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Key Consideration Points to Ensure a Successful Business Plan for Developing an Ethanol Manufacturing Business

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Background

This paper was written in response to a request for assistance in answering the question “What should we include in a business plan that would enhance the probability of success in building an ethanol facility?” We approached the challenge from the viewpoint of having written or reviewed several feasibility studies that have gone forward and received financial support from investors, local, state and national government grants and loan guarantees. The information contained in this paper covers a broad spectrum of topics but by no means covers all the possible issues that might arise in a business plan or a business feasibility study.

Craig Tordsen, Reg Clause, and Mary Holz-Clause, all working for the Value Added Ag Programs at Iowa State University, wrote this report. We make no guarantees that any future business plan or feasibility audit that contains any or all the information requested in this report will produce a successful result or that we will not have additional questions if asked to participate in future work with your group.

This paper is especially targeted at new, farmer owned, dry mill ethanol manufacturing businesses. We have used a “Guide for Completion of Feasibility Studies” developed by the Iowa state office of the USDA of a Rural Development Loan Guarantee¹ as a format to logically report our remarks. Also since many ethanol businesses will ask USDA for a loan guarantee, this form will be useful. Below is the USDA guide.

¹ Randy Frescoln, Iowa office of USDA Rural Development

Guide for Completion of Feasibility Studies

A feasibility study by a recognized independent consultant may be required by the Agency for start-up businesses or existing businesses when the project will significantly affect the borrower's financial operations. An acceptable feasibility study should include, but not be limited to:

- (a) Economic feasibility. Information related to the project site; availability of trained or trainable labor; utilities; rail, air, and road service to the site; and the overall economic impact of the project.
- (b) Market feasibility. Information on the sales organization and management, nature and extent of market and market area, marketing plans for sale of projected output, extent of competition, and commitments from customers or brokers.
- (c) Technical feasibility. Technical feasibility reports shall be prepared by individuals who have previous experience in the design and analysis of similar facilities or processes proposed in the application. The technical reports shall address the suitability of the selected site for the intended use including an environmental impact analysis. The report shall be based upon verifiable data and contain sufficient information and analysis so that a determination may be made on the technical feasibility of achieving the levels of income or production that are projected in the financial statements. The report shall also identify any constraints or limitations in these financial statements. The report shall also identify and estimate project operating and development costs and specify the level of accuracy of these estimates and the assumptions on which these estimates have been based. For the purpose of the technical feasibility reports, the project engineer or architect may be considered an independent party provided neither the principals of the firm nor any individual of the firm who participates in the technical feasibility report has a financial interest in the project, and provided further that no other individual or firm with the expertise necessary to make such a determination is reasonably available to perform the function.
- (d) Financial feasibility. An opinion on the reliability of the financial projections and the ability of the business to achieve the projected income and each flow. An assessment of the cost accounting system, the availability of short-term credit for seasonal businesses, and the adequacy of raw materials and supplies.
- (e) Management feasibility. Evidence that continuity and adequacy of

management has been evaluated and documented as being satisfactory.

Economic Feasibility

In real estate the adage is “location, location, location.” This is very important in locating the site of a new ethanol manufacturing facility. Discussions about locations with the following criteria for determining a site will help to enhance the probability of a successful plant.

1. Excellent highways that can handle a high volume of semi-trucks. Make logistical issues a priority in analyzing aspects and impacts for the decision about location. Look for possible bottlenecks, back-road or community impact problems with the increased road use.
2. A factor to consider is the possibility of shipping ethanol by pipeline. If this option would become available, there would be a great economic advantage.
3. A rail siding may be a factor, particularly if you are going to ship ethanol or co-products via rail.
4. Water supply, which has been tested to meet the requirements of the manufacturing process. Have a written contract with a water provider or if using private wells, tests of well capacity and water quality analysis should be included in the plan. Also include the costs of the water. Consideration must be given to the effect of a new high capacity well on the surrounding, existing wells.
5. Natural gas is available at the site and the cost of the gas is known or can be estimated by the gas provider. The use of historic price and trend data from the provider could be shown as verification of analysis on this issue.
6. Electricity costs are known or can be estimated by the electricity provider. Include provider data to verify analysis in development of the business plan.
7. Is corn in surplus in the area and can it be purchased at a price that will make the plant profitable even when local commodity prices are higher? Corn supply is a location issue because of transportation and logistics. In highly competitive markets the ethanol company may have to absorb some incoming transportation within the price paid just to get the corn.
8. Economic analysis should be the broadest focus of the plan. It will describe the context within which this business will operate. This analysis should seek insight into the dynamics that exist and how the new company might change them. Example: effect on the local corn market. Example: strain on transportation infrastructure. If this section is adequately explored it will guide the other sections of the plan.
9. The number of farmer owned ethanol plants is expanding rapidly in the Midwest. At last report there are 24 plants either under construction or planning to start construction in the Midwest. How will the markets overlap? Would it be best for the group to align with other proposed plants or simply compete with them?

10. Available labor, training and economic impacts are questions that can be answered by talking to the local economic development officials in the area. This person's expertise should be used in developing any business plan.
11. Seek outside counsel in sighting issues from individuals or groups, such as the regional economic development groups.

Market Feasibility

Do a marketing plan first. This section is the most important? Why? This aspect of planning and management can be the major point of differentiating this business from similar competitors. Also, decisions made on marketing should drive decisions on location, technology, plant layout, alliances and more.

A good market analysis will take a process approach. Profitability will be primarily influenced by cost of inputs. The resources and controls in place to manage the process must be efficient enough to be competitive. All out-put from the plant will be priced by forces beyond the control of management. Marketing plans should prioritize the issues that have highest financial impacts and are within management's ability to influence or control.

Identify the market before you build. Think broadly and radically. It is a lot easier now than when you have a factory full of ethanol and distillers grain later. Take advantage of other value streams such as excess heat or warm water. Also, carbon dioxide has value, but usually not enough to offset the high capital outlay to capture the product. The main products produced by an ethanol plant in their order of importance to the net profit is:

1. Distillers grain both wet and dry
2. Ethanol
3. Carbon dioxide

It is very important to know who is interested in buying the products and an estimate of the price they are willing to pay when they become available. This is most important for distiller's grain. Drying costs and freight are costs that will have great impact on the profits of the business. Research the market in-depth and provide detailed information about the demand. If possible ask future customers to provide letters of intent to buy and include the letters in the plan.

Remember: when it comes to the co-products of this plant you face a "sell it or smell it proposition."

The target markets for distiller's grain include large cattle feeding operations of 1200 head or more. Significant dairy operations may be a steadier and somewhat higher value market. There are a limited numbers of both these types of operations in Iowa and in other locations in the Midwest. Small feeding operations may not have the experience and knowledge to develop a ration using distillers grain. This means nutrition support must be available. Additionally, many small cattle operations cannot utilize a truckload of distiller's grain before it spoils. The development of a market for distiller's grain to

cattle feeders will require development of personal relationships and education programs. Follow-up to perfect customer satisfaction will be important.

Identify the competition in the market. This will include distiller's grains from other plants as well as the traditional high protein feeds presently used by livestock feeders. The standards that determine value for co-products in the Midwest will be corn and soybean meal. These represent the calorie and protein packages most used and traded. Think of the co-product as components: fiber, calories and protein. Few buyers will consider significant value beyond these components.

Consider arrangements with marketing entities that currently have connections into the target markets. Such an alliance allows management to focus on the core business. It reduces risk by broadening the reach of the business and buffering the flow both away from the plant and to the customer. Example: strong feed companies, well established local coops or other service providers.

The person in charge of marketing must have a very strong background in the business. If the plan is to use a marketing service to sell the plant's products, research the marketer's past experience with your type of products. Ask for personal recommendations and check them out.

Provide the information in your plan. The costs to market ethanol and the co-products using a marketing service will be from 1-2 percent for ethanol and 3-5 percent for co-products of the gross sales.

The ethanol market is growing and so are the numbers of plants being developed. As of June, 2002 there were seven plants under construction in Iowa, which will produce about 200 million gallons of ethanol a year and enough cattle feed for about 880,000 head of cattle a DAY. Construction in other states also affects the DDG's and ethanol market. Also remember the majority of ethanol demand is outside of Iowa. Truck freight to Chicago from central Iowa for a gallon of ethanol is \$0.123.

Technical Feasibility

The plan should describe in detail how raw materials will be delivered to the plant in a timely manner. Major problems that will affect delivery are the local cash market for grain and the corn basis. The plan should lay out in detail the system the company will use to overcome supply problems. For instance, if the company is using a wet corn bunker and taking all corn in the fall, there are important management questions. How fast must you take it in to beat the fast dry-down? Can you grind fast enough to keep up? Do you need to coordinate with the producers before planting to stage out the dry-down in the fall? Supply chain issues are technical, management and marketing in nature.

Carefully research any legal issues about warehousing of raw materials. Check with your department of agriculture concerning these issues. Include in the plan how the company will pay for raw materials. Develop and include producer contracts and other documents

to be used for procurement. Use experienced legal counsel to research relevant legal requirements.

Check with DNR, OSHA, BATF and your department of revenue and finance regarding regulatory requirements. These issues are important in the earliest planning stages.

A good planning tool is the use of process flow-charting end-to-end and not just within the plant. This will demonstrate depth in understanding the overall flow including inputs, outputs, resources and controls. Reference your marketing plan strongly in talks with the engineering firm. Look for additional expertise beyond the turn-key plans that are available. Technology changes are taking place at the equipment level, process flow and fermentation. It's your money, so get another opinion.

Important point: Consider the motivation of the contractor in your decisions. Is that contractor motivated by 1) your future success or 2) by building a plant? The answer is mostly number two. Your plan should meet your goals. The technology and processes should not drive other decisions in marketing or location.

Ask the contractor to provide detailed comparisons of plant performance for different size operations. Consider hiring additional consulting help to analyze total process flow for comparison of different sized options. The goal is to find an optimal level that garners efficiencies of scale. When calculating, do not only consider the plant itself. Reference your marketing plan, which should include the inputs.

Key point: At the planning stage do not use an arbitrary cost or project figure as the major constraint on decisions. Your primary focus should be on optimizing profit and economic impact. Only later should you settle on the maximum cost of the project.

Environmental, zoning and odor problems should also be addressed by professional third party experts. Contact the local county zoning authority, the your department of natural resources and the USDA offices for their input into the issues that will affect the company.

The production of ethanol using the dry milling process is well known and there are several well established companies who will design, build and even manage the day to day operations of a plant. Provide details about who will design the plant and their experience.

Financial Feasibility

A blend of local farmer producer equity, long-term loans and possibility third party investors will finance the company. Research has shown that producer equity should be at least 40 percent. Include in the plan a description of the producers' obligations to the company. Long-term loans will be available from a large bank or investment company. Provide details about the lender and the over all exposure in this industry.

Include in detail the financial costs of running the plant for a period of at least three years. (Five years are better.) Develop several financial scenarios to look at worst case, normal case and best case plans. Talk about the bank and the operating line of credit. Describe any access to short-term money for unforeseen production or marketing problems. All relevant assumptions must be clearly detailed one at a time, anticipating all questions that a financial auditor might ask. Consider professional (CPA) consultation to establish Generally Accepted Accounting Principles, (GAAP), early in the planning process.

Provide details about the adequacy of raw materials and supplies. Establish risk management objectives such as spreading the investor shares over a large number of individuals so the capital is “patient.” Describe other operational techniques such as corn supply contracts, ethanol contracts, co-product contracts, hedging, etc.

Provide a plan to explain the benchmarks and financial measures the company will use in management of the business. These will emerge from GAAP accounting as well as your company having it as a goal to manage from objective financial measures. Remember, you can’t manage what you can’t measure.

Management Feasibility

A strong board of directors will be necessary to develop a successful management system. Each person elected to the board should have extensive business experience. Include a formalized plan and budget for board training and facilitation to build the company’s strategic plan. Do not underestimate the need for this training. Background information about each director should be included in the business plan.

Ex-officio members for advisory purposes or community involvement may be a consideration.

Describe the management system to be used and the minimum level of experience each position will require. Develop detailed job descriptions.

Hire the general manager as soon as possible so management problems can be corrected before more staff is hired.

The Board of Directors will design an organization chart.

The plan should show research of the labor market at each level. This is objective evidence to the lender that the plan is analyzed on facts. This method can establish price ranges as guidance in hiring. These ranges can be normalized for use in the cash flow and budgeting. This is a method for making several judgments more objective.

Develop some detail about how your company will conduct management review of how the company is doing against stated goals and objectives. This should be scheduled activity and often enough to determine how effective the company is at meeting its goals. Do not underestimate the power of analyzing your realities as they emerge. Show things

in your plan that prove you expect to analyze your company's performance in an ongoing fashion. Profitability is not readily apparent in the early stages and serious flaws can also be masked. Board and management must be very focused on objective measures and agree to analysis procedures that can lead to corrective action if necessary.

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