Part Two: Analyzing the Feasibility of Agricultural Enterprises

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Analyzing the Feasibility of Agricultural Enterprises

INTRODUCTION

Most farm families would like to make more money and live a better life. Many hope to reach these goals by producing different crops. Others are considering new farm-based businesses. They’re looking at a wide range of enterprises other than traditional agronomic crops and livestock. So-called alternative crops are taking their place in the “product mix” for small and medium-sized farmers. The question is, how do you decide if a particular enterprise should be a part of your operation?

Farmers who succeed with an alternative enterprise start by gathering production and marketing information. They answer important questions about expected costs, start-up time, market demand and realistic profit potential.

This workbook and the video tape that goes with it can help. They take you step-by-step through a system for deciding whether a new crop or business is a good bet for your farm. The process won’t tell you what to do, of course. But it will help you find and organize the facts you need. Then you can compare the requirements and potentials of agricultural enterprises with your family’s goals and resources.

Advantages of a systematic approach

This approach has one primary advantage. It keeps you from leaving anything out as you study the feasibility of an enterprise. It will also help you see the blank spots in your information. Your County Extension Office can help you. They should have enterprise information factsheets that give resource requirements and overall potential for many alternative crops. These factsheets usually follow a format similar to that outlined in this workbook. They make it easy to compare the requirements of each enterprise with the resources you have on your farm.

Farmers who start new enterprises without the information they need are likely to fail.

However, there may not be factsheets for all the commodities you want to learn about. Or, the information may not apply to your general location. This means you’ll need to invest planning time in the search for the information you need.

The best way to get information differs with each commodity or group of commodities. Again, your County Extension Office is a good place to start. Contact national or regional associations of producers and marketers. Also check with your state Department of Agriculture. It’s a valuable information source, especially for agricultural products shipped across state lines.

For unique or exotic enterprises, there may not be any information at all. You’ll have trouble answering questions on many key subjects. These include environmental limitations, production practices, market demand and market channels. Every gap in your knowledge about a commodity reduces your chances for success.

How to use this workbook

Before you start on this workbook, it’s a good idea to watch the video on “Assessing the Farm/Family Resource Base.” It will help you list the resources available to your farm business. You’ll want to compare this information with the resource requirements of the enterprises you’re considering.

Next, watch the video that goes with this workbook, “Analyzing the Feasibility of Agricultural Enterprises.” Then review the steps outlined in this workbook and look at the example enterprise information sheet in Appendix A. Now you’re ready to gather and organize information about enterprises for which you can’t get factsheets. Appendix B provides blank information.
A CASE STUDY

The taggarts look at blueberries

Jim and Janet Taggart raise corn, soybeans and beef cattle on a 150-acre farm somewhere in the Southeast. Jim also works full-time as a mechanic for the county government. Janet does a good bit of the farm work; handles most of the bookkeeping and is a full-time homemaker. The Taggarts have two children still living at home. Son Edward, a junior in high school, works on the farm in the afternoons, on weekends and during summer vacations. Daughter Sandy, just turned 14, is a big help with home and farm chores.

Financially, the Taggarts are in a rut. For the last few years their farm income has fallen just about as fast as Jim's county wages have increased. Like many other southeastern farm families, they're considering a number of new or different crops in hopes of earning additional farm income. Like you, they took a business-like approach in their decision-making by Analyzing the Feasibility of Agricultural Enterprises. One possibility they looked at was blueberry production. Throughout this section of the workbook, you'll see how the Taggarts filled out the Information Sheets described as they completed their feasibility analysis.
	sheets you can use as an outline. Make photocopies and keep the originals for later.

This program will help you decide how well an alternative crop or enterprise fits with your specific farm and family situation. The rest of the workbook will take you through the key questions you should ask about the alternatives you're considering.

CRITICAL ELEMENTS IN ANALYZING AN AGRICULTURAL ENTERPRISE

Figure 1 outlines the enterprise analysis approach we'll follow in this workbook. The "critical elements" you need to consider fall into three main categories: general enterprise factors, resource requirements, and market factors.

Notice that the last item in the outline is the "Marketing Plan." This might not seem like a part of feasibility analysis at all. Instead, you might see it as an essential part of the business planning you should do once you decide that a particular new enterprise really is feasible for your farm. However, it's obvious that you couldn't estimate resource requirements without knowing how much of a crop you'd be producing. And, you couldn't decide how much to produce without having a reasonable idea of how much you could sell. So, the marketing plan really is part of enterprise feasibility analysis.

Enterprise description

Your first question, obviously, is whether you and your family are even interested in producing a particular crop. To answer the question you need a description of the general nature of each enterprise. (See Figure 2) After this brief review, you'll be able to drop those that lack potential for your farm. It would be a waste of time to gather in-depth information on them. (Appendix C is a

Figure 1

Outline of enterprise analysis

General Factors
Enterprise Description
Current Industry Status
Geographic Suitability

Resource requirements
Production System Description
Relative Management Intensity
Labor Requirements
Facility and Equipment Requirements
Capital Requirements
Budgets and Profitability

Marketing considerations
Market Characteristics
Price and Pricing
Marketing Plan
feasibility analysis completed by our "model" family. Examples from Appendix C are used to illustrate key points throughout the workbook.)

This section is very useful for comparing the nature of the enterprise with your family's likes and dislikes. Suppose nobody (see Figure 3) You can get this information from trade organizations serving the industry or from your state Extension Service. Industry status includes the history of the enterprise, the primary locations of production and marketing, the recent supply shows good stability. If growers have tried a crop in the past without success, it probably isn't stable. The same is true if there is rapid turnover among the people producing it. Obviously stability is just one factor to consider. There could be many reasons why an enterprise hasn't been successful in your area. However, you should know those reasons and what they mean to you before deciding to try it yourself.

Just because an idea is popular doesn't mean it's right for your farm. Interest in a commodity can result from heavy promotion by the manufacturer of equipment needed to produce it. This isn't a true sign of potential profitability. A commodity may be popular because neighbors have started producing it. In this case, find out what they like about it. Also, find out what effect increased production from your farm would have on market demand and price.

Primary locations of current production: Are all regions where land and climate are suitable already engaged in this enterprise? If they aren't, why not? Are the products of this enterprise shipped into your area? If they are, how will you compete for market share? Can you provide better quality or

likes sales work with the public. You'd have real questions about starting a U-pick vegetable enterprise. If you're going to be looking at quite a few alternatives, this approach will help you avoid family misunderstandings about likes and dislikes. This is another reason why it's a good idea to assess farm and family resources before analyzing alternative enterprises.

Current industry status

Your second key question is whether there's really a market for the alternative commodities or services you might provide. To make this assessment, you need information about the general health of the agricultural industries you're considering.

and demand relations, the supply and demand outlook, and inherent risks.

History of enterprise development. Knowing how an industry or a phase of an industry developed will give you some insight into its status, stability and potential. If an industry has been in an area for many years, it

Figure 2

Blueberries grow on a perennial bush that is best planted in the fall. They grow throughout the country. Blueberries need several years of growth and development before they reach production. Usually, if the plants have been properly maintained, some production will occur in the third year after planting and full production will be reached in the fourth or fifth year.

Jim Taggart's general description of blueberries shows that the crop wouldn't be profitable immediately. However, it would bring in new income to help pay for their children's education in a few years, an important family goal.

Figure 3

The industry is growing. Planted acreage has increased quite a bit in the past five years, probably because of increased marketing possibilities and growing producer awareness of these possibilities.

The Taggart's assessment of blueberry industry status is positive. Production is increasing and the marketing system has improved in recent years.

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lower prices than current suppliers? Can you offer a unique service with the products?

Are there other producers of this product in your market area? That could be an advantage if the primary market is regional, national or international. Buyers look for areas where they can get the volume and variety they need with minimum travel. On the other hand, the local market may be the primary outlet for the products of an enterprise. That means other businesses would be competing directly for the same market. In this case, what can you do to gain an advantage over other producers?

Recent supply and demand relations. Information about recent changes in supply and demand can tell you something about future supply and demand. Maybe market demand has been growing for several years. Perhaps there have been cycles of over-production or varying demand. Whatever the situation is, you need to know about it before you begin producing a new commodity.

With different types of packaging or processing, some products can meet very different market demands. For example, a farmer might sell goat milk fresh or as cheese. You must understand supply and demand for all packaged forms of the product and how this relates to your farm business. Do packaging options provide alternative markets during cycles in supply and demand? Does packaging take specialized processing that you can't handle on your farm? Are there processing facilities in your community?

Even with up and down cycles in supply and demand, a product still might be profitable. However, you'll need thorough research, detailed planning, flexible management and hedges against risk. Ideally, you want to produce commodities that have had increasing demand for several years. Also, look for situations where supply is limited by climate, production capability, or some other element you can provide.

Predicted demand and supply. Demand for a product can change with population changes in the market area, government restrictions and other factors. Are there social changes in the market area for a commodity you're considering? Are there shifts in consumer tastes and preferences? Would any of this change demand for the product? For example, demand for pork, chicken and turkey meat increased sharply during the 1980's. Is this a fad or will it continue?

Several factors can also change the supply of a product. These include government restrictions, social changes, availability of inputs, and shifts or growth in population. Laws against sale of fresh Florida citrus in citrus producing states are one example. The banning of the pesticide aldicarb for most uses, and the banning of hormones in beef produced for overseas markets are others.

Inherent risks. It's hard to predict or even understand the demand for some products. Usually, staple goods have the lowest risk for producers. These are commodities such as corn, wheat or sugar. Most consumers use them and they're ingredients in a wide range of other products. So, they're less subject to rapid changes in demand than other agricultural products.

By comparison, you can expect many of the crops we think of as alternatives to involve more risk. Risk can result from incomplete production knowledge, unstable demand and unexpected competition, just to name a few important factors. Remember that you don't make money by taking risks, you make money by identifying and avoiding risks.

Geographic suitability

There are several questions to answer in deciding whether a given enterprise is suitable for your area. Can a crop stand the high and low temperatures in your area? Is there enough rain during the growing season? Do you have the right kind of land and soil? Are you close enough to your market to deliver your product with available transportation?

Climatic constraints. Obviously, you'll only grow crops that tolerate the weather in your area. Remember, though, that temperature can vary quite a bit over a few miles or even a few hundred yards. Temperature, wind speed and wind direction are influenced by topography, presence of large bodies of water and surrounding vegetation. On a cold night, for example, it's often warmer near a lake or pond. You may be able to get more detailed information on local weather variations at your library or County Extension Office.

Water requirements are another important factor. Maybe you get enough rainfall for new crops you're considering. If not, do you have irrigation water of acceptable quality? What about problems with water movement onto, within and from your property? Are there water contaminants
that would harm the commodity? Will the new enterprise add contaminants to the water supply?

Soil and land requirements. Be sure you understand what the crops you’re considering need in terms of soil quality, land form, buildings and other facilities. (See Figure 4) Remember that there’s more to consider than chemical and physical soil properties.

Land form can also affect crop performance because it influences temperature changes and extremes. For example, on some fields cold air can drain away from crops during cold weather.

For some crops soil drainage and water-holding capacity are important factors.

Can you build the barns or other structures you’ll need on your land? Some locations aren’t good for building construction because of pockets of heavy clay soils. You may need special, high-cost foundations to get around poor site conditions.

In Workbook One we discussed the soil classification system of the USDA Soil Conservation Service. It will help you make an objective assessment of land quality on your farm. For most crops you can get information about the acceptable range of soil types or quality. However, we may not know the exact soil requirements for less traditional crops.

Distance and ease of transport to markets. If you can’t ship your product, or if shipping costs too much, your business can’t be competitive. There are several things to think about if you’ll need large trucks. These include the distance from major highways, the size and condition of secondary roads and the number of shippers who can properly move your product. These factors can increase the cost and decrease the quality of the product you deliver to market.

Production system(s) description

At this stage of enterprise analysis you need to know about successful production systems for the products you’re considering. Look at production inputs, product flow and the minimum business volume you’ll need to make a reasonable return on your investment. (See Figure 5)

General input/product flow. You have to understand the inputs required and how long it takes to produce a marketable product. You need inputs at prices that will allow you to make a profit. Otherwise, your enterprise can’t succeed. How will the distances from input sources affect costs and profitability? Can you get inputs in your area when you need them?

Also think about how long it takes to produce the first marketable product. How long would it likely take to show a positive cash flow? Will later production cycles be as long? How would this relate to cash flow? (For more on this subject, see the

Figure 4

Our land is located in the region that can produce blueberries. Also, we have about 60 acres of land with acid soil which is what blueberries need.

In the Taggart example we see a good match between geographic location and crop requirements.

Figure 5

During the first two years irrigation, fertilization, weeding, some limited pest control, and perhaps frost protection are about all that need to be done. In addition, in the third year a limited harvest can be expected. The fourth year would involve irrigation, fertilization, weeding, pest control, frost protection and an almost full harvest. Pruning should be conducted twice each year starting in the fifth year.

A short but specific description of the production system helps the Taggarts decide whether they really could handle a blueberry operation. They’ll also use this information in developing estimates of labor and facilities requirements.
cash flow section under Capital Requirements later in the workbook.) Do you have a competitive advantage based on location, resources, or production capability?

Critical volume/size for profitability. Is there a certain size of operation you must reach before it's worth investing in structures, equipment, and so on? Often it's a good idea to start small so you can learn the details of the production and marketing systems. That way you can streamline the operation while the cost of mistakes is low. However, long-term success depends in part on business growth to at least the critical economic size or production volume.

Relative management intensity

Some crops need only seasonal or occasional care after they're established. Others take daily, almost hourly, monitoring. (See Figure 6) Pine trees will require less care than nursery crops. Beef cattle need less intensive management than dairy cattle. Some crops require specific action at certain production stages. Otherwise, you get a poor quality product that you might have trouble selling. For example, if you don't harvest some vegetables at the right time, you can't sell them at any price.

Management time requirements. Some enterprises take more management than others. Management can include accounting, bookkeeping, paying bills, dealing with creditors and debtors, supervising labor and office personnel, and arranging market access and delivery. Some of the more traditional agronomic crops require little management time because production and marketing systems are so well established. But this isn't the case with many of the enterprises farm families are considering as alternatives.

Flexibility of schedule. Management of some enterprises may involve little direct supervision of labor but take quite a bit of bookkeeping and planning. You can schedule these tasks around other activities more easily than the time required to supervise labor. Do management requirements mesh with the time you have available to handle them? Tight schedules for off-farm employment might interfere with the management and labor requirements of enterprises you're considering.

Labor requirements

Labor requirements might determine whether a particular enterprise is suitable for your farm. Compare the skills required and needs will differ through the production and marketing cycle. Peak demand may vary with the season, weather or other conditions. How do these factors relate to your labor supply? (See Figure 7) Can you shift peak times to take advantage of available labor? Look back at the periods of available labor you noted in the analysis of farm and family resources. How do these match the requirements of the enterprises you're considering? Make up a chart summarizing the labor requirements and preferences on a monthly, or preferably, a weekly basis. This will help you compare what's available with what you need.

Special skills required. Does an enterprise require special skills, such as budding and grafting or pesticide application? Do you have these skills in your family or community? Are these skills easy to learn? Or, do they take long training and experience? How much would it cost to get

Figure 6

The plants are permanent and need year-round care, so there's a lot of production management. Bookkeeping shouldn't take a lot of time once good budgets are set up. Sales or sales management would depend on how we market.

The Taggart's analysis shows that blueberry plants require a fair amount of attention during the year but the family could easily handle these routine tasks. Marketing or sales could be another matter.

the time frame in which you need most of the labor with the available labor supply.

Seasonal demands. In every enterprise, some operations take more labor than others. So, labor these skills? Would production costs increase or product value decrease while workers were learning and gaining experience?
Figure 7

Based on a harvest rate of 14 market quality pints per hour and a yield of 12,000 pints per acre, about 860 hours would be required to harvest an acre of blueberries. If harvesting takes eight weeks, three people would work full-time to complete the job. With a U-pick operation we wouldn’t need harvest workers, but we would need at least one sales manager.

The analysis shows that if the Taggarts went ahead with production of early variety blueberries, a crop that would be harvested for shipment out of the area, they’d need more labor than the family could provide during harvest season. This would mean turning to the local labor market.

Routine (daily, weekly) requirements. Are there tasks that must be done every hour, every day or every week? Flexibility of labor demands may be as important as the total amount of time required. For example, a plant propagation enterprise would need daily monitoring. A worker would have to check the plants several times a day. But the amount of time in a given day for this task may be less than an hour for a small operation. For some enterprises, most labor requirements fall in a period of a few weeks; harvesting vegetable crops, for example.

Buildings. Find out what type of buildings you’d need for a specific enterprise. You can use some structures for many different purposes. For example, most enterprises need closed storage space for equipment and supplies. But it usually doesn’t matter whether you use one big barn or several small sheds. So, you might get by with existing buildings.

Some enterprises do need special structures. Greenhouses, shade houses, product grading areas and cold storage are examples. Be sure to determine the general size of structure you need for a particular use at this stage of enterprise analysis.

Land form. Some enterprises need special land form. For example, in many areas it is advisable to plant blueberries on raised beds. Special land grading may be needed to keep surface water away from greenhouses or shadehouses. Pecan orchards must be graded with mechanical harvesting in mind. You may need runoff collection ponds for some operations to control the quality of water leaving your property or to provide water for livestock. Costs for land form changes can be a big part of start-up costs for a new enterprise.

Irrigation, water treatment. It’s expensive to dig wells, build canals or tie into existing water systems. You might also need special permits. Find out what the water requirements would be for a new enterprise. How important is water quality? How much water will you need? Will you need water at particular times of the year, month or day? How does all this compare with water availability? Will you have to collect runoff water and treat or recycle it? Are there accepted

Facility and equipment Requirements

You might be able to start an enterprise with the land and facilities you already have. Or you might have to build specialized structures that are beyond the capital you have available. Buildings, irrigation systems, fencing, other improvements and specialized equipment are expensive. Even after purchase, costs for maintenance can be high. (See Figure 8)

Figure 8

A grading and bulk packing shed could be useful for marketing through a wholesaler or broker. The specific layout of the shed would depend on the requirements of the wholesaler. We’d also need a shed with a U-pick operation. We’d have harvest baskets to store. Also, the operation manager would need a place to work and keep an eye on customers.

Based on this information, the Taggarts believe they could easily afford the special facilities needed for a blueberry operation.
methods for recycling or treating the water used with this enter-
prise?

Capital requirements

Capital requirements include the money you need to get the enterprise started and complete the first production cycle. You might need to include all or part of your living expenses. To estimate capital requirements, start with a complete list of the resources you’ll need. Include costs for spraying, pruning, and irrigating young perennial (tree or bush) crops. Then make a realistic estimate of the time it will take to produce the first commercial-size harvest. If you need financing, be sure the lender knows that you’ve based your loan request on this information. Normally, lenders require a business plan.

Find out how much you’ll have to spend for specialized equipment and facilities. Used equipment is cheaper than new equipment, of course, but you have to examine it carefully before you buy. Highly specialized equipment is often hard to find. It’s also expensive. You might want to rent, lease or share this kind of equipment if you can. Or, see if there’s an affordable custom service you can hire for specialized operations.

Look into the whole range of construction strategies and designs for buildings you need. Review all the advantages and disadvantages. Find the best combination of construction costs, maintenance costs and building life or longevity. Obviously, the type of materials and the structural design are key factors. The expected life of a structure is a major part of true value. Construction is costly and it can be risky.

Single-purpose structures are a problem for lenders. If the enterprise fails, a building’s salvage value could be much less than its cost minus depreciation. Even if the bank didn’t foreclose, you’d end up with an asset that you couldn’t use easily. Look for ways to reduce or share the risk. Share structures with other producers or marketers through an association or a cooperative. Or, try to lease the specialized space you need.

Keep in mind that you can sometimes exchange one form of capital for another to meet the requirements of an enterprise. You can replace equipment with labor in some cases. Or, you can use available capital to hire labor to substitute for family labor.

Budgets and profitability

Develop a general enterprise budget to estimate total cost, cash flow and profitability. Standard budgets are available through the Cooperative Extension Service for many agricultural enterprises. However, you should develop a budget for your operation, because costs and potentials differ with each operation. A budget will simply not be available for some enterprises you might consider. In those cases, use a budget for another enterprise (such as those in Appendix D) as a model. Gather the cost, yield and price data to develop your own budget.

There are two major parts to an enterprise budget, variable or operating costs and fixed costs.

Do a good job of estimating these costs. Don’t be too optimistic. Be as realistic as you can.

Variable operating costs. These are costs which occur only if you produce a commodity. They vary with the size of the enterprise. For example, the costs for fertilizers, starter plants, harvesting and marketing are variable costs. Be sure to estimate the value of unpaid family labor. Include it in the variable operating cost section of the enterprise budget.

Project the operating costs for a standard full-production cycle. For annual crops, this means all variable and fixed costs for each crop you harvest. Some crops or commodities take several years to reach full production. For these, include only those costs incurred for the full production cycle. Establishment costs are fixed costs over the life of the enterprise. For example, suppose you spent $30,000 establishing blueberry bushes with a bearing life of 30 years. You’d figure your establishment cost as a $1,000 fixed cost in each production year.

Fixed costs. There are two types of fixed costs, cash and noncash. You’d have to pay taxes and insurance on buildings and equipment even if you didn’t produce anything. These are cash fixed costs. Noncash fixed costs are like a capital replacement fund. Think of annual noncash fixed costs as rent you charge yourself for having the use of the items in question. These costs represent the annual charge you’d have to collect and save to replace the item when it wore out. This applies to economic life of improvements, equipment, machinery, and so on.
For example, let's say a $24,000 tractor has an expected life of 4,000 hours. You'd have to include an hourly charge of $6.00 for using the tractor in your estimate of total costs. Now, suppose you estimate 60 hours of tractor use per production cycle for an enterprise you're considering. The fixed costs for the tractor per production cycle would be $360 ($6.00 per hour x 60 hours).

It's common to summarize cost information in enterprise budgets. Appendix D of this workbook gives model budgets you can use as guides. To develop an enterprise budget, start with production inputs. List everything you'll need, including labor. Estimate the price of each item and the quantities you'll need. Multiply the prices by the quantities to get the projected cost for each input. Be sure to include interest charges on cash operating costs and fixed costs. This includes interest on capital goods. (If all of this sounds complicated, talk to your County Extension agent for help.)

Next, multiply the projected yield for each crop by its projected price. This will give you an estimate of gross returns. You can do this with several yield-price combinations to get a range of potential gross returns. This will show what earnings you could expect for the enterprise under various conditions.

Finally, subtract your total costs from the gross returns. Because you've included all your costs, the difference is a measure of profitability. A profitable enterprise earns enough to cover all costs. That is, it earns enough to replace itself.

Figure 9

Cash flow would be very good. Based on the sample budget for early variety blueberries we looked at, we think we'd have cash costs of about $3,000 per acre each year once we get to full production. With early varieties, we'd also have labor costs of about $3,500 per acre for harvesting. We project receipts of about $9,600 or positive cash flow of just over $3,000 per acre. Late varieties would gross about $8,000 per acre and, potentially, net between $6,000 and $7,000 as well.

The analysis shows that once full production is reached, a blueberry operation would bring in enough income to cover all cash costs and produce positive revenue.

Cash flow. Cash flow is another important factor when considering the feasibility of an agricultural enterprise. Cash flow refers to the amount of cash coming in compared to cash used to cover expenses. (See Figure 9) A cash flow budget includes the out-of-pocket costs of an enterprise budget plus loan payments. A cash flow budget is not a measure of profitability. It doesn't consider the ability of the enterprise to replace equipment, structures, etc. A cash flow budget estimates the ability of the enterprise to generate enough cash to repay loans and cover expenses. You'll see changes from year to year in down payments, loan payments, machinery and equipment purchases, projected yields and so on. So, you should develop a new cash flow budget each year.

Much of the information you need to make a cash flow budget is in the enterprise budget. For each production cycle, add cash costs from the fixed cost section (insurance, taxes, etc.) to the cash costs from the variable operating costs section. Include loan payments, down payments, the cost of expected replacement of equipment, and so on. In short, include all your cash needs.

Cash flow budgets must also include income. For some enterprises, many fruit crops for example, yields increase over time. This means that you would expect the income to be different from year to year. So, it's a good idea to prepare a new cash flow budget each year until all enterprise loans are repaid. Keep a running total of estimated cash flow each year. This will help you determine how long it might take for an enterprise to start paying for itself.

Financing the enterprise. It can be hard to get financing for a new enterprise, especially if it isn't common in the area. You have to show lenders a realistic business plan. Such a plan starts with the names of firms or people who will handle or buy your product. Then, you need projected cash flow statements that include loan repayment for the
loan you're seeking. Finally, include an enterprise budget and a production plan.

However, a good business plan doesn't guarantee that you'll get a loan. Much depends on your overall production and marketing experience. Lenders will look at your ability to repay the loan from other sources. They will probably want collateral, something you own that you can put up as loan security. So, be ready to furnish a farm business plan, personal financial statement and balance sheet. Loan sources include your bank, other lenders with whom you are in good standing, and the Farm Credit System. Plan to start small and to grow over time. Getting loans will be easier as you gain experience.

Market characteristics

With any commodity, you have to understand the market system before you can judge market potential. First, identify the primary and any secondary marketing systems for the product. Then, learn the market requirements for product form, quantity and quality. Finally, check market demand and sensitivity to economic, social and political factors. This section of the workbook will help you determine the history of the market channels for a given commodity. It will also help you estimate the current and potential market demand. (See Figure 10)

The marketing system is what moves a product from the farm to the consumer. The primary market systems for agricultural products are direct sales, wholesalers and distributors, auctions and commodity brokers. You can sell some products directly through road-side stands, 'U'-
pick operations, farmers' markets and mail-order sales. Most producers only have enough volume to sell directly to local markets. However, brokers, wholesalers, and distributors can provide access to large national or regional markets. They may actually buy products for resale or operate on commission. There are auctions for livestock and some agronomic crops.

Market requirements

“Why produce it if you can't sell it?” is a common question. Actually, most commodities will sell at some price. What you really want to know is whether you're likely to make a profit when you sell. This is a hard question for many of the new or unique products considered alternative crops. There are several reasons for this.

be well-established marketing systems in your area. Third, many so-called alternative commodities are perishable. That means they're highly sensitive to changing market conditions.

To deal with these issues, be sure you can answer the following questions:

• Where and how can I sell my product?
• What type of processing will it need?
• What do consumers (and thus marketing agents) want?
• Can the market take the amount I produce without a drop in price and profit?

The answers to these questions are different for local, regional and national markets. Each

Figure 10

We have to recognize differences between the early and late markets. Early sales are generally through brokers or wholesalers to national markets. We could sell late variety blueberries through road-side and farmers markets, U-pick or sales to grocers and supermarkets.

The Taggarts' analysis shows two sectors for the blueberry market: early varieties are shipped through fruit brokers, late varieties sold locally by various methods.

First, you may not be able to get information on market conditions in your area. Market conditions include grade or quality standards, quantity requirements during specific periods (market windows) and prices. Experience is the best source of this information. Contact with other producers or marketing agents can be helpful. Second, there may not market level has its own requirements. Here is some general information about packaging, quality, quantity and marketing season.

Packaging. Some commodities can only be sold with proper packaging. This can be expensive. Packaging serves the same purposes for all products in all
markets. Packaging protects the product, makes it easier to handle, and helps it stand up to storage and shipping. It also identifies the product for buyers. Product identity includes size, quality, quantity, and source.

Many packaging requirements are specific to the commodity, its final destination and shipping method. For example, selling vine ripe tomatoes to select produce retailers in New York takes one kind of packaging. Selling mature green tomatoes through the auction market in Vineland, New Jersey takes another. Yet both markets are in the same geographic region and are national markets for a producer in the Southeast.

Before you even plan production, contact the buyers or brokers who would handle your product. Find out their packaging and transportation requirements, and what they can do for you in return.

Quality. Quality has its own meaning with every product or commodity. No matter how you define quality, it's essential for success. To sell your product, you'll have to meet the accepted quality standards of the market. (See Figure 11) Important points for food items are shipping quality, appearance, texture and taste. Shipping quality is a major concern for regional and national markets, of minor concern for local markets. For ornamental plants, size, form, color and packaging are critical. Product appearance depends on shipping characteristics, weather during the growing season, and damage from pests and diseases.

Texture, form and taste also depend on how well a product stands shipping and handling. Other factors that affect texture are variety, degree of maturity or ripeness and the condition at harvest. The keys to quality control are production and harvest management, variety selection, and post-harvest handling.

Don't underestimate the importance of variety selection for crop enterprises. Varieties are often identified as either local market or shipping types. You'll also find early season and late season varieties for some vegetables and fruits. A combination of early and late varieties and some staggered planting can give you a longer marketing season.

For annual crops, you can change varieties every year as you learn more about market requirements. Perennial crops such as peaches are a different problem. You plant specific varieties depending on the market you want to serve, but you can't change each year. For example, blueberries take three years to come into limited production and another two years to reach full production. The high bush varieties produce fruit early in the season. Because they can be the first to reach the national market, they bring high prices. Their quality, however, may not be good enough for local markets. Rabbit-eye varieties are later, but are of higher quality.

Quantity. Buyers also require a consistent or predictable quantity. The exception would be direct sales to the consumer, but even then it's good to have a steady client group. You can only do this through consistent quality and quantity.

Transportation costs and quantity are closely linked, particularly when you're deciding which geographic market level to produce for. It costs less per unit to ship a full truckload than a half load, for example. Also, national markets need larger quantities than regional markets; regional markets need larger quantities than local markets.

Figure 11
The cooperative requires that there be field grading by size and color. It takes bulk deliveries at a nearby collection point.

To sell any commodity you must supply it in the form and quality the market demands. This information shows that the Taggarts understand the requirements for early blueberries to be shipped to national markets.
It's also important to think about consistency of supply over time. A single tractor-trailer shipment of a given commodity might not satisfy a national market buyer. But, weekly shipments over a few months might.

Market evaluation

The major aspects of marketing we've covered so far give you a basis for deciding which market level to serve. Key decision factors include timing of harvest (market window), quantity of marketable product, quality of product and packaging requirements. You need to understand the requirements of each market level. You can probably assess regional and national markets at the same time, however. Because the marketing channels are often the same or very similar, the sources of information are the same.

First, it's a good idea to check with active producers in the area. They can explain their production and marketing strategies, difficulties, successes and failures. They can also give you leads on other sources of market information. (See Figure 12) Depending on the product and your own goals you should try to contact at least one grower for each of the geographic market levels.

Be careful, though. In a highly competitive market, some growers may not be willing to share information. They may even give inaccurate information. If there isn't a local grower serving a particular level, try to find out why. It's possible, for example, that not enough product is available from your area to penetrate the national market. In that case you and a few other potential growers could make a difference.

Other local sources of information include supermarket managers, grocery store operators, produce stand operators and other retailers. Grocery store and produce stand operators should have a lot of information about the local market. They might even be able to give you some regional information. First, find out whether they would be willing to buy from you. Also, be sure you understand their requirements for packaging, quality, quantity and so on.

Once you have all this information, you'll organize it into a marketing plan. Then, you'll develop a production plan that fits the marketing plan.

Price and pricing

You can use what you learn about the market to estimate the price range for your product. (See Figure 13) You'll normally get higher prices by selling directly to consumers and lower prices by selling to wholesalers or processors.

People often ask, "How much should I charge for my product?" The answer will vary to some extent depending on who's answering. To be fair to yourself, consider the following in developing an asking price:

- variable costs — what you pay for producing, harvesting, handling, packing, and delivering a product to market.
- fixed costs — including insurance, taxes, rent (or land payments), machinery and equipment costs, depreciation, etc.
- return to labor and management — people often neglect to pay themselves, or at least account for this cost.
- profit — don't confuse this with return to labor and management. Profit is a return on investment after considering the cost of labor and management. Decide at the beginning what level of profit or return on investment you're willing to accept.
The total of the four items should be the minimum price you seek. If this minimum is higher than the highest expected price, you shouldn't start the enterprise. If the asking price falls within the expected price range, then the enterprise holds promise. Just remember that this doesn't guarantee that you'll make a profit or even meet all costs in all years. Lack of production and marketing experience can make the first few years or production cycles difficult. That's why it's a good idea to start a new enterprise on a small scale. Limit your investment to what you can afford to risk.

Also remember that adding up your costs doesn't give you market information. And, it isn't always easy to find out what buyers are really paying for a particular product. State Agricultural Statistical Services and the U.S. Department of Agriculture Market News Service routinely publish prices for some commodities. You can get this information through the Cooperative Extension Service.

However, you probably can't get published price information for some of the commodities you're looking at as alternatives. One way to estimate a wholesale price is to start with the retail price and subtract the wholesale-to-retail mark-up. Mark-ups vary by commodity group and type of store or outlet. Most operators won't tell you how much money they made. But they might tell you the wholesale-to-retail markup typical for their products.

For example, supermarket produce usually sells at about a 30%-50% mark-up. A good estimate for the wholesale price of a produce item is about three-fifths of the retail price rounded up to the next five cents. If you know the mark-up figures, you can estimate wholesale prices for other commodities in other types of outlets. Determine where the product will be sold and ask potential buyers what their present gross margin is. Then compare the estimated wholesale price you would receive with the asking price based on your own costs.

Store operators and other producers can give you the names of wholesalers and brokers. You might even find them listed in the yellow pages of your telephone book. Wholesalers and brokers, of course, are your connection to regional and national markets. Find out when prices are usually highest, when supply is scarce, and when supply is over abundant. This information defines your market window.

The production oriented information should include:

- The geographic regions to be served.
- A description of general market conditions in those regions. This should include prices and product supplies during your growing season, quality standards, etc.
- How you'll reach that market with your product—broker, wholesaler, directly to retailers, etc.
- How the product should be packed and shipped.

The production oriented information should include:

- Planting schedule and resources needed.
- Weekly production estimates. This should include specific estimates for all quality or grade categories that apply to your product.
- A total production estimate for the growing season. Again, you want an overall figure and estimates for each grade.
- Expected prices and outlets for each grade over time.

Estimating total production by grade will help you set realistic limits on production. And, it will give you a basis for changing plans and improving management in the future. The estimate should also include how much product will be available at specific times. Once you have production estimates and price projections, you can figure your projected gross revenue.

Marketing plan

A good marketing plan has two levels of information. The first level is completely market oriented. (See Figure 14) The second level should be production oriented and explain how

|Figure 13|

As shown in Figure "9", the prevailing price to growers for early season blueberries when the Taggarts would be selling their crop is projected at $.80 per pint. U-pick and local market prices would vary with supply and demand.
Sources of information/support

Identify organizations and individuals that can provide technical and managerial support. You’re certain to face unexpected challenges, opportunities and problems in developing a new agricultural enterprise on your farm.

USING THIS INFORMATION IN DECISION MAKING

Identify voids in the information base

You need facts to decide whether to start or not start a new enterprise. Without complete information, your decision is just a guess. The process outlined in this workbook helps you collect information for sound decision making. It also helps you identify voids in the information. If you don’t have all the facts you need, you’ll have to find out where you can get them. It usually isn’t possible to get absolutely complete information.

But you should come as close as you can before making a final decision. Then you’re ready to develop a strategy for starting your new enterprise.

Compare the Requirements and Potential to Overall Farm and Family Goals

Once you have the information you need, the next step is to compare the requirements and potential with predetermined goals and available resources.

Does the potential return from this enterprise justify the investment and risks involved? Do the requirements and potentials mesh with farm and family goals? How does the length of commitment to the enterprise compare to future labor and capital resources?

Compare the Requirements to Available Resources

With this workbook you’ve described the requirements of the enterprises you’re considering. Earlier, you should have described farm and family resources. (That’s assuming you completed the other workbook in this series, Assessing the Farm/Family Resource Base.) Now you can compare requirements for facilities, equipment, labor, operating capital, and so on with the resources you have. This will tell you whether a new enterprise will really fit on your farm.
APPENDIX A

AGRICULTURAL ENTERPRISE INFORMATION

WOODY PLANT LINER PRODUCTION

Enterprise description

Liners are propagated plants ready for transplanting into larger production containers of the field. Most wholesale nurseries propagate the majority of the plants when wish to produce, but many purchase some liners to supplement their propagation division. They usually purchase liners of plants that are difficult to propagate or specialty plants that are required in relatively small quantities. Some nurseries specialize in liner production and sell these pre-finished plants to other wholesale nurseries that grow them on to a saleable size and market them.

Liner production requires intensive management. Environmental and biological stresses influence directly product quality and must be adequately controlled. Quality control in liner production is essential for a successful business.

Current industry status

Currently, there is a glut of some of the more fast-growing, common woody plants. However, there are other plants for which the demand exceeds the supply. The nursery industry as a whole has experienced tremendous growth in the last 30 years, and fluctuates with housing and other construction starts. Freezes in 1984 and 1985 resulted in tremendous reductions in the number of saleable plants and killed many plants in the landscape. The tremendous demand created by these circumstances resulted in the expansion of many existing nurseries and the establishment of new nurseries. Most of this expansion was with fast-growing, more common plants to satisfy the short-term increase in demand. Therefore, one can see the reason for a glut of the more common plant species.

Geographic suitability

Liners of woody plants can be produced at any location where the proper environment can be maintained. Generally, areas that require minimal or no winter protection have a cost advantage over colder climates. The amount of protection required differs with plant species. There must also be a reliable source of cuttings for the plants you intend to grow. These can be provided through the production of larger “stock” plants or through arrangements with other growers or landscape managers that provide proper cultural management of the plants.

A relatively small land area would be required for woody plant liner production, but the site should have good surface water drainage and water percolation rates through the soil. Soils classified by the Soil Conservation Service as Class I, II or III would be preferred.

Production system

The most common means of propagating woody plants is by cuttings. This vegetative propagation technique involves taking stem or stem-tip cuttings and providing the proper environment for root initiation and development. The proper moisture, light, temperature, hormone treatment and aeration differ with plant genera, species and even cultivars and are essential for successful liner production. Some plants are difficult or impossible to propagate vegetatively and are propagated from seed. Some seed require specific preconditioning treatments before they will germinate. A disadvantage of seed propagation is seedling variation which results in a lack of crop uniformity.

The proper environment is usually provided in a greenhouse or shadehouse. An intermittent mist system is utilized to maintain a film of moisture on the foliage to prevent desiccation during root development. The duration and interval of misting must be controllable to allow precise management of the system. Cuttings are generally under intermittent mist for 4 to 10 weeks and may be rooted, acclimated to field production conditions and marketable in 12 to 18 weeks. Protection from temperature extremes are necessary an should be adjustable to the specific types of plants to be propagated.

Liners can be produced in raised beds and marketed as bare-root plants or, most commonly, grown and marketed in the same containers. Liners produced in containers are easier to handle and transport, are subjected to less transplant shock but require more input cost than liners sold bare-root.
Relative management intensity

The propagation system must be monitored routinely during the day, especially during the first several days to few weeks. If the mist system fails during a hot summer day, freshly taken cutting can be lost in a matter of a few hours. Conditions are also ideal for disease and insect infestations. Therefore, the propagation areas must be inspected daily so early control measures can be taken.

Labor requirements

There is an intense labor requirement in liner production with peak periods during the initial phase of each crop. Two to three crops can be produced annually if the proper environment and production management is provided. An operation with only one 30 ft. by 90 ft. greenhouse would require 15 to 20 hours per week on the average, but there is a labor demand during crop initiation and to a lesser extent at harvest time. A majority of the labor for a relatively small operation can be provided by part-time laborers. There are specialized skills requirements, but generally these are easily teachable.

Facility and equipment requirements

A greenhouse is recommended for production of liners, however, it is not essential for some climatic regions and times of the year. Greenhouses provide the ability to control the environmental conditions and provide consistent, repeatable conditions. The greenhouse should have proper ventilation and be equipped with heating and cooling systems. A flexible, dependable mist or fog system is essential. There are several suitable designs that can be installed or there are complete systems that can be installed or there are complete systems that are commercially available.

Hand tools, a cutting preparation area with tables/benches, storage for media, pesticides, containers and hand tools, a commercial compressed air sprayer for pesticide applications, a small tractor with trailer or a small pickup truck and a water well (2" minimum) with high quality water are required.

Capital requirements

Initial investment requirements vary widely with such items as the type of operation, the location of the operation (ex. winter

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**Woody Liner Sample Labor Calendar**

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Budget and Profitability

Labor would account for 35 to 40% of cash costs. It is possible to produce two or more crops per year from a given greenhouse. The percentage of cuttings taken that would develop into saleable liners normally ranges for 80 to 90%, again depending upon the experience of the propagator and the characteristics of the plants being grown. Assuming two crops are produced per year and *0% of each crop is saleable, approximately 43,320 liner would be marketed. The 1990 price for liners ranged from $0.25 to $0.45. If the liners were sold for $0.30, the total gross sales would equal 12,996.

Market characteristics

Generally, the demand for woody landscape plants continues to increase, however, in some areas and plant species, the supply at least equals the demand. The burden of marketing lies with the grower as there is little cooperative marketing. New liner producers will probably have to prove that they can produce quality liners before contract sales to wholesale growers are possible.

Marketing plan

Informal contracts may be made with wholesalers on the premise that the wholesaler will purchase a specified number of quality liners of some crop plant during a certain period of time. The market potential for particular plants in your market area should be assessed before the first cutting is taken. Personal contact at nurseries and trade shows is the most common and productive means of determining demand/potential. The successful liner producer will spend as much time in marketing and customer service activities as spent in production activities.

Sources of information

Cooperative Extension Service publications, video tapes and slide/tapes sets.


APPENDIX B: OUTLINE FOR FEASIBILITY ANALYSIS OF AGRICULTURAL ENTERPRISES

Enterprise Description: ________________________________
(name of enterprise)

General nature of products

General production requirements
General market potential

CURRENT INDUSTRY STATUS

History of enterprise development
Primary location(s) of current production

Recent supply and demand
Predicted supply and demand

Inherent risks
GEOGRAPHIC SUITABILITY

Soil and land requirements

(compare with completed Information Sheet 7: Land Classification from Workbook 1: Assessing the Farm/Family Resource Base)

Climatic constraints

Distance and ease of transport to markets
PRODUCTION SYSTEM DESCRIPTION

General input/product flow

Critical volume or size for profitability
RELATIVE MANAGEMENT INTENSITY

Management time requirements

Rigidity of schedule
LABOR REQUIREMENTS

Seasonal demands

Special skills required
Routine requirements (hourly, daily, weekly, etc.)

Because labor requirements change each of the first five years, a labor calendar for each year would help keep track of things.

**Labor Calendar (Optional)**

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(For easy comparison, summarize labor and management requirements on grid, then refer to completed Information Sheet 8: Monthly Labor and Management Availability from Workbook 1: Assessing the Farm/Family Resource Base.)
FACILITY AND EQUIPMENT

(compare with completed Information Sheet 5: Equipment, Facilities and Improvements from Workbook 1: Assessing the Farm/Family Resource Base)

Buildings and other improvements

Land form

Irrigation, water treatment
CAPITAL REQUIREMENTS

(compare with completed Information Sheet 6: Financial Resources from Workbook 1: Assessing the Farm/Family Resource Base)

Initial cost for facilities and equipment

Enterprise establishment costs

BUDGETS AND PROFITABILITY

Operating costs and budget
Cash flow

Financing the enterprise
MARKET CHARACTERISTICS

PRICE AND PRICING
Marketing Plan

Sources of Information
APPENDIX C: “TAGGART” FAMILY’S SAMPLE FEASIBILITY ANALYSIS

Enterprise Description: Blueberries

(name of enterprise)

General nature of products

Blueberries grow on a perennial bush that is best planted in the fall. They grow throughout the country. Blueberries need several years of growth and development before they reach production. Usually, if the plants have been properly maintained, some production will occur in the third year after planting and full production will be reached in the fourth or fifth year. This means spending time and money on the plants for a few years before any money can be received from production.

General production requirements

Blueberries need acid soils and cold winter weather for chilling requirements. Varieties for southern climates need fewer hours of chilling than northern varieties. Plants are usually planted by hand into some peat moss and covered with a pine bark mulch. Trickle irrigation is useful because yields depend on water and because you don’t have to replant each year. Overhead irrigation is good for frost protection. Frost protection during cold weather can be needed any night after budding starts. Blueberries need fertilization, pruning (after year five) and weeding. Harvest takes a lot of labor, even if done by machine. Highbush varieties are harvested early in the year and bring the best prices.
General market potential

Blueberries have a variety of uses as fresh fruit, in home baking and in processed foods. Just about anybody could use blueberries regardless of their income or where they live. The regional patterns in blueberry markets in the past were probably just the result of limitations in product availability. Overall, market potential looks very strong.

CURRENT INDUSTRY STATUS

History of enterprise development

The industry is growing. Planted acreage has increased quite a bit in the last five years, probably because of increased marketing possibilities and growing producer awareness of these possibilities. Not all the acreage planted in blueberries is actually in production, though. Many acres were more or less abandoned because people got tired of waiting years for a return on their investment. They lost interest and the land went to weeds. Some of this problem has been reduced as people have gotten more and better information and as the market situation has gotten less risky.
Primary location(s) of current production

Production is concentrated in Michigan and New Jersey. Recently, varieties have been developed for early harvest in the south. Florida blueberries are the first on the market. Some of their harvest season overlaps the early and middle parts of ours. So, we have to be aware of conditions there. Until the early 1980's the Florida blueberry industry was disorganized and growers had no regular access to national markets. This may have been because high quality early varieties weren't available. Today, Florida has access to national markets through several marketers.

We could expect our early harvest between May 15 and June 1. We would be competing with Florida and North Carolina harvests, but would be about done when the New Jersey harvest starts.

Recent supply and demand

We don't know exactly how much blueberry production there is each year. Since 1983 there's been a lot of new production in several southern states, especially Arkansas and Florida. Florida might have replaced North Carolina as the leading southern state. Earliest production goes to specialty markets mostly in California and the Northeast. As supply increases into the summer, blueberries are shipped to markets all over the country. Local markets, including U-pick operations, are also important for some producers during the summer.
Predicted supply and demand

Demand seems to be unlimited for most southern production. All three levels of markets—national, regional and local—generally have attractive prices. According to experts, production will increase in the South. Land and labor limitations will most likely prevent much expansion in New Jersey and Michigan. In other words, the market situation for our region looks pretty good.

Inherent risks

There are two major risks. First, in spite of the optimistic view of the experts, local over-supply is always a possibility. A large harvest in regions that harvest just before and just after we do could cause a lower price for our product. Other than the market risk, there are several production risks. There could be a late frost which would kill a year's production. And, finding enough labor at harvest time could be a problem.
GEOGRAPHIC SUITABILITY

Soil and land requirements

(Compare with completed Information Sheet 7: Land Classification from Workbook 1: Assessing the Farm/Family Resource Base)

Our land is located in the region that can produce blueberries. We have about 60 acres of land with acid soil which is what blueberries need.

Climatic constraints

In our area, we don't have any true weather limitations on blueberry production.

Distance and ease of transport to markets

We're close enough to town that people could come for U-pick, but we're a little further out than two other operations located on nearby roads. We're closer in than the U-pick operation on our road, but the owner says his business has fallen off since the other two places opened. A local cooperative handles shipments to regional and national markets so there's no transportation problem either way.
PRODUCTION SYSTEM DESCRIPTION

General input/product flow

The production year starts in the fall which is when the bushes are originally planted. Before the new bushes are placed in holes, about one gallon of moist acid peat moss should be put in the hole. After planting, pine bark mulch is used to cover the beds. The mulch helps keep down weeds and helps to assure acidity. There is at least a three year wait until there is enough production to sell.

In the meantime we would have to take care of the plants. Both drip and overhead irrigation systems should be installed. The drip system is for regular irrigation and the overhead system for frost protection. Cultural activities change over time. During the first two years irrigation, fertilization, weeding, some limited pest control, and perhaps frost protection are about all that need to be done. In addition, in the third year a limited harvest can be expected. The forth year would involve irrigation, fertilization, weeding, pest control, frost protection and an almost full harvest. Pruning should be conducted twice each year starting in the fifth year. All needed supplies are available. There are reliable sources of early and late variety blueberry plants within 40 miles.

Critical volume or size for profitability

There really isn't a set size. The local U-pick operators seem to think you need at least three acres. It probably wouldn't pay to join a cooperative if we had less than five acres. The acreage really depends on how we decide to market.
RELATIVE MANAGEMENT INTENSITY

Management time requirements

The plants are permanent and need year-round care, so there's a lot of production management. Bookkeeping shouldn't take a lot of time once good budgets are set up. Sales or sales management would depend on how we market. It wouldn't take much effort to make bulk deliveries to the cooperative for shipment out of the area. On the other hand, if we decided on a U-pick operation, somebody would have to be there whenever we were open for harvest.

Rigidity of schedule

The production management tasks have to be handled at certain times during the year. That goes for arranging sales though the cooperative also. There don't involve all that much time, though, so that shouldn't be a problem. Scheduling a sales manager for a U-pick operation could be more trouble since we'd have to be open for sales just about all day during harvest season.
LABOR REQUIREMENTS

Seasonal demands

The labor needs for blueberries vary according to the plants' stage of development. Pruning, for example, is an important late fall and early spring activity, but pruning doesn't start until the fifth year after planting. Except for pruning, fall and winter labor needs are low. Frost protection might be necessary in late winter and early spring. Late spring and early summer are the harvest season. Obviously, harvesting is one seasonal job that has to be done at the right time. Based on a harvest rate of 14 market quality pints per hour and a yield of 12,000 pints per acre, about 860 hours would be required to harvest an acre of blueberries. If harvesting takes eight weeks, three people would work full-time to complete the job. With a U-pick operation we wouldn't need harvest workers, but we would need at least one sales manager as already mentioned.

Special skills required

No special skills are needed for production. If we go with a U-pick operation we'll need someone who likes to work with people to run it.
Routine requirements (hourly, daily, weekly, etc.)

Each year the tasks are generally routine or repeated and most tasks can be spread over a month's time. Pruning can be done over a four-month period. In general, there isn't a lot of labor involved in routine plant management. During the first two years, weed control is very important.

Some labor is required every month. Irrigation lines must be checked, the plants must be fertilized and cultivated, and weeding must be done. For most of these tasks, though, timing to the hour or day isn't critical.

Because labor requirements change each of the first five years, a labor calendar for each year would help keep track of things.

**Labor Calendar (Optional)**

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<td>Management</td>
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<td>On-Farm Labor</td>
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<td>Hired Full-Time</td>
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</tbody>
</table>

(For easy comparison, summarize labor and management requirements on grid, then refer to completed Information Sheet 8: Monthly Labor and Management Availability from Workbook 1: Assessing the Farm/Family Resource Base.)
FACILITY AND EQUIPMENT

(compare with completed Information Sheet 5: Equipment, Facilities and Improvements from Workbook 1: Assessing the Farm/Family Resource Base)

Buildings and other improvements

A grading and bulk packing shed could be useful for marketing through a wholesaler or broker. The specific layout of the shed would depend on the requirements of the wholesaler. We’d also need a shed with a U-pick operation. We’d have harvest baskets to store. Also, the operation manager would need a place to work and keep an eye on customers.

Land form

No special requirements

Irrigation, water treatment

Most experts recommend a trickle irrigation system for blueberries. This is because yields depend on providing the right amount of water at the right time. Trickle irrigation is practical because you don't have to replant each year. Overhead irrigation might also be needed for frost protection. Our well would supply plenty of water. The small acreage we'd be planting wouldn't cause us any runoff problems.
CAPITAL REQUIREMENTS

(compare with completed Information Sheet 6: Financial Resources from Workbook 1: Assessing the Farm/Family Resource Base)

Initial cost for facilities and equipment

We own the land and all the equipment we would need, except for the irrigation hardware and packing shed. Based on the sample blueberry budget in the workbook, it would cost about $1,500 per acre to get started.

Enterprise establishment costs

Again, we're using figures from the sample budget. We'd spend about $350 in the second year. We'd spend more in the third year because we'd have a partial harvest. This would produce some income, though, so we'd probably come out ahead on the year and make back some of the initial costs from the first year.

BUDGETS AND PROFITABILITY

Operating costs and budget

See the sample budget. In addition to the operating cost estimates we'd have to pay for labor. Based on 857 hours of labor to harvest an acre of blueberries with 12,000 marketable pints at $4.00 an hour, we'd spend about $3,400.
Cash flow

Cash flow would be very good. Based on the sample budget for early variety blueberries we looked at, we think we'd have cash costs of about $3,000 per acre each year once we got to full production. With early varieties, we'd also have labor costs of about $3,500 per acre for harvesting. We project receipts of about $9,600 or positive cash flow of just over $3,000 per acre. Late varieties would grow about $8,000 per acre and, potentially, net between $6,000 and $7,000 as well.

Financing the enterprise

The commercial banks in town have stopped lending on new agricultural enterprises. We have a good credit history at FCS, though. They would probably lend us what we would need.
MARKET CHARACTERISTICS

We have to recognize differences between the early and late markets. Early sales are generally through brokers or wholesalers to national markets. Late sales are more locally or regionally oriented. Early sales are pretty straightforward. The broker or wholesaler must be selected. There are two marketing cooperatives in the state. The cooperative requires that there be field grading by size and color. It takes bulk deliveries at a nearby collection point. Other requirements to sell through them should be investigated. (Do I have to be a member?) We could sell late variety blueberries through road-side and farmers markets, U-pick or sales to groceries and supermarkets.

Most people we've spoken to about late sales are reasonably satisfied, but still seem to think that early varieties are a better way to go. Dealing with people is difficult for the U-pick operators and the hours are very long. Prices and returns are better for the early harvest sold in national markets and there is growing competition for the local market. They mostly didn't plant early varieties because the varieties didn't exist or were new and seemed risky when they went into blueberries. At the time these people planted they saw production risk in the new varieties (Would they really produce well enough?) and market risk (Are prices really that high?).

PRICE AND PRICING

Blueberries shipped to the national markets would bring us about $1.80 per pint on the average. The sample budget shows we could make a good profit at that price. Prices for late varieties sold locally or through U-pick fluctuate quite a bit so it's hard to estimate. We'd probably average a little less per pint, but our costs would be lower, too. Either way, it looks like blueberries would pay off.
Marketing Plan

Right now there is some tightening in our local market. The operation on our road has lost some business to two recently started operations and a couple of others planted late varieties two years ago. Along with the local market situation, a U-pick/local market operation demands more on-site time. Given all this, and Janet's desire to spend less time on the farm, we'd better go with early varieties for the national market.

The early varieties from our area get shipped to the urban areas of the Midwest and western and central Great Lakes. Prices hold there until New Jersey hits full production in late June-early July. Members of one of the cooperatives in our area seem more satisfied than members of the other cooperative or those who use private wholesalers. The "better" cooperative pays less up front or on delivery, but the final price paid is generally higher than what the other cooperative or the wholesalers pay.

The collection center is open for six weeks starting on the Thursday before (or on) May 12. It does virtually no local marketing of local product. (Locally we do get Michigan blueberries packed by the cooperative in late July and August.) By planting early varieties, we can meet the production schedule necessary to market through the cooperative. At this point it looks like we'd try to put in something between six and 10 acres, depending on what kind of loan we could get for start-up costs.

Sources of Information

Production and marketing information is pretty easy to get. We can get help from the following:

  Blueberry Shippers' Cooperative
  State Blueberry Producers' Association
  State Department of Agriculture
  County Extension Office
AUTHORS’ NOTE:

As they completed their feasibility analysis on blueberries, the Taggarts were still optimistic about the possibilities the crop held for them. They would be able to find time and labor for land preparation and planting even though they have corn and soybean harvesting to take care of. Once the blueberries came into production, they’d be able to cut back on the corn and soybean operations. Since those crops aren’t making the money the once did, that was part of the plan all along.

However, labor availability turned out to be a problem. Jim, Junior was probably headed for college about the time he’d be needed most for the new crop. If Janet went on with her plan to work off the farm, she would only be available on weekends. That meant that hired labor would be needed for harvest. Since the plan was to hit the early market, area high school kids really wouldn’t be available, either. The Taggarts concluded that they couldn’t count on enough good quality seasonal labor for more than about two acres of blueberries, about four people. Even that amount of labor wasn’t certain.

So, in spite of a good financial picture, they rejected blueberries as an alternative crop for their farm. They’re still looking at other possibilities. Even so, the process of farm/family resource assessment and enterprise feasibility analysis has worked for the Taggart family. They had the information they needed to
APPENDIX D: SAMPLE ENTERPRISE BUDGETS

Blueberry budget

There are three phases to blueberry production. First, there is the establishment phase in which plants are rooted. This phase requires a year. The second phase is when the plants develop. It is convenient to divide this phase into two parts, A and B. During part A, the first year of development, little or no production occurs. In part B of phase two, which is the second year of plant development, production should reach about half of full production. Phase 3, full production, starts in year four and continues virtually indefinitely. Thus, a producer must wait over three years before income reaches its potential. To correspond to the three phases a budget for each phase follows. Notice that in the full production budget variable costs from years one, two and three are counted as fixed costs.

Costs of Producing Blueberries Per Acre

1. Establishment (Year 1)

Variable costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Cost per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plants</td>
<td>number</td>
<td>660.0</td>
<td>1.50</td>
<td>990.00</td>
</tr>
<tr>
<td>Fertilizer</td>
<td>CWT</td>
<td>6.0</td>
<td>4.50</td>
<td>27.00</td>
</tr>
<tr>
<td>Peat moss</td>
<td>bale</td>
<td>15.0</td>
<td>7.00</td>
<td>105.00</td>
</tr>
<tr>
<td>Mulch</td>
<td>ton</td>
<td>1.0</td>
<td>18.00</td>
<td>18.00</td>
</tr>
<tr>
<td>Pesticides</td>
<td>acre</td>
<td>1.0</td>
<td>15.00</td>
<td>10.00</td>
</tr>
<tr>
<td>Herbicides</td>
<td>acre</td>
<td>1.0</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Irrigation</td>
<td>applications</td>
<td>12.0</td>
<td>3.00</td>
<td>36.00</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>75.00</td>
<td>75.00</td>
<td>75.00</td>
</tr>
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</table>

Sub-total 1,311.00

Fixed costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Cost per Acre</th>
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</thead>
<tbody>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>95.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Irrigation*</td>
<td>acre</td>
<td>1.0</td>
<td>75.00*</td>
<td>75.00</td>
</tr>
</tbody>
</table>

Sub-total 170.00

Total Costs (Year 1) 1,481.00

\*Based on a purchase price of $1,500 per acre and a 10 year life.
2. Part A. Development (Year 2)

Variable costs

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Cost per Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>CWT</td>
<td>6.0</td>
<td>4.50</td>
<td>27.00</td>
</tr>
<tr>
<td>Pesticides</td>
<td>acre</td>
<td>1.0</td>
<td>15.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Herbicides</td>
<td>acre</td>
<td>1.0</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Irrigation</td>
<td>applications</td>
<td>12.0</td>
<td>3.00</td>
<td>36.00</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>65.00</td>
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Sub-total: 178.00

Fixed costs

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<th>Item</th>
<th>Unit</th>
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<th>Cost per Acre</th>
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</thead>
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<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>95.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Irrigation(^{a/})</td>
<td>acre</td>
<td>1.0</td>
<td>75.00(^{a/})</td>
<td>75.00</td>
</tr>
</tbody>
</table>

Sub-total: 170.00

Total Costs (Year 2): 348.00

\(^{a/}\) Based on a purchase price of $1,500 per acre and a 10 year life.
2. Part B. Development and Initial Production (Year 3)

Variable costs

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<th>Item</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Cost per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fertilizer</td>
<td>CW</td>
<td>6.0</td>
<td>45.00</td>
<td>27.00</td>
</tr>
<tr>
<td>Pesticides</td>
<td>acre</td>
<td>1.0</td>
<td>15.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Herbicides</td>
<td>acre</td>
<td>1.0</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Irrigation</td>
<td>applications</td>
<td>12.0</td>
<td>3.00</td>
<td>36.00</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>65.00</td>
<td>65.00</td>
</tr>
<tr>
<td>Flats and packing</td>
<td>number</td>
<td>500.0</td>
<td>1.25</td>
<td>625.00</td>
</tr>
<tr>
<td>Marketing (15%)</td>
<td>pint</td>
<td>6,000.0</td>
<td>0.12</td>
<td>720.00</td>
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Subtotal: 1,523.00

Fixed costs

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</thead>
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<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>95.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Irrigation*</td>
<td>acre</td>
<td>1.0</td>
<td>75.00</td>
<td>75.00</td>
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</table>

Subtotal: 170.00

TOTAL COST (Year 3): $1,693.00

\* Based upon a purchase price of $1,500 per acre and a 10 year life.
3. Full Production (Year 4 and Beyond)

Variable costs (excluding labor)

<table>
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<tr>
<th>Item</th>
<th>Unit</th>
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<th>Cost per Unit</th>
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<td>Fertilizer</td>
<td>CW</td>
<td>6.0</td>
<td>45.00</td>
<td>270.00</td>
</tr>
<tr>
<td>Pesticides</td>
<td>acre</td>
<td>1.0</td>
<td>15.00</td>
<td>15.00</td>
</tr>
<tr>
<td>Herbicides</td>
<td>acre</td>
<td>1.0</td>
<td>35.00</td>
<td>35.00</td>
</tr>
<tr>
<td>Irrigation</td>
<td>applications</td>
<td>12.0</td>
<td>3.00</td>
<td>36.00</td>
</tr>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>65.00</td>
<td>65.00</td>
</tr>
<tr>
<td>Flats and packing</td>
<td>number</td>
<td>1,000</td>
<td>1.25</td>
<td>1,250.00</td>
</tr>
<tr>
<td>Marketing (15%)</td>
<td>pint</td>
<td>12,000</td>
<td>0.09</td>
<td>1,080.00</td>
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Subtotal: 2,751.00

Fixed costs

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<th>Item</th>
<th>Unit</th>
<th>Quantity</th>
<th>Cost per Unit</th>
<th>Cost per Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machinery and equipment</td>
<td>acre</td>
<td>1.0</td>
<td>95.00</td>
<td>95.00</td>
</tr>
<tr>
<td>Irrigation(^a)</td>
<td>acre</td>
<td>1.0</td>
<td>75.00</td>
<td>75.00</td>
</tr>
<tr>
<td>Costs from year 1(^b)</td>
<td>acre</td>
<td>1.0</td>
<td>52.00</td>
<td>52.00</td>
</tr>
<tr>
<td>Cost from year 2(^b)</td>
<td>acre</td>
<td>1.0</td>
<td>7.00</td>
<td>7.00</td>
</tr>
<tr>
<td>Cost from year 3(^b/c)</td>
<td>acre</td>
<td>1.0</td>
<td>7.00</td>
<td>7.00</td>
</tr>
</tbody>
</table>

Subtotal: 236.00

TOTAL COSTS: $2,987.00

\(^a\) Based upon a purchase price of $1,500 per acre and a 10 year life.

\(^b\) Based upon the variable cost for each year. The annual variable cost was divided in half to obtain an average cost for each year. An interest rate of 8% was applied to obtain the annual fixed cost for establishment and development in years four and beyond.

\(^c\) Marketing and packing fees are excluded for year 3.
Income

Estimated yield, prices and income should be included as part of a budget. Because packing costs and marketing fees/costs were included in the blueberry budget, yields and prices have to be assumed. For the year of limited production yield is assumed to be 500 flats of 12 pints of 6,000 pints, each valued at $0.80. Thus a gross income of $4,800 after 3.5 years is projected. Gross income from the full harvest is projected to be $7,200 (1,000 flats valued at $7.20/flat.

In the blueberry budget a certain level of production had to be assumed to estimate the costs for the flats and packing as well as total marketing fees. Although the budget is on a per acre basis, it was developed for an operation of 5 to 12 acres. If you are considering acreage that is out of this range, another budget should be developed. For greater acreage, larger investments in equipment (storage, shed, grading and packing tables, etc.) would have to be made and labor would have to be hired for pruning, weeding and harvest. For smaller acreage marketing fee/costs would change and costs per unit of fertilizer and chemicals would increase.
BROILER PRODUCTION BUDGET

Because the poultry company dictates production scale, such variability as described for different amounts of blueberry acreage would not occur in contract broiler operation. The companies do this as well as control feed and growing conditions in order to assure themselves of uniformity and consistency of product.

For the contract grower this situation translates to high requirements.

A. Cash Expense Budget

<table>
<thead>
<tr>
<th>Item</th>
<th>Unit</th>
<th>Quantity (Unit)</th>
<th>Cost per Unit</th>
<th>Cost per House</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance</td>
<td>House</td>
<td>70,000.0</td>
<td>12.80/1,000</td>
<td>896</td>
</tr>
<tr>
<td>Taxes^</td>
<td>17,986 mil</td>
<td>22,280.0</td>
<td>0.01</td>
<td>401</td>
</tr>
<tr>
<td>Fuel</td>
<td>House</td>
<td>1.0</td>
<td>1,500.00</td>
<td>1,500</td>
</tr>
<tr>
<td>Utilities</td>
<td>House</td>
<td>1.0</td>
<td>1,300.00</td>
<td>1,300</td>
</tr>
<tr>
<td>Maintenance</td>
<td>House</td>
<td>1.0</td>
<td>500.00</td>
<td>500</td>
</tr>
<tr>
<td>Bedding</td>
<td>House</td>
<td>1.0</td>
<td>900.00</td>
<td>900</td>
</tr>
<tr>
<td>Labor</td>
<td>Hrs.</td>
<td>60.0</td>
<td>0 (family labor)</td>
<td>0</td>
</tr>
</tbody>
</table>

Total per house 5,497

B. Investments and Fixed Costs

Investment, depreciation and opportunity costs for a 40 ft. x 480 ft. broiler house.

<table>
<thead>
<tr>
<th>Item</th>
<th>Investment</th>
<th>of life</th>
<th>depreciation^</th>
<th>opportunity cost^</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>($)</td>
<td></td>
<td>($)</td>
<td>($)</td>
</tr>
<tr>
<td>House</td>
<td>42,450</td>
<td>20</td>
<td>2,122</td>
<td>1,698</td>
</tr>
<tr>
<td>Equipment</td>
<td>20,910</td>
<td>10</td>
<td>2,091</td>
<td>836</td>
</tr>
<tr>
<td>SubTotal</td>
<td>42,13</td>
<td></td>
<td>4,213</td>
<td>2,534</td>
</tr>
</tbody>
</table>

Total Annual Depreciation and Opportunity Cost 6,747

\^ Straight-line depreciation is used.

\^ Based upon 8% of the average cost of investment. The average cost of the investments = investment / 2.

C. Income

The house size implies specific carrying capacities. During the warm season broilers are given more space (0.75 square feet per bird) than during the cool season (0.72 square feet per bird). In both seasons placement is assumed to be 95% of capacity and sales are assumed to be 98% of placements. Based upon these assumptions it is estimated that 133,550 birds will be sold. The average sales weight is assumed to be 4.0 pounds is assumed to be 3.4 cents per pound. Thus a gross income of about $18,163 is projected.
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