Starting a Dairy Cow Operation

► Running a dairy farm is a rewarding but challenging profession that incorporates knowledge and experience of several areas of agriculture and animal science.

Most dairy farms consist of a dairy and a crop enterprise. A few farms buy all of their feed and operate strictly as dairies, but most grow at least part of the cattle's diet. Growing a large number of crops may limit the time and attention devoted to the dairy, but it can also make feeding more convenient and economical. A dairy farmer must also know his or her cows and be able to keep the herd healthy and happy in order to prosper.

Ability and Attitude

If a dairy is to be profitable, the farmer must become competent in many areas of management and be able to handle the various, sometimes conflicting, concerns of the cattle, dairy workers, government regulations, and financial resources. A dairy farmer must also have a positive attitude. Many inexperienced people have become successful dairy farmers because they enjoy working with cows, have the ability to make good decisions, pay attention to details, do not mind long hours and confinement to a schedule, and are innovative in their ideas and actions.

Finances

Many factors both on and off the farm affect a farmer's ability to turn a profit. On the farm, management is the main factor in profitability, but anyone entering the dairy business must have enough money to develop a viable operation that provides sufficient cash flow to cover costs and provide a satisfactory standard of living.

Overhead cost per unit of milk is usually less for large herds than for smaller ones because the overhead costs, such as buildings and equipment, are spread over more units of milk. The overhead cost per unit can also be kept low by getting high but economical production per cow.

Alabama Extension has developed budgets for dairy production that can help farmers make financial plans. These budgets, available from your county Extension agent, are to be used as guidelines and adjusted to meet individual conditions. Other producers can usually give advice on local costs.

Markets

Early in the planning process, a farmer should attempt to identify a market. Alabama does not produce enough milk to meet its needs, so most companies are usually interested in finding good producers. Alabama has two dairy cooperatives and several independent plants that buy milk. Check with your Extension agent, neighbors, and local dairy groups to find out which markets are available in each area of the state.

In Alabama, the price of milk is regulated by the Federal Milk Marketing Orders. Within these guidelines, differences due to supply, sales, and competition can affect price. Milk marketing and pricing can be complex, but the cooperatives and plants have field representatives or other personnel who are very helpful in explaining their pricing structure, regulations, incentives, and base building periods.

Sanitary and Quality Regulations

In Alabama, the production, marketing, and sale of milk are covered under the sanitary and quality regulations of the Milk Inspection Division of the Alabama Department of Public Health. Any building and equipment related to the sale of milk must conform to the codes established by the state and federal authorities.

It is important to check with this agency before acting on any plans. The Milk Inspection Division has representatives who work in various regions of the state. You can also contact the main office in Montgomery if you have any questions at (334) 206-5375.

The Alabama Department of Environmental Management (ADEM) is responsible for protecting the state's water quality. This agency requires a livestock producer to have a plan developed by the United States Department of Agriculture (USDA) Soil Conservation Service (SCS) and approved by a registered professional engineer.

Upon request, an SCS engineer will evaluate a site to ensure that it is suitable for installing certain waste-management facilities. The SCS will prepare a waste-management plan, develop engineering designs and surveys, and advise as to land application requirements. Check with the SCS before siting any buildings to ensure that waste can be properly managed and that the system will not pollute surface or groundwaters.

Site Selection

Many factors must be considered to determine the best site for a dairy. Too often, adequate space is not allowed for existing buildings, additional buildings, or expansion. It is important that new buildings not be too close to each other or existing structures.

Building sites should allow for adequate drainage away from buildings and ease of access for milk trucks, farm equipment, and other vehicles. In Alabama, it is important to take advantage of any prevailing winds for cooling during the summer. Also, buildings should be situated to maximize shade for cows during the summer.

Dairies require a large amount of water, so an adequate supply of drinkable water is necessary. The cost of obtaining electricity at the site should also be considered, as should security from theft or vandalism.

The disposal of manure and other wastes must be cleared with the proper agency. Access to feed storage areas should also be evaluated.

It is often possible to remodel and use existing facilities. Carefully evaluate whether the use of such buildings is cost effective, will not hinder the overall farmstead plan, and will meet current health and sanitation codes without major revisions. Too often, more money is spent on saving an existing facility than it is worth. The agencies listed above, Extension dairy specialists, and Extension engineers at Auburn University can provide some direct assistance in selecting a site.

Dairy Facility Buildings

The type and size of buildings will depend on the size of the milking herd, the method of feeding, and the farmer's personal goals. Facilities should be considered include the milking center, housing for the milking herd (dry cows, young calves, and possibly older replacements), and buildings or facilities for feed storage.

Milking Center

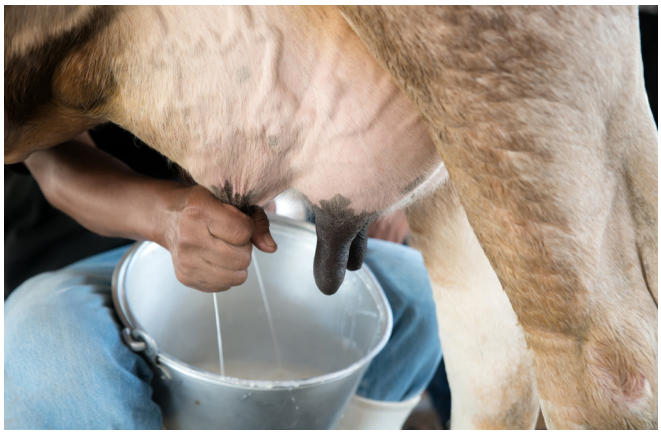
More than 50 percent of a farmer's time with the cows will be spent in this facility. It should provide comfort for both the workers and cows. The milking center should include a milking parlor, holding area, utility room, milk room, and probably an office and a treatment area.

Side-opening and herringbone parlors are the primary types of centers, but there are also flat barns, carousels, walk-throughs, and parallel parlors. There are advantages to each system, but the herringbones are most common in Alabama. They require less space per cow and do not require as much walking to reach the cows as most other parlors do.

In large herds, herringbone parlors may be shaped into a trigon (three-sided) or polygon (four-sided) parlor. The double-4 to a double-8 can meet the needs of most Alabama producers, although larger ones are also used. Herringbones smaller than a double-4 do not make efficient use of the milker's time and increase the hours spent in the parlor.

Mechanization (prewashers, crowd gates, detachers) can be incorporated into any of the parlors but may not be cost effective relative to labor and convenience versus installation cost.

Milking parlor capacities, general designs, specifications, feed needs, and other valuable information can be found in the *Dairy Housing and Equipment Handbook* (originally developed by the MidWest Plan Service).



These and many other building plans are available through the Hoard's Dairyman bookstore. Ask your Extension agent for more information about this source. Some plans and assistance can also be obtained from Auburn University and most dairy equipment dealers.

Housing and Feeding Facilities

In Alabama, housing for cows varies from no housing to totally confined units. Facilities that provide protection from heat stress and muddy conditions in the holding pens, resting areas, and feeding areas will ensure adequate feed intake and milk production. For further information, visit other dairies and contact your Extension dairy specialists and engineers.

Housing for Young Calves

Calves can be raised successfully in many types of facilities if good management and tender, loving care are provided. Calf hutches are economical and provide the fewest problems with diseases. Enclosed barns for calves require special management if they are to succeed. Plates for hutches and other calf barns are available from the sources mentioned above.

Housing for Older Replacements

Older replacement heifers (3 to 6 months to precalving) can be raised successfully with no or very limited housing. Provisions for shade and handling are necessary but do not have to be expensive. Several dairy producers are now raising heifers during this stage in total confinement, with counter-slope sheds being the most common ones used. Plans for these type of sheds are available from Hoard's or Auburn University.

Equipment

Many brands of equipment are available to dairy producers. When buying equipment, be sure that local service is available. If buying used equipment, ensure that it is in good condition and meets codes. Beware of worn out or undersized equipment or equipment that does not fit your parlor because it can cause poor milking efficiency and mastitis, which is an infection causing inflammation of the udders. Profits can be greatly affected by mastitis and poor milking procedures. Cheap equipment can have very expensive hidden costs. Before purchasing used equipment, have it inspected by the equipment dealer who will be doing the installation.

Cattle

Good cows of any breed can be economical producers if they are of sound breeding, are managed well, and are fed properly. However, the producer going into dairying should, at least initially, concentrate on a breed that has an adequate number of animals for sale in the area.

In Alabama, Holsteins and Jerseys are the predominant breeds, although other breeds are available. Whether to start with grade cattle, which have not been entered into a breed registry, or registered cattle, which have been entered into a breed registry, is a personal choice, but to establish a good foundation herd, cows or heifers must have a strong probability of being economical producers.

Good registered cattle normally command premium prices, and they will probably have records to demonstrate their potential. Many grade cows also have excellent records, so before buying, carefully assess your goals and the effect of prices on cash flow. Many leaders in the registered business started with grade animals and gradually moved into registered cattle as they developed their operations.

When evaluating cows for milk production, the best indication is how the cow is producing compared with the other cows in her herd. No one can accurately judge a cow's milk production by her appearance or by a few milk weights. To accurately evaluate production, compare actual Dairy Herd Improvement Association (DHIA) records or the Estimated Relative Producing Ability (ERPA) values provided yearly by Dairy Herd Improvement (DHI) records. Most cows on DHI test programs also have USDA Predicted Producing Ability (PPA) values that predict the cow's performance in future lactation.

The best way to evaluate heifers is to add the Predicted Transmitting Ability (PTA) value for her dam (mother) to the PTA value for her sire. This sum is an estimate of the heifer's potential production relative to other cows' production. IF PTA information is not available, evaluate the dam's production as outlined above. If records are not available, select heifers that are thrifty with good skeletal size and the potential to calve at a good weight (Holsteins: 1050 to 1200; Jerseys: 800 to 900 pounds).

Any animal purchased should be in good health and have a calfhood vaccination for brucellosis in addition to other vaccinations that veterinarians recommend. Do not buy cows that have mastitis. If at all possible, buy from people you know.

Dairy Records

The use of complete and accurate accounting and production records to make management decisions is often the difference between profit and loss on a dairy farm. Dairy producers may keep their accounting records themselves or use accountants or specialized associations. Regardless of the method used, records should be kept up to date and accurate. A good accountant can pay dividends if he or she is familiar with farm operations.

Most areas in Alabama now have access to Farm Business Management Associations which, for a nominal fee, provide programs to assist in keeping financial records and making sound financial decisions. Your county Extension agent can give you the names and locations of associations in your area.

Records must be kept on the individual cows and the entire herd in order to make decisions about management and to assess past decisions. Birthdates, information on the ancestry of the animals, milk production, breeding, butterfat in the milk, and health records are essential in evaluating the herd's performance. This information can be hand-written and calculated, but the record keeping can become too burdensome for individual farmers, even with the help of computers. The DHIA provides several programs that will determine individual cow records as well as provide management information on individual cows and the herd.

These programs cover cull rates, calving intervals, conception rates, ages of animals, identification, genetic potential, feed needs, and consumption. The records allow producers not only to evaluate individual cows but also to determine areas of their own management

that need to be improved or changed. Check with your Extension agent, the local DHIA, or the Alabama DHIA manager at Auburn University for more information.

Milking Management

The parlor is where money is made or lost. Few people would place untrained help on an expensive piece of equipment without some instructions. Too many dairy producers, however, allow untrained or poorly supervised help to milk the herd, which is the most valuable asset a dairy farmer has. To succeed, farmers must ensure that correct milking procedures are followed; that milking equipment is kept in good condition; and that mastitis is kept at a minimum. Cows are creatures of habit, so expect to milk at the same time each day with no more than an 11- to 13-hour interval to get the best production.

Sanitation

Milking parlors, the farm premises, and the milk produced undergo routine inspections to ensure that the milk is safe for human consumption. For example, milk is routinely checked for somatic cell counts (an indication of mastitis), bacteria (an indication of poor sanitation), added water, and for the absence of antibiotics.

If you follow instructions for cleaning, sanitizing, milking, treating cows, and other procedures, these inspections will create no problems and can actually make you money. The somatic cell counts, for example, should assist in flagging potential mastitis problems—if the counts are high, yet acceptable, the cows will be giving less milk than they are capable of producing.

Major recommendations in this area are as follows:

- Read and follow instructions.
- Do not try to invent home cures.
- Check with the milk company's field personnel, milk inspector, Extension agent, equipment service agent, veterinarian, or others before the problem becomes worse.

Feeding

Dairy cows require a large amount of high-quality feed to produce milk. Dairy feedstuffs are typically forages (silages, hays, pasture), concentrates (grains, by-products, commercial grain mixes, protein supplements), or mineral/vitamin supplements (often included in grains). Feed accounts for more than 50 percent of the cost of producing milk; therefore, extreme care must be taken to feed properly and at a reasonable cost.

Forages are the foundation of profitable dairying. Corn silage is an excellent forage for dairy cattle if it is stored correctly. Small grain silages and coastal hays can be adequate forage for dairy cattle if handled correctly, but do not expect top production from these forages.

Pasture can be an excellent supplement if used in a very lush stage. Some producers also ship in alfalfa hay for use as a supplemental forage. For the average dairy in Alabama, however, corn silage is essential for good production.

Dairy cows require a large number of concentrates to produce efficiently. Concentrates must be palatable, of high quality, and must have a high protein content, except when only alfalfa hay is fed. The average dairy cow consumes about 20 pounds of concentrates per day. Amounts of more than 30 pounds are not unusual for high producers.

Concentrates can be fed either separately from the forage or mixed with the forage as a total mixed ration (TMR). Regardless of the way they are fed, concentrates can be either mixed at the farm or bought commercially. Care must be taken in mixing or buying feed to ensure that the nutrients in the concentrates and the forage meet the cow's needs.

If grain is fed separately from forage, some means of feeding outside the parlor is needed (computer feeders, bunks, self-locking headgates, for example) because a cow cannot consume enough feed to meet her needs while she is in the parlor. An increasing number of dairy producers feed no grain at all in the parlor.

Always consider mineral needs when mixing, buying, and feeding. It is best to have forages tested routinely for nutrient content to maximize production and minimize expenses. As you consider feeds to use, plan structures to meet your needs. Some feeds such as whole cottonseed (a good buy in Alabama) are used more easily with TMRs than in grain mixes. Most feeds can be used to some degree in a variety of feeding systems.

Breeding and Reproduction

To succeed, dairy managers must continually improve their herds genetically. This is done using artificial insemination (AI). The average AI bull's daughters produce about 850 pounds above their herd mates, while the very best non-AI proven bull's daughters produce about 300 pounds below their herd mates. When bulls are used naturally, the profitability of the future herd becomes questionable because the potential of the bulls' daughters to produce milk is unknown. It is often difficult to give the cows an adequate dry period because the date of breeding is often unknown.

Dairy bulls are very dangerous. Many dairy workers have been injured, maimed, or killed by bulls that never before acted belligerent. Information on how to select bulls and how to use AI is available from Alabama Extension or the local AI organizations.

Good heat detection and good breeding techniques are very important in maintaining top production. The difference between a 12.7- or a 13.5-month (or greater) calving interval can mean the difference between profit and loss. Good heat detection takes time, but it is profitable.

Herd Health

Mastitis continues to be the major health problem in the dairy industry, and costs are tremendous. The largest cost results from poor milk production by cows that have undetected mastitis. As many as 70 percent of cows with mastitis show no symptoms of the disease, but milk production is reduced. Conscientious dry cow treatment, teat dipping, and proper milking procedures will help minimize problems.

Vaccination and worming programs as well as other health procedures are best determined by a veterinarian. As you consider entering the dairy industry, evaluate the availability of veterinarians in your area who are interested in dairy herd health management. A routine health management program with a competent veterinarian can be very beneficial in reproduction and the health of your entire herd.

Raising Replacements

Most dairy producers plan on raising dairy heifers to replace cows that must be culled for various reasons. The average cull rate is 25 to 35 percent of the cows each year, so a large number of heifers must be raised just to meet average needs. For the heifer to meet her genetic potential economically, she must be raised to calve at 24 months. She must also be of sufficient size to milk and to compete with the older cows.

The future of the herd is in the young calf, and she must be fed and handled accordingly. Detailed procedures for the care of calves are available from Alabama Extension. Basically, the calf must be fed either milk or milk replacer until about 6 weeks of age, and she must be fed a high-quality grain mix at an early age to get a good start on life. Heifers can be raised using many different procedures, but all require that the calf be fed adequately, watched carefully, and handled with care.

Labor

It is very important to have the best possible people working in the milking parlor. In the long run, cheap labor is usually more expensive than good labor. Good, experienced dairy workers are very valuable; however, it may be easier to train an inexperienced person than to retrain an experienced dairy worker who has poor milking techniques. Initial training, some continuing education (in the parlor or at meetings), an interest in their progress, encouragement in their work, decent working conditions, and reasonable wages are essential for keeping competent workers. Many dairies offer some type of financial incentives based on factors such as milk produced, quality of milk, mastitis control, or cows settled. In a recent survey, workers indicated that being kept informed and having open communication with supervisors and owners were the major factors in job satisfaction.

Summary

Dairy farming requires careful planning. If you are considering entering the dairy business, you should evaluate each of the factors discussed here before you make your initial investment. Don't let lack of experience discourage you. If you have the right attitude and dedication, you can gain the knowledge and experience to make your dairy a success.

If you have questions, need further information, or need directions to appropriate contacts in your area, call your county Extension agent or the state Extension office.

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For more information, contact your county Extension office. Visit www.aces.edu/directory.

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