PennState Extension

AGRICULTURAL ALTERNATIVES

Dairy Beef Production

Production of dairy beef, which depends almost entirely on Holstein bull calves, has become an important part of the overall supply of beef in the United States. With the decline in the veal market, the supply of Holstein bull calves for beef markets has increased. Animals that are fed early with grain-based diets and slaughtered at 12 to 14 months produce meat that is well marbled and tender, and has become popular with consumers.

Dairy beef production lends itself well to small-scale and part-time farming operations and can also be an auxiliary enterprise for dairy operations. Existing facilities can be used to feed and house the steers, and farm-raised feeds can be used. In addition, this enterprise is easy to enter when profit projections are favorable and to exit when unfavorable.

Marketing

Producers should carefully research local markets and develop marketing strategies before beginning a dairy beef operation. Although many large U.S. beef-packing companies readily purchase finished dairy-type steers, the beef market requires that the steers have been fed the proper diet. Dairy beef often commands lower prices because carcass yields are lower than for conventional beef breeds. Over the past few years, however, dairy beef carcasses marketed from young animals fed high-energy diets have been priced closer to their true value. The price difference is due in part to the lower dressing percentage (percentage of live weight that is in the carcass) and the difference in steak size and shape from dairy beef carcasses compared to traditional beef cattle.

Purchasing Calves

Historically, young dairy calves were bought through local auctions at two to five days of age. Most dairy beef or

veal-calf producers relied on livestock brokers to assemble uniform groups of calves for feeding. With increasing dairy farm size and the health concerns with "put-together" cattle, the most successful dairy beef operations have found that sourcing animals directly from a single dairy farm is more advantageous than purchasing auction calves. Direct purchasing from a known source will help cut down on health issues that can commonly occur early in a calf's life.

Health Program

Regardless of the source of calves, a quality health program is essential to ensure young calves get off to a good start. In addition to vaccinations, internal and external parasite treatment programs should be planned. Dairy beef operations usually have fewer problems with internal parasites than traditional beef-feeding programs. Calves are normally housed in individual pens until they reach 9 to 10 weeks of age. When calves are delivered to the farm, the following practices are important:

- Make sure the receiving barn is clean and well ventilated.
- Start the calves on feed or water with electrolytes immediately after their arrival.
- Consult your veterinarian about a health maintenance program and contact them immediately to diagnose and treat any illnesses.

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Producers should also consult their veterinarian to determine a vaccination program that is appropriate for the area in which the farm is located. If direct purchased, information from the farmer producing the calves can also be helpful in developing a vaccination program. Vaccinations are critical for protecting the starter calf during the first 9 to 12 weeks, but they also reduce potential health problems during the growing and finishing phases.

Nutrition

Starter calves should be fed a milk replacer for about 45 days before weaning. Producers should be sure to use only a good-quality milk replacer because there can be wide variations in quality. If producers also operate a dairy, pasteurized waste milk may be used to start the calves instead of more expensive milk replacer. In addition to milk, a good-quality, palatable grain mix should be introduced to dairy beef calves during their early stages of growth. Because grain mixes are usually less expensive than a milk replacer, it is generally more profitable to transfer the calves to grain as soon as possible. Although grain intake by the calf will be minimal initially, choosing a starter grain with adequate protein (around 18 percent) is a key step to achieving performance as the calf grows.

Producing an acceptable-quality carcass from dairy beef steers requires feeding the animals a high-energy ration and marketing them at an early age (12 to 14 months) and acceptable weight (1,150 to 1,450 pounds). After weaning, a grain-based ration (containing more than 60 percent grain) should be fed to the dairy beef steer. Unlike some conventional beef programs, intake of grain should be maintained throughout both the growing and the finishing phases for dairy beef. Because of the higher ratio of feed to weight gain compared with traditional beef breeds, it will be most economical to target early, rapid weight gain in dairy beef steers to try to reach slaughter weight at as young an age as possible. Calves fed for more than 20 months are typically not profitable.

Housing

Most dairy beef starter calves are housed in individual stalls at least 24 inches wide until they are 9 to 10 weeks of age. After that the calves can be maintained in larger group pens of up to 25 animals. Larger groups than this often have a less uniform growth rate, and it is more difficult for producers to observe and treat the variety of illnesses that might affect the calves. Using an "all-in, all-out" system gives producers the opportunity to thoroughly clean and disinfect the entire barn where the calves are raised. If at all possible, the producer should not deviate from the all-in, all-out system because retaining some of the calves in the barn will not allow thorough cleaning and diseases can be more readily transmitted from one group of calves to the next.

Dairy steers require more housing and shelter than conventional beef breeds of the same age. Footing is very important because dairy beef steers are fed for at least one year. Unbedded concrete or slatted floors can result in lameness. The barn where the cattle are housed should have at least one open side and sliding panels or curtains on the closed side to allow for proper ventilation. One of the most common causes of respiratory problems in cattle is not cold temperatures but high humidity due to inadequate ventilation in the housing area.

Producers also should have a biosecurity system for people and animals entering the barn. Visitors or personnel working in the barn should use footbaths, and dogs, cats, and rodents should be prevented from entering areas where the calves are maintained or the feed is stored and mixed.

Initial Resource Requirements

- Land: minimal
- Labor: 10–20 hours
- Capital (calf): $100–150
- Existing buildings, improvements, and fencing per animal: $20–50

Environmental Impacts

In the normal course of operations, farmers handle pesticides and other chemicals, may have manure to collect and spread, and use equipment to prepare fields and harvest crops. Any of these routine on-farm activities can be a potential source of surface or groundwater pollution. Because of this possibility, you must understand the regulations to follow concerning the proper handling and application of chemicals and the disposal and transport of waste. Depending on the watershed where your farm is located, there may be additional environmental regulations regarding erosion control, pesticide leaching, and nutrient runoff. Contact your soil and water conservation district, extension office, zoning board, state departments of agriculture and environmental protection, and local governing authorities to determine what regulations may pertain to your operation.

Risk Management

You should carefully consider how to manage risk on your farm. First, you should insure your facilities and equipment. This may be accomplished by consulting your insurance agent or broker. It is especially important to have adequate levels of property, vehicle, and liability insurance. You will also need workers' compensation insurance if you have any employees. You may also want to consider your needs for life and health insurance and if you need coverage for business interruption or employee dishonesty. For more on agricultural business insurance, see "Agricultural Alternatives: Agricultural Business Insurance." For more information on farm liability issues, see "Agricultural Alternatives: Understanding Agricultural Liability."

Second, check to see if there are multi-peril crop insurance programs available for your crop or livestock enterprises. There are crop insurance programs designed to help farmers manage both yield risk and revenue shortfalls. However, individual crop insurance coverage is not available for all crops. Whole Farm Revenue Protection (WFRP) provides a risk management safety net for all commodities on your farm

under one insurance policy. You can buy WFRP alone or with other buy-up level (additional) federal crop insurance policies. Coverage levels range from 50 to 85 percent of your expected revenue or whole-farm historic average revenue (based on your 1040-F information), whichever is lower. For more information concerning crop insurance, contact a crop insurance agent or check the Pennsylvania Crop Insurance Education website at **extension.psu.edu/business/crop-insurance**.

Finally, the USDA Farm Service Agency has a program called the Non-insured Assistance Program (NAP), which is designed to provide a minimal level of yield risk protection for producers of commercial agricultural products that

Sample Dairy Beef Steer Budget

Calves bought at 100 pounds and sold at 1,400 pounds.

Item	Quantity	Unit	Price/Unit	Amount	Your Estimate
Variable Costs					
Calf	1	head	$135.00	$135.00	
Feed costs					
Milk replacer	45	pound	$1.50	$67.50	
Starter mix	75	pound	$0.35	$26.25	
Corn	160	bushel	$4.40	$704.00	
Soybean meal	3.5	cwt	$15.00	$52.50	
Salt and minerals	50	pound	$0.35	$17.50	
Corn silage	4	ton	$39.60	$158.40	
Hay	0.25	ton	$280.00	$70.00	
Total feed costs				*$1,096.15*	
Health program	1	head	$22.50	$22.50	
Bedding (straw)	0.5	ton	$140.00	$70.00	
Electricity	1	head	$13.50	$13.50	
Marketing and trucking	1	head	$15.00	$15.00	
Supplies and miscellaneous	1	head	$3.00	$3.00	
Interest on operating capital			$40.20	$40.20	
Total variable costs				*$1,395.35*	
Fixed Costs					
Depreciation	1	head	$152.45	$152.45	
Insurance/taxes	1	head	$53.15	$53.15	
Repairs	1	head	$10.60	$10.60	
Interest on investment	1	head	$31.90	$31.90	
Total fixed costs				*$248.10*	
Total Costs				**$1,643.45**	

You should monitor local markets and contact suppliers to determine current prices for all items contained in this sample budget.

	Price Received per Pound	
Returns Above Variable Costs	$0.80	$(293.95)
	$0.90	$(158.15)
	$1.00	$(22.35)
	$1.10	$113.45
	$1.20	$249.25
Net Returns	$0.80	$(542.04)
	$0.90	$(406.24)
	$1.00	$(270.44)
	$1.10	$(134.64)
	$1.20	$1.16

don't have multi-peril crop insurance coverage. NAP is designed to reduce financial losses when natural disasters cause catastrophic reduction in production. NAP coverage is available through your local USDA Farm Service Agency office. The application fee for this program may be waived for eligible limited-resource farmers.

Another way of managing risks in the livestock industry is forward contracting. You may purchase feed stocks at contracted prices, which can potentially save input costs for your operation. You may also forward contract the price you will receive for your animals prior to delivery. You may be able to obtain higher prices for the animals, but you may not obtain the highest price due to the volatility of the markets. By locking in a price early, you may be able to ensure a profit.

Sample Budget

Included in this publication is a sample budget that summarizes the costs and returns for a dairy beef steer enterprise. Calves are purchased at 100 pounds and steers are sold at 1,400 pounds. Feed costs, other than milk replacer, include a starter mix and a finishing ration. This sample budget should help ensure that all costs and receipts are included in your calculations. Costs are often difficult to estimate in budget preparation because they are numerous and variable. Therefore, you should think of this budget as an approximation and make appropriate adjustments using the "Your Estimate" column to reflect your specific situation. More information on the use of livestock budgets can be found in "Agricultural Alternatives: Budgeting for Agricultural Decision Making."

For More Information

Publications

Field, T. G. *Beef Production and Management Decisions.* 6th ed. What's New in Trades & Technologies. London: Pearson, 2017.

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Websites

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