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RAISING DAIRY HEIFERS: A BUSINESS

J. L. Morrill

Summary

On many dairy farms, improvement is needed in raising replacement heifers, especially in providing proper nutrition and management to allow for freshening at 23 to 24 months of age at a desirable size. With larger herds, there is a trend toward more specialization, which may (but may not) result in more attention to, or responsibility for, proper care and management of the heifer. In some cases, the heifers are raised by a person at a location away from the dairy farm on which they originated, and contract raising of dairy replacements has several potential advantages and disadvantages. These are discussed in this paper, along with the results that should be expected and some of the types of programs and typical charges when heifers are raised on contract.

(Key Words: Heifers, Contract Raising, Growth.)

Introduction

In the past, most dairy producers in the Midwestern section of the U.S. have raised their own replacement heifers, whereas in other parts of the U.S., especially in the west, heifers may be raised on contract by someone other than the original owner. Currently, interest is increasing in having heifers raised by a person who specializes in that kind of work. There are several reasons for this change. Having heifers raised by specialists offers advantages and disadvantages, and several types of programs are being used. The purpose of this paper is to discuss each of these items and to provide some guidelines for establishing contracts for raising heifers.

The trend for dairy herds to become larger is driven by the need to become more efficient, to allow for more specialization, and to provide income for more than one family so that one person does not care for the herd every day. One example of becoming more efficient is when the number of cows being milked in a milking parlor is increased, and the parlor cost per cow is decreased. That is also true of equipment costs (such as feed mixing equipment), cost of services (such as feed formulation costs), and other expenses. As the number of lactating cows increases, it becomes more likely that more of one person's time will be devoted to the cows, and another person, either on the farm or at a commercial heifer facility, will care for the replacement animals. This, in turn, increases the probability that a person can be working in a particular area where he or she has a special interest or expertise. In some cases, enlargement of a herd has made it necessary to build new facilities and, at that time, the decision may be made to contract the raising of heifers.

The producer may benefit from various advantages by having heifers raised by someone else:

- 1) Labor and management that would otherwise be devoted to the heifers can be used for lactating cows or other more productive purposes. This is especially true if this labor and/or management can be used to care for more cows without increasing capital investment.
- 2) An experienced specialist, who is concentrating on the heifers, might do a better job or might do it more economically, although this is not always the case.
- 3) Having the heifers raised by someone else might relieve problems associated with inadequate shelter, overcrowded lots, or land availability for distributing manure.

Possible disadvantages to the dairy producer of having heifers raised by someone else might include:

- 1) Possible conflicts or misunderstandings with the contractor.
- 2) Heifers might not do as well.
- 3) If producing his own feed, a producer might lose an outlet for feed best suited for heifers (more likely to be true for forages).
- 4) In some cases, a producer might lose use of facilities designed for heifers.
- 5) Disease organisms might be brought back into the herd when heifers return for calving.

Possible advantages also exist for the person who is raising dairy heifers as a business:

- 1) An opportunity for a satisfying full or part-time profession, with less capital investment than would be required for a dairy herd. Part-time employment with a limited number of heifers might be ideal for a semiretired person, a person with another full- or part-time job, or a person with some physical handicap.
- 2) An opportunity to use certain feed resources that are less suited for lactating cows. Examples might include a pasture located away from the milking barn or lower quality forage.
- 3) An opportunity to make use of buildings and other facilities not used for other enterprises. Several dairy heifer growers use facilities that were used for feedlots.

Characteristics of the business of raising heifers that might be considered undesirable include:

- 1) Possible conflicts or misunderstandings with the owner of the heifers.
- 2) The frequency of contact with the heifers that is necessary, especially for heifers that are due to be bred.

Types of Programs

Although some people buy and raise heifers for resale, most people who raise heifers as a business do not become their owners. Often, ownership is retained, and the heifers return to the herd of origin. In other cases, the heifers may be bought by investors and sold when a certain stage of maturity is reached.

A common procedure followed when the owner retains possession of the heifers is for the calves to be raised to a certain size (varying between 350 and 500 lb) on the home farm, then the contractor will raise the heifer until shortly before freshening. In some cases, heifer calves are picked up from the farm at a few days of age and either grown to a certain size and then shipped to another grower or kept until shortly before calving. A good opportunity exists for calf growers raising surplus dairy bull calves for shipment to feedlots also to raise newborn heifer calves, because the programs would be very similar for the first 3 mo of life. Raising young dairy calves successfully requires considerable knowledge and skill, and those who are successful probably should specialize in working with animals of that age in order to utilize their talents to the greatest degree.

Types of Contracts

Although several different methods are used to pay for raising heifers, the most common ways are to assess a daily yardage fee or to base the fee on a unit of feed or gain. When using any of these methods, further agreements must be reached concerning other costs, including:

- 1) Reproduction - Breeding service, semen cost, pregnancy checks, estrous synchronization, use of clean up bull for repeat breeders.
- 2) Health - Vaccinations, routine and emergency health care, external and internal parasite control, dehorning, and necropsies.
- 3) Transportation to and from grower's facilities and any other costs about which there might be a question. Also, clear understanding must exist about the expected growth and condition of the heifers, the accounting for heifers that die, and the procedure to be followed for heifers that do not do well or do not breed.

A custom heifer grower should provide a printed schedule of charges, a complete description of services provided, and the kind of results to expect.

Expected Performance

Dairy heifers should freshen at about 23 to 24 mo of age. To accomplish this, con-

ception should take place at 14 to 15 mo of age and breeding should begin at about 13 mo of age. Because heifers first start coming into heat at a certain body weight (600 lb for Holsteins) rather than age, they must be fed adequately so they will reach puberty and experience several estrous cycles before they reach sufficient height and weight to be bred. However, if heifers get too fat, udder development will be affected adversely. The time when this is most critical is between about 4 mo of age and when the heifers achieve puberty (first heat).

After calving, Holstein heifers should weigh 1200 to 1250 lb, with heifers of other breeds weighing in proportion to their mature weight. If heifers are too small at freshening, their milk production will be reduced. Considering all of this, the importance of proper growth throughout the growing period should be apparent. A clear understanding should exist about the expected growth rate, because, as has been shown, either insufficient growth or excessive conditioning before puberty is undesirable. Probably more questions would arise about inadequate growth, if charges were assessed on a per day basis, whereas overconditioned heifers might be more of a problem, if charges were made per pound of gain. An accurate scale is an absolute necessity for the contract grower to document weight changes. Table 1 shows body weights and sizes (expressed as height at withers) that are desirable for Holstein and Jersey heifers at various ages.

Budgeting Costs of Raising Heifers

Every heifer-growing program will be different and have different costs. Therefore, each program must be designed for a specific location. Various publications and programs are available to help determine costs of raising heifers. These include simple worksheets, computer spreadsheets, and computer programs such as the Cornell Cattle Systems IV. The Cornell program also helps to evaluate rations and make predictions of potential profitability using various feeding and management systems.

Tables 2 and 3 show the types of expenses encountered in raising heifers and some typical

charges to clients. These costs vary and should be adjusted according to specific location and time. The total cost does not include any charge for management or make allowances for death losses. When evaluating these costs, it is important to remember that this budget assumes that the heifer has grown at an acceptable rate throughout life, is of good size, and is ready to freshen. Most current market quotations for springing heifers in the Midwest and Far West range between \$1000 and \$1400 per head (The Dairyman, August 1994).

Many dairy producers lose money by failing to feed and manage their heifers to achieve freshening at 23 or 24 mo of age. Feeding and maintaining the heifer for an extra 4 mo would cost at least \$144, excluding the value of the milk not produced during that time.

Establishing Prices Charged by Contract-Raisers

Each commercial calf grower will provide different services and will encounter different costs; therefore, it would be difficult to present a proposed cost schedule that would be appropriate for any specific location. As a starting point, the data in Table 2 could be used. The data in Table 4 can be used to estimate the cost of raising heifers, starting at different weights. For example, for heifers starting at 500 lb body weight, 75% of the cost of raising the heifer still remains. Thus, if raising a heifer from birth to freshening costs \$900, then raising a 500 lb heifer to freshening would cost \$675. If the 500 lb heifer was 8 mo of age, the cost per day would be $\$675/488 = \1.38 per day. If the cost of raising a heifer is \$1120.51, as shown in Table 2 (total cost less cost of calf), the cost per day of raising a 500 lb heifer would be \$1.72. Recently published prices charged by contract growers were \$1.35 per day for heifers from weaning to freshening in one case, or \$1.15 per day for heifers that arrive weighing between 400 to 600 lb, \$1.20 for heifers between 600 and 800 lb, and \$1.25 for heifers over 800 lb in another.

Table 1. Desirable Body Weights and Heights of Holstein and Jersey Heifers at Various Ages

Months of age	Weight (lb)		Height at withers (inches)	
	Holstein	Jersey	Holstein	Jersey
3	220	166	35.5	33
4	273	220	37.2	35
5	328	255	39.4	36.5
6	381	290	41.4	37
7	436	332	42.7	39
8	488	373	43.9	40
9	543	404	45	40.5
10	596	437	46.3	41
11	651	463	47.5	42
12	704	510	48.7	43
13	759	535	49.1	43.5
14	812	568	49.7	44.5
15	867	603	50.3	45
16	920	622	50.9	45.5
17	972	653	51.4	45.8
18	1027	696	51.9	46.1
19	1080	710	52.4	46.5
20	1135	755	52.8	46.8
21	1188	773	53.2	47.2
22	1243	810	53.4	48
23	1296	819	53.7	48.4
24 ¹	1350	842	54.1	48.8

¹Weight before calving.

Source: Data for Holsteins were adapted from Daccarett et al. (1993) *J. Dairy Sci.* 76:606 and Bortone et al. (1994) *J. Dairy Sci.* 77:270. Data for Jerseys were adapted from Heinrichs and Hargrove, *Hoard's Dairyman*, June, 1994, p 464.

Table 2. Replacement Heifer Budget, October 1994

Item	Age of heifers, mo			
	0 to 3	3 to 12	12 to 24	0 to 24
Variable Costs	----- Dollars -----			
Feed	67.45	158.65	373.80	599.90
Bedding	5.00	17.00	22.00	44.00
Health	8.00	6.00	8.00	22.00
Breeding	--	--	25.00	25.00
Power and fuel	4.00	8.00	7.00	19.00
Supplies	2.35	1.55	15.50	19.40
Interest	1.08	7.17	22.56	30.81
Total	87.88	198.37	473.86	760.11
Fixed Costs				
Buildings	9.37	28.12	37.50	74.99
Equipment	6.75	20.25	27.00	54.00
Int., taxes, ins.	2.84	21.20	63.37	87.41
Total	18.96	69.57	127.87	216.40
Total except for labor, mgmt. and calf	106.84	267.94	601.73	976.51
Labor (\$6/hr)	30.00	54.00	60.00	144.00
Calf	130.00			130.00
Total	266.84	321.94	661.73	1250.51

Source: Feed costs were based on data collected at Kansas State University and on formulated rations, using current feed costs, and are shown in more detail in Table 3. Other data were adapted from Luening, R.A., R.M. Klemme, and W.T. Howard. 1991. Wisconsin Farm Enterprise Budgets - Dairy Cows and Replacements. University of Wisconsin - Extension Publication A2731; and B.J. Conlin and J.G. Linn. 1993. Minnesota Extension Service Dairy Update Issue 116, University of Minnesota.

Table 3. Calculation of Feed Cost for Growing Heifer¹

Feed	Age, mo					
	0 to 3		3 to 12		12 to 24	
	lb	\$	lb	\$	lb	\$
Milk replacer	35	27.30				
Calf starter	180	28.80				
Calf grower	84	10.08				
Alfalfa hay - late veg.	30	1.27				
Alfalfa hay - early bloom			1330	53.19		
Alfalfa hay - mid bloom					1989	77.59
Grass hay					5883	176.50
Corn			1778	71.42	183	7.35
Soybean meal			2.35	20.01	934	79.38
Supplements				14.03		32.98
Total		67.45		158.65		373.80

¹Prices used were: milk replacer, \$78/cwt.; calf starter, \$16/cwt; calf grower, \$12/cwt; alfalfa hay - late veg., \$85/ton; alfalfa hay - early bloom, \$80/ton; alfalfa hay - mid bloom, \$78/ton; grass hay, \$60/ton; corn, \$2.25/bushel; soybean meal, \$170/ton.

Table 4. Effect of Starting Weight on Cost to Raise Heifers

Starting Weight (lb)	Age (mo)	% Total cost	Increment % ¹
100	0	100	8
200	2	92	5
300	4	87	6
400	6	81	6
500	8	75	7
600	10	68	8
700	12	60	8
800	14	52	8
900	16	44	9
1000	18	35	11
1100	20	24	12
1200	22	12	12
1300	24	0	--

¹The proportion of total cost incurred at that weight range.

Source: P.C. Hoffman, Second Biennial Northeast Heifer Management Symposium, September 8-9, 1993. Cornell Animal Science Mimeograph Series.