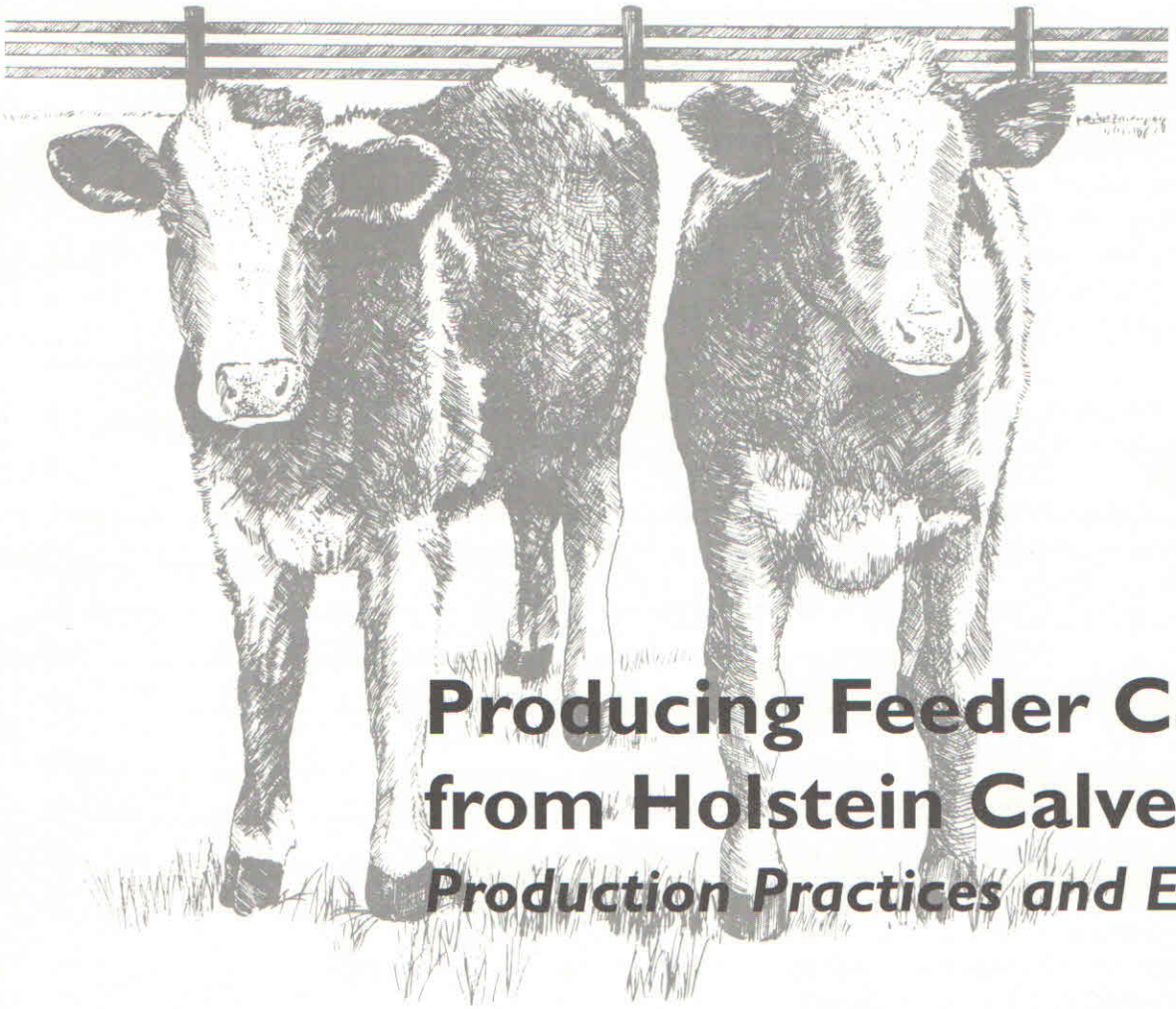

Producing Feeder Cattle from Holstein Calves

Production Practices and Economics

North Carolina Cooperative Extension Service
North Carolina State University

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Overview

This publication describes the production of feeder cattle from Holstein calves and evaluates the likely costs and returns.

The first section provides information on managing the production of feeder calves, including nutrition, health, and marketing. The second section illustrates how to evaluate the anticipated costs and returns of producing feeder cattle from Holstein calves.

Feeder calves and cattle can be produced under a variety of systems, and it is not feasible to evaluate the costs and returns for all of them. Instead, this publication examines a continuous, year-round system for producing three separate batches, or groups, of Holstein steers per year. This system was chosen because it makes efficient use of cattle facilities and labor. However, even if a farmer chooses to raise a single batch or two batches of cattle per year, the information presented is useful in evaluating the expected financial returns.

Each batch of cattle passes through three stages of growth: the calf-raising stage (in which the calves grow from 90 to 180 pounds), feeder calf production (from 180 to 400 pounds) and feeder cattle production (400 to 700 pounds). Each stage represents a point in the production system at which a farmer can make a decision to keep the cattle, sell them, or buy more, depending on the profit potential. For example, a farmer who has raised a batch of 400-pound feeder calves would likely decide to sell them rather than to keep them until they reach 700 pounds if adding the extra 300 pounds did not appear to be profitable at projected costs and cattle prices.

Each batch of cattle enters the production system at a different time of the year. The amount of pasture available and the quality of that pasture varies seasonally, so the producer must adjust the additional feed provided for each batch of cattle and for each stage of growth to ensure that the cattle grow at the desired rate to a size that cattle buyers want. Information is provided on each growth stage so that the potential returns from buying, selling, or keeping cattle can be estimated.

To illustrate the process of predicting profitability, a separate enterprise budget was prepared for each stage of growth of each batch using costs and returns that are representative of 1990 and 1991. The returns to land, management, and general farm overhead (a measure of profitability) were positive for 700-pound feeder cattle from all three batches. The returns were smallest for calves born in mid-October because of higher housing and feed costs during winter for calves from 180 to 400 pounds. However, the returns were negative for all batches of 400-pound cattle, which means that the 400- to 700-pound stage generates the positive returns, not the earlier stages. It may therefore be more profitable to buy 400-pound cattle (if they are available) than to raise them. All batches except one showed a positive return over operating expenses for all stages of growth. Adapting existing buildings and facilities should lower fixed costs and improve the chances for positive returns.

However, the results were very sensitive to relatively small changes in cattle prices and production costs. If prices were somewhat higher and costs a little lower, all three batches of 700-pound cattle would show positive returns to land, management, and overhead. The results of a sensitivity analysis demonstrate the need for producers to develop cost and return estimates that reflect their own circumstances and the expected economic conditions facing the cattle industry.

Producing Feeder Cattle from Holstein Calves

Production Practices and Economics

Interest in producing feeder cattle from male Holstein calves is increasing. These calves are often readily available and can be grown into acceptable feeder cattle. Holstein steers may offer beef producers an alternative to traditional brood cow and stocker operations. Dairy producers may also consider raising male calves as a supplementary enterprise.

Whether or not it would be profitable for you to raise Holstein feeder cattle depends upon your circumstances. Costs and returns depend on the availability and cost of pasture, harvested forages, facilities, and labor as well as your management time and skill. If you have alternative uses for these resources, it will pay to compare the available options to determine which one is likely to produce the best return. Also, profitability can vary from year to year because cattle prices and production costs can fluctuate widely.

The first objective of this publication is to provide information on managing feeder cattle production, including raising calves, feeding them, and caring for their health. The second objective is to describe a system for producing Holstein feeder cattle and to estimate the costs and returns based on representative prices for 1990 and 1991. The results of that analysis are not intended to serve as a general recommendation on the profitability of producing Holstein feeder cattle. Instead, this system provides an example that individual producers and their advisers can adapt to fit their own farm situations and expected economic conditions. The general approach used here is valid for evaluating the profitability of producing feeder cattle of other breeds if the appropriate information on livestock performance and prices is used.

Managing Feeder Cattle Production

Planning a Dairy Beef Enterprise

Buying Holstein calves is an alternative to traditional cattle-raising enterprises, and several groups or batches of calves can be raised each year. There are several factors to consider when planning to produce Holstein feeder cattle, including the availability of calves, the availability of pasture, management ability, the efficient use of labor and facilities, and the market for Holstein feeder cattle.

The number of dairy cows in North Carolina has been declining steadily for many years, and dairy herds are scattered across the state. It may be difficult to obtain large groups of Holstein calves of similar size locally. Calves are available from northern dairy states, but there are costs in procuring and transporting these calves from the market to the farm. Disease incidence and death losses are likely to be higher in calves of unknown origin that are transported long distances. Calf raising requires close attention and skilled management.

It may be feasible to raise several batches of cattle each year in order to use the available labor and cattle facilities efficiently. The feeding program will be different for different batches of cattle, depending on the availability of pasture and harvested forages, the age and size of the cattle, and the desired rate of gain.

The overriding concern is that the cattle enterprise be profitable. This requires that cattle production plans be translated into a financial plan to show the expected profits from buying, raising, and selling the cattle. When other farm enterprises or off-farm opportunities exist, the projected returns from a cattle enterprise should be compared to these other alternatives.

Marketing

North Carolina is a grain-deficit state in which only a limited number of cattle are fed for slaughter. Consequently, most North Carolina feeder cattle are sold through weekly auctions, graded sales, private treaty sales, or teleauctions and are exported to feedlots in the Midwest and High Plains areas of the United States. Operators of those feedlots find that Holsteins are more predictable animals in terms of their rate of gain and carcass characteristics than a group of typical beef crosses.

Feedlot managers prefer cattle that have been raised under uniform conditions because they have a history of superior health and performance. Also, pen sizes at feed yards are designed to accommodate cattle in multiples of one truckload in order to minimize transportation costs. Therefore, substantial advantages are associated with marketing cattle in 48,000- to 50,000-pound lots. Feeder cattle producers who offer truckload-size lots and a description of their health and nutrition programs give prospective

buyers the information they need to predict feedlot performance, often increasing the price buyers are willing to offer.

Young, lighter Holstein cattle perform better in feedlots than older, heavier cattle because they gain weight rapidly, convert feed efficiently, and grade choice at a desirable carcass weight. These steers, when started on feed at less than 450 pounds, normally have feed conversion rates of less than 7 pounds of feed per pound of gain. They also have higher-yielding carcasses and usually grade 70 percent choice or above. These steers usually finish the feeding period weighing between 1,125 and 1,175 pounds. The Stage 2 feeding program described in this report is designed to meet these buyers' specifications. However, note that finished Holstein cattle normally sell at a discount of about $3.00 per hundredweight compared to cattle of beef breeds.

Expected performance in the feedlot affects the price that feedlot operators are willing to pay for feeder cattle, and the price discounts on finished Holstein cattle therefore translate into a lower price for feeder cattle. These discounts must be considered when projecting sale prices and expected financial returns. Seasonal price fluctuations in the feeder cattle market also affect the profitability of the various systems described in this publication. Price spreads of $10.00 per hundredweight are not unusual from spring peaks to fall lows for North Carolina feeder cattle. Some knowledge of seasonal price trends and projections of futures market prices are important when evaluating the profit opportunities of raising Holstein calves.

Feeding

Calves

Depending on the source and condition of purchased calves, it may be necessary to feed them a special liquid electrolyte and nutrient solution to rehydrate them upon arrival at the farm. Milk replacer should be mixed and fed according to label directions and should contain 22 percent crude protein, derived primarily from milk sources, and 15 to 20 percent fat. Dairy farmers may have the option of feeding whole milk instead of milk replacer. If you use whole milk, either feed 1 gallon once daily or divide that amount into two equal feedings. Milk replacer is included in the enterprise budgets presented later.

Introduce the calves to a calf-starter grain-mix concentrate during the first week on the farm, and allow them to eat all they can consume in addition to their milk replacer allotment. The calf-starter concentrate should contain 16 to 18 percent crude protein and at least 71 percent total digestible nutrients (TDN) on an as-fed basis. Include Deccox (decoquinate), Bovatec (lasalocid), or Rumensin (monensin) in the mix as a coccidiostat. Do not combine these products. Follow mixing and feeding directions closely. A limited amount of high-quality hay (no more than 1 pound per day) can be given after calves are eating about 1 pound of calf starter daily.

Wean the calves at six to eight weeks of age, by which time most of them should be eating 4 to 5 pounds of calf starter per day. Do not wean them until they are eating at least 1.5 pounds of starter per day. Provide fresh, clean water at all times.

Weaned Calves

After calves have been weaned and starter intake is at least 4 pounds per day, they can be switched to a less expensive calf grower concentrate mix. Make this change gradually over a four- to seven-day period. After you change concentrates, put the weaned calves into one group and feed them from a feed trough once a day. Be sure to provide adequate feeding space. A good rule of thumb is that each calf will need 18 inches of trough space. For example, a 10-foot trough that allows calves to eat from both sides will be adequate for 13 head.

The type of concentrate ration and the amount to feed varies with the age of the cattle, the desired rate of daily weight gain, and the amount and quality of hay and pasture being consumed. Your Cooperative Extension Service agricultural agent can assist in formulating appropriate rations. It is best to include the necessary vitamins and minerals in the concentrate mixes. If that is not practical, offer trace-mineralized salt or an appropriate complete mineral mixture free choice.

Alternative Feeds

Cattle rations frequently include corn and soybean meal, but you can often find alternative feeds that provide the required nutrients at a lower cost. Feed ingredients such as whole cottonseed, cottonseed meal, barley, wheat, oats, and by-product feeds such as soybean hulls, wheat middlings, and corn gluten feed can be used. Contact your Extension Service agricultural agent to determine what alternative feeds are available in your area and how they can be incorporated into your cattle's rations.

Forage Management

High-quality forage is an essential component of the production systems described in this publication. When lower-quality forages are used, more supplements must be added to achieve similar levels of livestock performance. Cutting hay early and using good grazing management practices will allow you to make optimum use of forage and minimize the use of concentrates. Hay to be fed to young calves should be cut no later than the boot stage of maturity for grasses or the early bloom stage for legumes. Allowing hay to mature beyond that point will result in forage that is not highly digestible. Calf performance will then be reduced if the grain allowance is not increased.

A system of rotational grazing makes it possible to produce high-quality forage from pastures. Pastures should be divided into 5 to 20 paddocks, depending on land, facility, and labor constraints. Each paddock can be grazed

from one to seven days before the cattle are moved to the next paddock. Move the cattle on the basis of the amount of forage remaining on the pasture and the condition of the next pasture in the rotation sequence rather than on a strict time schedule. In general, grazing should begin when the grass is 6 to 8 inches tall, and the cattle should be moved when they have grazed the grass down to 2 to 3 inches. When pasture growth exceeds the needs of the cattle, you can remove one or more paddocks from the rotation sequence and cut it for hay. If pasture growth is reduced by drought, the rations will need to be adjusted to include additional hay and concentrates.

The predominant pasture in North Carolina is fescue. Unfortunately, fescue pastures are frequently infected with an endophyte (fungus) that can significantly reduce cattle performance. This problem can be minimized by maintaining young, vegetative growth through clipping, by adding and maintaining clover in the stand, or by establishing new pastures with endophyte-free varieties.

Warm-season grasses can be used either as alternatives or supplements to cool-season perennials. These include temporary pastures such as millet and permanent pastures such as coastal bermudagrass. Small grains can be used to provide additional winter grazing. However, different types of pasture require different levels and formulations of supplementary feeds.

Health Management

Successful calf raising begins with adequate feeding of colostrum, preferably starting within 30 minutes of birth and continuing for the first three days of life. Calves purchased from unknown sources may not have been fed colostrum, resulting in high risk of death or poor performance. House the calves in individual hutches or pens that have been thoroughly cleaned, disinfected, or moved (if possible) between calves.

The local veterinarian and Extension Service agent can help you develop a health management program for your farm. Health management includes procedures for vaccination, use of growth-promoting implants, and control of internal and external parasites. When injections are made, follow label directions. Make the injection in the neck to minimize carcass damage. Make plans for treating sick calves in consultation with your veterinarian, and be sure that antibiotics are on hand before calves get sick. Consult the veterinarian when health problems occur to ensure that your treatment programs are effective.

The general vaccination and health management program listed below is useful in most situations but may not protect calves against all the diseases found in your area.

Age	Suggested Health Program
4 weeks	Castrate, dehorn.
8 weeks	Vaccinate for: infectious bovine rhinotracheitis (IBR) parainfluenza (PI3) bovine virus diarrhea (BVD) bovine respiratory syncytial virus (BRSV) clostridial diseases (7-way) use growth-promoting implants.
10 weeks	Give booster injection for IBR, PI3, BVD, BRSV, 7-way, and pinkeye .
20 weeks	Implant, deworm.
32 weeks	Implant, give booster injection for IBR, PI3, BVD, BRSV, 7-way, and deworm.

Note: Consult your veterinarian when developing a health program for your farm.

Calves should be dewormed, deloused, and treated for flies as necessary. Normally, deworming should start at about 20 weeks of age and continue at 6- to 12-week intervals, depending on local conditions. During the middle of the summer, use a dewormer that controls the inhibited form of the brown stomach worm (*Ostertagia*).

Flies can be controlled through the use of approved sprays, backrubs, or insecticidal ear tags. Calves coming to a feed trough can be sprayed easily at two- to three-week intervals, which should provide excellent fly and louse control. If calves come into a lot to eat, hang a backrub soaked with a diesel fuel–insecticide solution across the gateway so calves must come into contact with it daily. This technique will also provide adequate fly and louse control. Change the type of insecticide several times during the fly season for best results.

If you plan to use insecticidal ear tags, put them in after June 1. If they are put in earlier, control will be poor by the end of the fly season. To prevent the development of resistant fly populations, do not use fly tags with the same insecticidal ingredients two years in a row.

Following a good health program is necessary to keep death losses low. Financial returns are very sensitive to increases or decreases in death loss, so protecting the calves' health is an important part of developing a profitable production system.

Facilities and Equipment

Facilities and equipment are needed to house and feed the cattle and to handle them for treatment and loading. Several options are available, depending on the number of cattle being raised, and the choice should be based on cost-effectiveness. Good use of existing farm resources can greatly reduce costs.

Calves need individual, draft-free accommodations that can be cleaned and disinfected after each animal leaves. Calves have been raised successfully in a variety of structures. Calf hutches, particularly when they are home-made, are cost-effective if new housing is needed. Weaned calves may also need housing in bad weather. Hay and grain feeders must provide adequate access for all cattle. A simple pen with a short chute and headgate is adequate to handle and treat small numbers of cattle. For larger numbers, more expensive facilities may be needed, including a ramp for loading cattle into trucks.

Small-scale producers may not be able to justify much field equipment for haymaking and may need to consider paying for custom work or sharing equipment with neighbors to control costs. Where owning equipment is justified, purchasing used rather than new equipment and ensuring that the size of the equipment is appropriate for the scale of the enterprise will help minimize investment costs.

Costs and Returns from Holstein Dairy Beef Production

Feeder cattle can be produced under a variety of systems and farm conditions, and it is not feasible to evaluate the costs and returns for all systems in this publication. The example dairy beef production system to be evaluated in this section is based on producing three batches or groups of calves per year. This system was selected because it makes efficient use of cattle facilities and labor, and farm overhead costs are spread over more cattle than in systems involving only one or two batches per year. If you wish to consider raising fewer batches of calves each year because of feed, labor, or management constraints, you can still use the approach described here to evaluate the expected financial returns.

As discussed previously, each batch of calves passes through three stages of growth: the calf-raising stage (in which calves grow from 90 to 180 pounds), feeder calf production (from 180 to 400 pounds), and feeder cattle production (from 400 to 700 pounds). These stages were selected on the basis of feeding and marketing considerations. When the cattle reach 400 pounds and again when they reach 700 pounds, you can decide to keep them, sell them, or buy more, depending on the profit potential. For example, you might raise calves to 400 pounds and decide to sell them because keeping them until they weigh 700 pounds would not be profitable in view of projected costs and cattle prices. In other circumstances you might decide to keep the 400-pound feeder cattle you have raised and buy additional cattle to grow to 700 pounds. Table 1 summarizes the estimated costs and returns for each growth stage. To make sound decisions about your own cattle operation, you will need to develop your own estimates of the expected returns from keeping, selling, or buying cattle.

A Three-Batch Production Program

Figure 1 shows a production program for three batches of calves per year. The program is outlined in Table 2. Each batch is divided into three growth stages along the lines described previously. The first stage, the production of weaned calves, is the same for all batches of calves. The other two stages vary with season, however. Pasture is an important source of feed for older cattle, but the amount and quality of pasture available varies seasonally. Therefore, the feeding program for each batch of cattle and each stage of growth is different, depending on the time of year the cattle are on the farm. Table 3 describes grain concentrate mixes for each batch of cattle and each stage of growth which, if fed with high quality hay and pasture, would produce the growth rates described in the following sections.

For systems based on pasture, it is assumed that adequate pasture is available at all times. If pasture availability is low, additional high-quality hay should be fed and the concentrate mix adjusted to compensate.

Stage 1, Calf Raising for All Batches

The calf-raising program is based on calves purchased at an average age of five days. The approximate purchase dates are October 15 for batch 1; December 15 for batch 2; and March 15 for batch 3. All calves are fed according to the recommendations on page 6. They remain in stage 1 for 60 days and grow from an average starting body weight of 90 pounds to an ending weight of 180 pounds, an average daily gain of 1.5 pounds.

Batch 1, Stages 2 and 3

The calves from batch 1 should enter stage 2 around the middle of December at 65 days of age and remain in that stage for 120 days, until mid-April. The calves enter this stage at 180 pounds and reach a weight of 400 pounds, an average daily gain of 1.8 pounds. The cattle require high-quality hay offered free choice and 5.0 pounds daily of the 19 percent crude protein concentrate mix listed in Table 3.

These steers enter stage 3 in mid-April at 185 days old and remain in this final stage until mid-September. Their starting body weight is 400 pounds, and they gain an average of 300 pounds to reach a final weight of 700 pounds, a daily gain of 2.0 pounds. During this time of the year, the steers will be on pasture supplemented daily with 3.8 pounds of the 9 percent crude protein concentrate mix listed in Table 3.

Batch 2, Stages 2 and 3

The steers in batch 2 are purchased in mid-December and enter stage 2 in mid-February at 65 days old. For the first two months (stage 2, part 1), from mid-February to mid-April, the weather is cold and there is little permanent pasture growth. The calves need to be housed and fed high-

Table 1. Summary of Costs and Returns Per Head for All Batches and Stages

	Batch 1 Stage 1	Batch 1 Stage 2	Batch 1 Stage 3	Batch 2 Stage 1	Batch 2 Stage 2	Batch 2 Stage 3	Batch 3 Stage 1	Batch 3 Stage 2	Batch 3 Stage 3
Market price or value	$180.00	$300.00	$525.00	$180.00	$300.00	$525.00	$180.00	$300.00	$525.00
Costs:									
Calf[a]	94.44	219.16	379.27	94.44	219.16	339.35	94.44	219.16	326.48
Other operating costs[b]	57.81	100.65	107.99	57.81	79.20	99.96	57.81	69.78	105.88
Annual ownership costs	12.33	35.46	10.61	12.33	19.99	10.24	12.33	13.54	15.74
Labor costs	48.00	24.00	15.00	48.00	21.00	13.50	48.00	24.00	15.00
Total costs	212.58	379.27	512.87	212.58	339.35	463.06	212.58	326.48	463.09
Returns:									
Over operating costs	27.75	-19.81	37.74	27.75	1.64	85.69	27.75	11.06	92.65
To land, labor, management, and overhead	15.42	-55.27	27.13	15.42	-18.35	75.44	15.42	-2.48	76.91
To land, management, and overhead	-32.58	-79.27	12.13	-32.58	-39.35	61.94	-32.58	-26.48	61.91

[a] The cost of the calf in stage 1 for all batches is the purchase price adjusted for death losses; the cost in stages 2 and 3 is the accumulated cost from the previous stage, also adjusted for death losses. Therefore, the calf cost may exceed the market price or value of the animal.
[b] Excluding labor, which is shown as a separate item.

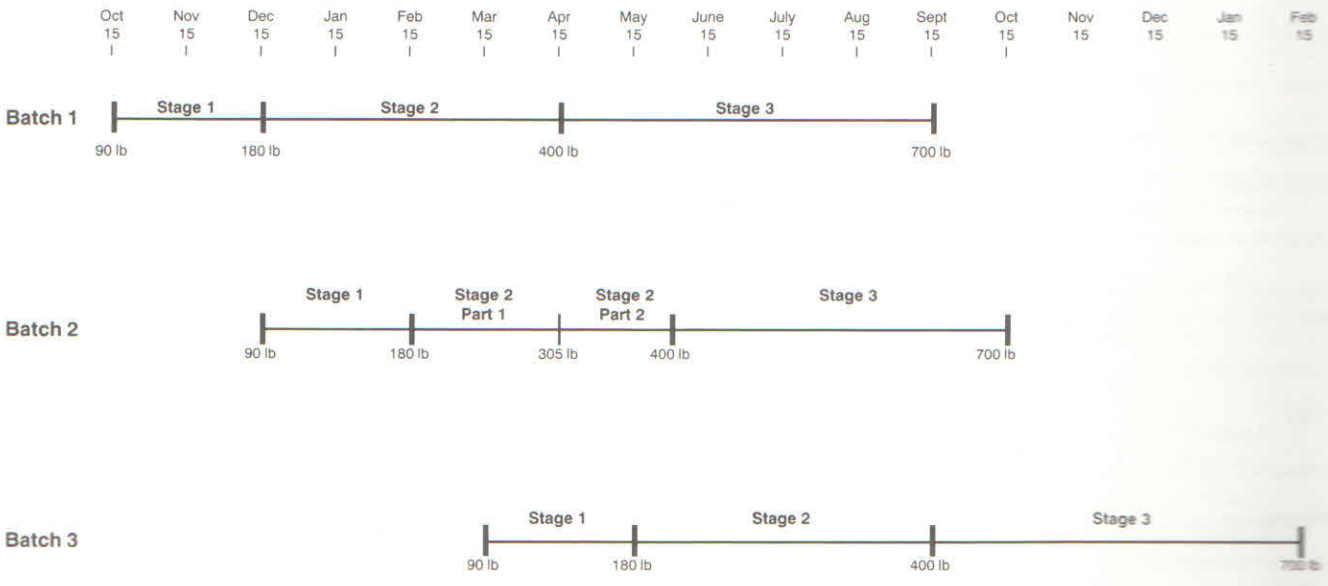

Figure 1. A program for producing three batches of calves per year. Calves in stage 1 of all batches are fed according to the recommendations on page 6. See Table 3 for concentrate formulations.

Table 2. Dairy Beef Production System

All Batches		Batch 1		Batch 2			Batch 3	
	Stage 1	Stage 2	Stage 3	Stage 2, Part 1	Stage 2, Part 2	Stage 3	Stage 2	Stage 3
Typical age (days)	5–65	65–185	185–335	65–125	125–170	170–305	65–185	185–335
Dates	varies[a]	12/15–4/15	4/15–9/15	2/15–4/15	4/15–6/1	6/1–10/15	5/15–9/15	9/15–2/15
Starting body weight (lb)	90	180	400	180	305	400	180	400
Ending body weight (lb)	180	400	700	305	400	700	400	700
Body weight gain (lb)	90	220	300	125	95	300	220	300
Average daily gain (lb)	1.5	1.8	2.0	2.1	2.1	2.2	1.8	2.0

[a] Approximate purchase dates: Batch 1: Mid-October
Batch 2: Mid-December
Batch 3: Mid-March

Table 3. Concentrate Mix Specifications for Dairy Beef Production System (As-Fed Basis)

	All Batches	Batch 1		Batch 2			Batch 3	
	Stage 1[a]	Stage 2[d]	Stage 3[e]	Stage 2, Part 1[d]	Stage 2, Part 2[e]	Stage 3[e]	Stage 2[e]	Stage 3[e]
Concentrate (lb/hd/day)	1.8	5.0	3.8	5.0	4.3	4.0	3.9	3.8
Concentrate mix ingredients (lb/ton)[b],[c]								
Corn grain	—	1,425.0	1,914.2	1,425.0	1,577.3	1,914.2	1,577.3	1,914.2
Soybean meal (48%)	—	531.0	26.5	531.0	360.5	26.5	360.5	26.5
Plain white salt	—	10.0	12.5	10.0	10.1	12.5	10.1	12.5
Dicalcium phosphate	—	8.2	30.0	8.2	17.2	30.0	17.2	30.0
Calcitic limestone	—	26.0	6.8	26.0	25.0	6.8	25.0	6.8
Magnesium oxide	—	—	10.0	—	10.0	10.0	10.0	10.0
Concentrate mix nutrient levels (%) (as-fed basis)								
Crude protein	16–18	19.0	9.0	19.0	15.0	9.0	15.0	9.0
TDN	71.2	75.0	76.0	75.0	75.0	76.0	75.0	76.0
Calcium	0.53	0.65	0.47	0.65	0.71	0.47	0.71	0.47
Phosphorus	0.36	0.41	0.49	0.41	0.45	0.49	0.45	0.49

[a] Milk replacer, on a dry matter basis, should contain 22 percent crude protein, primarily from milk sources, and 15 to 20 percent fat. Calf-starter concentrate mix should contain 16 to 18 percent crude protein and at least 71.2 percent total digestible nutrients (TDN) on an as-fed basis. Deccox (decoquinate) or Bovatec (lasalocid) should be included in the mix as coccidiostats. Feed excellent grass-legume hay during the last 14 days of stage 1.

[b] A suitable vitamin-trace mineral premix should be included according to the manufacturer's directions.

[c] Bovatec (lasalocid) or Rumensin (monensin) should be included in the concentrate mix according to the manufacturer's directions.

[d] Assumes that grass hay with 10 percent crude protein and 56 percent total digestible nutrients is offered free choice.

[e] Assumes that pasture providing 15 percent crude protein and 62 percent total digestible nutrients is offered free choice.

quality hay free choice and 5.0 pounds daily of the 19 percent crude protein concentrate mix listed in Table 3. Starting at a body weight of 180 pounds, these calves should gain 125 pounds on this ration (2.1 pounds per day) to reach 305 pounds.

From mid-April to June 1 (stage 2, part 2), these calves graze pasture and are fed 4.3 pounds daily of the 15 percent crude protein concentrate mix listed in Table 3. They should gain 2.1 pounds per day, putting on a total of 95 pounds to go from 305 to 400 pounds.

Feeder calves in batch 2 enter the final growth phase (stage 3), on June 1 at 170 days of age and remain in this stage through October 15. Steers remain on pasture during this stage, supplemented with 4.0 pounds daily of the 9 percent crude protein concentrate mix listed in Table 3. Starting at a body weight of 400 pounds, these cattle should gain 300 pounds of body weight to reach an end weight of 700 pounds, an average daily gain of 2.2 pounds.

Batch 3, Stages 2 and 3

Batch 3 steers are purchased on March 15 and enter stage 2 at 65 days of age in mid-May and remain in this feeding program until mid-September. Their starting body weight is 180 pounds. They gain an average of 220 pounds to reach an end weight of 400 pounds, a daily gain of 1.8 pounds. Steers are fed pasture supplemented with 3.9 pounds daily of the 15 percent crude protein concentrate mix listed in Table 3.

Steers enter the third growth stage at 185 days of age in mid-September and complete this period in mid-February. From a starting body weight of 400 pounds, they gain an average of 300 pounds to reach an end weight of 700 pounds, an average daily gain of 2.0 pounds. Steers in this stage receive pasture with 3.8 pounds daily of the 9 percent crude protein concentrate mix listed in Table 3.

Production Costs

Some producers have experience with Holstein calves and may have their own information on production costs. For those who do not, Appendix Tables A1 through A7 present estimates of costs and returns considered to be representative of North Carolina conditions in 1990 and 1991. These figures are based on the production practices described earlier in this publication and are provided as a guide to help you develop your own estimates. Blank spaces are provided so that you can enter your figures or update those printed in the tables. The approach taken here is to include all categories of production costs, including variable costs, labor costs, and fixed costs.

Variable Costs

Variable costs are the out-of-pocket costs incurred on a day-to-day basis and are the largest component of total production cost. These costs are the most straightforward to estimate.

The variable cost estimates in the tables include allowances for death losses and feed wastage. Death losses were estimated to be 10 percent for stage 1 (all batches), 3 percent for stage 2, and zero for stage 3. Feed losses and waste were estimated to be 12 percent for hay and 4 percent for grain; these losses are included in the quantities shown in the budgets. Hay and pasture cost estimates are taken from budgets 86-1, "Tall Fescue Establishment Costs," 86-2, "Tall Fescue for Pasture," and 84-1, "Hay Harvesting Costs," developed by the Department of Agricultural and Resource Economics at North Carolina State University. The forage costs shown in Tables A1 through A7 are full-cost estimates and include operating, ownership, and labor costs. An interest charge of 12 percent on working capital is included.

Labor Costs

Labor costs or charges are the second largest cost item. These costs are shown separately because they may represent cash costs if the labor is hired, but they are noncash costs if the owner or family members do the work. Even if owner or family labor is used, however, it is appropriate to include the value of the time and energy involved because that time could be spent elsewhere — at work or play. The "cost" of this owner or unpaid family labor is the value each individual places on these forgone opportunities. Another way of looking at it is to consider the labor charge as the lowest wage for which the owner or family member would be willing to work.

Fixed Costs

Fixed costs are the most difficult to determine and vary widely from farm to farm. They include general farm expenses not related to the actual number of cattle produced and the costs associated with the investment in facilities and equipment used by the cattle enterprise. How they are handled depends on the specific situation and the nature of the decisions being made. General farm overhead expenses must be borne by the whole farm, not by one enterprise, and the costs presented in Tables A1 through A7 do not include them. The net returns are available, in part, to contribute to the farm overhead expenses. Land ownership or rent costs are treated in the same way.

Annual ownership costs for cattle facilities and equipment include depreciation, property taxes, insurance, and interest on the investment. Depreciation and interest on new investments for the cattle enterprise should be included in the budget. Charges on existing buildings and equipment depend on their value in alternative uses. For example, if the existing equipment used by the cattle could be sold, then the cattle enterprise budget should include a corresponding amount of depreciation and interest charges. If facilities could be rented out or used for other purposes, then a corresponding amount should be allocated as a cost to the cattle enterprise. If facilities and equipment are shared with other farm enterprises or nonfarm uses, the cattle enterprise should bear its proportionate share. Only when existing facilities and equipment have no other uses and no salvage value is it appropriate not to allocate their costs to the cattle enterprise. Even in cases where some new

investment is required to establish a cattle enterprise, there are likely to be large differences among farms in what must be bought or built and the associated costs.

In Tables A1 through A7 the fixed costs are based on all new investments, estimated at 1991 costs, because no other information was available. The calculation of these costs is shown in Table A8 and the allocation of these costs to each batch of calves is itemized in Table A9. Repair costs are allocated to each batch in Table A10. In light of this discussion, it is clear that these estimated costs are likely to be significantly higher than those faced by most producers. Even so, these estimated annual ownership costs are a much smaller component of total costs than are operating and labor costs.

The Decision Framework

The beginning and end of each production stage is the point at which to decide whether to keep cattle through the next stage, sell them, or buy more. The decision depends on the answer to three questions:

- What is the current market value of the animals?
- What will it cost to keep the cattle through the next stage?
- What will the animals be worth at the end of the next stage?

It would pay to keep cattle (or buy cattle) if you expect to sell them later at a price that is greater than their current value plus the cost of keeping them. If the calculations show a loss, you should sell the cattle (or not buy any).

Net Income or Loss = Expected Future Value – Additional Production Costs – Current Market Value

For example, suppose that you have a group of 400-pound feeder calves worth $300 per head. You estimate that they will be worth $525 per head when they reach 700 pounds and that it will cost 60 cents per pound of gain, or $180 per head. In this case the expected net income is $525 – $180 – $300, or $45 per head. It would therefore be profitable to keep the cattle. Also, it would be worth considering buying additional cattle if feed is available.

This basic approach can be modified to help cope with the ever-present risks in farming by using more than one estimate of the future value of the cattle and added costs. In the above example, if you expected that cattle prices could be as low as $500 and as high as $550 per head, the expected net income could be anywhere from $20 to $70 per head. A similar approach can be used for differences in production costs and for the combined effects of different expected cattle values and production cost levels. By experimenting with different cost and price figures, you can obtain a better understanding of the potential profitability and the associated risks.

Is Producing Feeder Cattle from Holstein Calves Profitable?

When considering the production of feeder cattle from Holstein calves, be sure to evaluate costs and returns using your best estimates of selling prices and production costs. Profitability is affected by relatively small changes in prices and costs.

Costs and Returns for the Three-Batch Program

The costs and returns for each batch of calves and stage of production are summarized in Table 1. These results show that, given the costs and prices used in these budgets, 700-pound feeder calves produced from all three batches generate a positive return to land, management, and overhead (a measure of profit). The returns were smallest for the first batch because of higher housing and feed costs during winter for calves weighing from 180 to 400 pounds. However, all of the batches show a loss at the end of stage 1 and stage 2 by this measure of profitability. This means that the most profitable stage of production is the last one, from 400 pounds to 700 pounds. This result also means that it would be more profitable to buy 400-pound Holstein cattle (if they were available) than to raise them. All batches except one showed a positive return over operating expenses for all stages of growth.

Sensitivity Analysis

Given uncertainty about future prices and costs, sensitivity analysis is a useful way to evaluate the impact of different possibilities, both better and worse, than the "best guess" used in the budgets we have discussed here. The impact of different cattle prices and production costs on returns are described in Table 4. In the analysis, the results obtained with optimistic, pessimistic, and the most likely estimates of prices and costs are compared. The most likely price was the one used in the budgets. The optimistic price is $10 per hundredweight higher than the most likely price and the pessimistic price is $5 per hundredweight lower. A similar approach was used for operating costs, with a 10 percent reduction as the basis for the optimistic cost estimate and a 10 percent increase for the pessimistic estimate. Each batch and stage is considered separately in the sensitivity analysis, with no carryover from one stage to the next.

Under the optimistic sale price scenario, there are large positive returns to land, management, and overhead for all three batches of 700-pound cattle. For 400-pound cattle, all batches showed positive returns over operating expenses and all but the first batch showed positive returns to land, labor, management, and overhead. The results were similar for the optimistic forecast of operating costs, but the returns were smaller.

Under the pessimistic sale price scenario the 700-pound cattle from batches 2 and 3 showed a small return to land, management, and general farm overhead. The 400-pound cattle from all batches failed even to cover operating expenses. The results were similar under the pessimistic cost scenario.

This sensitivity analysis demonstrates the dramatic changes in net returns caused by variations in sale prices and production costs. It is important to pay close attention to production costs and future cattle prices when evaluating the opportunities for Holstein feeder cattle production.

A Final Comment

The budgets presented in this publication treat feeder cattle production from a farm enterprise perspective. Even when the projected returns are satisfactory, it is advisable to evaluate the profitability of the whole farm operation. That analysis will add some costs not included in the cattle budgets plus financial information for other farm enterprises, if any. Furthermore, these budgets project returns or earnings, but the timing of the cash expenditures and cash income can also affect the feasibility of a feeder cattle enterprise. Cash flow projections should be developed to identify credit needs, debt repayment capability, and availability of cash to meet family living needs.

Sources of Additional Information

Further information can be obtained from county Cooperative Extension Service agents; from the Extension Dairy Husbandry or Extension Animal Husbandry units, Campus Box 7621, North Carolina State University, Raleigh, NC 27695-7621; and from the Department of Agricultural and Resource Economics, Campus Box 8109, North Carolina State University, Raleigh, NC 27695-8109.

Some of the information in this publication was drawn from the sources listed on the next page.

Table 4. Sensitivity Analysis: Effects of Alternative Costs and Prices on Returns Per Head

Item	All Batches Stage 1	Batch 1 Stage 2	Batch 1 Stage 3	Batch 2 Stage 2	Batch 2 Stage 3	Batch 3 Stage 2	Batch 3 Stage 3
A. End-of-stage price:							
Most likely	$180.00	$300.00	$525.00	$300.00	$525.00	$300.00	$525.00
Optimistic	198.00	340.00	595.00	340.00	595.00	340.00	595.00
Pessimistic	171.00	280.00	490.00	280.00	490.00	280.00	490.00
Optimistic returns:							
Over operating cost	45.75	20.19	107.74	41.64	155.69	51.06	162.65
To land, labor, management, and overhead	33.42	-15.27	97.13	21.65	145.44	37.52	146.91
To land, management, and overhead	-14.58	-39.27	82.13	0.65	131.94	13.52	131.91
Pessimistic returns:							
Over operating cost	18.75	-39.81	2.74	-18.36	50.69	-8.94	57.65
To land, labor, management, and overhead	6.42	-75.27	-7.87	-38.35	40.44	-22.48	41.91
To land, management, and overhead	-41.58	-99.27	-22.87	-59.35	26.94	-46.48	26.91
B. Operating costs:							
Mostly likely	152.25	319.81	487.26	298.36	439.31	288.94	432.35
Optimistic (-10%)	137.03	287.83	438.54	268.52	395.38	260.04	389.12
Pessimistic (+10%)	167.48	351.79	535.99	328.19	483.24	317.83	475.59
Optimistic returns:							
Over operating cost	42.97	12.17	86.46	31.48	129.62	39.96	135.88
To land, labor, management, and overhead	30.64	-23.29	75.85	11.49	119.38	26.42	120.15
To land, management, and overhead	-17.36	-47.29	60.85	-9.51	105.88	2.42	105.15
Pessimistic returns:							
Over operating cost	12.52	-51.79	-10.99	-28.19	41.76	-17.83	49.41
To land, labor, management, and overhead	0.19	-87.25	-21.60	-48.18	31.51	-31.37	33.68
To land, management, and overhead	-47.81	-111.25	-36.60	-69.18	18.01	-55.37	18.68

Ball, D., G. Lacefield, and C. S. Hoveland. 1991. The Tall Fescue Endophyte. Fact Sheet SR-5007, *Southern Regional Beef Management Handbook*, Raleigh: North Carolina Cooperative Extension Service.

Hopkins, B. A. 1993. *Feeding the Dairy Calf from Birth to Weaning.* Publication AG-470. Raleigh: North Carolina Cooperative Extension Service.

Hopkins, B. A. 1993. *Feeding Dairy Heifers from Weaning to Calving.* Publication AG-471. Raleigh: North Carolina Cooperative Extension Service.

Mueller, J. P., J. T. Green, and E. L. Kimbrough. 1992. Forage Adaptation in the South. Fact Sheet SR-3016, *Southern Regional Beef Management Handbook*, Raleigh: North Carolina Cooperative Extension Service.

U.S. Department of Agriculture. 1980. *Facts About: U.S. Standards for Grades of Feeder Cattle.* Publication AMS-586. Agricultural Marketing Service, USDA.

Appendix Tables

Costs and Returns for All Batches and All Stages

Allocation of Annual Ownership Costs

Table A1. Costs and Returns for All Batches, Stage 1, 90 to 180 Pounds, 5 to 65 Days of Age

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Calves	Head	45.00	$180.00	$8,100.00	
Total returns				$8,100.00	
Operating expense					
Calf	Head	50.00	$85.00	$4,250.00	
Milk replacer	Cwt.	21.06	75.00	1,579.50	
Calf starter	Cwt.	47.17	9.00	424.57	
Hay	Cwt.	4.73	3.00	14.18	
Bedding	Cwt.	27.00	4.00	108.00	
Veterinary and medical	Head	50.00	4.00	200.00	
Misc. other	Head	50.00	2.00	100.00	
Repairs				66.66	
Interest on capital				108.42	
Total operating expense				$6,851.34	
Returns over operating expense				$1,248.66	
Annual ownership costs for specialized cattle facilities				$554.94	
Returns to land, labor, management, and general farm overhead				$693.72	
Labor cost	Hours	360.00	$6.00	$2,160.00	
Returns to land, management, and overhead				–$1,466.28	
Cost summary for this stage:					
Total cost				$9,566.28	
Total cost per head				212.58	
Total cost per pound				1.18	
Total cost per pound added in this stage				1.42	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A2. Costs and Returns for Batch 1, Stage 2, 180 to 400 Pounds, 65 to 185 Days of Age, Mid-December to Mid-April

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder Calves	Head	43.65	$300.00	$13,095.00	
Total returns				$13,095.00	
Operating expense					
Feeder calf	Head	45.00	$212.58	$9,566.28	
Concentrate mix	Tons	13.62	149.57	2,036.96	
Hay	Tons	13.49	60.00	809.59	
Pasture, hay equivalent	Tons	0.00	37.09	0.00	
Bedding	Tons	5.24	80.00	419.04	
Veterinary and medical	Head	45.00	5.00	225.00	
Misc. other	Head	45.00	2.00	90.00	
Repairs				357.87	
Interest on capital				455.10	
Total operating expense				$13,959.84	
Returns over operating expense				-$864.84	
Annual ownership costs for specialized cattle facilities				$1,547.99	
Returns to land, labor, management, and general farm overhead				-$2,412.63	
Labor cost	Hours	174.60	$6.00	$1,047.60	
Returns to land, management, and overhead				-$3,460.23	
Cost summary for this stage:					
Total cost				$16,555.23	
Total cost per head				379.27	
Total cost per pound				0.95	
Total cost per pound added in this stage				0.76	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A3. Costs and Returns for Batch 1, Stage 3, 400 to 700 Pounds, 185 to 335 Days of Age, Mid-April to Mid-September

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder cattle	Head	43.65	$525.00	$22,916.25	
Total returns				$22,916.25	
Operating expense					
Feeder calf	Head	43.65	$379.27	$6,555.23	
Concentrate mix	Tons	12.94	134.95	1,745.96	
Hay	Tons	0.00	60.00	0.00	
Pasture, hay equivalent	Tons	41.90	37.09	1,554.22	
Bedding	Tons	0.00	80.00	0.00	
Veterinary and medical	Head	43.65	5.10	222.62	
Misc. other	Head	43.65	2.00	87.30	
Repairs				193.53	
Interest on capital				910.21	
Total operating expense				$21,269.07	
Returns over operating expense				$1,647.18	
Annual ownership costs for specialized cattle facilities				$463.16	
Returns to land, labor, management, and general farm overhead				$1,184.03	
Labor cost	Hours	109.13	$6.00	$654.75	
Returns to land, management, and overhead				$529.28	
Cost summary for this stage:					
Total cost				$22,386.97	
Total cost per head				512.87	
Total cost per pound				0.73	
Total cost per pound added in this stage				0.45	

Note: Column totals may not be the exact sum of the individual entries because of rounding errors.

Table A4. Costs and Returns for Batch 2, Stage 2, 180 to 400 Pounds, 65 to 185 Days of Age, Mid-February to June 1

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder calves	Head	43.65	$300.00	$13,095.00	
Total returns				$13,095.00	
Operating expense					
Feeder calf	Head	45.00	$212.58	$9,566.28	
1st concentrate mix	Tons	6.81	149.09	1,015.21	
2nd concentrate mix	Tons	4.39	145.45	638.83	
Hay	Tons	6.16	60.00	369.59	
Pasture, hay equivalent	Tons	7.27	37.09	269.56	
Bedding	Tons	2.62	80.00	209.52	
Veterinary and medical	Head	45.00	5.00	225.00	
Misc. other	Head	45.00	2.00	90.00	
Repairs				255.99	
Interest on capital				383.29	
Total operating expense				$13,023.27	
Returns over operating expense				$71.73	
Annual ownership costs for specialized cattle facilities				$872.64	
Returns to land, labor, management, and general farm overhead				-$800.90	
Labor cost	Hours	152.78	$6.00	$916.65	
Returns to land, management, and overhead				-$1,717.55	
Cost summary for this stage:					
Total cost				$14,812.55	
Total cost per head				339.35	
Total cost per pound				0.85	
Total cost per pound added in this stage				0.58	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A5. Costs and Returns for Batch 2, Stage 3, 400 to 700 Pounds, 185 to 320 Days of Age, June 1 to Mid-October

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder cattle	Head	43.65	$525.00	$22,916.25	
Total returns				22,916.25	
Operating expense					
Feeder calf	Head	43.65	$339.35	$14,812.55	
Concentrate mix	Tons	12.26	134.51	1,648.68	
Hay	Tons	0.00	60.00	0.00	
Pasture, hay equivalent	Tons	39.78	37.09	1,475.29	
Bedding	Tons	0.00	80.00	0.00	
Veterinary & Medical	Head	43.65	5.10	222.62	
Misc. other	Head	43.65	2.00	87.30	
Repairs				191.61	
Interest on capital				737.89	
Total operating expense				$19,175.94	
Returns over operating expense				$3,740.31	
Annual ownership costs for specialized cattle facilities				$447.17	
Returns to land, labor, management, and general farm overhead				$3,293.14	
Labor cost	Hours	98.21	$6.00	$589.28	
Returns to land, management, and overhead				$2,703.86	
Cost summary for this stage:					
Total cost				$20,212.39	
Total cost per head				463.06	
Total cost per pound				0.66	
Total cost per pound added in this stage				0.41	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A6. Costs and Returns for Batch 3, Stage 2, 180 to 400 Pounds, 65 to 185 Days of Age, Mid-May to Mid-September

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder calves	Head	43.65	$300.00	$13,095.00	
Total returns				$13,095.00	
Operating expense					
Feeder calf	Head	45.00	$212.58	$9,566.28	
1st concentrate mix	Tons	10.62	145.41	1,544.64	
2nd concentrate mix	Tons	0.00	140.00	0.00	
Hay	Tons	0.00	60.00	0.00	
Pasture, hay equivalent	Tons	14.67	37.09	543.98	
Bedding	Tons	0.00	80.00	0.00	
Veterinary and medical	Head	45.00	5.00	225.00	
Misc. other	Head	45.00	2.00	90.00	
Repairs				213.21	
Interest on capital				429.03	
Total operating expense				$12,612.14	
Returns over operating expense				$482.86	
Annual ownership costs for specialized cattle facilities				$590.99	
Returns to land, labor, management, and general farm overhead				-$108.13	
Labor cost	Hours	174.60	$6.00	$1,047.60	
Returns to land, management, and overhead				-$1,155.73	
Cost summary for this stage:					
Total cost				14,250.73	
Total cost per head				326.48	
Total cost per pound				0.82	
Total cost per pound added in this stage				0.52	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A7. Costs and Returns for Batch 3, Stage 3, 400 to 700 Pounds, 185 to 335 Days of Age, Mid-September to Mid-February

Item	Unit	Quantity	Price	Amount	Your Farm
Gross returns					
Feeder cattle	Head	43.65	$525.00	$22,916.25	
Total returns				$22,916.25	
Operating expense					
Feeder calf	Head	43.65	$326.48	$14,250.73	
Concentrate mix	Tons	12.94	133.92	1,732.64	
Hay	Tons	0.00	60.00	0.00	
Pasture, hay equivalent	Tons	41.90	37.09	1,554.22	
Bedding	Tons	0.00	80.00	0.00	
Veterinary and Medical	Head	43.65	5.10	222.62	
Misc. other	Head	43.65	2.00	87.30	
Repairs				227.61	
Interest on capital				797.08	
Total operating expense				$18,872.19	
Returns over operating expense				$4,044.06	
Annual ownership costs for specialized cattle facilities				$686.87	
Returns to land, labor, management, and general farm overhead				$3,357.19	
Labor cost	Hours	87.30	$6.00	$654.75	
Returns to land, management, and overhead				$2,702.44	
Cost summary for this stage:					
Total cost				$20,213.81	
Total cost per head				463.09	
Total cost per pound				0.66	
Total cost per pound added in this stage				0.46	

Note: Column totals may not be the exact sum of the individual entries because of rounding.

Table A8. Investment and Annual Ownership Costs for Specialized Buildings and Equipment[a]

Item	Initial Cost	Salvage Value	Useful Life (years)	Depreciation	Interest	Insurance	Taxes	Total
Calf hutches	$10,000.00	$0.00	10	$1,000.00	$600.00	$32.50	$32.50	$1,665.00
Calf barn	7,500.00	0.00	15	500.00	450.00	24.38	24.38	998.75
Hay storage	7,200.00	0.00	15	480.00	432.00	23.40	23.40	958.80
Corral and chute	1,850.00	0.00	15	123.33	111.00	6.01	6.01	246.36
Feed troughs	960.00	0.00	10	96.00	57.60	3.12	3.12	159.84
Water supply	1,000.00	0.00	15	66.67	60.00	3.25	3.25	133.17
Fencing	10,625.00	0.00	20	531.25	637.50	34.53	34.53	1,237.81
Pickup truck[a]	10,970.00	2,380.00	10	429.50	400.50	21.69	21.69	873.39
Total								$6,273.12

Note: These costs are based on new investments at 1991 estimated prices. Actual farm costs will vary widely depending on the availability of existing buildings and equipment and their opportunity costs. Some items may be shared with other enterprises and nonfarm uses. Insurance and taxes are calculated at 0.65 percent on the average investment.

[a] Fifty percent of the cost of the pickup truck was charged against the cattle enterprise.

Table A9. Allocation of Annual Ownership Costs to Batches and Stages

	Batch 1 Stage 1	Batch 1 Stage 2	Batch 1 Stage 3	Batch 2 Stage 1	Batch 2 Stage 2	Batch 2 Stage 3	Batch 3 Stage 1	Batch 3 Stage 2	Batch 3 Stage 3	Total
Percentages:										
Calf hutches (%)	33.33	...	...	33.33	...	...	33.33	...	...	100
Calf barn (%)	...	75.00	...	...	25.00	...	...	...	...	100
Hay storage (%)	...	40.00	...	...	20.00	...	...	15.00	25.00	100
Corral and chute (%)	...	16.67	16.67	...	16.67	16.67	...	16.67	16.67	100
Feed (%)	...		30.00	...	10.00	20.00	...	20.00	20.00	100
Water supply (%)	...	16.67	16.67	...	16.67	16.67	...	16.67	16.67	100
Fencing (%)	...	16.67	16.67	...	16.67	16.67	...	16.67	16.67	100
Pickup truck (%)	...	16.67	16.67	...	16.67	16.67	...	16.67	16.67	100
Share of annual ownership costs:										
Calf hutches	$554.94	...	...	$554.94	...	...	$554.94	...	...	$1,664.83
Calf barn	...	$749.06	...	...	$249.69	...	...	...	...	998.75
Hay storage	...	383.52	...	...	191.76	...	...	$143.82	$239.70	958.80
Corral and chute	...	41.07	$41.07	...	41.07	41.07	...	41.07	41.07	246.41
Feed troughs	...	...	47.95	...	15.98	31.97	...	31.97	31.97	159.84
Water supply	...	22.20	22.20	...	22.20	22.20	...	22.20	22.20	133.19
Fencing	...	206.34	206.34	...	206.34	206.34	...	206.34	206.34	1,238.06
Pickup truck	...	145.59	145.59	...	145.59	145.59	...	145.59	145.59	873.56
Total share	$554.94	$1,547.79	$463.16	$554.94	$872.64	$447.17	$554.94	$590.99	$686.87	$6,273.45

Table A10. Allocation of Annual Repair Costs to Batches and Stages

	Batch 1 Stage 1	Batch 1 Stage 2	Batch 1 Stage 3	Batch 2 Stage 1	Batch 2 Stage 2	Batch 2 Stage 3	Batch 3 Stage 1	Batch 3 Stage 2	Batch 3 Stage 3	Total
Calf hutches	$66.66	...	...	$66.66	...	...	$66.66	...	...	$199.98
Calf barn	...	$112.50	...	...	$37.50	...	...	...	...	150.00
Hay storage	...	57.60	...	...	28.80	...	...	$21.60	$36.00	144.00
Corral and chute	...	6.17	6.17	...	$6.17	$6.17	...	6.17	6.17	37.01
Feed troughs	...	0.00	5.76	...	1.92	3.84	...	3.84	3.84	19.20
Water supply	...	3.33	3.33	...	3.33	3.33	...	3.33	3.33	20.00
Fencing	...	141.70	141.70	...	141.70	141.70	...	141.70	141.70	850.17
Pickup truck	...	36.57	36.57	...	36.57	36.57	...	36.57	36.57	219.44
Total share	$66.66	$357.87	$193.53	$66.66	$255.99	$191.61	$66.66	$213.21	$227.61	$1,639.81

Note: Repair costs calculated at 2 percent of new investment for buildings and equipment, 8 percent on fencing, and 4 percent on the pickup truck. Repairs were allocated on the same percentage basis as annual ownership costs (Table A9).

North Carolina
Cooperative Extension Service

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