Center For Agribusiness & Economic Development

GEORGIA OILSEED INITIATIVE
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EXECUTIVE SUMMARY

GEORGIA OILSEED INITIATIVE

REPORT ON THE FEASIBILITY OF AN OILSEED PROCESSING FACILITY IN GEORGIA

Basic Premise Georgia farmers, through cooperative action, can improve their income by crushing oilseeds, refining the crude oil, packaging the finished oil and marketing it to consumers.

Survey of Farmer Attitude Georgia growers will financially support and market their oilseeds through a cooperative effort if it will provide them a long term stable market at competitive profit potential. They will accept state support to initiate the undertaking.

Retro-fitting Existing Crushing Facilities The idea of retro-fitting existing oilseed processing facilities within the state was investigated. Cost of retrofitting existing crush operations appear to be above $75 per ton as compared to costs of new facilities in the $50 range. This would place the facility at a significant competitive disadvantage relative to the competition. Added disadvantages include small overall capacity, dated equipment resulting in higher unit costs and potential conflicts in crushing schedules due to existing captive obligations.

New Construction Integrated Facilities Three different sized new construction crush facilities were investigated. It was determined that an 800 ton per day crushing facility would be the most efficient size operation capturing much of the available economies of scale yet sized such that feedstock production could meet processing capacity. Companion crude oil refinery and packaging facilities sized to match the crush plant were also costed. All of the facilities are capable of handling multiple oilseeds and preserving the identity of the meal and oil products. Total cost of processing from the raw feedstock to a bottled oil ready for market is about $50 per ton of feedstock.

The proposed facility will meet all economic costs under three different potential feedstock prices and margins of operation. Processing soybeans and canola through the facility will add value to these products for the benefit of the farmer owners of the operation as well as provide competitive returns on their equity.

Breakeven Level of Operation The plant needs to process 190,000 tons per year to breakeven. That is equivalent to operating for 238 days at an average of 800 tons per day or 65 percent of capacity. That compares to the objective of operating at 90 percent of capacity or 325 days per year. Profits to the operation will occur when processing exceeds 190,000 tons per year.

Factors Impacting Location Decision Locating the plant near the source of the feedstock directly minimizes acquisition cost. Location on or near major transportation routes such as interstate highways and major rail lines is also important since most of the feedstock and end product will likely move using those methods.

Added requirements from a prospective site include sufficient, reliable electrical power, water supply and waste water treatment and an environmental buffer area. Labor requirements are also a consideration but skilled labor may need to be attracted and thus quality of life issues become of importance.

Markets for the Products Georgia and Florida present attractive markets for both meal and oil products. Both states are net importers of meal. The proposed facility would provide about 13 percent of the two state meal requirement. Georgia has an excess of oil but Florida

must import about 2.5 times the Georgia excess supply making it an ideal market. The refinery would provide about 17 percent of the two state's demand for oil.

Potential Growth Markets The basic analysis was founded on commodity valued products. Emerging technologies present opportunities for Georgia farmers to capture market niches and increase the value added to their farm product. Examples of potential markets are natural processed oils, GMO Free oils and meals, Kosher designated products, "designer" blended oils and potential new technology. Brand name products of 'locally grown' products also offers a potential market niche.

Emerging Production Technology in Georgia There are several new oilseed varieties under development for production in Georgia that may hold potential as feedstock for the facility. These include Low Saturated Fat Canola, Low Linolenic - High Oleic Canola, non-GMO soybeans, Low Saturated fat Soybeans, Low Linolenic - High Oleic Sunflowers and Low Linolenic - High Oleic peanuts.

Alternative Financing and Organizational Arrangements The construction and operation of a 800 ton per day oilseed processing operation requires a capital investment of approximately $56.5 million ($50.5 million for plant and equipment and $5 million for operating capital). In addition, in order for a processing operation of this type to become profitable, it must be operated at full capacity. Given the currently inadequate oilseed production in Georgia, the ability to finance and fully supply an oilseed operation in Georgia appears to be the main roadblock to success.

A special type of producer cooperative called a "New Generation Cooperative (NGC)" or a "closed cooperative" combines solution to both the financing and the operations questions and is recommended. Producers would raise an initial portion of the plant's cost through stock or options on stock sales. Each share of stock would provide the right and obligation to market one bushel of oilseed through the plant. The remaining capital could be raised through debt financing. Assuming 10% of the plant's total annual capacity of approximately 9 million bushels is reserved for new producers, approximately 8 million stock shares (each representing a bushel) would need to be sold. Based on the minimum equity level of 40%, $22.6 million would need to be raised through stock sales with $32.9 million raised through debt. Thus the necessary price per share of stock (representing each bushel of oilseed to be marketed) would be $2.83 per bushel. State involvement through guaranteed loans, direct financing (with lease back to the cooperative) of the operation, or direct grants would increase the likelihood of successfully financing such an operation.

Impact Of A Oilseed Processing Operation On The Georgia Economy An input/output model (IMPLAN) was formulated to simulate the economic impact of a 900 ton per day oilseed crushing plant and accompanying oil refinery and packaging operation. The economic model contains all linkages between various economic sectors within the state so that the impact of output and employment can be measured across the total economy. Estimates can also be made of the tax consequences of the total economic activity from such a model.

The results of this model indicate that along with the original 53 jobs created through the processing plant, an additional 1,086 jobs would be created through indirect effects in Georgia, mostly in rural Georgia. The total economic impact on the Georgia economy would be to add about $172 million per year in economic activity , $77.8 million from direct output in the oilseed plant and another $94.2 million induced from other sectors of the economy. The direct and indirect output resulting from the proposed oilseed crushing and refinery operation would result in an estimated total increase of $6.92 million per year in Georgia tax revenues. The largest sources of increased Georgia tax revenues resulting from the proposed venture are from sales taxes ($3.5 million per year), property taxes ($2.02 million per year), and income taxes ($859 thousand per year).

Keys for Project Success

1. Farmer support for and commitment to the project.
2. Farmer control of the commodity from "Farm to Consumer".
3. Exploiting all niche markets.
4. Experienced management and marketing teams.
5. A sound business plan.

Basic Premise of the Study

In response to the continuing low prices and subsequent low or non-existent profits for soybeans and canola, a group of Georgia farmers

requested a study to determine the feasibility of a project to capture the value added of processing and marketing locally produced oilseeds. The Georgia Legislature authorized funds to the University of Georgia College of Agriculture and Environmental Studies to support an in-depth study of the feasibility of a farmer owned facility to process and market Georgia oilseeds. The Center for Agribusiness and Economic Development was charged with the task of conducting the study.

The basic premise of the Oilseed Initiative is that Georgia farmers, through cooperative action, can improve farm income to oilseed producers by crushing their oilseeds, refining the crude oil, packaging the refined oil and marketing it directly to the consumer. It is further believed that Georgia farmers can produce identity preserved oilseed products that fill market niches not currently being served by producing identified genetic varieties of soybeans, canola and peanuts. This project seeks to determine the feasibility of this premise.

Oilseed Production in Georgia

Soybean production in Georgia has declined from about 19 million bushels harvested from 640,000 acres in 1992 to a projected 3.42 million bushels from 180,000 acres in 2000. The reason for the decline in production is low returns for soybean production relative to other crops, especially cotton. State-wide, Georgia has battled droughts and insect pressures that have severely impacted yields and made soybean production less competitive with other crops. However, Georgia does have many farmers who have consistently produced excellent soybean crops competitive with growers across the country.

Canola production has gone through a cycle of virtually no production until 1990 to a maximum acreage of about 25,000 acres in 1996 back to no production in 2000. The promise of markets for canola induced production of commodity canola but the markets failed to materialize and growers felt rejected. Some acreage of specialty canolas was grown under contract but that market also failed to live up to expectations. Georgia appears to have the ability to be competitive with other canola producing areas of the country and the world from an agronomic and cost efficiency basis, but absent a stable market with competitive prices, farmers see no incentive to produce canola.

Survey of Georgia Farmer Attitude

The Center for Agribusiness and Economic Development conducted a survey of Georgia farmers to gauge the level of interest in the Oilseed Initiative. It should be noted that the survey was sent out during the summer of 2000 and that most of those surveyed had little or no knowledge of the Georgia Oilseed Initiative. The purpose of the survey was to determine if Georgia farmers had interest in such an undertaking and to gauge the level of that interest.

Surveys were mailed to approximately 1,100 Georgia farmers based on three different mailing lists of Georgia producers of soybeans, canola and corn. A total of 181 replies were received of which 99 were complete and useful and yielded the following conclusions:

1. If a stable long-run local market for oilseeds could be secured providing competitive prices with other commodities, Georgia respondents indicated they would expand their soybean production by 189 percent and their canola production by 816 percent.

2. In regards to the level of value added provided to them by a processing facility, 39.7 percent of the respondents would need at least a 15 percent increase in value of the product to attract their support. 43.6 percent of the respondents stated they would need at least a 20 increase in the value of their product to attract their support.

3. Respondents were given the choice of various means of financing the ownership of an oilseed processing facility including private industry, producer financed cooperative and state development and all combinations of two of these alternatives. The leading preference was for financing through a producer financed cooperative. The second choice was a combination of producer financed cooperative and state development. The next closest preference, and it somewhat distant in preference, was for private industry financing.

4. Respondents were queried concerning the level of their oilseed production they would be willing to commit to a producer financed cooperative. 66.1 percent of the respondents indicated they would commit all of their soybeans production to the cooperative. 56.7 percent of the respondents indicated they would commit all of their canola production to the cooperative. 50 percent indicated they would commit their cottonseed and 45.7 percent

indicated they would commit their peanuts to the cooperative.

5. For those respondents unwilling to commit all of their production, they were asked what level of their production they would be willing to commit to the cooperative. Respondents indicated they would willing to commit 58.9 percent of their soybeans, 50.2 percent of their canola, 38.2 percent of their cotton seed and 42.2 percent of their peanuts to the cooperative.

In summary, there appears to be strong interest among the respondents for an oilseed processing facility that could provide at least a 15 percent increase in value added to the raw farm value of oilseeds and a greater degree of interest if the facility could return at least a 20 percent increase in value added. Two-thirds of the respondents indicated they would commit all their production to the venture. Respondents indicated they strongly preferred a producer financed cooperative over other financing alternatives but would look favorably upon some level of state development.

Scope of the Study

The Center for Agribusiness and Economic Development took several steps to collect information and study various potential alternatives. Among the first actions was to contract with two firms with extensive experience in the oilseed industry to participate in evaluating various oilseed processing alternatives.

The primary firm contracted was South Dakota Soybean Processors, Inc. (SDSP) of Volga, SD. SDSP is a farmer owned soybean crushing operation organized as a new generation closed cooperative. This is the organizational structure that many feel is the appropriate model for the Georgia initiative to follow. It has been in operation for almost five years. The Chief Operating Officer and his staff, with the consent of the owners of SDSP, also perform feasibility analyses for other potential cooperatives. This firm was charged with developing an economic analysis of three different sized oilseed crushing, oil refining and oil packaging operations as well as evaluating the potential market for oilseed products.

The second firm contracted was Frazier, Barnes and Associates of Memphis, TN. The two principles of this consulting firm combine nearly 45 years experience in all phases of the oilseed industry. They were charged with evaluating the potential for converting existing oilseed processing facilities within the state of Georgia at a cost and efficiency competitive with new facilities.

Summary of Evaluation of Converting Existing Processing Facilities

In the early discussion of the Oilseed Initiative, it was suggested to study the possibility of converting existing oilseed processing facilities within the state for use in the oilseed project. The consulting firm of Frazier, Barnes & Associates, LLC of Memphis, TN was retained to evaluate the feasibility of conversion of existing crush plants in Georgia for use as the foundation for an integrated oilseed processing facility.

Frazier, Barnes identified five existing oilseed processing facilities within the state. Two are relatively large scale soybean processing operations owned by Cargill in Gainesville and Archer, Daniels, Midland in Valdosta. These plants were not considered as potential candidates for retro-fitting for the scope of this project due to current ownership and size. The consultants also identified three smaller scale crushing operations that currently process either cottonseed or peanuts. Two of these operations expressed interest in the project and offered to cooperate with Frazier, Barnes in investigating retro-fit potentials.

The plant located in Vienna, GA is a relatively small scale operation capable of crushing cottonseed and peanuts. They cooperated fully with Frazier, Barnes and provided cost data for analysis as well as access to the physical plant in order to evaluate what would be needed to retro-fit the plant for the purposes of the oilseed project. The plant located in Tifton, GA is also a relatively small scale operation currently crushing cottonseed. The management expressed willingness to cooperate but was unable to provide cost of operation data within the time lines for this study. They did allow inspection of the physical plant.

Frazier, Barnes indicated that the two physical plants were similar enough that in their estimation, the costs of retro-fitting and operating the two plants would be roughly similar and that there was no significant difference between the two that would change the overall conclusions of their analysis.

Frazier, Barnes presented an analysis of the costs of retro-fitting the Vienna plant (with the assumption it is similar to the Tifton plant) in two formats. One with a companion crude oil refinery and packaging plant located adjacent to the crushing operation. The second format

considers the same retro-fit but this time with the refinery and packaging facilities located elsewhere. They provide a comparison of these alternatives with their expectations of the costs of new facilities similar to those presented by SDSP. The following table summarize the alternatives considered by Frazier, Barnes.

Table 1. Operating Cost Comparisons of the Frazier, Barnes Alternatives.

	Option 1 New Crush Stand Alone Refinery	Option 2 New Crush Companion Refinery	Option 3 Retro-Fit Stand Alone Refinery	Option 4 Retro-Fit Companion Refinery
Crushing Costs	$24.96/ton	$24.96/ton	$45.51/ton	$45.51/ton
Refining Costs	$21.28/ton	$20.22/ton	$29.36/ton	$27.89/ton
Crude Oil Transp.	$3.50/ton	$1.07/ton	$3.56/ton	$1.78/ton
Total Cost/ton	$49.80/ton	$46.25/ton	$78.43/ton	$75.18/ton
Total Cost/bu.	$1.25/bu	$1.16/bu	$1.96/bu	$1.88/bu

Conclusions of the Frazier-Barnes Analysis

It is the opinion of Frazier-Barnes that the alternative of retro-fitting existing crush facilities within the state is not economically competitive with the construction of new facilities. The existing equipment in the crush plants is dated and new equipment possesses significant efficiencies. Additionally, the existing facilities would not be as flexible in terms of switching between different oilseeds due to commitments by the owners to crush captive product.

While the initial capital outlay for retro-fitting existing facilities is considerably less than constructing a new plant, the per unit costs of operating retro-fitted plants would make it extremely difficult to provide a competitively priced finished product to the market place. This disadvantage would be especially difficult to overcome during periods of low crush margins and would seriously jeopardize the survival of the business.

Therefore, it is recommended by Frazier-Barnes to concentrate development efforts toward a physical plant composed of new construction and new equipment to capture all available advantages they would provide in terms of lower per units costs.

Summary of New Construction Processing Facilities

The SDSP consultants were asked to present three different sized new construction processing facilities that would include as primary pieces, an oilseed crushing facility capable of switching between different oilseeds, a crude vegetable oil refinery with switch capabilities and a packaging facility capable of bottling/packaging refined oil in multiple container sizes for different markets. The facilities should also be capable of preserving the identity of oilseeds so that identity-preserved meal and oils could be produced to serve market niches.

SDSP considered several factors in determining their recommended size facility. One major factor was the need to produce most of the needed product in Georgia or nearby in adjacent states. Transportation costs of acquiring oilseeds for processing is a critical cost of operation that needs to be minimized. Second, a balance of capital cost, operating cost and net revenue was considered. Third, SDSP used their experience in the oilseed industry to determine the unit capital cost and operating costs to estimate the economies available in the larger scale alternative. The economies of scale benefit would be off-set by the cost of acquiring the volume needed, thus reducing the unit net revenues. The three alternatives considered by SDSP are shown in Table 2.

Table 2. SDSP Soybean Crushing Plant Project Size Sensitivity.

Crush Capacity per day	500 tons	900 tons	1,500 tons
Total Capital Cost	$16 mil.	$21 mil.	$36 mil.
Capital Cost per Ton	$32,400	$23,333	$24,000
Manpower	16	19	28
Operating Cost per ton	$25.26	$17.01	$15.17
Administration Cost	5.21	2.88	1.73
Total Operating Cost			
Per ton	$30.47	$19.89	$17.44
Per bushel	$0.88	$0.57	$0.50

SDSP indicated the optimal size facility for the situation in Georgia would be a crush plant with the capacity to process 900 tons per day of soybeans or 700 tons per day of canola. The increased unit cost of the small size operation would place it at a significant disadvantage relative to the industry and make its long term survival problematic. The relatively small cost advantage of the larger size operation would not offset the added cost of acquiring feed stock not likely to be available in the region.

For perspective, 900 tons of daily crush would require a total of about 9.6 million bushels of soybean per year based upon operating 24 hours per day 325 days per year. Georgia soybean production in 2000 will be about 3.42 million bushels or a little over one-third of the plant capacity at 2000 crop production levels. The volume of protein meal and vegetable oils produced would represent about 13 percent and 20 percent of the combined Georgia and Florida markets, respectively.

The refinery would have the capacity to process 300 tons of crude oil per day operating on a 24 hour schedule. The capacity of the refinery exceeds the capacity of the crush facility to produce crude oil. However, in Georgia, there is a need for refinery capacity for cottonseed oil and peanut oil and thus the potential for refining "for toll" presents a revenue opportunity that needs to be exploited.

The proposed packaging facility was sized to meet the output of the refinery. It would be capable of packaging the refined oil in a variety of container sizes to meet the needs of the market place.

Additional Storage Capacity to Assure Canola Quality

During the meeting of the Oilseed Task Force and the representatives from SDSP and Frazier, Barnes, the topic of storage of canola was discussed. The key issue was the ability of existing storage systems in Georgia to handle and maintain the quality of a canola crop that will be harvested at near the same time as wheat and must be stored during the hot humid conditions of the southern summer.

The outcome of this discussion was the recommendation, agreed to by both consultants and the Task Force members that the project include sufficient storage to handle all the canola produced by its members. Projections by Frazier, Barnes indicate that organization members could produce up to 4.2 million bushels of canola within four years of start-up of the project. The processing facility contains 300,000 bushels of storage in the original design. It was agreed that additional storage of 3.3 million bushels should be included in the project design. Current costs to provide storage facilities capable of handling the special requirements for intermediate term storage of canola were projected to cost about $3.50 per bushel or a total cost of $11.55 million.

While the storage capacity would exceed the likely canola production in the first three years, that capacity could be used for soybean or other oilseed storage. These bins would also add to the ability to handle identity preserved commodities. Furthermore, including the added storage capacity during initial construction would obviate the need for a capital drive to finance it within the first couple of years of operation, a time when added capital may be more difficult to obtain.

Capital Cost Projections of the Complete Oilseed Processing Facility with Additional Storage

The following table breaks out the various components of the facility and assigns cost estimates to them based upon SDSP analysis of actual construction costs and equipment cost comparisons of recently built facilities. It should be noted that final site selection can have an impact upon some of the cost items below.

Table 3. SDSP Processing Plant Capital Costs with Additional Storage Based Upon Actual Construction Costs of Recently Built Facilities.

	(Millions of Dollars)
Receiving, Storage, Conditioning and Load-out	**$13.45**
Crush Plant	
Preparation Equipment	$ 3.80
Preparation Conveying	0.35
Extraction Equipment	2.90
Building/Structural	2.50
Installation	1.90
Electrical	2.80
Foundation	0.65
Oil & Hexane Storage	0.20
Fire Protection	0.20
Subtotal	**$15.30**
Refinery	
Equipment	$3.40
Electrical	1.40
Building/Structure	2.00
Installation	3.20
Insulation	0.50
Tank Farm	0.40
Fire Protection	0.10
Subtotal	**$11.00**
Packaging	
Equipment	$2.05
Building	2.20
Mechanical	0.25
Piping	0.20
Electrical	0.45
Fire Protection	0.10
Subtotal	**$5.25**
Plant Infrastructure(estimates - not site specific)	
Excavation	$0.60
Fire Protection	0.50
Roads/Parking	0.30
Underground Utilities	0.40
Office/Storage	0.10
Cooling Tower	0.25
Boiler	0.80
Subtotal	**$2.95**
Engineering/Construction Management	**$3.50**
Grand Total	**$51.45 million**

Estimated Operating Expenses for the Proposed Oilseed Processing Facility

The operating cost analysis is based upon a 50/50 mixture of soybean and canola processing. Total tonnage processed per year is assumed to be 260,000 tons. Daily capacity of canola is assumed to be 700 tons and soybeans 900 tons. The plant is assumed to operate at 90 percent of capacity or 325 days per year. The general cost categories are:

Table 4. Breakdown of Total Production Costs

	Total	Crush	Refinery	Packaging
	----------($1,000)----------			
Manpower	$1,731.3	$727.7	$528.0	$475.6
Employee Related	18.6	9.0	5.1	4.5
Depreciation	3,422.0	2,170.0	800.0	452.0
Professional	9.0	4.5	2.7	1.8
Taxes & Insurance	299.2	185.0	107.0	7.2
Other	77.2	37.0	37.0	3.2
Total Energy	1,854.7	1,503.8	344.5	6.4
Maintenance	460.0	300.0	100.0	60.0
Protection and Safety	22.8	7.9	5.2	9.7
Communications	3.5	1.1	0.8	1.6
Total Sewer and Water	62.3	29.7	17.3	15.3
Water Treatment	62.0	30.0	24.0	8.0
Process materials	872.2	85.0	785.2	2.0
Admin. & Marketing	3,345.0	1,500.0	345.0	1,500.0
Interest on Op. Cap.	500.0	167.0	166.0	166.0
Total	$12,738.8	$6,857.7	$3,267.8	$2,713.3
Total Per Ton	$48.99	$26.38	$32.68	$35.70
Industry Standard/ton		$14.00	$24.50	$17.50
Difference Per Ton		+$12.38	+$ 8.18	+$18.20
Total Per Bushel			$1.41	

Depreciation is the largest single cost component of the total operation and is at the top of the list in each one of the operations. Depreciation is a non-cash expense and essentially remains within the business. It certainly plays an important role in the higher than industry costs but because is it a non-cash expense and thus helps to level back the playing field. Energy costs are the second largest cost component of the operation. Consideration must be given during the location decision on the ability of potential sites to provide adequate, dependable energy supplies at minimum costs. An analysis of the cost categories for each segment of the business helps identify the skill set needed from the supervisory positions. Skills in manpower management and scheduling are a must for a successful operation.

Potential Profitability

The following analysis of the potential profitability of the 800 ton per day facility is based upon the past 20 year average of prices from the Chicago Board of Trade localized where possible to Georgia conditions.

TOTAL REVENUES BASED ON LAST 20 YEAR AVERAGE PRICES
130,000 tons each of Soybeans and Canola

Crush Operation	----------$1,000----------	
Feed Stock	Meal	Oil
Soybeans @$215/tn meal	$20,683	
@$0.223/lb oil		$11,140
Canola @$165/tn meal	$12,022	
@$0.243/lb oil		$25,213
Soy Hulls @$45/tn	$351	
Total Crush Value	**$33,056**	**$36,353**

Refining Operation - Value Added

+450 premium for refined versus crude oil	$3,422
Toll refining income @ $0.04/lb	1,920

Total Refinery Value - Added	**$5,342**

Packaging Operation (40,000 tons, net cost of container)

Food Processor/Food Service	
Soyoil @ +$0.05/lb premium for packaged product	$770
Canola Oil@+$0.06/lb premium	840
Grocery - Wholesale	
Soyoil @+$0.128/lb premium	333
Canola Oil@+$0.128 premium	614
Natural Foods	
Soyoil @+$0.135/lb premium	270
Canola Oil@+$0.167 premium	200
Total Packaging Value Added	**$3,027**

	Meal	Oil
Total Revenues	**$33,056**	**$44,722**
Total Combined Revenues	**$77,778 million**	

COST OF OPERATION

Feed Stock	**-- ($1,000) --**
Soybeans (4.333 mil. Bu. @ $6.26)	$27,127
Canola (4.727 mil. Bu. @$5.28)	$24,960
Total Feed Stock Cost	**$52,087**
Crush Operation (260,000 tons) Cost	**$ 6,758**
Refining	
Own Oil (76,050 tons)	$ 2,484
Toll Refining (24,000 tons)	$ 784
Total Refining Cost	**$ 3,268**
Packaging	
Own Oil Packing Cost	**$ 2,713**
Total Operating Costs	**$64,826**
Return on Investment 10% on $51.45 million	**$ 5,145**
Total Cost	**$69,971**

Net Proceeds = Total Revenues - Total Cost

$7,807 million = $77,778 million - $69,971 million

Payback Period = 6.6 years

Profitability Potential Sensitivity Analysis The above analysis relies on 20 year average prices that may or may not be reflective of future price relationships. The following table indicates the results on the potential profitability of the project under lower price levels and lower crush margins compared with the above results. Long term USDA projections for soybean prices over the next 7 years call for average soybean prices near $5.50 per bushel.

	$6.26 Soybeans $5.28 Canola	$5.50 Soybeans $4.65 Canola	$4.50 Soybeans $3.80 Canola
		($1,000)	
Total Revenue	$77,778	$68,429	$56,862
Total Costs	$69,971	$63,697	$53,346
Net Proceeds	$ 7,807	$ 4,732	$ 3,516
Payback Period	6.6 years	10.8 years	14.6 years

While margins decline at lower commodity prices, the plant still retains the ability to cover all costs of operation as well as pay a return to equity and debt. The amount of value added to the raw commodity is compromised as the values of meal and oil decline but none-the-less value is still added even in low commodity price situations. This is because the product gains value through processing regardless of overall price levels, however the amount of increased value through processing may not reflect the total change in commodity value.

The costs of plant operation do not change significantly as commodity prices change. Only added interest charges on operating capital increase as commodity prices increase. It costs essentially the same to process $4.00 soybeans as $8.00 soybeans. The factors that can change are the margins between the price paid for the commodity and the price received for meal and oil.

Value Added Calculation

The concept of value added is key in the minds of many involved in the Oilseed Initiative. The following table breaks out the value added by the processing of the oilseeds and the cost of generating that added value with different priced feedstocks.

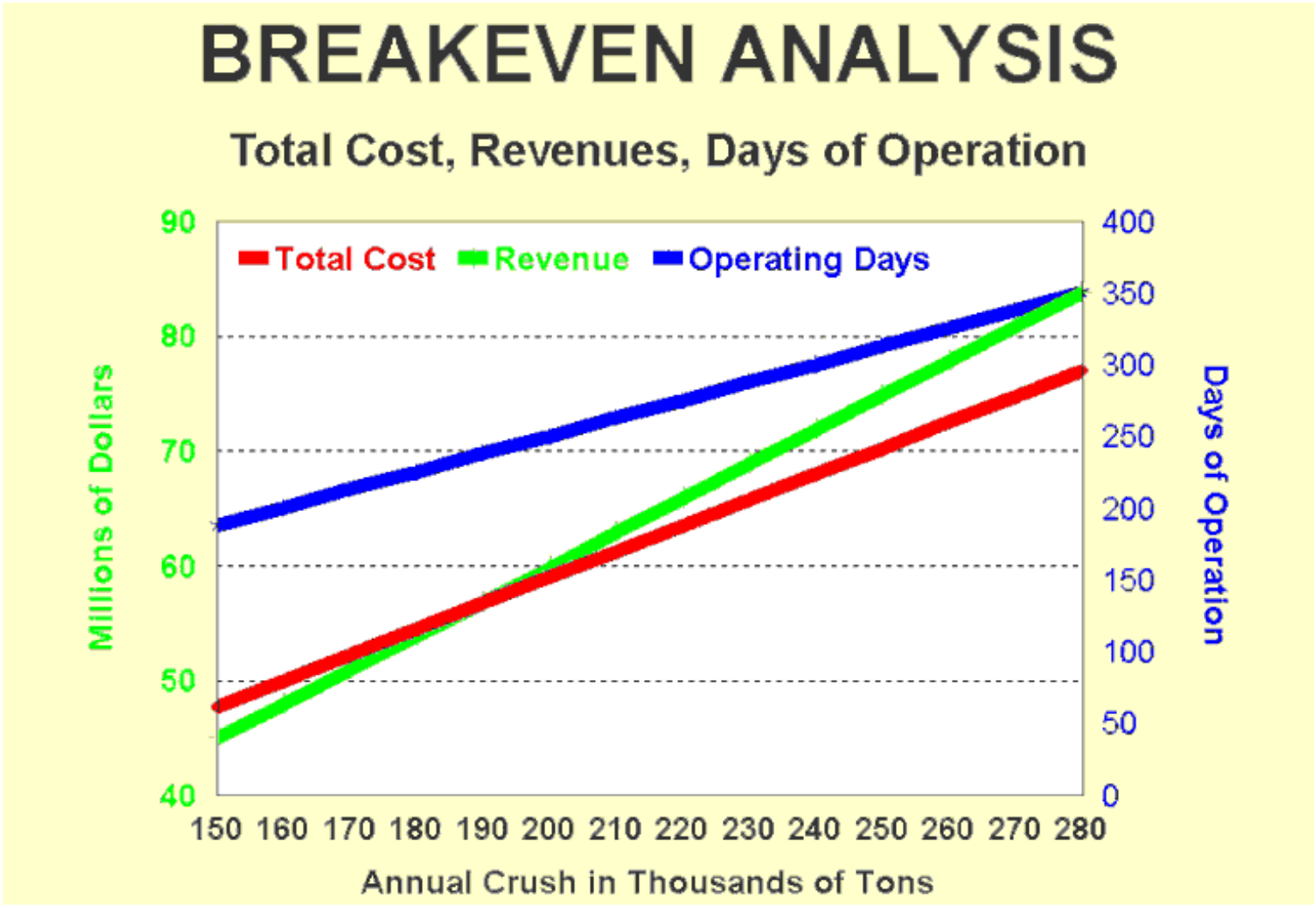
Table 5. Per Bushel Value Added to the Base Price of the Commodity by the Proposed Project

Enterprise	$6.26 Beans	$5.28 Canola	$5.50 Beans	$4.65 Canola	$4.50 Beans	$3.80 Canola
Crush Adds	$1.17	$2.60	$0.81	$1.30	$0.69	$1.70
Refining Adds	$0.59	$0.59	$0.59	$0.59	$0.59	$0.59
Packing Adds	$0.33	$0.33	$0.33	$0.33	$0.33	$0.33
Process Adds	$2.09	$3.52	$1.72	$2.19	$1.61	$2.62
Crush Cost	$0.72	$0.72	$0.72	$0.72	$0.72	$0.72
Refine Cost	$0.27	$0.27	$0.27	$0.27	$0.27	$0.27
Packing Cost	$0.30	$0.30	$0.30	$0.30	$0.30	$0.30
Process Costs	$1.29	$1.29	$1.29	$1.29	$1.29	$1.29
Net Added	$0.80	$2.23	$0.43	$0.90	$0.32	$1.33
% Net Add	13%	42%	8%	19%	7%	35%

The facility appears to have the capacity to add substantially to the farm gate value of the feedstock. It is higher with canola than for soybeans due to the higher oil yield and oil value. Further vertical integration beyond the scope of this study could substantially increase the value added compared to the values of FOB the loading dock used in this analysis. It is important to note that there is considerably greater value added available through canola than through soybeans. Canola yields more pounds of higher valued oil than does soybeans.

Breakeven Analysis - Capacity of Operation

An analysis of how many tons processed per year needed to breakeven in terms of covering all costs plus paying a return to investment indicates that the plant needs to process 190,000 tons per year to breakeven. That is equivalent to operating for 238 days at an average of 800 tons per day or 65 percent fo capacity. That compares to the objective of operating at 90 percent of capacity or 325 days per year. Profits to the operation will occur when processing exceeds 190,000 tons per year.



Operation Planning Time Line

A project of this scope will require a minimum of 30 to 36 months to complete once the decision to go forward is made. However, depending upon the direction the project ultimately takes, several of the key tasks can be undertaken simultaneously. A simple breakdown of the schedule might yield:

Go/No go decision	unknown
Environmental Molding	3 - 4 months
Permit Approvals	12 - 18 months
Engineering	8 - 10 months
Construction	16 - 18 months
Start-up/Shake down	3 - 6 months

Factors Impacting the Location of the Facility

Transportation is a key component in both feedstock procurement and product sales. This region has a very extensive truck and rail transportation infrastructure. It is projected that most of inbound feedstock will be purchased by truck, and a high percentage of product will be shipped out by truck.

All of the existing facilities are located on major thoroughfares, and any consideration of a new facility must include serious consideration of interstate highway access.

For canola and soybeans we can estimate the truck transportation cost to be $2.00 per loaded mile of haul. If the average transportation is no more than 100 miles, then the inbound freight on feedstock should not exceed $7.00 to $8.00 per ton. For canola and soybeans trucked in from S. Carolina and Alabama it is possible that the transportation cost could approach $14.00 to $16.00 per ton.

From the regional perspective it should be clearly stated that any type of oilseed processing project be located on a railroad, preferably a Class I railroad on the main line. This is necessary to protect against long term shifts in the market and short-term pricing pressure by competitors. Both inbound feedstock and outbound product marketing require the flexibility that railroad access provides.

All of the existing oilseed processors in Georgia currently have access to mainline rail and should be able to negotiate competitive rates for feedstock and products. Should site specific analysis be required for a new facility or capital expenditures on a retrofit, volume estimates and rate quotes for canola and soybean products should be obtained.

Added requirements from a prospective site include sufficient, reliable electrical power, water supply and waste water treatment and an environmental buffer area. Labor requirements are also a consideration but skilled labor may need to be attracted and thus quality of life issues become of importance.

Markets for Meal and Oil

Georgia soymeal demand grew 11 percent between 1992 and 1997 with all of the growth occurring in the broiler industry. Growth was so robust in that industry, it off-set declines in demand in all other livestock enterprises. In order to meet the need for soymeal, users imported a total of 192,000 tons into Georgia during 1998. Florida provides an excellent potential market for meal as it requires 262,000 tons annually. The proposed facility would produce about 170,000 tons of meal product or about 13 percent of the combined Georgia-Florida market.

Based upon per capita disappearance rates, Georgia uses about 171,000 tons of soybean oil per year or 55 percent of current Georgia production. Georgia's soybean oil production exceeds consumption by 136,000 tons annually. Florida has a need to import 2.5 times more oil than Georgia's excess supply making it an ideal market to exploit. The estimated combined Georgia-Florida disappearance totals about 600,000 tons annually. Vegetable oil production from the proposed facility would total about 76,000 tons with the added capacity to refine another 24,000 tons. The refining capacity of the plant would represent about 17 percent of the two state local demand.

Potential Growth Markets to Exploit

The preceding analysis was based essentially upon existing market data for market products and prices. There may be other market segments that this facility could exploit to good advantage. Most of the following concepts remain unproven and in most cases, a market must be created through an effective business plan that promotes the unique features of the product to the consuming public. The creation of new products is a costly process requiring skill sets not factored into the previous cost projections.

1. Retail Products under Brand Name There does exist the possibility for capturing additional value by merchandising directly to the consumer. Creation of a brand name is an expensive undertaking but the payoff can be great if successfully established. A less expensive method to penetrate the retail market is through direct marketing of branded products via the internet and with display products in various outlets such as restaurants, public markets, fairs, etc. Another avenue is through possible joint ventures with other local food producers and processors. Oil is a base for salad dressing and we have Georgia producers of condiments used in various dressings such as Vidalia Onions. While production of commodity grade products pays the bills for the facility, retail sales offer the potential to greatly enhance the profitability of the operation. Retail mark-up of oil products averages above 50 percent.

2. Natural Oils - The crush plant is configured to create a portion of its oil output through the cold press process and that oil can be refined without the use of chemical solvents (hexane). Given the desire of many consumers for more 'natural' products, it would appear that a market niche could be created for a natural product. That market could be further exploited if producers could produce a 'natural' product from the farm. Then a truly new product could be supplied. These products could be marketed through health food stores and direct sales through the internet and multi-level marketing companies. Of course it is questionable, given our pest problems, if such a completely natural product could be produced profitably. But the possibility exists.

3. GMO Free Oils SDSP research and interviews with food processors indicated a willingness to pay a premium from $0.03 to $0.10 a

pound for an identity preserved GMO Free oil. There is also a potential for the resultant GMO Free meal to be marketed to the soy sauce industry (the largest soyfood segment) and a possibility of markets to the integrated feeder industry in the Southeast for the production of GMO free meat and poultry products. GMO Free products have not been a major issue until recently but may well present a market opportunity not currently served by other processors. Exports to Europe and Japan where GMO Free is a major market issue also present opportunities.

GMO Free production may entail a third party certification protocol that starts at the field and ends with the consumer. Additional plant personnel may be needed to oversee the production, handling and processing of the GMO Free commodities. The plant design provides the ability to preserve the identity and thus this is a feasible market outlet.

There are currently no processors in the Southeast producing oils by the cold press method. There are currently only seven branded names in the health food specialty oil markets and these brands are divided among soy, canola, peanut and flaxseed oils. This market is projected to grow over time.

4. Kosher Designation Kosher designation would open up the product to special market niches. The market is available but costs and other ill-defined requirements need to be investigated.

5. "Designer" Blended Oils A small but potentially lucrative market may exist for 'high end' blended oils for the connoisseur market. Georgia could utilize its mix of native oils to create blends of soy, canola, peanut and cotton oils to tap this specialty market by selling direct through the internet and/or speciality food stores. The market is ill-defined and must be developed and exploited.

6. Emerging Technology Oilseeds for Georgia with Application to this Project

1. IP Commodity Canola (Low Saturated Fat Oil) (LSF) - Canola/edible rapeseed is the world's third leading oilseed. Total 1997 world production was about 35 million metric tons. Leading production countries include China, European Union, Canada, India and Eastern Europe. World average production of canola was about 0.5 ton/A (20 bu) in 1997; Canadian/Northern U.S. and European yields average about 1.5 and 2.0 times this, respectively. Yield of commodity canola in Georgia should average 40 to 45 bushels per acre, based on University of Georgia studies over nine years.

Canola is valued primarily for the low saturated fat oil derived from seed processing. Canola oil has only 6% saturated fat compared to 12% for soybean oil, 15% for peanut oil and 17% for cottonseed oil. Because of health concerns associated with saturated fats and trans-fats (resulting from oil hydrogenation), canola oil consumption has increased from less than one (before 1985) to more than 20% of vegetable oil marketed in 1998. Increases in canola or other low saturated fat (LSF) vegetable oils are likely to continue in the U.S. and European Union by 25 to 50% in the next decade. Despite the growing popularity, canola oil market value is only 0 to 5 % more than that of soybean oil. Abundant oil supplies have contributed to low overall vegetable oil prices, and possibly a low value margin between soybean, cottonseed, and canola oil.

Canola meal is high in fiber (12-15%) and low in lysine. When used for animal feeds, it is typically blended with soy meal at ratios of 1:4 or less. Canola meal usually trades at 60 to 75% the price of soybean meal.

2. Low Linolenic, High Oleic (LLHO) Canola - Commodity canola oil has a relatively high level of linolenic acid and low level of oleic acid compared to some vegetable oils. Because of the high linolenic acid level, canola oil tends to break down faster than other oils with prolonged heating such as with restaurant operations. The process results in a typical unpleasant odor and an obvious greasy appearance of cooked foods. Because of this, many restaurants are hesitant to use canola cooking oil, even though it has lower saturated fat than other vegetable oils. There has been an effort to breed into canola varieties higher levels of oleic acid and reduced levels of lenolinic acid. The University of Georgia now has such a LLHO line, with good pest tolerance. It has about 90% the yield of commodity canola.

3. Non-Genetically Modified Soybeans - Using non-traditional means of gene splicing are resulting in dramatic improvements in pest tolerance, pesticide tolerance, and quality traits of crops such as soybeans. Such genetically modified organisms (GMOs) are nearly identical in quality to traditional non-GM crops. More than 2/3 corn and soybeans grown in the U.S. are now classified as GMOs. While grown separate from non-GM varieties, GM Seeds are usually blended with them during harvest, handling and storage. This makes it difficult to market them separately. Consumer concerns about risks of GMOs have resulted in legislation that require food labeling of genetically modified (GM) crops in Europe and Japan. This has created a demand and a niche market for non-GM crops.

Japan, the largest single importer of U.S. soybeans, and the world's largest importer of food grade soybeans, has passed a biotech food labeling law that will affect foods containing soy proteins. Beginning April 1, 2001, foods containing ingredients from GM crops will be

required to display a label informing customers that the food includes GM materials. Rather than marketing a consumer product with a GMO ingredient label, Japanese importers are already sourcing from the United States non-GM soybeans for use in tofu, and other soy foods, in anticipation of the new labeling law. Also, the Tokyo Grain Exchange launched the world's first non-GM soybean contract on May 18, 2000. Initial trading has placed a premium price of $0.50 to $0.75 per bushel for non-GM soybeans.

The American Soybean Association estimates that demand for IP non-GM soybeans for the Japanese tofu market in 2000 will be in the range of 20 to 25 million bushels, 12 to 20% of total U.S. exports to Japan. Whole soybeans are exported for tofu and do not represent a direct opportunity for the Georgia Oilseed Initiative, but demand for other non-GM soy products is also growing and does represent a distinct opportunity for contracting carefully managed non-GM soybean production in Georgia. Immediate export opportunity for non-GM soybean products to Japan exceeds 50 million bushels at a 5 to 10% price premium.

4. IP Low Saturated Fat Soybeans (LSF) - U.S. and Georgia soybean breeders are developing non-GM soybean lines with low saturated oil fats (LSF), increased seed protein (48-50 % vs. 40 normal), and reduced phytate levels in meal. It is anticipated that the University of Georgia will have high yielding LSF soybean lines with very low saturated fat levels (4 to 5%) by 2002 and high yielding lines with all three traits by 2005. IP processing of these lines could provide 5 to 8 % value-add for oil and meal derived from these varieties. In addition, IP processing of these or other non-GM soybeans could have enhanced export value of 8 to 10%.

LSF soybeans have only about one-third the saturated fat level of regular soybeans (4 vs 12%). In recent years, canola oil has commanded a slight price premium over soybean oil because of its low saturated fat content. LSF soybean oil, once recognized, should have similar value. Soybean lines with increased protein levels (48 vs. 40 %) would allow feed formulators to use more low cost, high energy ingredients in feed rations. This should allow for slightly reduced feed costs.

5. IP Sunflowers (LLHO) - IP sunflowers could have considerable potential for the IP processing initiative if suitable yields can be obtained. Demand for sunflower oil is quite good and could further increase if sunflower oil is used as a substitute for other vegetable oils in making margarine. The process of making margarine from soybean or corn oil involves hydrogenation (making a trans-fat) or the fat molecule. Trans-fats are now recognized, like saturated fats, as a cause of high blood cholesterol. Pending upcoming legislation, FDA may soon require food manufacturers to label the amount of trans-fats in food products. The good news for sunflower is that this oil can be substituted for other vegetable oils and used for making semi-solid vegetable oils without the hydrogenation process.

The U.S. produces only about 800,000 metric tons of sunflowers annually. Up to four million metric tons of sunflowers could be used in making margarine if the food industry switched away from trans-fats. Considerable increases in domestic production or imports would be needed to meet this demand.

6. IP Peanut (LLHO) - The peanut industry has developed peanut varieties with high oleic acid oil levels. These oils do not break down (become rancid) as fast as regular peanut and other vegetable oils. As such, they offer potential for expanding the shelf life of confectioneries and foods containing peanuts or peanut oils. Though this trait is value-add, it is highly unlikely that IP peanut processing would be profitable for the following reasons: current patents on high oleic acid lines may not allow for IP production; peanut production costs far exceed the value of IP peanut products; and consumer concerns about allergies associated with peanuts will limit marketing of peanut food products.

Alternative Financing and Organizational Arrangements

The construction and operation of a 900 ton per day oilseed processing operation requires a capital investment of approximately $56.5 million ($50.5 million for plant and equipment and $5 million for operating capital). In addition, in order for a processing operation of this type to become profitable, it must be operated at full capacity. Given the currently inadequate oilseed production is Georgia, the ability to finance and fully supply an oilseed operation in Georgia appears to be the main roadblock to success.

A special type of producer cooperative called a "New Generation Cooperative (NGC)" or a "closed cooperative" combines solution to both the financing and operations questions. Producers would raise an initial portion of the plant's cost through stock or options on stock sales. Each share of stock would provide the right and obligation to market one bushel of oilseed through the plant. The remaining capital could be raised through debt financing. Operation of the plant could remain with the producer/owner. Oilseeds could be priced to the producer through various arrangements including profit sharing of the final product. Any funds generated through an assessment per bushel marketed through the plant would be used to retire debt and would increase the producer's equity in the operation.

The recommended organizational structure would be an oilseed cooperative formed as a value-added processing, closed cooperative of defined or selected membership whereby members invest through the purchase of shares of stock. These shares serve as a dual contract.

Each producer has both the obligation and the right to deliver to the cooperative. Likewise, the cooperative is obligated to accept delivery given quality standards are met. These delivery rights and obligations are transferable. Each member is still granted only one vote regardless of the number of shares owned. The funds generated from the sale of these shares would be used to finance the construction of the plant.

The basic concept of this new type of cooperative is that producers capture profits that occur beyond the farm-gate by owning and controlling the local businesses that are positioned to earn those profits. The motivation of new generation cooperatives is more offensive than defensive-take control of your own destiny and be proactive rather than reactive. The main

emphasis in cooperatives of this type has been on value-added processing, niche marketing, and producer/members viewing themselves as producing a finished food product rather than a raw commodity.

Producers tend to take greater interest in operations developed as a producer cooperative since they are also investors. The typical amount of member equity required is 40-50% of the initial equity needed for the project. This gives potential lenders the security of sufficient producer commitment. Banks for cooperatives have been the primary institutions that help in financing the remaining 50-60% needed by new cooperatives. Many commercial banks are also funding cooperatives. The USDA also has numerous financial programs that can assist cooperatives that meet certain criteria. Credit unions and the Farm Credit System have also actively lent funds to farmers to invest in new cooperatives. Other helpful support systems in the development of these new cooperatives include communities, regional economic development commissions, individual rural electric cooperatives, and university extension services.

Assuming 10% of the plant's total annual capacity of approximately 9 million bushels is reserved for new producers, approximately 8 million stock shares (each representing a bushel) would need to be sold. Based on the minimum equity level of 40%, 22.6 million would need to be raised through stock sales with $32.9 million raised through debt. Thus the necessary price per share of stock (representing each bushel of oilseed to be marketed) would be $2.83 per bushel. State involvement through guaranteed loans, direct financing (with lease back to the cooperative) of the operation, or direct grants would increase the likelihood of successfully financing such an operation.

New Generation Cooperatives retain many principles of traditional cooperatives such as democratic control through a one member, one vote policy; excess earnings are distributed among members as patronage refunds or dividends; and the board of directors is elected from the membership by the membership. The financing of NGCs allows for all, or almost all, net earnings to be returned to members at year end since the members invest capital up-front. Future expansion is financed in the same way as original equity: members invest through the purchase of shares. In some instances, preferred shares may be offered to the community or general public. This allows communities to support the project while keeping control in the hands of the members. Some of the advantages of the New Generation Cooperatives include the ability of producers to react quickly to opportunities, the collective response of members to problems or opportunities, the creation of wealth within a community and local ownership keeps it there, stability for producers and efficiency for the plant through the restricted membership, consideration of the interests of the community through a diverse set of stakeholders, and commitment to the quality of the product by both the producers and processor.

New Generation Cooperatives are very popular in the north central United States, especially in North Dakota and Minnesota. Examples of cooperatives arranged in this manner include ValAdCo, American Crystal Sugar, Southern Minnesota Sugar Beet Cooperative, the Minnesota Corn Processors Cooperative, Dakota Growers Pasta Company, and Northern American Bison Cooperative. South Dakota has also followed the example of its neighbors-South Dakota Soybean Processor (SDSP) was formed by a group of soybean producers and built a new soybean processing plant in Volga, S.D.

One of the keys to success of a New Generation Cooperative is producer commitment. The group of producers must be motivated, determined and committed. As Jack Piela, a business development specialist for the North Dakota Association of Rural Electric Cooperatives, stated, "Farmers have to take ownership of the concept and drive the project"(Campbell). Other keys to success include public policy that supports cooperative formation, financial institutions willing to finance the cooperative, and consultant or facilitators to help producer groups through the aspects of the process. These keys to success seem to be evident in Georgia. Georgia oilseed producers must take ownership of the concept and drive the investigation into the possibility of building an oilseed processing plant in Georgia.

Table 6. Stock Cooperative Financial Requirements

Capital Required		$56.5 Million
90% of Plant Capacity	8 Million Bushels	

Stock Issued	8 Million Shares	
Minimum Equity Required (40%)		$22.6 Million
$ Per Share (22.6/8)	$2.83	
Debt		$33.9 Million

Impact Of A Oilseed Processing Operation On The Georgia Economy

An input/output model (IMPLAN) was formulated to simulate the economic impact of a 900 ton per day oilseed crushing plant and accompanying oil refinery and packaging operation. The economic model contains all linkages between various economic sectors within the state so that the impact of output and employment can be measured across the total economy. Estimates can also be made of the tax consequences of the total economic activity from such a model.

The results of this model indicate that along with the original 53 jobs created through the processing plant, an additional 1,086 jobs would be created through indirect effects in Georgia, mostly in rural Georgia. The total economic impact on the Georgia economy would be to add about $172 million per year in economic activity $77.8 million from direct output in the oilseed plant and another $94.2 million induced from other sectors of the economy. The precise economic impacts are contained in the following table. Indirect economic impacts of the oilseed plant are the result of input purchases and resulting employment by a oilseed processing plant. It is assumed that Georgia farmers will increase their production to meet the demand by this new plant, over and above their current production. This is an important assumption because if oilseed purchases by this new processor act to reduce the purchases by processors that already exist in the local economy, then the impacts from existing processors will be "displaced" and the indirect impacts will be reduced. It is apparent that a processing operation of the size contemplated would provide a significant economic engine in the region located and the state as a whole.

Table 7. Economic Activity Resulting From An Oilseed Processing Plant In Georgia

	Output Impact (million $)		Employment Impact (people)	
Industry	Direct	Indirect	Direct	Indirect
Oilseed Processing	77.78	7.87	53	5
Agriculture		27.42		470
Mining		.008		
Construction		1.26		19
Manufacturing		3.76		20
Transportation, Utilities, Communications		8.87		58
Trade		24.49		275
Finance, Insurance, Real Estate		8.24		43
Services		11.12		185
Government		.75		7
TOTAL		171.63		1,139

The Georgia state tax impacts can be calculated from the economic model. The direct and indirect output resulting from the proposed oilseed crushing and refinery operation would result in an estimated total increase of $6.92 million per year in Georgia tax revenues. The largest sources of increased Georgia tax revenues resulting from the proposed venture are from sales taxes ($3.5 million per year), property taxes ($2.02 million per year), and income taxes ($859 thousand per year).

Conclusions

1. Georgia farmers should move toward vertically integrating their farming operations into the processing sector to gain the added values to their products through conversion of basic oilseeds into consumer ready products. It is recommended they form a new generation (closed stock) cooperative to pool their resources. It is further recommended

that this cooperative consider constructing a versatile oilseed processing facility composed of an extraction facility, an oil refinery and a packaging facility. They would market the meal product to Georgia and Florida livestock producers and the oil products to food manufacturers, institutional users, wholesalers and directly to consumers.

2. The business plan must focus on producing consumer ready products with added values beyond those of basic commodity grade products. It must be emphasized that the success of this project relies upon identifying and exploiting niche markets. The plant as designed cannot complete successfully producing commodity products. The endeavor must compete on a playing field that it can dominate and not face the formidable advantages of size possessed by the major producers of commodity oil and meal products.

Key elements cited by SDSP for success of this sized facility include:

A. Farmer Control of the Commodity: The freight advantage of locally produced feed stock will be a strategic advantage relative to existing competition.

B. Marketing Value Added: The crush-refinery-package facility will strive to capture maximum margin by reaching to the ultimate end consumer. The scale of each step is small relative to the competition. To overcome the small production unit divisor against expenses, the effort must position a portion of the sales in the market to garnish a larger profit margin compared to the competition. Key marketing themes that will facilitate this include:

a) "Farmer Owned and Controlled" to build trust in the quality and goodness of the product.
b) "Locally Produced" to capture the Southeastern markets.
c) "GMO Free" to capture values and/or market share in the current realities of the market place.
d) "All Natural Oils" that are produced in the model process that avoids the use of chemical extraction methods (a gentler process) that promotes the 'goodness' of the product. The proposed plant configuration would produce between 30 and 35 percent of "natural oils" but capacity could be increased with minimal additional capital investment and operating costs.
e) If the consumer accepts GMO technology for specific traits in oil or meal products, efforts should be directed toward capturing markets in those niches. The plant design allows for identity preserved processing.

C. The capacity to refine and package oils for existing independent oil producers in the area will produce added revenue and provide a much needed service to Georgia industry.

3. The Georgia state tax impacts can be calculated from the economic model. The direct and indirect output resulting from the proposed oilseed crushing and refinery operation would result in an estimated total increase of $6.92 million per year in Georgia tax revenues. The largest sources of increased Georgia tax revenues resulting from the proposed venture are from sales taxes ($3.5 million per year), property taxes ($2.02 million per year), and income taxes ($859 thousand per year).

Chart 1: Distribution of Georgia and South Carolina Soybean Production in 1999

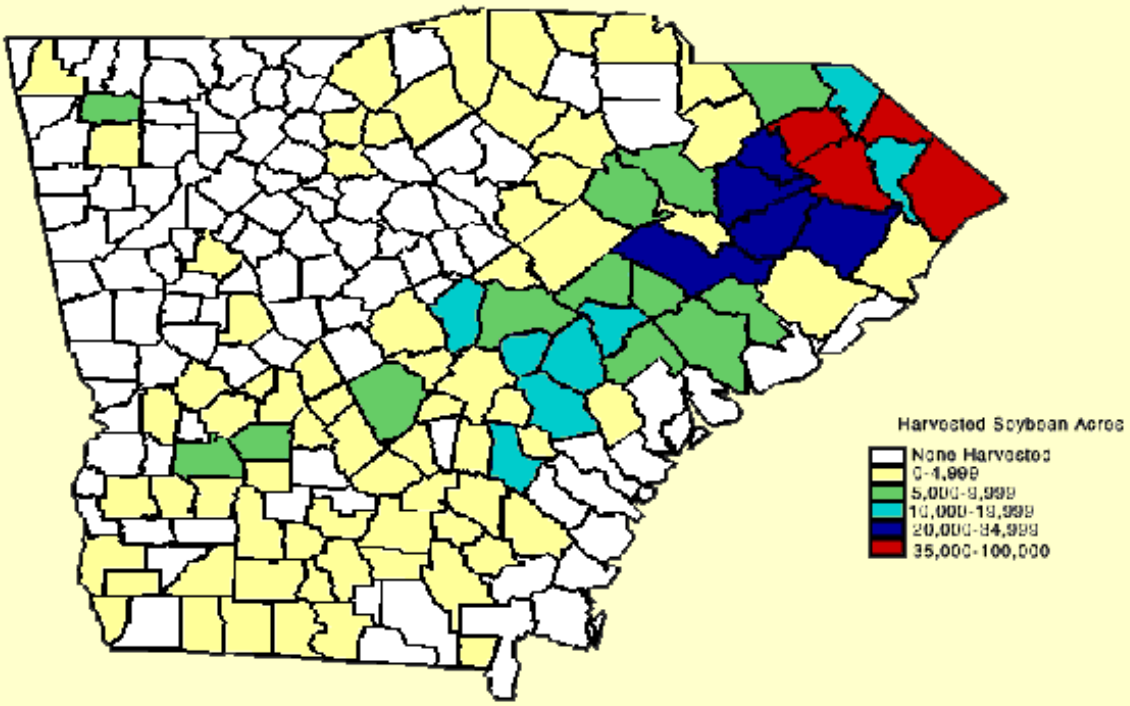


Chart 2: Distribution of Georgia and South Carolina Wheat Production in 1999

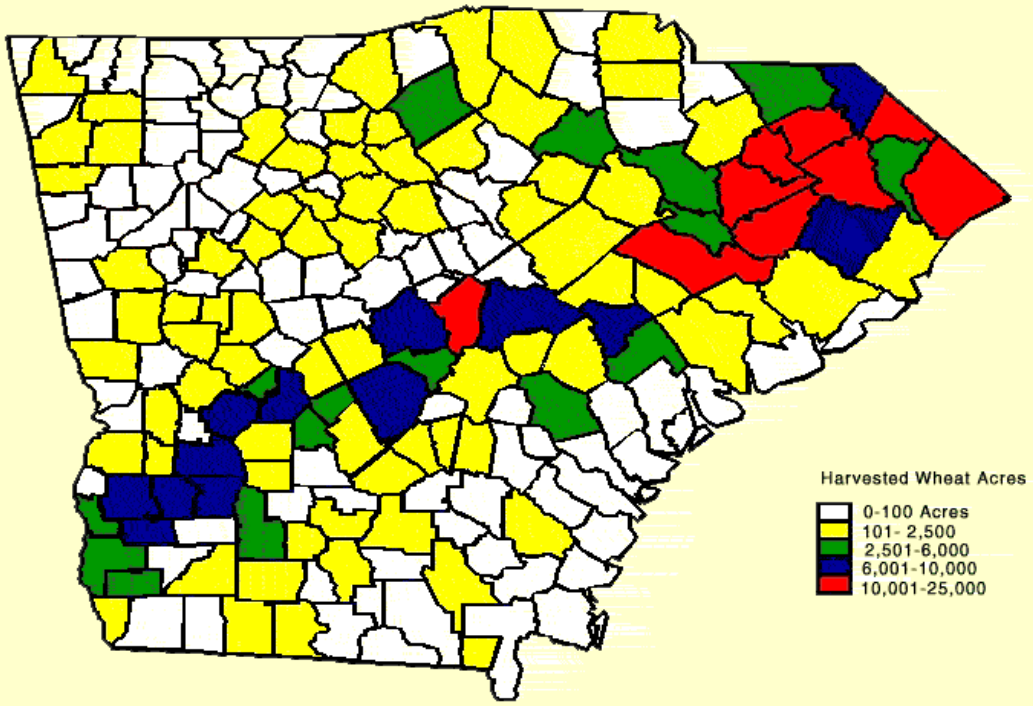


Chart 3: Distribution of Georgia and South Carolina Soybean Production with Rail Lines, 1999