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Is Your Agribusiness Project Feasible?

Richard W. Schermerhorn
Department of Agricultural and Applied Economics

Considerable change is occurring in Georgia's agriculture. Some farmers face difficult financial times as a result of such factors as limited market opportunities for traditional commodities, volatility in commodity prices, price increases for most input items, changes in farm policy and programs, and unfavorable weather conditions. In addition, considerable acreage has been removed from production or shifted from one enterprise to another, resulting in decreased demand for farm inputs. Impacts related to declining levels of both on-farm and off-farm business activity are being felt by farmers, input supply firms, marketing firms and other firms supplying services to the agricultural sector.

Rural communities have been affected, severely in some cases, by changes in agriculture-related business activity. Some rural communities are experiencing economic growth rates comparable to urban and suburban areas. Other rural communities are experiencing a decline in growth rates. A decline in business activity because of a decline in demand for consumer goods and services and agricultural inputs supplied by local businesses results in a general decline in the local tax base. Local governments depend on their tax base to fund public services such as schools, hospitals, waste disposal, fire and police protection, and roads.

In short, multifaceted changes are occurring that are affecting Georgia's agriculture and rural communities. To cope with these changes, Georgia's farmers and agribusiness firms that depend on agriculture must constantly search for alternative types of enterprises and/or alternative methods of producing and marketing goods and services. While conducting this search it is critical to recognize that before any new enterprise or method of producing and marketing a product is initiated, it should be determined whether the proposed venture is financially viable; that is, will it be profitable? A feasibility study is designed to determine whether a specific proposal has a profit potential and is financially sound.

This publication reviews the types of situations requiring feasibility analyses and discusses what is involved in conducting a feasibility analysis. It is also designed to serve as a guide for conducting adequate and meaningful feasibility studies.

Types of Situations Requiring a Feasibility Analysis

It is important to conduct a feasibility analysis any time a firm considers significant change in its present operating situation because one purpose of conducting the analysis is to avoid costs associated with making a wrong decision. If the analysis identifies a "good" business opportunity, a completed feasibility study is an ideal document for planning purposes and can be used for securing necessary financing.

The following situations may require a feasibility analysis before a final operational decision is made:

- When a farmer or group of farmers is considering producing or marketing a new commodity.
- When a group of farmers is considering a new venture, such as the formation of a cooperative to purchase farm inputs or to collectively market the production of the group's members.
- When a farmer or agribusiness firm is considering diversifying operations. Many farmers and agribusiness firms have diversified into alternative enterprises in an attempt to reduce reliance

on one product or one group of products, to lower overhead costs, and to more fully utilize existing production resources, facilities or distribution channels.

- When a firm is considering a geographical expansion of its market area. Many agribusiness firms have expanded their market area to gain a larger market share and achieve a greater ability to negotiate price with buyers and/or sellers.
- When a firm is considering the international market. Many agribusiness firms are interested in the export market as a means of expanding output. There are many differences between export markets and domestic markets, and many incur additional costs.
- When a firm is considering a new service or product line. For example, many of Georgia's input supply firms have added services and products because their customers suggested a need. Many of these products or services have been added without the benefit of a feasibility analysis to determine if the addition would be profitable.
- When a farm or agribusiness firm is considering adoption of new technology, a new production system, or new tillage or conservation practices. Adoption of new technology is often required for agricultural operations because of changing sanitation requirements, pollution standards and environmental concerns.
- When a firm is considering a new location. This may be the result of changing conditions at the firm's present location, including wage rates, adverse public opinion regarding pollution control or a decline (or increase) in production of the raw product because of altered competitive conditions compared to other areas.
- When a firm is considering expansion or modernization of present facilities. This desire may stem from expanded demands for goods or services, from an attempt to gain economies of size in the production process or from a desire to update obsolete facilities to better compete with other firms.
- When the firm is considering a combination or alliance of firms to improve the operating position and further the common interest of these firms. This situation includes mergers, acquisitions or consolidations. The need for this type of reorganization may result from a decline in volume handled by the agribusiness firms, a change in the market structure that requires larger volume or the need to ensure a supply of inputs or a market for the firm. Duplication of effort can often be eliminated and costs reduced if two or more firms are consolidated.

This list indicates that the term "feasibility" is broad and covers many situations that develop for farmers and individual agribusiness firms. Consequently, the content of and the methodology followed in conducting any given feasibility study varies considerably. This publication reviews the content of a complete feasibility study and outlines an analysis for a new enterprise. However, this study and analysis can also be related to analyzing partial projects, such as an agribusiness firm building a new facility to complement its ongoing business or adding a new service to better serve its clientele. Appendix A summarizes the elements of a complete feasibility analysis in outline form. Appendix B provides a listing of various types of feasibility studies that have been conducted by members of the University of Georgia Center for Agricultural and Economic Development and the Department of Agricultural and Applied Economics. This listing demonstrates the breadth of types, methodologies and technical designs of feasibility studies as well as the variety of subjects investigated using feasibility studies.

Conducting a Complete Feasibility Analysis

A feasibility study can be divided into two major phases: An analysis of directly influencing factors and an analysis of environmental conditions.

Analysis of Directly Influencing Factors

This phase of a feasibility study is designed to provide basic information required to determine the economic viability of the proposed enterprise. The information will likely be required for loan applications and helps determine whether the enterprise can earn profits and generate sufficient cash flow to repay the loan. In other words, this phase of a feasibility study is designed to answer three questions:

1. What factors must be considered to determine whether the proposed venture should be pursued?
2. How much will it cost to enter the business and what facilities will be needed?
3. How much profit can be made and when can this profit be expected?

The analysis of directly influencing factors can be divided into market determination, raw product supply and the production process.

Market Determination

Determining the market for a product or service is the most difficult part of the analysis to conduct in most feasibility studies. The degree of difficulty is related to the accessibility of potential customers. For example, a farm supply or marketing cooperative considering adding a service for its members may survey its existing membership to secure an indication of demand for the service. However, if the same firm is considering the initiation of a market development program for a product produced by its members, potential customers will need to be identified.

Availability of a market is critical to the success of any business venture. If a market does not exist for a product or service, then there is no economic rationale for producing the product or offering the service and the feasibility analysis can be terminated.

For the remainder of this publication, the term "product" is defined broadly to include a physical product or a service.

Analyzing market potential for a product involves determining current and potential consumption of the product, types and locations of available markets, types of available distribution systems, ways the market can be entered, types of buyers within the market, types of selling arrangements used and the level of prices charged for the product. The following items should be analyzed to determine market potential.

Consumption: Current product consumption and trends must be determined for both the proposed product and competing products. In what forms, qualities and volumes is the product consumed? Which segments of the population consume the product? Are these segments getting larger or smaller?

Markets: Knowledge about the market a firm expects to serve must be obtained. If a firm is considering supplying a new product to its current customers, they may be its market, but the firm may want to expand its market by attracting new customers. Are these markets domestic or international? What will it cost to serve these markets? Who is currently serving these markets? How will competitors react if another firm enters the market? At what capacity are current competitors operating? Can a new firm compete with existing firms or potential entrants?

Distribution System: Determine the type of distribution system appropriate for the proposed business. Will it be necessary to perform any delivery activities? Will transportation of the product to the market be required? If so, what methods are available? What delivery schedules will be required? Should the firm provide transportation services? If so, should equipment be purchased or leased? What will be the cost of providing distribution services?

Market Entry: Determine how the product will be introduced into the market. Will the product be marketed under the firm's brand or a buyer's (wholesaler or retailer) brand? What will get the buyer's attention: lower prices, advertising and promotion, or some other method? How long will it take to build the market to the desired sales volume? What costs are associated with entering the market?

Buyers: Identify buyers. What types of buyers (retail stores, wholesalers, farmers, manufacturing institutions or others) are expected to purchase the product? What volume is each buyer expected to purchase? Where are the buyers located? What product specifications will buyers require? Have potential buyers indicated an interest in the product? What kind of commitment will potential buyers make to buy the product? How reliable are buyers of this product? What kind of payment schedules will be encountered?

Selling Arrangements: The types of selling arrangements that may be encountered also needs to be addressed. What kinds of selling services must be provided with the product, and what costs will be involved? Should a sales force be maintained or should a broker be used? Should the firm have sales offices? If so, where should they be located? How many salespeople should the firm have? What type of compensation plans should be implemented for salespeople? What will be the cost of providing these selling activities?

Prices: A critical element of the analysis is the price the firm can expect to charge for the product. This can be determined in part by analyzing past prices and price trends. Price projections can then be developed

in light of expected future consumption. Expectations of buyers and other suppliers of the product should be included in the price predictions.

Price prediction is often a difficult task. The process becomes increasingly difficult the further into the future prices are predicted. If prices are characterized by a large amount of variation, future price projections should reflect this historic variability. Often, the process of projecting prices involves determining a relevant range of prices; then you can determine how sensitive financial success is to the level of prices.

Raw Product Supply

This part of the analysis determines availability of raw product inputs for the proposed enterprise. Examples of inputs include fat cattle for a meat packing plant, feeder cattle and feed grain for a feedlot, vegetables for a packing shed or a processing plant, oilseeds for a crushing facility and grain for a feed mill.

Four factors need to be considered when analyzing raw product supply.

Minimum Size Facility: A minimum facility size is necessary to produce output at an acceptable per-unit cost for many products. Most agribusiness firms operate multi-facilities and one of these limits the rest. For example, the processing plant in an integrated broiler operation is usually the limiting facility and all other facilities (such as the hatchery, grow-out and feed mill) must be geared to the processing plant. Thus, if the minimum facility size for a broiler processing plant is 12,000 birds per hour, then all other facilities and operations in the integrated organization must be designed to provide 12,000 birds per hour to the processing plant. In general, the minimum economic size of a facility can be determined by a cost analysis of existing plants or by synthesizing a model facility from specifications provided by equipment companies.

Plant Requirements: The minimum economic size of the facility can be used to determine the required amount of raw product. If, for example, consideration is being given to establishing a 20 head per-hour meat packing plant that will operate eight hours a day, five days a week, 52 weeks a year, then about 41,600 head will be required to operate at capacity. Procurement for the previously integrated broiler processing facility would require about 25 million broilers annually. The plant must be provided with adequate raw product to facilitate operation at or near capacity if the plant is to be financially viable.

Availability of Required Inputs: After the required amount of raw product is established, determine if this quantity is available in the needed quality and at an affordable price. There is usually a maximum distance from the facility within which the firm must obtain its raw product. In some cases, this distance is determined by the effect on quality of time from harvest to processing. In other cases, transportation costs define the area within which the facility can draw its raw product. For example, most poultry processing facilities limit their production area to 25 miles from the plant.

With these factors in mind, you can determine the availability of raw product. A survey of the defined production area (the drawing area for the facility) is usually necessary. This survey will initially be an analysis of statistical production data for the area to determine if there is enough production of raw material to support profitable operation of the facility. The survey may also include direct contact with area growers to determine future production plans and future price expectations.

Where present volume of production is below facility needs, the survey should focus on potential producers to determine their willingness to begin production of the raw product. For example, the poultry processing plant would require production from about 200 broiler houses. The survey attempts to determine if potential producers in the area have or would be willing to build 200 broiler houses.

Assurance of Future Input Supply: It is not sufficient to know that adequate production for plant needs currently exists in the area. There must be some assurance of future availability of required inputs. Is the source of raw material dependable? What explicit arrangements can be made for procurement? Would growers sign long-term contracts to ensure an adequate source of supply? It is also important to identify the current market use of the raw product and to determine what degree of market entry appears possible. Can the proposed business compete with this alternative use?

The amount of raw material needed to operate the proposed facility at an efficient level can be established

from the Raw Product Supply stage of a feasibility study. This stage of the study will also show whether this raw product is currently available at an acceptable price and if this supply source is dependable.

Production Process

This phase of a feasibility study analyzes the production component of the proposed activity. It assesses specific facility needs, capital requirements, cost and quantity of labor needed, necessary financing, and the potential costs and returns associated with the business venture.

Facility Determination: Determining the minimum size of the controlling facility was discussed under the "Raw Product Supply" section. The facility determination phase of the analysis expands this to include specific facility needs for the entire operation. In this stage, special emphasis must be placed on current technology that the enterprise must consider to compete within the desired business environment.

Also, place special attention on prevention of potential problems that could arise from such social concerns as waste management and air and water pollution. The type and cost of technology required to meet these concerns has become increasingly important as a basic element of feasibility studies.

Investment Capital: Once specific facility needs have been determined, the cost of developing the facility can be estimated. How much capital will be required to meet initial investment needs? Costs of the necessary facilities are based on estimates from equipment companies, construction companies and utility companies.

Labor: Labor requirements can be estimated after facility needs are determined. (Information on how many employees are required to operate the proposed facility is usually available from the companies providing the facilities.) By comparing facility needs to the available local labor force, the issue of adequate labor can be addressed. Two important cautionary points need to be raised. First, identify any special skills necessary to meet labor requirements. Second, it is important to recognize that a given level of local unemployment is not necessarily an indication of the available labor force or of willingness to work at a particular type of work.

Labor needs also involve availability of management and technically trained people. This factor can have a major influence on success or failure of the undertaking. Such talent may be difficult to find in some locations. These key people should be identified during the feasibility study. If they are not available locally, identify them elsewhere and make arrangements for relocating them.

Cost of Operation: This phase analyzes information about wage rates, management costs, raw material input costs, utility rate structures, and fixed costs including depreciation, interest, taxes and insurance. This analysis is used to develop cost budgets for the various phases of the operation. These budgets should provide an estimate of per-unit cost of operation.

Profitability: The profitability of the operation can be projected using the estimates of costs and expected prices. A projected income statement must be prepared to determine the profitability of the operation. Preparation of a break-even chart is recommended. This chart will show the level of production where the proposed enterprise will be able to exactly cover all costs of operation. The chart can be used to determine break-even points for alternative output price levels, wage rates and raw product costs. The break-even chart provides information on the minimum level of production and minimum output price that must be attained to achieve the break-even point.

Working Capital: Completion of the projected income statement does not represent the end of the feasibility study. Another important item to include in the study is the cash flow summary. Provision for adequate working capital is one of the most critical items for the successful operation of a business. A cash flow summary determines the firm's cash needs and the sources available to meet these needs.

It is important to know how much capital will be needed for day-to-day expenses such as wages, inventories, utilities and raw product, when this capital will be required and its source. Will operating capital be generated from customer receipts, borrowing, membership equity or other sources? A cash flow summary is also required to determine the appropriate size and duration of loans, probable payback periods, and the amount of interest and principal that can be paid back in each period. Many new businesses find themselves

in poor operating condition because they failed to provide for working capital.

The production process stage of a feasibility study provides information on what facilities are needed, how much these facilities will cost, what operational items such as labor, utilities and raw product will cost, how much profit can be expected and how much working capital will be required to operate the business.

In summary, the analysis of directly influencing factors will help the firm avoid costs associated with making a wrong decision and provides a valuable planning tool to implement the new business venture. It analyzes factors that directly affect the success of the operation, such as:

- Assurance that an adequate, profitable market can be secured for the output of the operation.
- Assurance that a sufficient supply of quality raw products can be procured at an acceptable price.
- Determination of facility needs, capital requirements, financing requirements and potential costs and returns from the operation. Analysis of these factors will determine whether the venture will be financially sound and profitable. Knowing that the proposed venture may be unprofitable is as important (if not more so) than confirming the potential for success.

Analysis of Environmental Conditions

A complete feasibility study analyzes the availability of facilities and services that the firm feels are essential to create an acceptable environment in which the plant can operate and its management and labor force can live. This phase of the feasibility study deals with factors affecting the location of the facility. These factors are considered after the general location, as affected by supply of raw product and availability of markets, is determined.

For example, a vegetable packing plant has decided to locate in a specific area of a state and now wants to choose the specific city or town in which to build the plant. The following is a brief outline of factors to consider in this phase of the analysis:

- Availability of a site with required physical characteristics, access to the major production area of the raw product, access to necessary transportation services and availability of the site on acceptable financial terms.
- Local services in the community, including availability of and rates for electrical power, gas service, telephone service, water and sewer service, fire protection, police protection, medical services, cultural and recreational facilities, postal service, financial services, educational facilities and vocational training facilities. The consideration given to these factors depends on the degree of use the proposed facility expects to make of each service. For example, if the facility will require the import of personnel, such factors as recreation facilities, schools, medical facilities and available housing are important. It is also important to evaluate the availability and rate structure for the use of all required utilities.
- Type of governmental structure, including an analysis of property tax assessment policies, types of taxes, tax rates, zoning ordinances, building codes and pollution and sanitation regulations.
- Transportation facilities, including available transportation modes, adequacy of facilities, record of performance, cost and rates, and regulations or tariffs. This indicates the general type of factors that a new business should analyze before making a specific location decision. The individual factors that should be emphasized depend upon the particular needs of the firm.

Summary

Georgia's agriculture is changing rapidly. To adjust to these changes, farmers and agribusiness firms must constantly search for alternative enterprises and alternative methods of producing and marketing their products. This search must be done in a systematic manner to ensure that alternatives are financially feasible before they are selected. A feasibility study is designed to determine whether a specific alternative is financially viable.

A complete feasibility study analyzes such factors as market potential, raw product supply and the production process as well as such environmental conditions as the availability of facilities and services required by the proposed venture. The venture has the potential to be profitable if all of these factors are analyzed adequately and are determined to be favorable.

It is important to recognize that all business ventures involve an element of risk. Although in any business venture some possibility of failure always exists, a well-prepared feasibility study can substantially reduce the probability of a bad decision.

Management is the final profit-determining factor. The firm must have competent management to follow through on the functions of planning, organizing, directing, staffing and controlling in order to ensure a profitable undertaking.

Finally, recognize that individuals directly involved with the proposed project may have difficulty maintaining an objective perspective. Consider obtaining an objective evaluation from an outsider knowledgeable about the proposed business activity.

The University of Georgia Cooperative Extension is a knowledgeable source for most types of agricultural and agribusiness enterprises and may be able to provide assistance in the evaluation process. Your county Extension agent may have sample feasibility studies and may know of others with professional expertise available to provide technical input to the study.

APPENDIX A
Conducting a Complete Feasibility Analysis

I. Analysis of Directly Influencing Factors
- A. Market Determination -- determines potential market for the proposed product.
  1. Consumption -- analyzes consumption trends of the proposed product and competing products and determines form, quality and volume requirements.
  2. Markets -- determines type, location and cost of serving potential markets.
  3. Distribution system -- determines type, method and cost of distribution system for the product.
  4. Market entry -- determines method and cost of introducing the product to consumers.
  5. Buyers -- determines type of buyers and requirements and costs of selling to these buyers.
  6. Selling arrangement -- determines type of selling arrangements, including delivery schedules, pricing arrangements and payment schedules.
  7. Prices -- projects expected prices for the product.
- B. Raw Product Supply -- determines economic availability of sufficient raw product.
  1. Minimum economic size of controlling unit -- cost analysis of existing plants or synthesized models.
  2. Plant requirements -- determines quantity of raw product required to support controlling unit.
  3. Availability of requirements -- determines if required quantity of raw product is available, and is of suitable quality at an acceptable price.
  4. Assured supply of requirements -- determines if required raw product supply can be expected in the future.
- C. Production Process -- determines facility needs, capital and financing requirements, and potential costs and returns.
  1. Facility needs -- determines specific facilities (buildings, equipment and rolling stock) required.
  2. Investment capital needs -- determines initial investment requirements for facilities.
  3. Labor needs -- determines specific quantity and types of labor required.
  4. Cost of operation -- develops budget to include costs of labor and management, raw material and operational and fixed components.
  5. Profitability -- determines potential profit by estimating returns and comparing with cost budgets. Also includes break-even analysis and preparation of projected income statement, balance sheet and cash flow statement.

II. Analysis of Environmental Conditions
- A. Availability of site -- determines adequacy of site in physical and economic terms.
- B. Availability of services -- determines adequacy and cost of required services such as utilities, financial services and educational services.
- C. Governmental structure -- determines type of governmental policies, such as assessment policies, taxes and zoning ordinances, as they affect operations.
- D. Availability of transport facilities -- determines adequacy and cost of transportation facilities to be used by the firms.

Appendix B
Feasibility Studies for Further Reading

The Center for Agribusiness and Economic Development (CAED) has the following studies on the Center's website, http://caed.uga.edu/publications. The studies, completed 2009 – 2011, evaluate the economic feasibility of proposed agribusiness projects and finished business plans.

Feasibility of a Solar Power System, North Georgia, FR-11-11. George Shumaker, Gary Hawkins, and Kent Wolfe. December 2011.

Feasibility of a Solar Power System, South Georgia, FR-11-10. G. Shumaker, K. Wolfe, and A. Luke-Morgan. December 2011.

Feasibility of an Integrated Poultry Processing Operation, FR-11-09. Audrey Luke-Morgan and Kent Wolfe. December 2011.

Distillery Feasibility Study, FR-11-08. Audrey Luke-Morgan and Kent Wolfe. August 2011.

Feasibility of a Small, Special Attribute Peanut Production and Processing Facility, FR-11-07. Ward Black, John McKissick, and Nathan Smith. July 2011.

Feasibility of Value-Added Honey Production, FR-11-06. Audrey Luke-Morgan and Kent Wolfe. August 2011.

Feasibility of a Local Processing Facility, Central Georgia, FR-11-05. Audrey Luke-Morgan and Kent Wolfe. August 2011.

Feasibility of a Local Processing Facility, Northeast Georgia, FR-11-04. Audrey Luke-Morgan and Kent Wolfe. August 2011.

Feasibility of a Local Poultry Processing Facility, FR-11-03. Kent Wolfe, Audrey Luke-Morgan, Sharon Kane, and Jim Daniels. March 2011.

Community Kitchen Feasibility Analysis, FR-11-02. Kent Wolfe and Audrey Luke-Morgan. January 2011.

Feasibility of Retained Ownership and Processing of LSK (Loose Shelled Kernel) Peanuts, FR-10-03. George Shumaker. September 2010.

Ag Center Feasibility Study, FR-10-02. Kent Wolfe. March 2010.

Feasibility of a Small Scale Soybean Crushing Operation, FR-10-01. George Shumaker, Audrey Luke-Morgan, Kent Wolfe, Sharon Kane, and John McKissick. May 2010.

Feasibility of a Multi-Species Meat Processing Facility, FR-09-11. Kent Wolfe, Audrey Luke-Morgan, Jim Daniels, and John McKissick. May 2009.

Feasibility of a Wood Pellet Plant, FR-09-10. George Shumaker, Kent Wolfe, Audrey Luke-Morgan, Sharon Kane, and John McKissick. November 2009.

Feasibility of Expanding Value-Added Fruit Production, FR-09-09. Kent Wolfe, Audrey Luke-Morgan, Jim Daniels, Sharon Kane, John McKissick. November 2009.

Feasibility of a Local Processing Facility, FR-09-08. Audrey Luke-Morgan, Kent Wolfe, and Jim Daniels. August 2009.

Feasibility of a Local Poultry Processing Facility, FR-09-07. Audrey Luke-Morgan, Kent Wolfe, and Jim Daniels. August 2009.

Feasibility of a Two-Million Gallon Per year Biodiesel Plant, FR-09-06. George Shumaker, Sharon kane, Audrey Luke-Morgan, and John McKissick. September 2009.

Feasibility of a Multi-Species Processing Facility, FR-09-05. Kent Wolfe, Audrey Luke-Morgan, Jim Daniels, and John McKissick. May 2009.

Creamery Feasibility Study, FR-09-04. Kent Wolfe, Audrey Luke-Morgan, and Sharon Kane. April 2009.

Feasibility of a One-Million Gallon Per Year Ethanol Plant, FR-09-03. George Shumaker, Kent Wolfe, Audrey Luke-Morgan, and John McKissick. May 2009.

Feasibility of a Wood Pellet Plant, FR-09-02. George Shumaker, Kent Wolfe, Audrey Luke-Morgan, John McKissick, and Sharon Kane. May 2009.

Pomegranate Processing Feasibility Study, FR-09-01. Kent Wolfe, Audrey Luke-Morgan, Jim Daniels, Sharon Kane, John McKissick, Karina Martino, and Vahe Heboyan. May 2009.

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