

Contract Considerations For Dairy Replacements

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Increasing herd production through improved genetics is the main reason for retaining ownership in herd replacements. Contract rearing of dairy heifers can allow the dairy operator to focus resources on the milking herd while still maintaining a supply of quality replacements of known genetics. Effective agreements (contracts) must be mutually beneficial to the herd owner and replacement grower. These agreements must also consider the basic fundamentals in producing well grown, low cost, correct body condition, ready-to-calve replacements.

Background Discussion

Replacement heifers represent a major expense in producing 100 pounds of milk. For example, replacement expense is second only to feed in most budgets. Therefore, contract rearing agreements must be competitive with home grown cost. In addition, feeding and management of the replacement directly impact first lactation production and herd life production. Agreements and/or conditions of the contract should optimize future production potential of a quality ready-to-calve replacement. Total costs from birth to first calving are also directly impacted by feeding and management. These key relationships hold true in operations where replacements are home grown or when replacements are grown under contract by a second party (grower). Providing adequate sized replacements near the 23-25 month age range at the lowest possible cost should be the objective in both situations. The following discussions will focus on key considerations for contract rearing of replacement heifers.

The summary of cost from birth to first calving (10 days prior) in Tables 1-3 will aid in this discussion of contract considerations. Four time periods are used to discuss replacement heifer feeding, management and expense. These periods consist of the liquid feeding, weaning to 400 pounds, 400 pounds to breeding and breeding to calving. The summary of expenses in Tables 1-3 are based on heifers weighing 1,333 pounds at 25.1 months of age. The liquid feeding period is 60 days with breeding weight set at 850 pounds. Total gain from birth to calving is 1,243 pounds with a 1.62 pound average daily gain. Feed cost is based on alfalfa hay and corn silage blended with grain to meet growth requirements using least cost formulations in each period. Rations were formulated for moderate rates of average daily gains of 1.0 lb liquid feeding period, 1.6 lb weaning to 400 lb, 1.8 lb from 400 lb to breeding and 1.6 lb from breeding to calving. Higher rates of gain tend to increase daily expense and decrease cost for gain, but may lead to fat replacements with subsequent reduction in milk production.

Non-feed costs include yardage, interest on livestock and operating, breeding, death loss and cull loss. Yardage was set at \$.75 per day during the liquid feeding period and \$.25 from weaning to first calving. Yardage includes labor, bedding, required drug and veterinary cost, ownership cost on facilities and equipment and operating cost on equipment. The distribu-

tion of these costs are summarized in Tables 2 and 3. Feed and yardage would be major items transferred to the replacement grower. Breeding and death loss is usually negotiable between the two parties. Depending on the method of payment, interest on operating may or may not be transferred to the grower. The owner of replacements on contract is usually billed monthly for all or partial payment for heifers on feed.

Contract Considerations

The cost summary in Tables 1-3 reflect typical costs from birth to first calving and respective costs for the four time periods. Agreements may be made to transfer replacements to second parties for only segments of the total growing period. These might include birth to weaning or more typically from around 400 pounds to calving. The average daily cost per pound gain differ greatly during the four time periods summarized in Table 1. The liquid feeding period and breeding to calving period have higher costs per day and cost per pound of gain. Typically, the growing periods after weaning to breeding are associated with lower feed cost and more efficient gain.

Liquid Feed Period

The length of the liquid feeding period is a key consideration in contract growing dairy calves. Non-feed expense exceeds feed expense in the example cost summary in Table 1. Labor requirements during the liquid feeding period account for the majority of non-feed expense. This is directly related to the length of the liquid feeding period. Our example is based on 60 days. The impact of liquid feeding period length is illustrated in Table 4 with higher cost associated with longer periods. Substantial increases occur with liquid feeding periods of 90 and 120 days. Death loss is also a consideration when working out contract agreements for growing dairy calves. Major losses can occur during the liquid feeding period. Provisions should be included in agreements to address calf mortality.

Growing Heifers

Starting weight and breeding weight are key considerations on heifer contracts. Heifers are often started on the dairy followed by contract growing. Usually these heifers are in the 400 pound range at the time of transfer. Feed intake increases and efficiency of gain decreases in growing heifers. Consequently, cost per day and cost per lb gain increases with size. The starting weight of contract heifers directly impacts the average cost from beginning to end of the feeding period. This starting weight consideration is illustrated in Table 5. Lighter starting weight calves result in lower daily expense and lower gain cost to breeding (conception) and to calving. This calculated cost advantage with a lighter starting weight has been documented by research feeding trials conducted by the University of Idaho. In these trials a steady increase in cost occurred with increases in starting weight of Holstein heifers.

Increasing the weight at breeding results in a corresponding increase in the weight of the ready-to-calve replacement. Replacement heifers that exceed 1350-1400 lbs prior to calving are usually past 900 lbs at breeding. The impact of two breeding weights (750 lb and 850 lb) are summarized in Table 6 and include cost to conception and calving. Based on 85% heat detection efficiency and 1.5 services per conception most heifers conceive about 25 days after going into breeding groups. The data in Table 6 is based on the assumption that the average daily gain prior to breeding weight remains the same under both situations. This management decision results in only small increases in daily or gain based ration costs. Total feed cost due to an increased num-

ber of days on feed (56 additional days on feed prior to breeding) results in much higher growing cost to the owner of the replacement. Total non-feed cost also increased with increased weight at breeding. Cost comparisons by the University of Idaho suggest that increasing breeding weight by 100 lb adds \$87 to the cost of the replacement heifer.

Discussion

An unlimited number of contract arrangements are being used to compensate the grower for rearing dairy heifers. Feeds, labor, and facilities are usually provided by the grower for a set fee. Death losses, breeding fees, drugs, veterinary services and transportation are often negotiated within general agreements based on gain, daily head charge or feed plus yardage. The bottom line to the replacement owner is “what is it going to cost?”. The cost to the dairy owner will depend on the share of economic responsibility that is transferred to the grower. The following is a brief discussion of possible methods of establishing cost for replacement contracts.

Gain Based Contracts

Many contracts for rearing dairy heifers are based on weight gain. A specified price is established for the total gain of the animal during the contract period. Fees for breeding are often charged directly to the owner. The grower is usually expected to provide lockup breeding pens. Heat detection may be the responsibility of the grower or the AI technician provided by the replacement owner. Upper limits for average daily gains may be set by the replacement owner.

Advantages for contracting on a gain basis include a fixed cost over the contract period and ease of calculations. Changes in feed price over the feeding period will not impact the cost to the replacement owner but, impact the grower. Gain based agreements must take into account differences in the receiving weights of incoming replacements and breeding weight consideration. Some stepwise pricing schemes are being used to compensate for receiving weights. For example, \$.02 increases in contract price for each 50 lb increment over 450 lb. Since the cost per unit gain decreases with higher average daily gains, some conflicts can develop over the degree of conditioning on replacement under gain based contracts. Growers may tend to favor high average daily gains because of favorable economics however, these gains may be detrimental to the replacements and not in the best interest to the owner.

Daily Charges on a Head Basis

Contracts are also being based on a daily charge per head. Daily charge is determined for the feeding period. Receiving and breeding weights require consideration in this arrangement as with gain based contracts. This provides easy monthly billing to the replacement owner and aids in cash flow planning. Rate of gain becomes less important to the grower. The replacement owner in this arrangement will usually specify expected rates of growth or performance. Feed costs per day increase with larger heifers. Likewise starting weight of incoming replacements will impact average daily ration cost to calving to the grower. As with gain based contracts, other expense items are negotiated. Getting replacements bred impacts days on feeding. Consequently, breeding arrangements should be clearly defined.

Feed Plus Yardage

Feed plus yardage is a common method to feed beef cattle on contract. Feeds are charged to the cattle owner with a daily yardage charge of \$.15 to \$.25 assessed per head to cover labor, facilities and grower operating cost. Gain is less important to the grower. Total cost for rearing replacements become more variable to the owner. Risk for major changes in feed price are shifted to the replacement owner. Feed plus yardage reduces any possible conflicts between the grower and replacement owner on rate of gain. Discussions are usually necessary to establish the items covered in the yardage charge (heat detection, veterinary and drugs, death loss etc.).

Ration Cost Only

Rations cost include feeds plus markup to cover labor and other expenses normally considered yardage. Gain is not important to the grower unless minimum levels are set by mutual agreement between the owner and grower. The owner may have input into ration specifications and/or requirements. This method allows for monthly billing, however, exact billing amounts are less predictable. Cost for additional expenses are negotiated.

Option to Purchase

Option to purchase contracts are also used to farm out replacements. The owners sells the calf or started replacement heifer but reserves the right to buy the springer at current or a pre-determined price. The owner may retain a partial interest in each animal that is transferred to the grower if the owner elects not to buy the replacement at the end of the contract. This method transfers all growing costs to the grower (owner) of the replacement. Long term springer heifer price may impact the cost of replacements to the dairymen selecting this method unless a pre-determined sales price is used in the contract.

Summary

Contract rearing of replacement heifers can be good for both parties. It is an excellent way to market high quality roughage by the grower. The length of the liquid feeding period and calf mortality are key considerations for dairy calves. In growing cattle, receiving and breeding weight impact cost per day and lb gain for the time on feed. Conflicts in rate of gain and body condition can occur on gain based contracts. Contracts based on daily head charges and feed plus yardage prevent this possible conflict.

(Note — HCOST: A Dairy Heifer Enterprise Budget Worksheet, was used to generate cost in this manuscript. The program is available from the University of Idaho for \$10.00. Request MCUG-37, Ag Communications, College of Agriculture, University of Idaho, Moscow, Idaho 83843)

<<<< 6 Tables need to be included >>>>

Table 1. Distribution of Replacement Cost by Time Period.*

Period	Feed (\$)			Non-Feed (\$)			Total (\$)		
	Total	/Day	/Lb Gain	Total	/Day	/Lb Gain	Total	/Day	/Lb Gain
Liquid Feeding	55	.91	.91	61	1.00	1.00	115	1.91	1.91
Weaning - 400 lb	77	.49	.31	62	.40	.25	140	.89	.56
400 lb to Breeding	220	.80	.44	128	.47	.26	348	1.27	.70
Breeding to Calving	346	1.26	.79	211	.77	.48	557	2.03	1.27
Total	698	.91	.56	461	.60	.37	1159	1.52	.93

*Based on 60-day liquid feeding period, breeding period starting at 850 lb and calving at 25.1 months and 1333 lb.

Table 2. Distribution of Dairy Replacement Costs

Item	\$/Head	% of total	\$/Day	\$/Lb Gain
Yardage*	221	19.1	.29	.18
Breeding	27	2.3	.04	.02
Feed Cost	698	60.2	.91	.56
Death Loss	37	3.2	.05	.03
Cull Loss	12	1.1	.02	.01
Interest Operating	61	5.3	.08	.05
Interest Livestock	102	8.8	.13	.08
total	\$1,159	100%	\$1.52	\$.93

*Yardage based on \$.75/day liquid feeding period and \$.25/day all other periods.

Table 3. Percent Distribution of Cost by Time Period

Item	% of Period Cost				
	Liquid Feeding	Weaning to 400 lb	400 to Breeding	Breeding to Calving	Total Time
Yardage and breeding	39.2	28.1	19.7	17.1	21.4
Death Loss	9.9	6.7	1.8	1.8	3.2
Feed Cost	47.7	55.4	63.1	62.1	60.1
Int. Op. Capital	1.4	3.6	6.2	5.9	5.3
Int. Livestock	1.8	6.2	9.2	10.8	8.9
Cull Loss				2.2	1.1

Table 4. Days on Liquid Feed on Cost to 400 Pounds*

Period	Feed (\$)			Non-Feed (\$)			Total (\$)		
	Total	/Day	/Lb Gain	Total	/Day	/Lb Gain	Total	/Day	/Lb Gain
60	131	.61	.43	122	.56	.39	254	1.18	.82
90	143	.67	.46	136	.63	.44	279	1.29	.90
120	149	.74	.48	148	.73	.48	297	1.48	.96

* Based on average daily gains for the three liquid feeding periods of 1.0, 1.25 and 1.5 lb respectively.

Table 5. Starting Weight of Contract Replacements on Feed Cost to Calving

Starting Weight	Cost to Conception ¹ (\$)			Cost to Calving ² (\$)		
	Total	Ration/Day	/Lb Gain	Total	Ration/Day	/Lb Gain
350	230	.76	.42	576	1.00	.59
400	211	.77	.43	577	1.02	.60
450	193	.78	.44	539	1.03	.61
500	172	.79	.44	518	1.05	.62
550	153	.80	.45	499	1.07	.64
600	132	.81	.45	478	1.09	.65

¹ Breeding period starting at 850 lb with average conception occurring at 894 lb.

² Values based on total from starting weights to 1333 lb at 25.1 months of age.

Table 6. Breeding Weight of Contract Replacements on Feed Cost to Calving.

Breeding Weight	Cost to Conception ¹ (\$)			Cost to Calving ² (\$)		
	Total	Ration/Day	/Lb Gain	Total	Ration/Day	/Lb Gain
750	174	.80	.44	496	1.01	.60
850	220	.80	.44	566	1.03	.61

¹ Breeding period starting at 750 lb with average conception at 794 lb and 850 lb breeding period with average conception at 894 lb.

² Cost to calving from 400 lb on final weight of 1233 lb for 750 lb breeding (833 lb gain) and 1333 lb for 850 lb breeding (933 lb gain).

56 additional days on feed are required with increased weight at breeding.

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