linking a wheat producer with a processing plant.

3.3 Conclusion

This chapter has discussed the USDA's VAPG program and the purpose behind the funding of qualified farmers, ranchers, and producers. Specifically, this chapter showed how the VAPG program attempted to increase vertical coordination at the producer level with processors. By supporting vertical coordination, USDA aimed to raise income levels and shift risk to producers. The next chapter summarizes the data collected for this thesis, and a description of possible variables to explain the successful business development of a VAPG recipient.

CHAPTER 4 - Description of Data

The 2002 Farm Bill appropriated $300,000 to conduct an economic evaluation of the VAPG program and the Agricultural Innovation Centers. This grant was awarded to the University of Missouri who later subcontracted a proportion of the grant to the Kansas State University Department of Agricultural Economics. This grant paid for the collection of the data and the graduate student research assistantship for the author.

4.1 Discussion of the Survey

From 2002 to 2005, the USDA Rural Development awarded 748 VAPG grants, totaling $126,343,053. Data from 2006 were not used in this thesis because the 2006 grants were awarded late in the year. A list of recipients was obtained from the USDA Rural Development website and a database was created of phone numbers and addresses. These data were not obtained from the USDA, but through the internet, phone books, and personal contacts.

Each recipient was interviewed over the phone, by mail, or personal visits to determine how far they had progressed in the nine steps of business development. These nine steps were: 1) creation of an idea, 2) formation of the idea into a written form through a feasibility study, business plan, or marketing plan, 3) formation of an organizational structure for the idea, 4) hiring of a manager or employee for the idea, 5) conducting an equity drive to raise capital for the idea, 6) formation of a physical structure for the idea, 7) creation of the idea into a product in the facility, 8) creation of the idea into a product for distribution and sale at retail, and 9) whether the idea was being sold by March of 2006. These steps are described by USDA in the Notice of Funding Available (NOFA).

Recipients were ranked ordinally from one to nine based on their achievement of each step. Complete information was obtained on 621 of the 748 recipients. Partial information was found on the other 127 VAPG recipients, which are not included in the model. The most common missing data were market share and financial information. Table 4.1 shows the frequency distribution for each step. The difference between step three and step four is significant because after step three, producers are asked to contribute funds to complete steps four through nine. Many producers used the VAPG funds to research an idea (e.g., steps one to three), but decided not to make the investment. The survey instrument is attached as Appendix A.

Table 4.1 VAPG Recipient Frequency for Achievement of Business Development Steps

	Progression in Business Steps Summary Statistics[a]									
Steps	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**Total**
Frequency	3	21	249	5	12	1	3	11	316	621

[a]The steps in the business process are (1) creation of an idea, (2) formation of the idea into a written plan as a feasibility study, business plan, or marketing plan, (3) formation of an organizational structure for the idea, (4) the hiring of a manager or employees for the idea, (5) raise capital for the idea through equity drives, (7) creation of the idea into a product in a facility, (8) distribute and sell the product, (9) and whether the product was being sold in March of 2006

4.2 Other Data Collected on Each Recipient

The business step variable was then matched to other variables, which were collected by the graduate student writing this thesis. Public sources including the internet, phone book, and other sources were used to collect this data. The variables collected in this process included variables found in the literature review as being possible determinants of successful rural development. Table 4.2 shows the variables that were collected on the VAPG recipients, which totals 65 variables. These variables were furthered studied to determine whether they might impact the ability of the VAPG recipient to achieve success in developing a business.

Table 4.2 Variables Collected for Each VAPG Recipient

Coefficient	Definition	Categories	Mean	Std. Dev	Level (a)	Units
INCOME	2005 Per Capita Personal Income per County	a	0.0297	(0.0058)	3	$
FARMS50	Number of Commercial Farms per State	a	0.0433	(0.0310)	2	Number
FARMS	Farm Entrepreneurs per County	a	0.0011	(0.0011)	3	Number
NONF	Nonfarm Entrepreneurs per County	a	0.0227	(0.0909)	3	Number
TOTAL	Total Entrepreneurs per County	a	0.0238	(0.0910)	3	Number
POPDEN	Population Density per County	a	248.2303	(500.4056)	3	People Per Sq Mile
TOTALPOP	Total Population per County	a	0.2247	(0.8011)	3	People Per County
POP20	Population Under 20 per County	a	0.0650	(0.2463)	3	People Per County
POP2034	Population between 20 & 34 per County	a	0.0502	(0.1912)	3	People Per County
POP65	Population over 65 per County	a	0.1478	(0.0569)	3	People Per County
POP655	Percentage of Population over 65 per County	a	0.1478	(0.0569)	3	0-100%
YEARORG	Year Organization was Formed	b	1988.7585	(25.3897)	1	Year
AIC	Agiculture Innovation Center Dummy Variable (IL, KT, MA, MN, MA, MI, MT, ND, NE, NY, OK, WI)	b	0.3688	(0.4829)	2	(0,1)
AQUA	Dummy Variable for Aquaculture	b	0.0032	(0.0567)	1	(0,1)
BEEF	Dummy Variable for Beef Category	b	0.0966	(0.2957)	1	(0,1)
CORN	Dummy Variable for Corn Category (Ethanol, etc)	b	0.2126	(0.4094)	1	(0,1)
DAIRY	Dummy Variable for Dairy Category (Value-Added Dairy Products)	b	0.1159	(0.3204)	1	(0,1)
EBEAN	Dummy Variable for Edible Beans Category	b	0.0097	(0.0979)	1	(0,1)
FLOW	Dummy Variable for Flower Category	b	0.0242	(0.1537)	1	(0,1)
FOREST	Dummy Variable for Forest Category (Natural Timber, etc)	b	0.0338	(0.1890)	1	(0,1)
FRUIT	Dummy Variable for Fruit Category (Apples, Cherries, Blueberries, etc)	b	0.0821	(0.2748)	1	(0,1)
NUTS	Dummy Variable for Nuts Category (Pecans, Peanuts, etc)	b	0.0242	(0.137)	1	(0,1)
OTHER	Dummy Variable for Other Category	b	0.0145	(0.1196)	1	(0,1)
PORK	Dummy Variable for Pork Category	b	0.0290	(0.1679)	1	(0,1)
POULTRY	Dummy Variable for Poultry Category (Chicken, Turkey, etc)	b	0.0161	(0.1260)	1	(0,1)
SGRAIN	Dummy Variable for Grain Category	b	0.0290	(0.1679)	1	(0,1)
SBEAN	Dummy Variable for Soybean Category	b	0.0918	(0.1260)	1	(0,1)
SMEAT	Dummy Variable for Other Meat Category (Buffalo, Elk, etc)	b	0.0354	(0.1850)	1	(0,1)
SUGAR	Dummy Variable for Sugar Category	b	0.0225	(0.1129)	1	(0,1)
VEGET	Dummy Variable for Vegetables Category	b	0.0644	(0.2457)	1	(0,1)
WHEAT	Dummy Variable for Wheat Category	b	0.0354	(0.1850)	1	(0,1)
WIND	Dummy Variable for Wind Category (Alternate Energy)	b	0.0225	(0.1486)	1	(0,1)
WINE	Dummy Variable for Wine Category	b	0.0467	(0.2112)	1	(0,1)
APGROUP	Agriculture Producer (Group that has not formed a legal entity)	b	0.3768	(0.4850)	1	(0,1)
FARMER	Farmer/Rancher Cooperative (100% farmer/rancher owned)	b	0.3237	(0.4683)	1	(0,1)
INDEPEND	Independent Producer (Steering Committees, Farmer/Rancher Owned, 100% Independent Producers)	b	0.2061	(0.4048)	1	(0,1)
MAJCON	Majority Owned (New 'Hybrid' Cooperative Form, <100% agirculture harvester owned)	b	0.0934	(0.2912)	1	(0,1)
DIFF	Differentiation (Differentiated Production of Marketing)	b	0.5620	(0.4965)	1	(0,1)
ENERGY	Energy (Farm- or Ranch-based Renewable Energy)	b	0.1804	(0.3848)	1	(0,1)
SEG	Segregation (Product Segregation)	b	0.1449	(0.3523)	1	(0,1)
VAP	Value-Added (A Change in its Physical State)	b	0.1127	(0.3165)	1	(0,1)
BANDI	Business and Industry Grants	b	61.9587	(32.6489)	2	$
RBEG	Rural Business Enterprise Grants	b	2.3574	(4.1868)	2	$
UTILITY	Water and Waste Grants	b	1.7208	(3.1188)	2	$
RCOOP	Rural Cooperative Development Grants	b	2.2489	(2.7753)	2	$
EZONE	Government Empowerment Zones	b	0.0340	(0.1956)	2	$
RBOG	Rural Business Opportunity Program	b	1.3461	(5.0123)	2	$
REA	Rural Electric Grants	b	951.9410	(1024.2019)	2	$
RTEL	Rural Telephone Grants	b	44.3466	(49.2683)	2	$
RED	Rural Economic Development Grants	b	1.5511	(2.2807)	2	$
RDEMP	Rural Development Employees per State	b	100.7021	(37.9950)	2	Number
BANDC	Business and Cooperative Employees per State	b	6.7118	(3.495)	2	Number
YEAR	Year Grant Was Received	b	2003.0274	(1.2867)	1	Year
GRANT$	Grant Amount Received	b	0.1613	.1496	1	$
MKTSHARE	Market Share of Crop in U.S. per county	b	0.0288	(0.1183)	3	0-100%
FARMST	Farm Entrepreneurs/Total Entrepreneurs	c	0.2065	(0.1603)	3	0-100%
GRANNPRO	VAPG Grant Dollars Received/Number of Producers	c	0.0141	(0.0280)	2	Grant$/Number of Producers
SALENPRO	VAPG Sales/Number of Producers	c	0.5630	(4.3367)	2	Sales/Number of Producers
SPOP	Population 20-34 Divided by Total Population (Skilled Labor)	c	0.1963	(0.2195)	3	0-100% Population 20-34
SVAPG	State VAPG Program (IA, CA, MO, NE, MN, WA, WI, TX, ND, NY, IL, KS)	d	0.3800	(0.4858)	2	(0,1)
NPROD	Number of Producers	d	2325.5411	(19057.0153)	1	Number of Producers
SALES	2006 VAPG Producer Sales	d	89.5854	(599.3744)	1	$/VAPG Producer
NLOC	Number of Locations per Producer	d	1.2367	(0.8369)	1	Locations per Producer
EMPL	Employees for Each VAPG Recipient Producer	d	105.9646	(511.7189)	1	Number
STATE	Dummy Variable Describing (IA, CA, MO, NE, MN, WA, WI, TX, ND, NY, IL, KS)	d	25.1353	(12.5333)	2	1 thru 13

Level = 1(Applicant), 2(State), 3(County)
a denotes U.S. Department of Commerce Bureau of Census data
b denotes U.S. Department of Agriculture Data
c denotes Combination of Other Variables
d denotes data obtained by the author

4.3 U.S. Department of Commerce Census Data

The initial category of data was collected from the U.S Department of Commerce Bureau of Census data. The first variable is the 2005 per capita personal income per county, INCOME. Fairfax County, Virginia had the greatest per capita personal income with $61,147 while Hudspeth County, Texas had the least amount of per capita personal income with $14,804. The second variable is the number of commercial farms per state, FARMS50. The value is defined as the number of farms in each state over the size of 50 acres. Texas had the most commercial farms with 154,242 while Rhode Island had the fewest number of commercial farms with 345. The next variables include farm- (FARMS), non-farm (NONF), and total entrepreneurs per county (TOTAL). Fresno, California had the most farm entrepreneurs at 1,089,445 while Kodiak Island, Alaska had the least number of farm entrepreneurs with 169.

Population statistics are the next variables for which data were collected in this category. The population density per county, POPDEN, defines the population density per each respective county in the data. Milwaukee County, Wisconsin had the highest population density with 3,787 people per square mile while Kiowa County, Colorado; Hudspeth County, Texas; Sterling County, Texas; and Wheeler County, Wisconsin had the lowest population densities at one person per square mile. Total Population (TOTALPOP), population numbers under 20 years of age (POP20), population numbers between the ages of 20 through 34 (POP2034), population number over the age of 65 years (POP650, and the percentage of people over the age of 65 years (POP655) measure the age of the population. The county with the highest total population is Los Angeles, California with 9,519,338 people and the lowest is Sterling County, Texas with 1,393 people. Los Angeles County, California also had the highest population of people under the age

of 20, 20 through 34, and over 65, while Wheeler County, Oregon had the lowest population of people. All of these variables are measured at the state or county level. Consequently, only one variable is needed at each level.

4.4 Information on USDA Rural Development variables

The next category is information collected on individual VAPG recipients that was collected from the USDA. A variable under this category are the Rural Development grant dollars from various programs authorized in the 2002 Farm Bill. These are measured at the state level and include business and industry loans (BANDI), rural business enterprise grants (RBEG), water and waste grants (UTILITY), rural cooperative development grants (RCOOP), government empowerment zones (EZONES), rural business opportunity grants (RBOG), rural electric grants (REA), rural telephone grants (RTEL), and rural economic development grants (RED). These variables were defined in Chapter 1.

The grants administered by the USDA Rural Business and Cooperatives include RBEG, RCOOP, VAPG, and RBOG. These variables are important because the Rural Business and Cooperatives division of USDA Rural Development administers the VAPG program. The federal rural development employees, RDEMP, and Rural Business and Cooperatives employees per state, BC, are used to measure resources available to assist these businesses. Iowa has the greatest number of BC employees with 13 and Florida, Hawaii, Kansas, Ohio, and Virginia have the least number of employees with 1 each.

The next two variables under the U.S. Department of Agriculture category are YEAR, which is the year the VAPG was received and GRANT$, which is the VAPG grant amount received for each respective recipient. The range of GRANT$ was from $1,250 to $500,000. SVAPG is a binary variable for states that have a state administered VAPG program, which is

separate from the federal VAPG program. The states of Illinois, Indiana, Maine, Massachusetts, Michigan, Montana, Nebraska, New York, North Dakota, Oklahoma, and Wisconsin have programs that are similar to the VAPG program. AIC is the next variable under this heading. This value is a binary variable for the states that have received grants to fund Agriculture Innovation Centers, whose charge was to assist producers with value-added business development. These states include Indiana, Iowa, Kansas, Minnesota, Montana, New Jersey, New York, North Dakota, Pennsylvania, and Wisconsin.

4.5 Combination of Other Variables

The following variables are combinations of variables that were calculated. GRANNPRO is the VAPG grant dollars received divided by the number of producers in the respective organization. SALENPRO is the 2006 sales of the company divided by the total number of producers in each respective organization. To provide the research with a skilled labor measure, the variable SPOP is included. This variable describes the population of people between the ages of 20 through 34 divided by the total population in each county.

4.6 Individual Data Obtained By Author on Each Recipient

The final categories of variables collected are specific to a VAPG recipient and were obtained by the author through various means. The first variable under this label is NPROD, which is the number of producers for each respective VAPG recipient. The range on this variable was 1 through 250,000 producers. The first variable is YEARORG, which is the year that the VAPG recipient was organized as an entity. 10% of VAPG recipients were formed prior to 2002, the first year of the VAPG program, while the remaining 90% were established just prior to receiving a VAPG grant in 2002, 2003, 2004, or 2005.

The 2006 VAPG producer sales for each respective organization is the next variable that data was collected for each recipient. The range in sales was $0 to $8,955,578,000 with a median of $93,271,814. NLOC is the number of locations each VAPG recipient has in their organization. The number of employees for each VAPG recipient is denoted EMPL and the range is 1 through 7,300. Binary variables were created for each state. The binary variables help to capture state characteristics like corn production in Iowa, or almond production in California and were ranked in order of market share. The binary variables were calculated by counting the number of VAPG recipients per state that received grants. The total for each state was divided by 621, the total number of VAPG recipients in our sample, to receive a measure of the share of grants received per state. Another way of measuring this would have been to have taken the share of total VAPG dollars per state but a measure of the grant dollar level was already included in the model.

Market share (MKTSHARE) is the county level production of the respective crop for the VAPG recipient divided by the total U.S. production of the same crop. The market share data were collected from the USDA's National Agriculture Statistics Service (NASS) or the 2002 Census of Agriculture for each year prior to the VAPG being awarded. An attempt was made to measure the market share two years after the VAPG was awarded in order to account for possible crop failures which might have impacted the success of the business. However, this variable was incomplete for many firms due to USDA reporting requirements and was highly correlated with MKTSHARE.

The next variables in this category are the crop binary variables. These crops include a binary variable for each VAPG recipient's respective crop for which value was being added. These variables are AQUA (aquaculture products), BEEF (beef products), CORN (corn

products), DAIRY (dairy products), EBEAN (edible beans), FLOW (flower products), FOREST (forestry products), FRUIT (fruit products), NUTS (nut products), OTHER (i.e., recycling organizations, bird seed, sheep producers, petting farms, etc.), PORK (pork product), POULTRY (Poultry production products), SGRAIN (small grains like sorghum, etc.), SBEAN (soybean products), SMEAT (other meat products like Bison, Natural Beef, etc.), SUGAR (sugar products), VEGET (vegetable products), WHEAT (wheat products), WIND (wind energy production), and WINE (wine products). The total numbers for each crop is shown in Table 4.3.

Table 4.3 Total Number of VAPG Recipients for Each Crop Binary Variables

Variable	Total
AQUA	2
BEEF	60
CORN	132
DAIRY	72
EBEAN	6
FLOWERS	15
FORESTRY	21
FRUIT	51
NUTS	15
OTHER	9
PORK	18
POULTRY	10
SGRAIN	18
SBEAN	57
SMEAT	22
SUGAR	8
VEGETABLE	40
WHEAT	22
WINE	14
WIND	29
Total	**621**

The next two variables are binary variables for the organizational type and the type of value-added products each organization is producing. These are defined by the USDA. The four organizational types include an agriculture producer group (APGROUP), farmer and rancher cooperatives (FARMER), independent producers (INDEPEND), and majority owned (MAJCON). APGROUP is defined as an agriculture producer group. An example of this would be California Olive Growers Council which is a trade association composed of olive growers in California. This group received funds to do a market study to conduct marketing and promotional activities to increase sales of California Olive Oil Council certified olive oil. FARMER is defined as cooperatives that are composed entirely of farmers or ranchers. CHS, Inc. is an example of a FARMER and received funds to study renewable fuels production.

INDEPEND is defined as steering committees that are composed of entirely independent producers. An example of INDEPEND is Meyer Vineyards, Inc. which received funds to produce premium wines, market the product and atmosphere to ensure repeat business, hire local community members, and to enter and win national competitions. MAJCON is defined as the majority owned producer based business ventures. This would be categorized as less than 100% composed of farmers and ranchers or 100% owned by agricultural harvesters. An example of MAJCON is Golden Grain Energy, LLC. which used the funds to purchase grains to be produced into 40,000,000 gallons of ethanol annually from 16 million bushels of corn. Table 4.4 shows the frequency for each of the four organizational types.

Table 4.4 Total Number of VAPG Recipients for Each Organizational Type

Organization	Total
Agriculture Producer Group	234
Farmer/Rancher Based	201
Independent	128
Majority Controlled	58

The four value-added types include differentiation (DIFF), farm- or ranch-base renewable energy (ENERGY), product segregation (SEG), and value-added (VAP). DIFF is defined as differentiated production of marketing, as demonstrated in the business plan of the organization. An example of a VAPG recipient under the differentiation category is Alabama Cattlemen's Foundation, which sought to use scientific ways to improve the beef cattle industry in Alabama. ENERGY is defined as the economic benefit realized from the production of farm- or ranch-based renewable energy. An example of a VAPG recipient under the energy category is Crosswind Energy LLC, which used funds to address the feasibility of operating a wind farm in northwest Iowa.

SEG is defined as product segregation. An example of a VAPG recipient under the segregation category is Lake Cumberland Milling, which used the funds to purchase high oil soybeans for a processing plant. VAP is defined as a change in the physical state of the product. An example of VAP is Michigan Edible Bean Cooperative which analyzed markets for dry bean flour. These are defined by the USDA and their totals are shown in Table 4.5.

Table 4.5 Total Number of VAPG Recipients for Each Value-Added Type

Variable	Total
Differentiation	349
Energy	112
Segregation	90
Value-Added	70

4.6 Summary

This chapter described the survey and data collected for each VAPG recipient. The next chapter discusses the methodology and selection of the final variables for the econometric model.

CHAPTER 5 - Economic Model and Methodology

A substantial amount of data was collected for each VAPG recipient. This chapter describes the final variables chosen for the model and the methodology employed. First, broad categories are defined for a theoretical model and then specific variables are chosen for each category.

5.1 Development of Theoretical Model

The theoretical model developed for this thesis suggests that size, resource availability, labor, crop, value-added form, organizational form, and state are hypothesized to influence the level of progress in moving from one step to another step in the nine steps of business development. This model predicts getting a firm to a lower step. This can be seen in the following equation.

Equation 1

Y = F(Size, Resource Availability, Labor, Crop, Value-Added Form, Organizational Form, State)

Where Y = steps of business development.

The first theoretical variable category is size. Measures of size include sales volume per producer (SALENPRO) and VAPG grant dollars received per producer (GRANNPRO). A negative relationship is hypothesized to exist between these variables and successful business development. An explanation behind the negative relationship is that as sales volume and the dollar value of a VAPG grant increases, the organization has more money to spend on business related expenses, which should lead to greater success. This includes marketing, labor wages, and similar activities.

Resource availability to assist VAPG recipients is the second theoretical variable category. One measure of resource availability includes BC which is the number of USDA Rural Business and Cooperatives division employees in that state. A negative relationship is hypothesized to exist between this theoretical variable and having greater success in business development. The 2002 Farm Bill authorized Agriculture Innovation Grants (AIC) whose task was to assist VAPG recipients and other similar businesses. This binary variable is AIC which denotes states that received a competitive grant for such a center. The ten states are Indiana, Iowa, Kansas, Minnesota, Montana, New Jersey, New York, North Dakota, Pennsylvania, and Wisconsin. The hypothesized relationship for this variable with successful business development is negative, as these centers were available to provide assistance to VAPG recipients.

In addition, some states have their own VAPG program. SVAPG denotes states with a state VAPG program and these were Illinois, Maine, Massachusetts, Michigan, Missouri, Montana, Nebraska, New York, North Dakota, Oklahoma, and Wisconsin. The hypothesized relationship for the SVAPG variable with successful business development is negative, as these states were able to supplement the federal VAPG program with a state level program.

Labor is the third theoretical variable category. SPOP is the number of people between the ages of 20 and 34 in each county divided by the total population in each respective county. This ratio provides a measure of the skilled labor availability in each county. A negative relationship is hypothesized between this variable and successful business development. A negative relationship is expected in that if there is a higher pool of skilled labor; employers will hire better workers which should increase the success of VAPG recipients.

The type of crop used as the input in creating a value-added product is the fourth theoretical variable category. These are binary variables denoting the commodity for each VAPG

recipient. The crops are AQUA, BEEF, CORN, DAIRY, EBEAN, FLOW, FOREST, FRUIT, NUTS, PORK, POULTRY, SGRAIN, SMEAT, SOYBEANS, SUGAR, VEGETABLES, WHEAT, WIND, WINE, and OTHER. A negative relationship is hypothesized between these variables and successful business development because it is likely that grants would not have been made for a commodity not involved in value-added processing.

MKTSHARE is the proportion of market share in the VAPG recipient county to the overall production in the United States. A negative relationship is hypothesized between this variable and the successful business development or VAPG recipients. This is expected because as the supply of the respective crops, livestock, or commodity that are produced in a county is increased; the lower the price. Thus if there is an abundance of corn in a county, that corn price should be lower relative to other regions and thus, the VAPG recipient should do better as a value-added producer because its costs of procuring corn will be lower. This variable is capturing the ability of the VAPG recipient to convert this crop into a more profitable product.

A binary variable for the type of value-added organization is the fifth theoretical variable in the model. This represents the four different types of value-added classifications for the VAPG recipients as classified by the USDA. DIFF (e.g., differentiation), ENERGY, SEG (e.g., segregation), and VAADD (e.g., value-added). No positive or negative relationship is hypothesized between these variables and successful business development.

Organizational form is the sixth variable category. These categories were developed by the USDA and each VAPG recipient is classified into one of the four categories by the USDA. These are APGROUP (e.g., Agriculture Producer Group), FARMER (e.g., Farmer/Rancher Cooperatives), INDEPEND (e.g., Independent Producers) and MAJCON (e.g., Majority

Controlled Producer Based Business Venture). These are binary variables and no hypothesis is maintained for these signs.

The final theoretical value included in the model is the thirteen states that represent 66.5% of the total value-added producer grants awarded, which is shown in Table 5.1. The 66.5% was chosen as a cutoff value because this represents two-thirds of the total awards. In addition, beyond this cutoff value the impact of including one additional state was minimal. It is unclear as to why these states had more VAPG recipients but a negative relationship is hypothesized between these variables and successful business development because it is likely that there are synergies in these states with regard to the overall resource availability for business development.

Table 5.1 Top States Receiving 66.51% of Total Value-Added Producer Grants

States													
IA	CA	MO	NE	MN	MI	WA	WI	TX	ND	NY	IL	KS	Total
12.24%	7.41%	7.25%	6.92%	4.83%	4.03%	4.03%	3.86%	3.54%	3.38%	3.22%	2.90%	2.90%	66.51%

Table 5.2 summarizes the variables that were included in the model. This table shows the variable names, the definition, the level (applicant, state, or county), the units of the variable, and the hypothesized relationship between business development and the variable. Their selected statistics were reported in the previous chapter.

Table 5.2 Independent Variables used to Measure Business Success for a VAPG Recipient

Coefficient	Definition	Level[a]	Units
BC	Business and Cooperative Employees per State	2	Total Employees
SALENPRO	VAPG Sales/Number of Producers	2	Sales/Number of Producers
GRANNPRO	VAPG Grant Dollars Received/Number of Producers	2	Grant$/Number of Producers
SPOP	Population 20-34 Divided by Total Population (Skilled Labor)	3	0-100% Population 20-34
MKTSHAR	Market Share of Crop in U.S. per county	3	0-100%
AIC	Agiculture Innovation Center Dummy Variable (IL, KT, MA, MN, MA, MI, MT, ND, NE, NY, OK, WI)	2	(0,1)
AQUA	Dummy Variable for Aquaculture	1	(0,1)
BEEF	Dummy Variable for Beef Category	1	(0,1)
CORN	Dummy Variable for Corn Category (Ethanol, etc)	1	(0,1)
DAIRY	Dummy Variable for Dairy Category (Value-Added Dairy Products)	1	(0,1)
EBEAN	Dummy Variable for Edible Beans Category	1	(0,1)
FLOW	Dummy Variable for Flower Category	1	(0,1)
FOREST	Dummy Variable for Forest Category (Natural Timber, etc)	1	(0,1)
FRUIT	Dummy Variable for Fruit Category (Apples, Cherries, Blueberries, etc)	1	(0,1)
NUTS	Dummy Variable for Nuts Category (Pecans, Peanuts, etc)	1	(0,1)
OTHER	Dummy Variable for Other Category	1	(0,1)
PORK	Dummy Variable for Pork Category	1	(0,1)
POULTRY	Dummy Variable for Poultry Category (Chicken, Turkey, etc)	1	(0,1)
SGRAIN	Dummy Variable for Grain Category	1	(0,1)
SBEAN	Dummy Variable for Soybean Category	1	(0,1)
SMEAT	Dummy Variable for Other Meat Category (Buffalo, Elk, etc)	1	(0,1)
SUGAR	Dummy Variable for Sugar Category	1	(0,1)
VEGET	Dummy Variable for Vegetables Category	1	(0,1)
WHEAT	Dummy Variable for Wheat Category	1	(0,1)
WIND	Dummy Variable for Wind Category (Alternate Energy)	1	(0,1)
WINE	Dummy Variable for Wine Category	1	(0,1)
APGROUP	Agriculture Producer (Group that has not formed a legal entity)	1	(0,1)
FARMER	Farmer/Rancher Cooperative (100% farmer/rancher owned)	1	(0,1)
INDEPEND	Independent Producer (Steering Committees, Farmer/Rancher Owned, 100% Independent Producers)	1	(0,1)
DIFF	Differentiation (Differentiated Production of Marketing)	1	(0,1)
ENERGY	Energy (Farm- or Ranch-based Renewable Energy)	1	(0,1)
SEG	Segregation (Product Segregation)	1	(0,1)
VALUADD	Value-Added (A Change in its Physical State)	1	(0,1)
SVAPG	Dummy Variable Describing (IA, KS,MN, MO, MT, NJ, NY, ND, PN, WI)	2	(0,1)

[a] 1 = Applicant Level, 2 = State Level, 3 = County Level

5.2 Methodology

The data collected for the VAPG recipients is cross-sectional data. The recipients in the model are the cross-sectional component of the data. This makes it easier to compare differences among the VAPG recipients in the data set. The dependent variable, the success of the VAPG recipient, is considered to be a naturally ordered, continuous progression of business steps: the producers are not able to skip business steps in the decisions. An example of the natural order is that they are not able to sell their product (Step 9) before obtaining equity to finance their operation (Step 5).

Two econometric models are used. The first model is a binary logit model that analyzed the effects of covariates on the probability of observing a firm at step 9, the final step, and steps 1 to 8. The cumulative logit model takes into acount the order of the dependent variable, so that effects of the covariates on step 1 through step 9 can be shown. The cumulative model controls for the steps that are ordered.

The properties of the binary logit model are well known to econometricians and can be seen in any modern econometric textbook (e.g., Greene 2000), pp. 811-834). The cumulative logit is commonly used for estimating probabilities of categorical, ordered data especially in medical research (a simple search of the medical citations database, MEDLINE, revealed over 60 papers using the technique), though less commonly used in economics (Ganguly (2006), Flamm and Chadhuri (2007)). The cumulative logit was chosen over the ordered probit, because of convergence issues with the ordered probit and because the predictive power for the cumulative logit was superior to the ordered probit. Further, the comparison of the binary logit's and the cumulative logit's modeling framework, coefficient estimates and marginal effects is intuitive. This factor makes presentation of these two models concise.

Both probability models can be motivated in the same way. The firms in the study may attain any one of nine steps with step 1 being the lowest and step 9 being the highest: $j = 1, 2, \ldots, 9$. The estimation of the probability of observing a recipient at or below a particular step, $\text{Prob}(Y=j)$ is our goal.

In the case of the binary logit model, the VAPG recipient is either a complete success or falling short of that goal, namely, a firm reaching either j = Step 9 or falling short of Step 9. In the case of the cumulative probability model, it is necessary to ascertain the impacts of certain variables on the likelihood of a firm attaining any of the j steps 1 through 9. Further, in the case

of the cumulative probability model, the order of the steps matters: step 1 is a lower step than step 2, which is lower than step 3, etc. In both cases, obviously, the rankings are likewise ordinal.

In both models, the logistic cumulative distribution function (CDF), and parameter estimates are found through maximum likelihood via the Newton-Raphson technique in the logistic procedure in SAS v. 9.1. Note that the x_i vector differs between the two models in that the binary logit contains a single intercept whereas the cumulative logit model contains $J - 1$ intercepts.

The cumulative logit model is designed to model the probability of observing a firm up to a particular step (as opposed to above a particular step). To be consistent in presenting the coefficient values for the two models, in the case of the binary logit model the probability of observing a firm at a level less than step 9 is estimated. In other words, for the binary model, the model $\text{Prob}(Y_i < 9) = \text{Prob}(Y_i = 0)$ where $Y_i = 0$ if a firm is at steps 1 through 8. $1 - \text{Prob}(Y_i = 0)$ would then be the probability of seeing a firm at step 9 in the binary model. For the two models, the following equation was estimated:

Equation 2

$$Y = \beta_1 + \beta_2 BC + \beta_3 SALENPRO + \beta_4 GRANNPRO + \beta_5 SPOP + \beta_6 MKTSHAR + B_7 AIC + \beta_8 AQUA + \beta_9 BEEF + \beta_{10} CORN + \beta_{11} DAIRY + \beta_{12} EBEAN + \beta_{13} FLOW + \beta_{14} FLOW + \beta_{15} FRUIT + \beta_{16} NUTS + \beta_{17} PORK + \beta_{18} POULTRY + \beta_{19} SGRAIN + \beta_{20} SBEAN + \beta_{21} SMEAT + \beta_{22} SUGAR + \beta_{22} VEGET + \beta_{23} WHEAT + \beta_{24} WIND + \beta_{25} WINE + \beta_{26} APGROUP + \beta_{27} FARMER + \beta_{28} INDEPEND + \beta_{29} DIFF + \beta_{30} ENERGY + \beta_{31} SEG + \beta_{32} IA + \beta_{33} CA + \beta_{34} MO + \beta_{35} NE + \beta_{36} MN + \beta_{37} MI + \beta_{38} WA + \beta_{39} WI + \beta_{40} TX + \beta_{41} ND + \beta_{42} NY + \beta_{43} IL + \beta_{44} KS + e$$

where the betas are parameters to be estimated and e is the logistically distributed error term

In both models, the dependent variable (Y) is the success of the organization with the binary logit model having a Y value of Step 9 or Steps 1 to 8 while the second Y variable has nine possibilities (Step 1, Step 2, . . ., Step 9).

5.3 Summary

This chapter discussed the methodology behind the theoretical models, the hypothesized signs of each of the coefficients, and discussion of the binary logit model and cumulative logit model. The next chapter discusses the results.

CHAPTER 6 - Results

The parameter estimates and standard errors and other statistics for the binary logit and cumulative logit models are presented in this chapter. In addition, a discussion of selected marginal probabilities is included. Table 6.1 shows the parameter estimates and regression statistics. The first column in that table shows the variable names. Hypothesis tests were reported for the 0.05, 0.10, and 0.15 levels of significance for the parameter estimates. The parameter estimates are difficult to interpret in a limited dependent variable model and discussion of the effects of the parameter estimates on the dependent variables are not discussed until the section on marginal probabilities.

6.1 Binary Logit Model Results

The concordant figure is 74.4 percent for the binary logit model. Bounded between zero percent and 100 percent, the concordant is parallel to an R^2 value in a linear model. The estimated model compares pairs of predicted values with the actual observation so that if the observation at step *j* – *k* has a lower predicted value than the predicted value at step *j* the pairs are said to be "concordant" or consistent with each other. In the case of the binary logit model, there are 621 observations, so 621*(620)/2 = 192,510 possible pairings. The model correctly predicted when step *j*-*k* was actually less than step *j* for 74.4 percent of the pairings which is considered a good fit for cross-sectional data.

Column two shows the parameter estimates while column three has the standard errors in table 6.1. Note that the logit model has a single intercept. The dependent variable measures whether the VAPG recipient reached the first steps 1 through 8 in business development process.

The coefficient on the intercept is significant indicating that there is unique information contained in the first eight steps and the last step of business development. Other significant coefficients are on the variables BC, GRANDPRO, SALENPRO, and MARKETSHAR. Significance of parameter estimates were observed for seven of the nineteen crop variables (DAIRY, FLOW, FRUIT, NUTS, SMEAT, WHEAT, and WINE) and one of the four business organizational forms (APGROUP). Finally, significant parameter estimates were found for the binary state variables of Illinois (IL), Kansas (KS), Minnesota (MN), Missouri (MO), and Wisconsin (WI).

BC denotes the number of USDA Rural Business and Cooperatives division employees in the state where the VAPG recipient resides and is a measure of resources available to assist the VAPG recipients. The negative sign suggests that as the number of employees increases, the likelihood of observing a VAPG recipient in the first eight steps decreases. Correspondingly, the likelihood increases for observing a VAPG recipient in the last step of business development with a successful product being marketed in March of 2006. It is not possible to obtain precise information on the number of employees in each state over time and their individual job responsibilities. However, anecdotal information collected by the principal investigator on the grant suggests that USDA Rural Development increased the number of Rural Business and Cooperatives division employees and refocused job responsibilities in order to help manage and work with the VAPG program after its authorization in the Farm Bill. This would suggest that the quantity of a marketing input, marketing expertise, increased for these VAPG recipients which would lead to a decrease in the marketing margin and thus, accomplishing one of Congress's goals for this program.

GRANDPRO denotes the VAPG grant amount measured in dollars divided by the number of producers that own the organization that received the VAPG grant. SALENPRO is the sales volume for the organization that received the VAPG grant divided by the number of producers. These variables are a measure of size and their coefficients had negative signs. An increase in the value of grant dollars received or sales volume for the VAPG recipient in the numerator (or a decrease in the number of producers in the organization in the denominator) suggests that the likelihood of observing a VAPG recipient in steps one to eight decreased. Alternatively, the likelihood increases for observing the VAPG recipient in the last step of business development.

It is difficult to make any broad generalizations regarding these variables. However, larger VAPG grants tended to go to organizations that had a successful business operation with existing sales volume and were seeking to expand into a value-added product which would suggest that such firms had good intelligence regarding the market for such a product. Very few large grants went to businesses that were starting a value-added product from "scratch." This observation would suggest that these firms knew that the demand for the value-added product was increasing which would lead to a decrease in the marketing margin which was a goal of the VAPG program.

MARKETSHAR measured the proportion of the commodity produced in the county where the VAPG recipient was located divided by the total U.S. production of that commodity. This variable is a measure of the underlying commodity being utilized and its coefficient had a negative sign, which suggests that as the market share increased (through an increase in the numerator which would suggest greater production in that local market or a decrease in the denominator which would suggest a smaller national market), the likelihood that the VAPG

recipient was in one of the first eight steps decreased. The same intuition for the previous two variables exists with this variable in that the likelihood that the VAPG recipient was successful in marketing the product in March of 2006 was observed. Thus, the marketing margin decreases when the supply of the commodity input increases, which was a goal of the policymakers for the VAPG program.

Crop binary variables that had significant coefficients included DAIRY, FLOW, FRUIT, NUTS, SMEAT (specialty meats), WHEAT, and WINE. The parameter estimates were negative for these variables suggesting that the VAPG recipients adding value to these commodities relative to OTHER (which was the dropped binary variable) had a decreased likelihood of being in steps one to eight, or rather an increase in the likelihood that these VAPG recipients were in step nine with a product being marketed in March 2006. It should be noted that the coefficients on PORK and SGRAIN (small grains such as mustard, buckwheat, and other grains) were significant at the 0.20 level of significance with a negative sign.

One of the four business organizational forms (APGROUP) was significant with a positive sign which would suggest that a successful VAPG grant written by this organization had an increased likelihood of being in the business development steps of one through eight relative to MAJCON which was the dropped binary variable. Remember that APGROUPs are trade associations composed of producers or cooperatives. These organizations tend to have a membership that is very broad and diverse. Furthermore, these variables do not undertake business development but rather make the results of their VAPG grant available to all their members to consider developing a business for the opportunity identified by the study. Many of these activities are market studies. Thus, this result may not be that surprising. It should be noted that the number of VAPG grants awarded to APGROUP declined in every year from 2002 (91

grants) to 36 in 2005 which would suggest that these entities were not as successful in receiving VAPG grants or that they did not submit as many grant proposals in later years.

Significant and negative parameter estimates were found for the binary state variables of Illinois (IL), Kansas (KS), Minnesota (MN), Missouri (MO), and Wisconsin (WI). These results suggest that VAPG recipients located in these states had a decreased likelihood of being in steps one to eight or alternatively, VAPG recipients in these states had a greater likelihood of marketing a product by March 2006. Illinois had twelve (18 total grants or $2,558,000 in step nine) grant recipients reach step nine with an average VAPG grant value of $213,167. Kansas had ten (18 total grants or $2,738,340 in step nine) grant recipients that reached step nine, with an average grant value of $273,864. Minnesota had eighteen (20 total grants or $3,655,930 in step nine) grant recipients that reached step nine, with an average grant value of $203,107. Missouri had twenty four (45 total grants or $5,192,220 in step nine) grant recipients that reached step nine, with an average VAPG grant value of $216,344. Wisconsin had eighteen (22 total grants or $2,515,554 in step nine) grant recipients reach step nine, with an average grant value of $139,753.

It is hard to know what these results suggest. The principal investigator on this grant that obtained the information on the dependent variable noted that Missouri probably has the most sophisticated infrastructure for business development with a long-standing state program and each recipient is "strongly encouraged" to receive education after receiving a state VAPG grant or a USDA VAPG grant. Missouri is the only state to have such a "requirement." It must also be noted that the states are all located in the Midwest and are contiguous to one another. Illinois, Missouri, and Wisconsin have a state VAPG program. Further research should be done to

discern why VAPG recipients in these states were more successful in having a product marketed in March 2006 relative to other states.

6.2 Cumulative Logit Model Results

The concordant value is 72.2 for the cumulative logit model. In the case of the cumulative logit model, there were 405,516 possible pairings with a 72.2 percent correct prediction for this model which is a good fit for this model. The eight intercept terms are significant suggesting that the cumulative logit is a more appropriate model for these data.

Column four shows the parameter estimates while column five has the standard errors in Table 6.1. The independent variables that were significant in the binary logit model are significant in the cumulative logit model with the same negative signs. Thus, an increase in these variables suggests that the likelihood of observing a VAPG recipient in the lower steps decreases. FLOW and SMEAT are not significant at the 0.10 level of significance but significant at 0.20.

One variable, INDEPEND, has a positive significant sign in the cumulative logit model. This variable denotes 100% producer-owned organizations that include steering committees and other similar entities. This result suggests that there was an increased likelihood of this entity being in steps one to eight rather than being in step nine. The number of these INDEPEND entities ranged from 25 in 2002 to 45 in 2006, but there was no discernable trend. More research is needed to fully understand the result of this variable.

Table 6.1 Binary and Cumulative Logit Parameter Estimates, Standard Errors, and Hypothesis Tests Results

	Parameter Estimates	Standard Errors	Parameter Estimates	Standard Errors
Intercept 1	2.7078***	1.0402	-3.9937***	1.0482
Intercept 2			-1.8434***	0.8980
Intercept 3			1.5062**	0.8910
Intercept 4			1.5464**	0.8911
Intercept 5			1.6437**	0.8914
Intercept 6			1.6519**	0.8914
Intercept 7			1.6762**	0.8914
Intercept 8			1.7644***	0.8917
BC	-0.2024***	0.0639	-0.1221***	0.0536
SALENPRO	-7.96E-07***	2.85E-07	-7.46E-07***	2.63E-07
GRANNPRO	-8.44E-06***	3.87E-06	-8.43E-06***	3.68E-06
SPOP	-0.8002	0.8704	-0.9972	1.1269
MKTSHAR	-2.0435**	1.2486	-2.2406**	1.2636
AIC	-0.1790	0.4183	0.0713	0.3678
AQUA	11.3768	858.4000	1.3407	1.5399
BEEF	-1.0666	0.9223	-0.7759	0.7480
CORN	-0.6279	0.9345	-0.5543	0.7616
DAIRY	-1.6890**	0.9163	-1.3934**	0.7490
EBEAN	0.0062	1.3001	-0.2272	1.1163
FLOW	-1.7312**	1.0497	-1.2561*	0.8880
FOREST	-1.0452	1.0086	-1.0101	0.8444
FRUIT	-2.1364***	0.9494	-1.8505***	0.7830
NUTS	-2.5023***	1.1331	-2.1406***	0.9823
PORK	-1.4193	1.0450	-1.1245	0.8787
POULTRY	-1.3921	1.2116	-1.3315	1.0674
SGRAIN	-1.4351	1.0344	-1.0093	0.8685
SBEAN	-0.8004	0.9316	-0.6526	0.7568
SMEAT	-1.7350**	0.9986	-1.1764*	0.8271
SUGAR	-0.1184	1.2274	-0.0048	1.0447
VEGET	-0.6851	0.9479	-0.5756	0.7675
WHEAT	-2.0095***	1.0358	-1.2433*	0.8691
WIND	-0.4096	1.1383	-0.3962	0.9559
WINE	-2.4083***	0.9895	-2.1463***	0.8273
APGROUP	0.6917**	0.3876	0.9480***	0.3592
FARMER	-0.0433	0.3693	0.1979	0.3474
INDEPEND	0.3368	0.4452	0.7474**	0.4152
DIFF	0.4248	0.3672	0.2593	0.3428
ENERGY	0.4288	0.4828	0.3154	0.4486
SEG	0.2900	0.4641	0.2250	0.4310

Continued.

	Binary Logit		Cumulative Logit	
Variable	Parameter Estimates	Standard Errors	Parameter Estimates	Standard Errors
IA	0.6194	0.6811	0.1343	0.5992
CA	-0.0581	0.4766	0.1197	0.4500
MO	-0.8025 ***	0.3865	-0.6023 **	0.3586
NE	-0.0171	0.4627	-0.0911	0.4310
MN	-1.2505 ***	0.5537	-1.2371 ***	0.5142
MI	0.2798	0.7095	-0.1456	0.6479
WA	-0.4183	0.5083	-0.3505	0.4499
WI	-2.4996	0.6109	-2.0215 ***	0.5767
TX	-0.8115 *	0.5292	-0.6471	0.4880
ND	0.1017	0.6210	-0.1128	0.5639
NY	-0.0703	0.6314	-0.5001	0.5895
IL	-1.8510 ***	0.5920	-1.3981 ***	0.5596
KS	-1.8523 ***	0.6951	-1.8446 ***	0.6406
Log Likelihood	-357.112		-595.972	
Model Fit (% Concordant)	74.4		72.2	

[a] Models estimated using 621 observations. The dependent variable is the probability of seeing a firm at steps 1-8 in the case of the binary model and the probability of seeing a firm at least at step j = 1-8 in the case of the cumulative logit. ***, **, * indicate significance at the 5%, 10%, and 15% levels, respectively, based upon the Wald Chi-square statistic.

We parameterize the probability of observing firm $i = 1, \ldots, N$ as depending on a $k \times 1$ regressor vector, x_i and a $k \times 1$ parameter vector, β such that $E[Y_i | x_i] = \text{Prob}(Y_i = j) = F(x_i'\beta)$ in the case of the binary logit and $E[Y_i | x_i] = \text{Prob}(Y_i \le j) = \sum_{j=1}^{J} \text{Prob}(Y_i = j) = F(x_i'\beta)$ in the case of the cumulative logit. In both models, we use $F(x_i'\beta) = 1/\left(1 + \exp\{x_i'\beta\}\right)$, the logistic cumulative distribution function (CDF), and parameter estimates are found through maximum likelihood via the Newton-Raphson technique in the logistic procedure in SAS v. 9.1.[3]

The cumulative logit model is designed to model the probability of observing a firm up to a particular step (as opposed to above a particular step). To be consistent in presenting the coefficient values for the two models, in the case of the binary logit model we estimate the probability of observing a firm at a level less than step 9. In other words, for the binary model,

[3] Note that the x_i vector differs between the two models in that the binary logit contain a single intercept whereas the cumulative logit model contains $J - 1$ intercepts.

we explicitly model $\text{Prob}(Y_i < 9) = \text{Prob}(Y_i = 0)$ where $Y_i = 0$ if a firm is at steps 1 through 8 and $1 - \text{Prob}(Y_i = 0)$ would then be the probability of seeing a firm at step 9 in the binary model.

We are especially interested in the marginal effects of a change in a covariate on the probability of observing a firm at a particular step. A nice feature of the logistic distribution is that derivation of the marginal effects from the parameter estimation is straightforward in both model cases. In the case of the bivariate logit model, for a given covariate, x_{ik}, the effect on the probability of observing a firm at stage $j = 0$ (i.e. steps 1-8) is $\partial\text{Prob}(Y = 0)/\partial x_{ik} = F(x_i'\beta)[1 - F(x_i'\beta)]\beta_k$. Although the cumulative logit model specifically examines the probability of observing a firm up to a certain step j, it is straightforward to convert the marginal effects for a change in a covariate on the cumulative probability to the marginal effect from a change in the covariate on the probability of observing a firm at any stage given a change in the k^{th} covariate. Specifically the formula is:

$$\begin{aligned}\frac{\partial\text{Prob}(Y_i = j)}{\partial x_{ik}} &= \frac{\partial\text{Prob}(Y_i \le j)}{\partial x_{ik}} - \frac{\partial\text{Prob}(Y_i \le j-1)}{\partial x_{ik}} \\ &= \beta_k \left[F(x_i'\beta)\Big|_{Y=j}[1 - F(x_i'\beta)]\Big|_{Y=j} - F(x_i'\beta)\Big|_{Y=j-1}[1 - F(x_i'\beta)]\Big|_{Y=j-1} \right],\end{aligned}$$

where $F(x_i'\beta)\Big|_{Y=j} = \text{Prob}(Y_i \le j)$, $\text{Prob}(Y_i \le 1) = 0$, and $\text{Prob}(Y_i \le J) = 1$.[4] It is important to recognize in the marginal effect of the cumulative logit, that unlike the binary case, the sign of the marginal effect may differ from the sign of the coefficient, β_k. Elasticities can be easily

[4] If we were interested in calculating the marginal effect of a change in a covariate on the probability of seeing a firm at least up to a certain step, then the above formula reduces to $\frac{\partial\text{Prob}(Y \le j)}{\partial x_{ik}} = \beta_k \left[F(x_i'\beta)\Big|_{Y=j}[1 - F(x_i'\beta)]\Big|_{Y=j} \right]$

constructed from the marginal effects as:

$$\varepsilon_{x_{ik}} = \frac{\partial \text{Prob}(Y_i = j)}{\partial x_{ik}} \frac{x_{ik}}{F(x_i'\beta)}$$

which gives the percentage change in the probability of observing a firm at step *j* from a one-percent change in the covariate, x_{ik}.

6.3 Marginal Probabilities of the Independent Variables

Table 6.2 provides the elasticities for selected variables in the model. Specifically, Table 6.2 shows how a one-percent change in one of the covariates affects the probability of seeing a firm at a particular step. Thus, for example in the case of the binary model, a one percent change in the ratio of grant dollar expenditures to total producers (GRANNPRO) results in a 0.0725 percent decline in the probability of seeing a firm lower than step 9 or, conversely a 0.0725 percent increase in the probability of observing a firm as successful.

In the case of the cumulative logit, the elasticity is calculated for the effect on the probability of observing a firm at a particular step. Hence, a one-percent change in GRANDPRO lowers the probability of seeing the firm at step 1 by 0.12 percent, at step 2 by 0.10 percent, etc. It is interesting to note that the amount of grant dollars appears to have the biggest effects on steps 1 through 3 and then has very little effect on steps 4 to 8, but increases such that the effect on step 9 is positive. BC and SALENPRO follow similar patterns which suggests that these variables appear to have their largest impacts on getting firms through at least steps 1-3 and then once the firms are past step 3, these variables then have the next biggest marginal effect getting firms to be successful (step 9).

Consider a 100% increase in the average grant awarded to a VAPG recipient, which results in a change in the numerator (but not the denominator) of GRANDPRO. The average

GRANT$ per recipient is $162,256 and a 100% increase doubles this to $327,511. The existing GRANDPRO mean is $14,060 and after the increase in the numerator, the new ratio is $28,121. This new ratio is multiplied by the marginal effect of being in step nine (1.7258328E-6) to yield a value of 0.024265935 percentage points.

The mean percentage of a VAPG recipient achieving step nine is 50.89%. Thus, doubling the average size of a VAPG grant from $162,256 to $327,511 results in an increase in the likelihood of a recipient reaching step nine from 50.89% to 53.31%. This is a small positive change.

Consider a one employee increase in the average number of Rural Business and Cooperatives employees. The median number of Rural Business and Cooperatives employees per state is 7 people. With the addition of an added employee in this division, the marginal effect of being in step nine (0.0250094) can be added to the percentage of VAPG recipients that reached step nine (50.89%). The result is that 53.39% of VAPG recipients would reach step nine if one additional BC employee were hired. The average BC salary is approximately $45,000 with benefits of $18,000. This is a small positive change.

Recall that a VAPG recipient that completes step 3 has completed steps that do not necessarily require producer investment. Many producers make minimal or no investment prior to step four. Entry into step four requires producer investment because an entity is created in step three and capital is required to hire and pay a manager and / or employees. Each resulting increase from step three to eight requires producer investment and correspondingly an increase in risk. Completion of step nine suggests that the result of successful business development in adding value to an agricultural commodity (and decreasing the marketing margin) is known.

A main feature of the VAPG program is that it pays most or in some cases, all of the expenses needed to progress from step one to three. After step three, the producers in the VAPG recipient entity need to decide whether it makes sense to invest in the business opportunity and begin the progression of steps four to nine. These investments are not insignificant. In some cases, producers may invest tens of thousands of dollars in a value-added business. A study by Boland, Lusk, and Barton (1999) found that producers with more perishable crops tended to invested 22 percent more of their farm commodity in a value-added business relative to crops that were storable. In addition, these investments tended to be larger.

Table 6.2 Elasticities for Selected Independent Variables

Covariate Elasticity Effect on the Probability of	BC	SALENPRO	GRANDPRO	SPOP	MARKETSHAR
			Binary Logit Model		
Steps 1-8	-0.7250	-0.4128	-0.0725	-0.0836	-0.0423
			Ordered Logit Model		
Step 1	-0.8162	-0.4199	-0.1181	-0.1949	-0.0644
Step 2	-0.6948	-0.3693	-0.1015	-0.1653	-0.0556
Step 3	-0.4236	-0.3750	-0.0707	-0.1018	-0.0458
Step 4	-0.0052	-0.0139	-0.0013	-0.0015	-0.0012
Step 5	-0.0111	-0.0327	-0.0028	-0.0032	-0.0028
Step 6	-0.0009	-0.0028	-0.0002	-0.0003	-0.0002
Step 7	-0.0026	-0.0084	-0.0007	-0.0008	-0.0007
Step 8	-0.0081	-0.0294	-0.0022	-0.0025	-0.0023
Step 9	0.1716	0.0200	0.0232	0.0384	0.0098

6.4 Summary

This chapter described the results for the two econometric models. Size, resource availability, certain crops, and certain states are determinants of business success. The next chapter summarizes the thesis and provides implications.

CHAPTER 7 - Summary and Implications

The motivation behind this research has been to examine how successful a 2002 Farm Bill program was in stimulating rural community growth and providing farms with increased incomes and reduced risk. The legislation sought to do this by improving producer incomes through vertical coordination and by generating employment in rural areas. The 2002 Farm Bill made an effort to resolve these two problems through the authorization and implementation of various programs including the VAPG program. This thesis has specifically examined the VAPG program and identified key variables for the successful development of value-added businesses in rural areas.

The hypothesis of this thesis was that size, human resource available for assistance with business development, amount of skilled labor in a rural community, crop type, type of value-added, organizational form, and state location were essential in the business development for a VAPG recipient. The findings of this thesis showed that size characteristics, including the variables GRANDPRO, SALENPRO, MARKETSHAR, and BC had significant impacts on a VAPG recipient being successful or reaching step nine of the nine step business process. Seven crop binary variables were found to have a significant impact on helping a VAPG recipients reach step nine. These variables include DAIRY, FLOW, FRUIT, NUTS, SMEAT, WHEAT, and WINE. In the binary logit model, one organizational form variable (APGROUP) was found to have a positive impact on a VAPG recipient being in levels one through eight. In the cumulative logit model, INDEPEND was found to have a positive impact on a VAPG recipient being in steps one through eight. Finally, five state binary variables were found to have significant negative estimates. These states were Illinois, Kansas, Minnesota, Missouri, and

Wisconsin. This denotes that independent producers had a higher likelihood of being observed in step nine.

7.1 Implications

The results suggest that the USDA and Congress should look closely at several key factors in order to aid in the successful business development of the VAPG program. If the goal of the VAPG program is to have successful businesses, the USDA and Congress should focus their efforts on awarding grants to producers that have high sales volume per number of producers involved in the organization. The marginal probability of the SALESPRO variable for step nine of the business step process is 0.0232. This implies that a one percent increase in the sales per number of producer would result in an increase in the likelihood of seeing a VAPG recipient at step nine by 0.0232%. Greater success was found for recipients who were already producing a value-added product rather than starting from "scratch." One possible method the government could use when evaluating organizations is to require the inclusion of additional demand information for the respective products that the VAPG recipient seeks to produce in the business plan. This would show the USDA which organizations had solid market intelligence for the market for the proposed products.

GRANNPRO was another significant variable in the model. From the findings in this study, the USDA and Congress could focus on organizations that have lower levels of producers involved in the organization or award higher total grant dollars to recipients. The marginal probability of this variable is 0.02. This suggests that as the grants per number of producers increase by one percent, the likelihood of seeing a VAPG recipient at step nine increases by 0.02%. Thus any increase in the dollar value of a VAPG grant only increases the likelihood that a VAPG recipient would be more successful by a small amount.

In order to positively affect the business development of VAPG recipients, the USDA has the opportunity to increase the number of Rural Business and Cooperatives employees in each state. This study found the number of USDA Rural Business and Cooperatives division employees in each state to be a significant variable, but its overall impact was very small.

MARKETSHAR was a significant finding in this thesis. This suggests that the USDA and Congress need to examine awarding VAPG grants to firms that have a larger production of their respective crops as compared to the rest of the United States. One other way to look at this variable is to award VAPG grants to recipients that have crops with smaller national production levels with more market share in that locality.

From the 19 crop binary variables that were included in this study, only seven were found to be significant. These seven were DAIRY, FLOWERS, FRUIT, NUTS, SMEAT, WHEAT, and WINE. This evidence suggests that the VAPG recipients that produced these crops were more successful in getting to step nine of the business process. This finding suggests that there is more demand for the value-added products in these categories. Further research should be conducted to see if the USDA and Congress should focus value-added grants in these categories.

Five states were found to have significantly greater success in reaching step nine with a product being sold in March of 2006. These states include Illinois, Kansas, Minnesota, Missouri, and Wisconsin. Additional research needs to be performed to see what factors led to these states being more successful in the development of their particular VAPG recipients.

The binary logit model found that the APGROUP was significant with a positive coefficient. This suggests that this group of producers had an increased likelihood of being in steps one through eight. It must be noted that this group was very diverse and actually declined over the time period of this study. Many of the APGROUP grants were given to conduct a

market study, which may have shown that producing their value-added product was not feasible. The cumulative logit model showed that INDEPEND had a positive coefficient. This suggests that 100% producer-owned organizations had an increased likelihood of being in steps one through eight.

7.2 Limitations of Research

The research that was performed is limited to only organizations that received VAPG grants. Nothing can be stated about the other Rural Development titles included in the 2002 Farm Bill. Two of the main goals of the 2002 Farm Bill were to increase producer incomes and encourage rural community development. The VAPG program was one solution to address these two issues. Other programs were also included in the 2002 Farm Bill to aid with these two issues, but are not involved in this study. Other USDA programs may have increased rural development in other states is one other limitation of this research. Since the USDA has multiple rural development programs, their impact is not known.

Additional data would have been useful to measure success. For example, the number of state employees available as a resource for value-added businesses would have been helpful. Similarly, knowledge of whether VAPG recipients had received other grants from the USDA or a state would have been useful. In addition, knowledge of the total capital invested by the VAPG recipient would have been useful. Recipients were required to match funds on a dollar to dollar basis. It would have been helpful to know the exact source of the matching funds.

7.3 Surprising Results from the Research

One surprising result from the research was that SPOP, the measure of skilled labor in each county, was not significant. This variable was hypothesized to have a positive effect on VAPG

recipients, but it was found to be insignificant. The results indicate that this skilled labor variable is not an important factor in the success of a VAPG recipient. It may be that this variable does not measure the skilled labor supply precisely.

Another surprising result from the research was that the variable AIC, a binary variable for the states that received grants to establish Agriculture Innovation Centers, was not significant. This variable was hypothesized to have a positive effect on VAPG recipients, but it was found to be not significant. The results indicate that Agriculture Innovation Centers are not an important factor in the success of a VAPG recipient. Congress is authorizing Agriculture Innovation Centers in the 2007 Farm Bill.

7.4 Suggestions for Future Research

Future research needs to be conducted to determine how successful the 2002 Farm Bill was in stimulating rural community growth. The effects of the 2002 Farm Bill could be examined further in its goal of increasing income and reducing risk for agriculture producers, which was one goal of the legislation. This thesis only considered key factors in the development of VAPG recipients. An additional aspect to further investigate would be the characteristics of the states that were significant in their effort of getting VAPG recipients to step nine. These states were found to be Illinois, Kansas, Minnesota, Missouri, and Wisconsin. Further research needs to be performed to understand exactly why these five states were more influential in the business development of VAPG recipients in their respective states.

Further research could be conducted on the four different types of organizational forms of the VAPG recipients. The two separate models found two different organizations positively affected a VAPG recipient getting to steps one through eight, but not reaching step nine. The

research could be conducted on the development of the four types of organizations over time and their impact on the successfulness of a VAPG Recipient.

7.5 Summary

Congress sought to transfer a portion of the marketing margin back to producers by developing the VAPG program to encourage the development of value-added businesses in rural regions. However, the marketing margin does not always mean an increase in producer surplus. A program such as the VAPG is going to have a number of businesses that do not succeed beyond step three where producers must decide whether to invest funds or not in the proposed venture. It may very well be the intent of Congress to fund a number of ideas and try to ensure that only those grants with the highest probability of success proceeds beyond step three. If the goal of Congress is to increase the number of businesses in rural areas, perhaps exploring opportunities to partner with other government agencies in the U.S. Department of Commerce should be explored. Out of the 621 VAPG recipients, 50.89% reached step nine, which might be regarded as a success. It is not clear if Congress wants "new" businesses being formed or if assisting existing businesses with value-added products is satisfactory. However, this thesis has identified several resources that were significant in the development of successful value-added products.

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Appendix A - VAPG Recipient Survey

Name:

City:

State:

Narrative:

Brief Assessment:

Created an idea

- ☐ Yes
- ☐ No

Formed the idea into a written form

- ☐ Feasibility study
- ☐ Business plan
  - ☐ Marketing plan

Formed an organizational structure for the idea

- ☐ Proprietorship
- ☐ Partnership
- ☐ Producer-owned entity
  - ☐ Cooperative
  - ☐ LLC
- ☐ Used existing producer entity

Hired a manager for the idea

- ☐ Outside manager (e.g., outside the existing organizational structure)
- ☐ Inside manager (i.e., member of board, family, etc.)
- ☐ Used existing staff or resources

Obtained equity capital to invest in the idea

- ☐ Successful in reaching equity target
- ☐ Unsuccessful in reaching equity target
- ☐ Part of an existing entity and did not require equity

Formed a physical structure for the idea

- ☐ Remodeled existing structure
- ☐ Built a new structure
- ☐ Part of an existing business and did not need physical structure

Created the idea into a product

- ☐ Successful in developing the product
- ☐ Unsuccessful in developing the product on a large scale

Created the idea into a product(s) for distribution and sale

- ☐ Retail supermarket sales of the product
- ☐ Direct sales of the product

Current status of the idea

- ☐ Product is not being sold
- ☐ Product is being sold

Conclusion of whether project was successful:

- ☐ Yes, the recipient achieved the grant's objective as stated in the narrative
- ☐ No, the recipient did not achieved the grant's objective as stated in the narrative

Quantitative assessment of the benefit to date:

The idea is sold currently in form as stated in narrative.

- ☐ Yes
- ☐ No

Independent producer(s) created a product and entered this emerging market.

- ☐ Yes
- ☐ No

Quantitative assessment of the benefit in long-run:

The idea will be sold in form as stated in narrative.

- ☐ Yes
- ☐ Not applicable (product is currently being sold)
- ☐ No

Independent producer(s) will create a product and enter this emerging market.

- ☐ Yes
- ☐ Not applicable (product is currently being sold)
- ☐ No

Total Grant Dollars:

Number of Producers:

Grant Dollars Divided by Number of Producers:

- ☐ Not applicable (producers did not enter the market)

Appendix B - VAPG Recipients

Applicant	Year	Amount	Applicant	Year	Amount
1 Soy	2004	95,000	Big North Specialty Foods	2002	25,470
21st Century Alliance of Michigan	2002	50,000	Big River Resources Cooperative (BRRC)	2002	500,000
21st Century Grain Processing Cooperative	2002	500,000	Biodiesel Steering Committee	2003	121,000
Affordable Building Systems dba Durra Building Systems	2005	100,000	BioMass Agri-Products, LLC	2001	470,000
Affordable Building Systems dba Durra Building Systems	2002	137,500	Birches Cranberry Company	2004	17,000
Affordable Building Systems, LLC dba Durra Building Systems	2004	134,375	Bird City Bird Seed	2005	62,850
Ag Guild of ILlinois	2002	11,050	Birmingham, Deirdre	2003	8,344
Ag Processing Inc.	2002	346,950	BJ Farms	2002	25,100
Ag Processing Inc.	2003	499,875	Black and Red, Inc.	2002	25,000
Ag Processing Inc.	2003	500,000	Blackhawk Biofuels LLC	2005	100,000
Ag Ventures Alliance	2003	12,500	Blue Diamond Growers	2001	478,500
Ag Ventures Alliance	2002	149,000	Blue Diamond Growers	2003	329,938
AgraMarke Quality Grains, Inc.	2002	458,850	Blue Mound Soy	2002	150,000
AgraMarke Quality Grains, Inc.	2003	235,950	Blue Ridge Shrooms in Bloom, Inc dba Sugar Grove Botanical Farm, Inc.	2002	58,368
Agricultural Commodities Economic Development, Inc	2004	17,350	Blue Sun Producers, Inc.	2003	450,000
Agricultural Producers' Green Attributes Maximization SteeringCommittee	2003	101,920	Bongards Creameries Cooperatives	2005	150,000
Agriculture Marketing Institute, Inc.	2003	79,900	Bootheel Ethanol, LLC.	2005	150,000
Agri-Mark, Inc.	2003	175,000	Booty Farms	2004	150,000
Alabama Cattlemen's Foundation	2004	71,000	Bottomland Naturals, Inc.	2002	130,000
Alan Verdoes	2003	14,000	Boyd Station, LLC.	2003	349,995
Alaska Farm Bureau - Matsu Chapter	2002	30,000	Brentwood Agricultural Land Trust	2005	80,000
Allen Farm Inc	2004	9,500	Brinson Farms LLC	2004	49,000
Alligator Trading Company, Inc.	2002	132,660	Burnett Dairy Cooperative	2004	150,000
Alma's Farm Fresh Meats	2005	150,000	Bushel 42 Pasta Company	2001	500,000
Alto Dairy Cooperative	2002	150,000	Buss, David D. dba Upper Red Fork Innovations	2005	25,000
Amalgamated Sugar Company, LLC	2003	91,200	Butternut Farm Organic Coop, Inc	2004	47,000
Amaltheia Dairy,LLC	2004	75,670	C.L. Henderson Produce Company	2005	29,600
Amazing Grains Cooperative	2002	323,837	Cabot Creamery Cooperative, Inc.	2002	300,000
American Corn Growers Association	2002	150,000	Cal/West Seeds	2003	100,030
American Crystal Sugar Company	2002	166,450	Calcot, Ltd.	2003	337,400
American Gelbvieh Association	2002	150,000	Calcot, Ltd.	2005	149,500
American Native Beef, LLC	2001	195,000	California Canning Peach Association	2003	79,925
American Natural Soy Processors, LLC	2001	478,578	California Dairies, Inc.	2002	80,579
American Natural Soy Processors, LLC	2002	250,000	California Olive Growers	2003	500,000
American Peanut Growers	2003	250,000	California Olive Oil Council	2003	50,000
American Premium Foods, Inc.	2001	500,000	California Olive Oil Council	2005	150,000
American Produce Express, LLC	2002	50,000	California Wild Rice Growers Association	2002	130,000
American White Wheat Producers Association	2002	218,710	California Wild Rice Growers Association	2001	500,000
American White Wheat Producers Association	2001	499,997	Carolina Seafoods, Inc.	2004	49,000
America's Premium Pork DBA Allied Producers Cooperative	2005	105,275	Cascade Ag Services, Inc.	2002	150,000
AMF Farms, Inc.	2005	94,000	Catskill Family Farms Cooperative, Inc.	2002	30,000
AP-GARM SC, LLC	2005	150,000	CC Ag, LLC	2005	150,000
Apispedegree, LP dba Genetic Resources International	2005	150,000	CC's Jersey Creme Ltd.	2004	28,700
Appalachian Spring Cooperative	2002	39,800	CEA Farm Cooperative Steering Committee	2003	40,000
Appellation Yakima Valley	2002	21,616	CedarMills Eco Farm	2003	145,000
Appleton Creek Winery	2003	114,000	Cenex Harvest States	2002	94,000
AquaMatrix International, Inc.	2005	100,000	Central IL Energy Cooperative	2003	250,000
ARIZONA PISTACHIO ASSOCIATION	2002	64,500	Central Illinois Ag Coalition	2001	60,000
Arkansas Natural Dairy Products Alliance	2004	129,900	Central Iowa Renewable Fuels, LLC	2004	139,986
Aurora Cooperative	2003	309,600	Central Iowa Renewable Fuels, LLC	2005	150,000
Bahrman's Blue Ribbon Dairy	2002	150,000	Central Iowa Soy Producers	2002	50,000
Barton County Ethanol Production Steering Committee	2003	47,500	Central Minnesota Soybean Processors	2005	40,000
Batch & Batch Orchards	2005	36,000	Central Texas Ag Development	2002	65,850
Bay Friendly Chicken	2003	127,750	Central Virginia Cattlemen Association	2003	20,000
Beaver Creek Partners, LLC	2005	150,000	Chariton Valley Beef, LLC	2003	34,158
Bedewig's Renewable Energy, LLC	2005	35,000	CHARLES FEENSTRA DAIRY, LLC	2002	150,000
Beef Marketing Group Cooperative, Inc.	2003	37,500	Cherry Marketing Institute	2002	71,750
Beef Ventures Group, LLC	2003	70,000	Chesapeake Field Farmers, LLC	2005	149,262
Best Milk Producer's Cooperative	2001	90,000	Chesapeake Field Farmers, LLC	2002	249,830

Applicant	Year	Amount	Applicant	Year	Amount
Chicory USA, LLC	2005	150,000	East Central Ag Products, Inc.	2003	500,000
Chippewa Valley Cheese Corporation	2002	245,500	East Kansas Agri-Energy, LLC	2002	450,000
Cinergy Services, Inc.	2002	50,000	Eastern Foods, Inc.	2001	467,405
Circle M Farms, L.L.C.	2005	18,500	Eastern States Bison Cooperative	2002	109,141
Circle M Farms, L.L.C.	2003	25,900	Eco Wood Company Inc.	2005	110,000
Citrus World Inc	2003	293,000	Eden Farms	2002	31,000
Cloverdale Growers' Alliance	2004	20,000	Eden Farms	2004	147,000
CO2 Ventures, LLC	2003	128,000	Eden Natural, LLC	2005	74,000
Coahoma County Bio-energy Steering Committee	2005	45,000	Elk Marketing Council Corporation	2004	150,000
Coastal Wineries of Southeastern NE	2004	22,500	Ellsworth Cooperative Creamery	2005	150,000
Colorado Homestead Ranches, Inc.	2002	142,936	Empire Biofuels, LLC	2004	100,000
Colorado Homestead Ranches, Inc.	2001	47,290	Energy Grains LLC	2003	123,000
Colorado Potato Administrative Committee	2004	41,375	Engelbrecht, Loren L. and Dianna K. dba Farmhouse B&B	2005	26,500
Columbia County Farm Bureau, Inc.	2003	50,000	Equus Run Vineyards, LLC	2004	147,200
Columbia Crush LLC	2005	12,500	Ethanol Grain Processors	2005	150,000
Commodity Enhancement Corporation	2005	100,000	Ethanol Grain Processors, Inc.	2003	17,500
Community Alliance with Family Farmers	2003	69,400	EYC Wind Group, LLC	2005	150,000
Community Alliance with Family Farmers	2005	64,142	Fabin Brothers Farm	2005	70,000
Community Alliance with Family Farmers	2004	69,400	Family Forest Foundation	2002	43,743
Compart Family Farms, Inc.	2005	150,000	Farm Energy, LLC	2003	7,500
Concordia, LLC.	2002	15,000	Farm Foods Coop, Inc.	2002	200,000
Consolidated Catfish Companies, LLC	2005	150,000	Farm Fresh Growers Marketing Association, Inc.	2002	150,000
Cook Swine Farm	2002	65,429	Farmer Direct Foods, Inc.	2003	349,033
Cooperative Agricultural Services, Inc.	2001	11,000	Farmers Coop Oil Company	2002	22,300
Cooperative Agricultural Services, Inc.	2002	500,000	Farmers Co-op Oil Company	2003	120,000
Corn Flour Producers, LLC.	2004	350,000	Farmers Cooperative	2005	100,000
Country Side Cooperative	2004	415,000	Farmers Cooperative Elevator Association of Levelland	2002	249,658
Coveyou Farms LLC	2003	49,250	Farmers Cooperative Elevator Company	2005	29,000
Creative Horizons Producers	2003	50,000	Farmer's Cooperative of El Campo	2004	209,484
Crosswind Energy, LLC	2005	87,000	Farmers Oilseed Cooperative, Inc.	2002	149,000
Cumberland Farm Products Assn., Inc.	2002	38,250	Farmer's Rice Cooperative, Inc.	2002	350,000
Dairy Farmers of America	2002	115,500	Farmers Union Marketing & Processing Assoc.	2003	500,000
Dairy Farmers of America	2003	299,871	Fessenden Cooperative Association	2002	500,000
Dakota Beef Cooperative	2001	91,850	Fessenden Cooperative Association	2005	150,000
Dakota Corn Processors Cooperative	2001	401,704	Fiorini Family Vineyards	2005	70,000
Dakota Farms International, LTD	2004	125,000	Flathead Nation Agricultural Cooperative	2002	100,000
Dakota Halal Canning Company, Inc.	2001	102,200	Flick Seed Company	2003	50,000
Dakota Halal Processing Company, Inc.	2001	71,996	Florida Certified Organic Growers and Consumer, Inc.	2003	63,800
Dakota Halal Processing Company, Inc.	2001	313,512	Florida Pork Improvement Group	2005	71,120
Dakota Lamb Growers Cooperative	2001	247,500	Floyd County Wind	2003	7,312
Dakota Pride Cooperative	2002	94,260	Fox Estate Winery	2003	15,000
Dakota Renewable Fuels, LLC	2002	167,500	Frontier Equity Exchange	2005	41,500
Dale Stokes Raspberry Farm	2005	34,500	Fruita Consumers Cooperative	2002	48,000
Darigold, Inc. d/b/a WestFarm Foods	2004	249,000	Gaby's Farm, Inc.	2005	74,837
Darigold, Inc. d/b/a WestFarm Foods	2002	450,000	Galva Holstien Ag, LLC	2002	75,000
dba/Adams Petting Farm	2002	5,000	Garden State Ethanol, Inc.	2002	219,000
Decas Cranberry Products, Inc.	2002	240,000	Garden State Ethanol, Inc.	2003	75,000
Dee's Inc.	2004	95,000	Garrett County Milk Processing Coalition	2004	30,000
Delaware County Meats	2002	34,620	Gateway Beef Cooperative	2004	249,140
Delaware County Meats	2003	29,439	Generation II Ethanol, LLC	2002	250,000
Delaware County Meats, LLC	2005	74,250	Generations	2005	33,000
DENCO Producers' Association Prairie Gold Nutrition Co.	2001	144,950	Georgia Agricultural Commodity Commission for Pecans	2002	25,000
DESERT WHEAT GROWERS COOPERATIVE	2002	56,600	Gervais BioPower Partners	2005	4,000
DFA of California	2002	80,000	Golden Grain Energy LLC	2002	74,000
Diamond Walnut Growers, Inc.	2002	345,000	Golden Grain Energy, LLC	2005	150,000
Diamond Walnut Growers, Inc.	2003	500,000	Golden Plains Frozen Foods LLD	2001	5,000,000
Diamond Walnut Growers, Inc.	2004	450,000	Golden Ridge Cheese Coop.	2004	500,000
Dorchester Farmers Cooperative	2002	5,000,000	Golden State Grain Growers Cooperative	2002	39,900
Earthwise Processors, LLC ***Acquired by Sunopta in 2005	2002	150,000	Goot Essa Cooperative, Inc.	2005	147,500
Earthwise Processors, LLC	2003	95,000	Graceland Fruit, Inc. & GF Cooperative, Inc.	2003	123,362

Applicant	Year	Amount	Applicant	Year	Amount
Grant 4-D Farms	2003	450,000	Iowa Renewable Fuels Association	2002	48,500
Great Lakes Organic Processors Cooperative	2002	86,400	Iowa Soybean Promotion Board	2002	77,000
Great Lakes Pork Cooperative	2003	280,000	Iso-Straw Cooperative, Inc.	2001	498,700
Green Hill Dairy, LP	2004	15,000	Iso-Straw Cooperative, Inc.	2002	378,040
Green Hills Harvest	2004	49,766	Ives Cream LLC	2004	47,550
Green River Cattle Company	2003	70,000	J&J Bosma Dairy	2004	85,000
Green Virginia Ethanol Project	2002	211,000	Jacob W. Paulk Farms, Inc.	2002	126,350
Greencastle/Putnam County Development Center, Inc.	2002	54,500	James & Brenda Gibbons and Connie Munzing	2002	15,000
Greene Bean Project	2002	12,900	Jersey Fruit Cooperative Association, Inc	2002	25,100
Greener Pastures Poultry, LLC	2002	30,000	Jewell County Sunflower Processing	2002	42,000
Greenglade Specialty Goat Milk Products	2005	18,500	Jewell Enterprises, Incorporated	2002	7,200
Griffin, Burton H.	2002	12,500	Jim Clark	2003	17,500
GSC Chipotle Texas, Ltd.	2005	150,000	Jisa Farmstead Cheese, LLC	2005	150,000
Hallock Cooperative Elevator Company	2003	50,000	John Putnam - dba Thistle Hill Farm	2003	40,275
Hart Freeze Pack (dba Michigan Freeze Pack)	2002	247,000	Just Shrimp, Inc.	2002	225,000
Harvest Land Cooperative	2002	148,000	JYY, Inc dba Maui Upcountry Jams and Jellies	2005	18,500
Harvest Lark Company	2005	72,600	K & G Farms	2002	48,032
Hawaii Cattle Producers Cooperative Association	2003	319,960	KAAPA	2002	154,950
Hawaii Farm Bureau Federation	2003	33,000	KAAPA Ethanol, LLC	2003	162,000
Hawaii Gold Cacao Tree, Inc.	2002	126,300	Kake Tribal Corporation and Its Subsidiaries	2002	47,327
Hawaii Gold Cacao Tree, Inc.	2003	10,825	Kansas/Nebraska Meat Goat Cooperative	2002	12,855
Heart of the Valley, LLC	2002	150,000	Karlon Farms, LLC	2002	65,000
Heartland Corn Products	2004	279,000	Kearney Area Ag Producers Alliance	2003	162,000
Heartland Durum Growers Cooperative d/b/a Bushel 42	2002	500,000	Kearney Area Ag Producers Alliance	2004	130,700
Heartland Farm Foods, LLC	2004	150,000	Kenaf Frontier Cooperative	2003	37,750
Heartland Fields-East, LLC	2002	500,000	Kentucky Heritage Meats	2002	120,000
Heartland Fish Cooperative	2005	86,325	Kentucky Produce and Aquaculture Alliance, Inc.	2003	35,000
Heartland Grain Fuels, LP	2004	150,000	Kentucky Shiitake Mushroom Growers Association	2003	27,325
Heartland Mill, Inc.	2003	150,000	Kentucky Specialty Grains, LLC	2003	72,475
Heirloom Organic Cranberry Association	2003	30,450	Kentucky West Nursery Cooperative	2002	349,872
Heritage Vineyards	2003	50,000	Kentucky Wool Society, LLC	2003	19,800
High Falls Gardens	2003	148,000	Kilauea Agronomics, LLC	2002	100,000
Hilmar Cheese Company	2003	120,414	Kilby Cream	2004	50,000
Hilmar Cheese Company, Inc.	2002	134,120	Kiowa County Growers, Inc.	2002	243,000
Hinrichs, John and Crystal	2001	8,000	Klaas & Mary-Howell Martens & Norm Wigfield	2001	24,000
Home Grown Meat Steering Committee	2003	49,280	Krista Peeks Dittman	2004	13,315
Home Grown Wisconsin Cooperative	2003	20,000	L. Johnson Farms, LLC	2005	28,500
Hopkinsville Elevator Co., Inc.	2001	500,000	Lake Cumberland Milling, LLC	2005	150,000
Hopkinsville Elevator Co., Inc.	2003	87,500	Lamb of God Farm	2005	24,125
Howard Beef Processors, Inc.	2003	350,000	Land of Lincoln Ag. Coalition, Inc.	2003	150,000
Howard County Growers	2002	10,100	Last Mile Electric Cooperative	2002	150,000
Husker Ag, LLC	2003	226,850	Laurel Woods Organics	2005	12,000
ILLI-MEX Alliance, LLC	2001	40,000	Lauren Farms Inc.	2004	26,000
Illinois Branded Beef, LLC	2002	92,200	Leaning Oaks Vineyards JV	2005	49,944
Illinois corn Marketing Board	2002	30,000	Leelanau Peninsula Vintners Association (LPVA)	2002	30,000
Illinois Valley Ethanol LLC	2004	33,000	LifeLine Foods, LLC	2005	138,435
Imperial Young Farmers and Ranchers	2002	40,000	Lincoln Hills Farm LLC	2003	7,700
Indiana Ethanol, LLC	2005	100,000	LincolnLand Agri-Energy	2002	500,000
Indiana Renewable Fuels	2005	100,000	Lincolnway Energy, LLC	2005	150,000
Indiana Uplands Grape Growers' Cooperative Inc.	2005	50,000	Little Souix Corn Processors	2002	450,000
Inguran LP dba Sexing Technologies	2005	150,000	Living Forest Cooperative	2003	39,500
Innovative Grower's, LLC	2003	51,010	Living Utah	2004	198,800
Iowa Cooperative	2002	195,000	Lodi Woodbridge Winegrape Commission	2003	129,400
Iowa Corn Growers Association	2003	56,000	Louis J. Lego/Elderberry Pond LLC	2003	56,910
Iowa Corn Promotion Board	2002	146,550	Lummi Indian Business Council	2004	170,000
Iowa Lamb Corporation	2001	437,500	M.R Dickinson & Son	2002	14,000
Iowa Pork Producers Association	2002	41,400	Maharishi World Peace Vedic Organics	2003	144,700
Iowa Premium Pork Company	2001	500,000	Maine Sustainable Agriculture Society	2002	108,000
Iowa Quality Agricultural Guild, LLC.	2002	184,410	Margaret A. Morse	2003	18,930
Iowa Quality Beef Supply Cooperative	2002	500,000	Marietta Kitchen Creations	2003	6,500
Iowa Quality Beef Supply Network, LLC	2001	500,000	Martens Country Kitchen Products, LLC	2002	249,330
Iowa Quality Producers Alliance	2001	100,000	Mason Producer Owned Wind Project	2005	50,000

Applicant	Year	Amount	Applicant	Year	Amount
Massachusetts Woodlands Cooperative, LLC	2003	499,253	Mountain View Harvest Cooperative	2002	342,310
Max Farm, LLC	2005	39,667	Mountain View Harvest Cooperative	2005	73,500
MaxYield Cooperative	2004	50,000	Napa Valley Vintners Association	2003	328,500
Meadowbrook Farms Cooperative	2002	500,000	National Bison Association	2002	249,250
Mercer Landmark, Inc.	2005	31,250	National Bison Association	2003	56,250
Merrill's Egg Farm	2002	39,835	National Christmas Tree Association	2003	55,525
Meyer Vineyards, Inc.	2005	150,000	National Corn Growers Association	2003	175,000
MFA Incorporated	2005	100,000	National Grape Cooperative Association	2001	500,000
MG Grass Seed, LLC	2002	100,000	National Grape Cooperative Association	2002	450,000
Michigan Apple Committee	2002	120,522	National Grape Cooperative Association, Inc.	2005	100,000
Michigan Apple Committee	2003	71,600	National Trail Biodiesel Coop.	2003	33,000
Michigan Cherry Committee	2002	83,530	National Watermelon Promotion Board	2003	110,003
Michigan Cherry Committee	2004	141,210	Natural Quality Direct Steering Committee	2002	41,000
Michigan Edible Bean Cooperative	2003	247,175	Naturally Iowa, LLC	2003	246,150
Michigan Sugar Beet Growers, Inc.	2001	500,000	Nature's Finest Gourmet Potatoes	2002	15,000
Michigan Sugar Company	2003	74,120	NC Farm Bureau Foundation for Agriculture in the Classroom	2003	53,700
Michigan Turkey Producers Cooperative	2003	55,574	Nebraska Corn-Fed Beef, Inc.	2002	150,000
Michigan Turkey Producers Cooperative, Inc.	2005	150,000	Nebraska Soybean Association	2004	237,700
Mid-America Biofuels, LLC	2002	450,000	Nebraska Turkey Growers Cooperative	2003	120,000
Mid-Atlantic Biodiesel Company, LLC	2005	150,000	Nebraska Turkey Growers Cooperative	2005	64,840
Mid-Iowa Cooperative	2003	450,000	NEDAK Ethanol	2003	38,500
Midwest Grain Processors	2003	150,000	NEK-SEN Energy Partners	2005	100,000
Midwest Grain Processors Cooperative	2001	500,000	Nevada Wildland Seed Producers Association	2003	57,312
Midwest Greenhouse, LLC	2003	350,000	New England Livestock Alliance ***Heritage Breeds???	2002	150,000
Midwest Investorys of Renville dba Golden Oval Eggs	2002	225,000	New England Livestock Alliance	2003	250,000
Midwest Nut Producers Council	2002	74,605	New England Livestock Alliance Inc.	2004	150,000
Midwest Organics Recycling, LLC	2004	98,438	New Generation Ag Marketing, LLC	2003	500,000
Midwest Prairie Products, LLC	2002	59,400	New Harvest Ethanol	2004	170,000
Midwest Pride Systems, LLC	2002	107,956	New Jersey Seafood Marketing Steering Comm.	2004	46,100
Min-Kota Fisheries, Inc	2005	150,000	New Jersey Tomato Council	2001	75,000
Min-Kota Fisheries, Inc.	2004	12,500	New Life Resources, LLC DBA Membrell	2005	64,774
Minnesota Crop Improvement Association	2005	93,250	New York Natural Beef Cooperative	2002	248,258
Minnesota Soybean Processors	2001	500,000	NFO Members Livestock, Inc.	2005	74,000
Minnesota Wood Campaign, Inc.	2003	94,480	Niman Ranch Pork Company	2003	350,000
Minnesota Wood Campaign, Inc.	2004	193,300	Niman Ranch Pork Cooperative	2004	250,000
Mississippi Association of Cooperatives	2002	150,000	Norpac Foods, Inc.	2003	55,676
Mississippi Fruit and Vegetable Association	2005	150,000	North American Bison Cooperative	2001	500,000
Mississippi Valley Processors	2002	66,000	North Central Cooperative	2002	32,300
Miss-Lou Blueberry Growers Association Cooperative	2004	28,400	Northeast Cervid Cooperative	2002	53,100
Miss-Lou Blueberry Growers Association Cooperative	2005	150,000	Northeast Deer and Elk Farmers	2005	40,362
Missouri Branded Rice Organization	2005	100,000	Northeast Organic Farm Association of Vermont	2003	36,300
Missouri Corn Growers Association	2002	234,834	Northern California Lamb Producers Steering Committee	2005	47,500
Missouri Country Fresh, LLC	2003	117,000	Northern Tier Sustainable Meats Co-op, Inc.	2005	40,748
Missouri Food and Fiber, Inc.	2002	249,500	Growers Assn.	2005	95,000
Missouri Freshstem	2005	30,500	Northwest Natural Beef	2002	45,000
Missouri Grain Sorghum Producers Association	2003	48,760	Now and Forever Flowers	2002	149,429
Missouri Masa	2003	349,950	Nutri-Tech, LLC	2003	56,732
Missouri Masa, Inc.	2005	150,000	Ocean Spray Cranberries, Inc.	2002	200,000
Missouri Northern Pecan Growers	2004	140,000	Ohio Corn Growers Association	2005	33,000
Missouri Northern Pecan Growers LLC	2001	131,870	Ohio Premium Pine Cooperative	2003	78,950
Missouri Northern Pecan Growers, LLC	2002	24,620	Ohio Soybean Council	2002	50,000
MIssouri Soybean Association	2002	125,000	Ohio Soybean COuncil	2003	150,000
Missouri Soybean Association	2002	120,000	Oklahoma Farmers and Ranchers Energy Enterprise	2004	235,000
Mitcham Farms, LLC	2005	30,400	Oklahoma Farmers Union Sustainable Energy L.L.C.	2002	231,000
Mohawk Valley Grown Association	2002	40,000	Oklahoma Goat Producers	2003	85,030
Montana Eco Fuels	2002	45,030	Olathe Patato Growers Cooperative Assoc.	2002	41,300
Montana Grain Growers Association	2002	340,000	Old North State Winegrowers Cooperative Association, Inc.	2005	150,000
Montana Natural Beef, LLC	2001	303,022	Olive Growers Council of California	2003	148,250
Monterey Wine Growers Council	2004	149,200	Olive Growers Council of California	2001	405,625
Moon Valley Vineyard	2004	25,000	Olive Growers Council of California	2004	249,170
MOO-ville, Inc.	2005	141,452	Olive Growers Council of California	2005	100,000
Morris Farms, for California Ethanol Steering Committee	2005	100,000	Orchard View Farms, Inc	2005	25,000
Mountain States Lamb Cooperative	2003	200,000	Oregon Sheep Growers Association, Inc.	2002	62,500

Applicant	Year	Amount	Applicant	Year	Amount
Oregon Sheppard LLC	2003	150,000	RainSweet, Inc.	2002	250,000
Oregon Trail Beef Cooperative	2002	25,000	Red Gate Farms	2004	50,000
Oregon Trail Beef Cooperative	2005	150,000	Red Jacket Orchards	2005	74,808
Oregon Woodland and Sales Cooperative	2005	86,000	Rhode Island Dairy Farms Cooperative	2005	50,000
Organic Choice Coop	2002	50,000	Riceland Foods, Inc.	2001	97,500
Organic Essentials, Inc. (coop)	2003	450,000	Richard D. Zeller DBA RZ Management	2005	16,000
Ozark Mountain Pork Cooperative	2002	133,500	Ring Farms	2005	26,590
Ozark Mountain Pork Cooperative	2003	420,000	Rio Grande Valley Sugar Growers, Inc	2005	100,000
Pacific Coast Producers ***Which location to Record?	2002	450,000	Robinson Family Wind Farm	2005	35,000
Pacific Coast Producers	2004	300,000	Rocky Mountain Custom Cuts	2005	100,000
Pacific Coast Producers	2005	100,000	Rocky Mountain Farmers Union	2001	115,000
Pacific Rim Ethanol LLC	2001	500,000	Rocky Mountain Sugar Growers Cooperative	2001	500,000
Padonia Grain Farmers, Inc.	2002	50,750	Rodney Behrens	2004	75,000
Painted Hills Natural Beef, Inc.	2003	72,000	Rolling Hills Vineyard	2005	18,500
Palouse Grain Growers, Inc.	2003	24,955	Rousseau Farming Company	2005	30,050
Panhandle Chicory Growers Assn. Inc.	2002	67,500	Rutledge Apiaries, Inc	2005	18,500
Partners for Family Farms	2002	89,800	Ryan, Jonathan P.	2001	1,250
Partners In Forestry	2002	69,700	Salman Farms, Inc.	2002	15,000
Patriot Renewable Fuels	2005	100,000	Salmon Creek Farms Marketing Association	2002	349,000
Peacock Road Tree Farm, LLC	2002	50,000	San Joaquin Valley Quality Cotton Growers Association	2003	228,250
Peaked Mountain Farm	2005	33,937	Sangre de Cristo Growers Cooperative, LLC	2001	35,000
Pennsylvania Association for Sustainable Agriculture	2003	25,775	Santa Fe Family Farmers Cooperative	2003	51,510
Pennsylvania Beef Council	2002	105,000	Santens, E. Stanley	2005	36,300
Pennsylvania Cooperative Potato Growers, Inc.	2002	450,000	SC Farm Bureau Marketing Association	2002	500,000
Picket Fence Creamery	2004	43,700	Schoharie Co. Coop. Dairies, Inc.	2003	15,000
Pine Lake Corn Processors	2001	500,000	SDAPV Dakota Premium Hay, LLC	2003	145,000
Pinn-Oak Ridge Farms, LLC	2005	150,000	Seafood Producers Cooperative	2003	48,000
Pioneer Valley Milk Marketing Cooperative	2002	50,000	Seeds, Inc.	2004	250,000
Planters Cotton Oil Mill, Inc.	2003	497,000	Seifer Farms LLC	2005	10,000
Planter's Grain Cooperative	2003	349,240	Sequim Growers Cooperative	2003	85,084
Platte Valley Wyo-Braska Beet Growers Assoc.	2002	90,000	Shawnee Winery Cooperative, Inc.	2002	52,000
Potato Variety Marketing, Inc.	2005	100,000	Sheltowee Farm, Inc	2004	17,675
Power Plus Technologies	2002	500,000	Shephard Song Farm	2005	49,789
Practical Farmers of Iowa	2002	108,544	Sherman County Wind Farmers	2005	50,000
Praireland Diary	2005	85,000	Sho-Me Livestock Cooperative, Inc.	2005	147,112
Prairie Berry LLC	2003	57,000	Shoreline Fruit, Inc.	2005	100,000
Prairie Farmers Cooperative/Bumper to Bumper	2001	500,000	Shuck Family Limited Partnership	2002	9,105
Prairie Land Cooperative	2004	107,000	Sierra Nevada Beff Steering Committee	2002	36,300
Preferred Bird of Texas	2005	30,500	Siouxland Energy & Livestock Cooperative	2001	500,000
Premier Dairy Associates	2005	99,800	Siouxland Energy & Livestock Cooperative	2004	150,000
Premium Ag Products, LLC	2003	349,990	Siskiyou Sustainable Cooperative	2003	18,875
Premium Ag Products, LLC.	2004	349,900	Siskiyou Sustainable Cooperative	2005	23,210
Premium Elk, LLC	2003	20,800	Small Farm Produce, LLC	2003	302,000
Premium Pork LLC	2003	500,000	Small Farms Cooperative	2002	250,000
Premium Producer Association	2001	105,000	Small Farms Cooperative	2004	250,000
Producer's Choice	2002	271,136	Small Ruminant Marketing Association	2005	39,000
ProFac	2003	180,000	South Bay Protein Processors, Inc.	2003	300,000
Progressive Producers Nonstock Cooperative	2003	450,000	South Dakota Ag Producers Ventures Cooperative	2002	150,000
Pro-Mar Select Wheat of Idaho, Inc	2002	47,500	South Dakota Farmers Union	2002	450,000
Pulaski Alexander Farm Bureau	2005	100,000	South Dakota Soybean Processors	2001	500,000
Puna-Hawaii King Papaya Cooperative	2004	50,000	South Dakota Wheat Commission	2003	45,000
Purchase Area Aquaculture Cooperative, Inc.	2003	139,700	South Dakota Wheat, Inc	2005	48,250
Putnam Bio-Products, LLC	2003	25,250	South-East Bison Association	2003	17,675
Quad County Corn Processors Cooperative	2002	450,000	Southeast Milk Inc	2004	185,000
Quad County Corn Processors Cooperative	2001		Southeast Minnesota Food Network LLC	2005	90,000
Quad-County IP Producers	2005	99,750	Southeast Nebraska Alternative Crops Association, NonstockCoo	2003	96,355
Quality Ingredient Producers	2005	99,425	Southern Growers, Inc.	2001	150,000
Quality Organic Producers Cooperative	2002	500,000	Southern Iowa Bioenergy LLC	2005	100,000
Rainbow Farmers Cooperative	2002	150,000	Southern States Cooperative, Inc.	2001	454,880
Rainbow Organic Farms Company	2003	144,500	Southwest Guar Cooperative Association	2001	5,000,000
Rainsweet Inc.	2005	66,275	Soy Boyz Inc.	2004	50,000

Applicant	Year	Amount
Whitesides Dairy, Inc.	2004	28,172
Wholesome Harvest	2003	450,000
Wholesome Harvest LLC	2002	149,000
Wilcox Farms, Inc	2002	90,020
Winegrowers Assoc. of GA	2003	18,973
Winery at Black Star Farms	2004	50,000
Winneshiek Wildberry Winery, LLC	2005	30,000
Winzerwald Winery LLC	2002	14,000
Wisconsin Dairy Graziers Cooperative	2004	38,540
Wisconsin Farmers Union Speciality Cheese Co., LLC	2002	75,000
Wisconsin Soybean Marketing Board, Inc.	2005	50,000
World Food Processing, Inc.	2002	350,000
Wray Farmer-Owned Wind Farm Group	2004	128,000
Yadkin Valley Winegrowers Association	2004	250,000
Zillah Community Energy Partners	2005	92,500