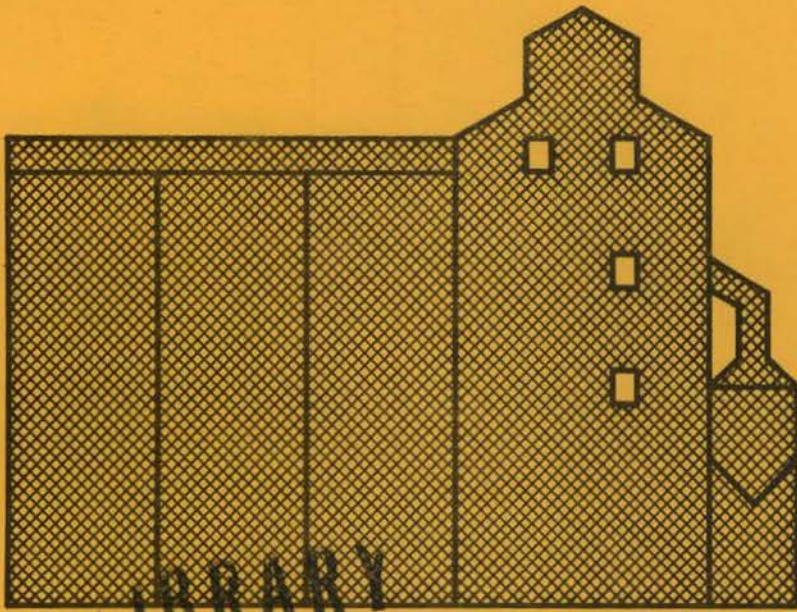




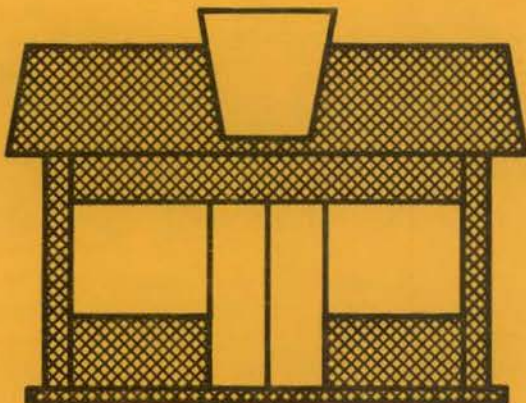
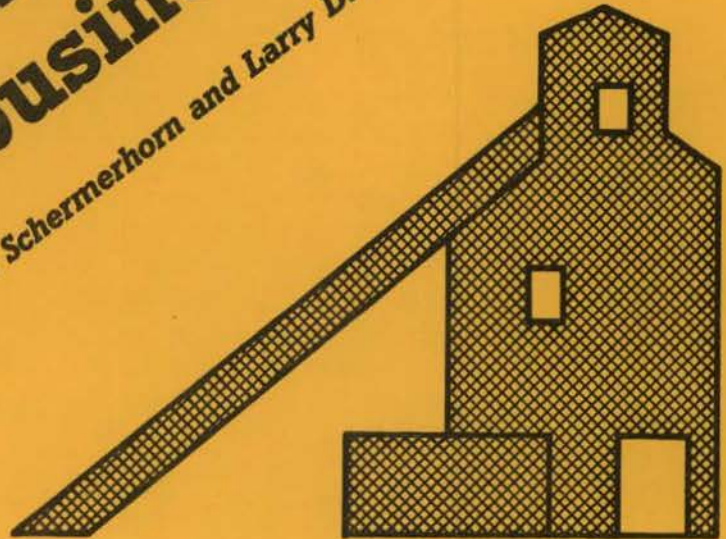
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Economic Feasibility Studies For Agribusiness Firms

Richard W. Schermerhorn and Larry D. Makus



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Considerable change is occurring in Idaho's agriculture. Some farmers and ranchers are facing difficult times resulting from such factors as declining land values, limited market opportunities, low commodity prices (especially for some of Idaho's important traditional crops like cereal grains) and increasing prices for many input items. In addition, acreage has been removed from production and some dairy herds have been sold to participate in various government programs. Impacts related to declining levels of business activity have been felt by producers, input supply firms, marketing agencies and other businesses supplying services to the agricultural sector.

Rural communities have been impacted, severely in some cases, by the decline in agriculture-related business activity. While some communities have been declining for many years, recent events have accelerated these problems. Among the problems experienced by these rural communities are a decline in demand for consumer goods and services supplied by local businesses and a shrinking tax base upon which local governments depend to provide public services.

In short, multifaceted changes are occurring that affect Idaho's agriculture and rural communities. To cope with these changes, Idaho's business firms dependent on agriculture must constantly search for alternative types of enterprises and alternative methods of producing and marketing goods and services. Before any firm initiates a new enterprise or method of producing and marketing a product, however, it should determine whether the proposed venture is economically viable — that is, will it be profitable? A feasibility analysis is a study designed to determine whether a specific proposal is economically sound. This publication reviews the types of situations requiring feasibility analyses and discusses what is involved in conducting such an analysis. This publication is designed to serve as a guide for conducting adequate and meaningful feasibility studies.

Types of Situations Requiring a Feasibility Analysis

In a broad context, a feasibility analysis should be conducted any time a firm considers any significant change in its present operating situation. This is necessary because one important purpose of conducting a feasibility analysis is to avoid costs associated with making a wrong decision. Conversely, if the analysis identifies a good business opportunity, a completed feasibility study is an ideal document for planning purposes and for securing necessary financing.

The following is a partial list of potential situations that require a feasibility analysis before a final decision is made:

1. When a farmer or group of farmers is considering entering the production or marketing of a new commodity.
2. When a group is considering entering a new venture, such as forming a cooperative to purchase farm inputs or to market production of farmer members.
3. When a firm is considering diversification of its operations. Many agribusiness firms have diversified in an attempt to eliminate reliance on one product group, to reduce overhead costs and to utilize more fully existing facilities or distribution channels.
4. 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 or sellers.
5. When a firm is considering entering the international market. Many agribusiness firms have become intrigued by the export market as a means of expanding output. Many differences, including additional costs, are involved in servicing the export market vs. the domestic market.

6. When a firm is considering adding a new service or product line. Many of Idaho's input supply firms, for example, have added services and products over the years simply 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. As a consequence, many have been unprofitable.
7. When a firm is considering adoption of new technology. This situation is constantly arising as new technology develops in agribusiness industries. Adoption of new technology is often required for firms because of changing sanitation requirements or changing pollution standards.
8. When a firm is considering a new location. This may be the result of changing conditions within a specific area. Examples include a change in wage rates, adverse public opinion regarding pollution control or a decline (or increase) in production of the raw product caused by altered competitive conditions.
9. 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 compete better with other firms.
10. When the firm is considering any type of combination or alliance with other firms to improve the operating positions and further the common interests of these firms. This situation includes mergers, acquisitions, consolidation and federation. 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 which requires larger volume or the need to assure a supply of inputs (or a market) for the firm. Further, consolidation of two or more firms often can eliminate duplication of effort and thereby reduce costs.

This listing indicates that the term "feasibility" is extremely broad and covers a multitude of different situations that may develop for individual agribusiness firms. Consequently, content of any given feasibility study varies considerably as does the methodology followed in conducting it. This publication reviews the content of a complete feasibility study and outlines what is involved in conducting a feasibility analysis for a new enterprise proposal. This process, however, 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 that will serve its clientele better. Identify which segments of the complete feasibility analysis apply to the partial project, and focus the study on those segments.

Appendix A summarizes the elements of a complete feasibility analysis in outline form. This outline form may be more convenient to follow as a guide to conducting a feasibility study.

Conducting a Complete Feasibility Analysis

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

Analysis of Directly Influencing Factors

This phase of a complete feasibility study is designed to provide basic information required to determine if the proposed enterprise is economically viable. This information will likely be required for loan applications. It helps determine whether the enterprise can earn profits and generate sufficient cash flow to repay a loan. 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?

This phase of the feasibility study can be divided into three parts: (1) market determination, (2) raw product supply and (3) the production process.

Market Determination — In most feasibility studies, determining the market for a product or service is the most difficult part of the analysis to conduct. The degree of difficulty is directly related to the accessibility of potential customers. For example, a farm supply/marketing firm considering adding a new product line or service may survey existing customers and measure market potential.¹ However, if the same firm is considering mar-

¹For the remainder of this publication, the term "product" is defined broadly to include a physical product or service. This eliminates the need to repeat the phrase "product or service."

keting a new product for its clients, potential customers are less accessible and market analysis can become much more difficult.

The market analysis, however difficult to conduct, must be done. Availability of a market is critical to the success of any business venture. If a market does not exist, there is no economic rationale for producing the product. As a consequence, the feasibility analysis can be terminated.

To analyze market potential for a product adequately, the firm needs to determine current and potential consumption of the product, types and location of available markets, types of distribution systems available, ways to enter the market, types of buyers within the market, types of selling arrangements used and the level of prices charged for the product. The following discusses what should be analyzed to answer these questions.

1. **Consumption:** Current consumption and trends in consumption of the analyzed product must be determined. Additionally, current consumption and trends in consumption of competing products are important. In what form, qualities, volumes, etc., is the product consumed? Which segments of the population consume the product? Are these segments getting larger or smaller?
2. **Markets:** Knowledge about the market a firm expects to serve must be obtained. If a firm is looking at supplying a new product to its current customers, they may be its market. Even in this case, the firm may want to expand its market by attracting new customers. If a firm is considering marketing a purchased product, then it must understand what kind of markets exist. 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?
3. **Distribution system:** The type of distribution system appropriate for the proposed business needs to be determined. Will it be necessary to perform any delivery activities? Must the product be transported to the market, and if so, what methods are available? What kind of delivery schedules will be required? Should the firm provide transportation services? If so, should equipment be purchased or leased? Finally, what will be the cost of providing distribution services?
4. **Market entry:** Next, the firm must determine how the product will be introduced into the market. Will the product be marketed under the firm's brand or a buyer's 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 desired sales volume? What costs are associated with entering the market?
5. **Buyers:** Identifying buyers is also an important detail. What types of buyers (for example, retail stores, wholesalers, farmers or manufacturing institutions) 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 we encounter?
6. **Selling arrangements:** The type of selling arrangements which may be encountered also must be addressed. What kind 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, and 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?
7. **Price:** The price the firm can expect to charge for the product is a critical element of the analysis. This issue can be answered in part by analyzing past prices and price trends. Based upon this analysis, price projections can be developed for expected future consumption. Expectations of buyers and other suppliers of the product should be included in the price predictions. Price prediction is a difficult process that becomes increasingly difficult the further into the future prices are predicted. If historic prices have been characterized by a large amount of variation, future price projections should reflect this variability. Often the process of projecting prices involves determining a relevant range of prices. Then a determination can be made as to how sensitive financial success is to the level of prices. Finally, the relevant price range can be related to the price needed for financial success, mak-

ing a decision possible. Be realistic — perhaps conservative — on price expectations.

Raw Product Supply — This part of the analysis concentrates on determining availability of raw product inputs for the proposed enterprise (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, grain for a feed mill, etc.).

Four factors need to be included in an analysis of raw product supply:

1. **The minimum economic size of the controlling facility:** Some minimum facility size is necessary to produce output at an acceptable per-unit cost. Most of the agribusiness undertakings today involve multi-facilities, and one is the limiting facility to the rest. For example, the processing plant in an integrated broiler operation is usually the limiting facility and all other facilities (hatchery, grow-out, feed mill, etc.) must be geared to the processing plant. Minimum size, considering today's level of technology, may be 20 head of cattle per hour in a meat packing plant, or 500 birds per hour in a broiler processing plant or 20,000 pounds of raw fruit per day in a fruit processing plant. Recognize that minimum size can vary, depending on raw product prices and available labor resources.

The minimum economic size of a facility can be determined by actual cost analysis of existing plants or by synthesizing a model facility from specifications provided by equipment companies.

2. **Plant requirements:** Once the minimum economic size of the facility is known, the required amount of raw product can be determined. For example, referring again to the facilities in item 1, the meat packing plant would require 41,600 head of cattle annually to operate 8 hours per day, 5 days per week, 52 weeks per year; the broiler processing plant would require 1 million broilers; the fruit processing plant would need the production from about 400 acres of fruit to operate 100 days per year.
3. **Availability of required input:** After the required amount of raw product is established, the firm must determine if this quantity is available at the needed level of quality and at an affordable price. Usually a firm must obtain its raw product within a maximum distance from the facility. In some cases, this distance is determined by the effect on quality of the time from harvest to processing.

In other cases, economics of transportation define the area within which the facility can draw its raw product.

With these factors in mind, the firm 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 the current production of raw material will 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 not adequate for facility needs, the survey should focus on potential producers to determine their willingness to begin production of the raw product.

Identifying the current market use of the raw product is also important. Then determine what degree of market entry appears possible. Can the proposed business compete with any potential alternative use of the product?

4. **Assurance of future input supply:** Knowing that the area currently produces enough of the product for plant needs is not enough. Future availability of required input must also be evaluated. Is the source of raw material dependable? What explicit arrangements can be made for procurement? Would growers sign long-term contracts to assure an adequate source of supply?

From the supply determination phase of a feasibility study, the amount of raw material needed to operate the proposed facility at an efficient level can be established. The firm will also discover whether this raw product is currently available at an acceptable price and if this source of supply 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, financing needs and the potential costs and returns associated with the business venture.

1. **Facility determination:** The discussion of supply determination included points to consider in determining the minimum size of the controlling facility. The facility determination phase of the analysis expands this to include specific facility needs for the entire operation. This stage places special emphasis on current technology that the enterprise must consider in order to compete within the

business environment where it will eventually operate.

2. **Investment capital needs:** Once specific facility needs have been determined, costs of developing the facility can be estimated. How much capital will be required for the initial investment? This part of the study is relatively easy to prepare once specific facility needs are defined. Costs of the necessary facilities are based upon estimates from equipment companies, construction companies, utility companies, etc.
3. **Labor needs:** Labor requirements can also be estimated once facility needs are determined. Information is available on how many employees are required to operate the proposed facility. 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, be sensitive to any special skills necessary to meet labor requirements. Second, recognize that a given level of local unemployment is not necessarily an indication of the available labor force or their willingness to work at a particular type of work.

The other part of the labor needs question involves availability of management and technically trained people. This is an extremely important factor that can have a major influence on success or failure of the undertaking. Depending on the anticipated location, such talent may be difficult to find locally. These key people should be specifically identified during the feasibility study. If not available locally, these people must be identified elsewhere and arrangements must be made for relocating them.

4. **Cost of operation:** This phase of the study analyzes information related to appropriate wage rates, management costs, raw material input costs, various operational costs such as utility rate structures and fixed costs including depreciation, interest, taxes and insurance. This process should result in the development of cost budgets for the various phases of the operation. These budgets will provide a per unit cost of operation.
5. **Profitability:** With costs of operation determined, profitability of the operation can be projected using the estimates of expected prices. (Price projections were discussed earlier.) A projected income statement must be prepared to determine profitability of the operation. Also, preparation of a "break-even chart" is recommended. Given costs and returns information, this chart will show

the level of production at which the proposed enterprise will be able to break even (cover all costs of operation). Further, the chart can be used to determine break-even points for alternative output price levels, wage rates, raw product costs, etc. Many times the importance of a break-even chart is in knowing the minimum level of production and minimum output price that must be attained just to cover costs of operation. If, for example, the firm can contract the necessary amount of production for the required price, this suggests the operation will at least break even.

6. **Working capital needs:** Completion of the projected income statement does not represent the end of the feasibility study. An additional important item to include in the study is the cash flow summary. Providing for adequate working capital is perhaps one of the most critical items for the successful operation of a business. The importance of the cash flow summary determines what the firm's cash needs will be and what sources of cash will be available to meet these needs.

The firm needs to know how much capital will be needed for day-to-day operations (wages, inventories, utilities, raw products, etc.) and when this capital will be required. Further, the source of capital must be known. For example, will operating capital be generated from customer receipts, borrowings, membership equity, etc.? A cash flow summary is also required to determine size of loans, duration of loans, probable pay-back periods and amount of interest and principal that can be periodically paid back. Too many new business firms find themselves in extremely poor operating condition because they failed to provide for working capital.

The production process stage of a feasibility study should determine 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.

A feasibility study will help the firm avoid costs associated with making a wrong decision and will provide a valuable planning tool to implement the new business venture. A basic feasibility study analyzes factors that directly affect the success of the operation such as (1) assurance that an adequate, profitable market can be secured for the output of the operation; (2) assurance that a sufficient supply of quality

raw products can be procured at an acceptable price, and (3) 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 economically sound and make a profitable return for the owners of the firm. Knowledge that the proposed venture may be unprofitable is as important — if not more so — as 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 concerns itself primarily with analysis of general factors affecting where a facility will be located. These factors are considered after the general area of location has been determined by analysis of raw product supply and market availability. For example, a vegetable packing plant has decided to locate in a specific area of a state and now wants to decide on the particular city or town in which to locate the plant. Following are factors that should be considered in this phase of the analysis:

1. Availability of an adequate site in terms of physical characteristics, access to the major production area of the raw product and access to necessary transportation services at acceptable economic terms.
2. Types of 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 amount of consideration given to each of these factors depends upon the degree of use that the proposed facility expects to make of each service. For example, if the proposed facility will require importation of personnel, such factors as recreation facilities, schools, medical facilities and available housing become very important in terms of satisfying the new personnel. If the facility requires certain utilities, then it becomes important

to evaluate the availability and rate structure for the use of such utilities.

3. Type of governmental structure, including an analysis of assessment policies, types of taxes, tax rates, zoning ordinances, building codes and pollution and sanitation regulations.
4. Type of transportation facilities which would include analysis of transportation modes available, adequacy of facilities, historical record of performance, cost and rates and regulations or tariffs.

This list is not complete, but it does indicate the type of factors that a new business firm should analyze before making a specific location decision. The individual factors that should be emphasized depend upon the particular needs of the firm.

Summary

Idaho 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 economically feasible before they are selected. A feasibility study is designed to determine whether a specific alternative is economically viable. Thus, a feasibility study must be conducted as part of the procedure involving the analysis of alternatives.

A complete feasibility study analyzes the directly influencing factors including market potential, raw product supply and the production process. In addition, it analyzes environmental conditions such 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. All business ventures involve an element of risk, but a well-done feasibility study can substantially reduce the probability of a bad decision. However, in any business venture, some possibility of failure always exists.

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 to ensure a profitable undertaking.

APPENDIX A

Conducting a Complete Feasibility Analysis

A. Analysis of directly influencing factors.

1. **Market Determination** — determines potential market for the proposed product.
 - a. **Consumption:** analyzes consumption trends of the proposed product and competing products and determines form, quality and volume requirements.
 - b. **Markets:** determines type, location and cost of serving potential markets.
 - c. **Distribution system:** determines type, method and cost of distribution system for the product.
 - d. **Market entry:** determines method and cost of introducing the product to consumers.
 - e. **Buyers:** determines type of buyers and requirements and costs of selling to these buyers.
 - f. **Selling arrangement:** determines type of selling arrangements including delivery schedules, pricing arrangements, payment schedules, etc.
 - g. **Prices:** projects expected prices for the product.
2. **Raw Product Supply** — determines economic availability of sufficient raw product.
 - a. **Minimum economic size of controlling unit:** cost analysis of existing plants or synthesized models.
 - b. **Plant requirements:** determines quantity of raw product required to support controlling unit.
 - c. **Availability of requirements:** determines if required quantity of raw product is available, of suitable quality at an acceptable price.
 - d. **Assured supply of requirements:** determines if required raw product supply can be expected in the future.
3. **Production Process** — determines facility needs, capital and financing requirements and potential costs and returns.
 - a. **Facility needs:** determines specific facilities (buildings, equipment, rolling stock, etc.) required.
 - b. **Investment capital needs:** determines initial investment requirements for facilities.
 - c. **Labor needs:** determines specific quantity and types of labor required.
 - d. **Cost of operation:** develops cost budget to include costs of labor and management, raw material, operational and fixed components.
 - e. **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.

B. Analysis of environmental conditions — provides information on potential facility location.

1. **Availability of Site** — determines adequacy of site in physical and economic terms.
2. **Availability of Services** — determines adequacy and cost of required services such as utilities, financial services, educational services, etc.
3. **Governmental Structure** — determines type of governmental policies in area as they affect operations, such as assessment policies, taxes, zoning ordinances, etc.
4. **Availability of Transport Facilities** — determines adequacy and cost of transportation facilities to be used by the firm.

The Authors

Richard W. Schermerhorn is professor of agricultural economics and head, University of Idaho Department of Agricultural Economics, Moscow. Larry D. Makus is associate professor of agricultural economics in the same department.