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Staff Paper

Income Potential & Guidelines
for the Custom Dairy Heifer Grower

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As the dairy industry in Michigan grows and specializes, many dairy producers may contract out replacement rearing to professional heifer growers. This trend will provide a business opportunity for people with the labor, facilities, and desire to grow heifers. There certainly is profit potential for the custom grower as long as expenses, labor, and animal management requirements are carefully estimated. Before jumping into a custom heifer grower business, growers should decide how much time and money they want to spend, and how much profit they can realistically expect. There is no formula or exact list of things to follow that will absolutely indicate whether a contract heifer rearing business will succeed. Establishing a good working relationship with the dairy producer providing the heifers is a must. Growers should use a written contract to establish economic and management conditions of the heifer rearing agreement. The contract should be the starting point for communication between the grower and producer to discuss expectations and preferences. Both parties must clearly communicate their expectations in order to lay the groundwork for a successful partnership

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Introduction

Current trends suggest that many Michigan dairy farms will become larger in the coming years. As they grow, they may face a short supply of feed and labor to grow heifer replacements. Other farmers will choose to stop milking. They will have extra buildings, feed and labor that could grow heifers. **The goal of this paper is to explore the economics of developing custom heifer grower businesses for Michigan's dairy industry.**

Michigan dairy producers often manage their dairy replacements by groups: 1) **birth to weaning** (0 to 2 months); 2) **transition** (2 to 6 months); 3) **growing and breeding** (6 to 16 months); and 4) **bred to pre-fresh** (16 to 23 months). This staff paper will look at these four management phases and the economics that influence the management decisions. Each producer and custom grower can decide which phases of heifer growth may best be accomplished by the custom grower in their management plan.

Reasons to Custom Grow Heifers

There are several advantages and disadvantages for both the dairy producer and custom heifer grower to consider when making the decision to specialize the business of raising replacements (2). Both will need to determine the impact heifer raising will have on their business goals.

Advantages to Dairy Producer

- Decreased labor requirements
- Increased milking herd management
- Increased facility capacity for milking cows
- Herd expansion without capital investment

Advantages to Custom Grower

- Business opportunity
- Use of out-dated facilities
- Recapture of fixed cost of unused facilities
- Scheduled working hours
- Use and marketing of forage and grain crops

Disadvantages to Dairy Producer

- Lose outlet for low quality feeds
- Lose management control
- Possibly poorer replacement heifers
- Fixed cost of unused replacement facilities
- Producer/custom grower conflicts

Disadvantages to Custom Grower

- Increased repair requirements of facilities
- Increased farm presence
- Producer/custom grower conflicts

Pricing by the Custom Grower

The first step for the custom heifer grower is to determine the cost and time associated with raising heifers. Table 1 on the following page is a breakdown of the costs associated with raising heifers in typical Michigan dairies. Variable and fixed costs associated with each management group have been estimated. The feed costs shown in Table 1 are based on average market prices for feed. Feed expenses need to be recalculated as market prices fluctuate. The feed budget in Table 1 was estimated using common ration components. The use of pasture or other feed sources could significantly effect budgeted feed expenses. These calculations do not take into account feed wastage by animals. The livestock costs, interest, and fixed costs for buildings

and equipment were estimated from Telfarm records of heifer enterprise accounting.

As an example: work through the budget calculation from Table 1 to determine the expenses for raising a heifer from 2 to 23 months of age. **For the duration of this paper, we will be referring to the 2 to 23 month custom growing example.** The custom grower in this situation is going to assume management responsibility for the heifers at 2 months of age and raise them to pre-fresh (23 months of age). Pre-fresh heifers should be transferred back into the dairy producer's herd by 1 month before calving to assure proper nutrition and management.

The calculations assume that the custom grower does not purchase the heifer and does not pay for transport of the animal. In the following box, we work through the calculations for custom grower's feed costs. The total amount of feed for the calculations was determined by adding up the amounts of feed from each management age group in Table 1.

Example 1. Calculating Feed Costs (2 to 23 months).

Cost item(as fed)	\$/lb.	lb. fed	Cost(\$)
Hay silage (\$30/ton)	0.015 X	9728	= 145.92
Corn silage (\$24/ton)	0.012 X	14303	= 171.63
Corn (\$2.58/bu)	0.046 X	153	= 7.04
Soybean meal (\$214/ton)	0.107 X	691	= 73.93
Vitamins/minerals	0.166 X	38	6.31
Total Feed Costs			404.83

The budget shows corn silage is \$24 per ton (2,000 lb. x \$0.012). The custom grower will either "sell" their own corn silage through the heifers for \$24, or buy silage for that price. If a custom grower can grow corn silage for less than \$24 per ton, there will be additional profit built into the expense calculations from budget savings.

How Much to Charge

All of the expense calculations shown in Table 1 do not include labor. Growers have the opportunity to build in profits by managing expenses, but should plan their profits on the basis of labor charges. Therefore, if the custom grower wants to get \$10 per hour for labor and it will take 17 hours of labor to raise each heifer, the labor charge would be \$170 per heifer.

For the example where the grower raises heifers from 2 to 23 months, the labor needed from the budget in Table 1 is (4 + 7 + 6) = 17 hours, or \$170 at \$10 per hour.

The amount the grower charges the producer per day should be determined by adding up all the expenses necessary to raise the heifer according to the contract, plus labor charges. For the example we are working through, this amount would be {\$102.89 + \$318.66 + \$265.80 + labor (\$170)} = \$857.35 for the 21 months. There are approximately 641 days in 21 months, so the daily charge per head would be \$1.34/day (\$857.35/641 days), if the grower desires \$10/hour for labor and management.

Payment Schedule

The custom grower probably would like to get paid every month to cover labor and expenses as they occur. If the custom grower had to wait 21 months to get payment, then an interest charge for money spent might be added into the price charged the dairy producer. Another pricing method is to have the dairy producer pay per pound of gain. In the budget example, including the labor charge, \$857.35 takes the heifer from 186 lb. up to 1,366 lb. or a gain of 1,180 pounds. This is \$0.73 (857.35/1,180) per pound of gain.

Potential Income

If the custom grower wants a full time job, the question arises of how many heifers can be handled at once. The assumed 17 hours spread over 21 months is about 0.81 hour per month for one heifer. A grower willing to work 160 hours per month (40 hour week) might care for just under 200 (160 divided by 0.81) head in any given month. This would return \$1,600 (at \$10 per hour) per month or \$19,200 per year if a constant sized herd of variable ages could be maintained.

Another way to determine income potential would be to calculate returns from some common daily charge rates. Table 2 shows the potential annual income for a custom grower with a constant herd of either 100, 200 or 300 heifers, calculated using the daily charge per head method. The returns to labor is the income at each level of daily charges minus the estimated expenses (not including labor). The income is calculated by taking the growing charge per day X 365 days X the number of head. The expenses are calculated using the average daily cost of raising heifers from 2 to 23 months from

Table 1. Budget Calculations for Determining Cost of Growing Heifers.

	Management Age Group ^a						
	0 to 2 months (100-185 lb.)	2 to 6 months (186-410 lb.)	6 to 16 months (411-972 lb.)	16 to 23 ^b months (973-1366 lb.)	0 to 23 months (100-1366 lb.)		
	Amount(lb.)	Cost(\$)	Amount(lb.)	Cost(\$)	Amount(lb.)	Cost(\$)	Cost(\$)
I. Variable Costs							
A. Feed Requirement ^c							
1. hay, 22% CP	60	2.10	0	0	0	0	2.10
2. alfalfa silage	0	0	271	4.07	2,330	34.95	145.93
3. corn silage	0	0	1,395	16.73	7,747	92.96	171.62
4. corn, ground	0	0	153	7.04	0	0	7.04
5. soybean meal	0	0	233	24.93	424	45.36	73.93
6. vitamins/minerals	4	0.66	7	1.16	18	2.99	6.97
7. calf starter	60	7.80	0	0	0	0	7.80
8. milk replacer	60	46.08	0	0	0	0	46.08
Total Feed Costs		56.64		53.93		176.26	461.47
B. Livestock costs							
1. bedding - \$40/T		3.48		6.96		17.39	40.00
2. veterinarian, medical		13.00		2.00		2.00	26.00
3. breeding		0		0		23.00	23.00
4. power & fuel		1.91		3.83		9.57	22.00
5. supplies, etc.		0.70		1.39		3.48	8.00
6. overhead		1.48		2.96		7.39	17.00
Total Livestock Cost		20.57		17.14		62.83	136.00
Total Variable Cost (feed & livestock)		77.21		71.07		239.09	597.47
II. Fixed Costs							
1. building costs		6.52		13.04		32.61	75.00
2. equipment		9.39		18.78		46.96	108.00
Total Fixed Costs		15.91		31.82		79.57	183.00
III. Total of Above Costs		93.12		102.89		318.66	780.47
IV. Labor Hours							
Total costs/day (line III)		8		4		7	25
Total cost/lb. of gain(line III)		1.53		0.84		1.05	1.11
		1.10		0.46		0.57	0.62

^a Management Age Group in days: (0 - 61 days) (62 - 183 days) (184 - 488 days) (489 - 702 days) (0 - 702 days).

^b Pre-fresh heifers should be transferred back into the dairy producer's herd by one month before calving to assure proper nutrition and management.

^c The feed quantities for heifers 2 to 23 months old were calculated using Spartan II Dairy Ration Evaluator. Feed quantities for heifers 0 to 2 months old are from reference 2.

Table 2. Estimated Profit Potential for Custom Grower.

Daily Charge Method	Number of Heifers		
	<u>100</u>	<u>200</u>	<u>300</u>
Total Income, \$			
\$1.072/head/day*	39,128	78,526	117,384
\$1.10/head/day	40,150	120,450	200,750
\$1.20/head/day	43,800	131,400	219,000
\$1.30/head/day	47,450	142,350	237,250
\$1.40/head/day	51,100	153,300	255,500
\$1.50/head/day	54,750	164,250	273,750
Total expenses	39,128	78,526	117,384
Returns to labor @			
\$1.072/head/day	0	0	0
\$1.10/head/day	1022	2044	3066
\$1.20/head/day	4,672	9,344	14016
\$1.30/head/day	8,322	16,644	24,966
\$1.40/head/day	11,972	23,944	35,916
\$1.50/head/day	15,622	31,244	46,866

*Breakeven charge for expenses, does not include labor charges.

Table 3. Estimated Profit Potential for Custom Grower.

Per Pound of Gain Method	Number of Heifers		
	<u>100</u>	<u>200</u>	<u>300</u>
Total Income, \$			
\$0.583/lb. of gain*	39,154	78,309	117,463
\$0.65/lb. of gain	43,654	87,308	130,962
\$0.70/lb. of gain	47,012	94,024	141,036
\$0.75/lb. of gain	50,370	100,740	151,110
\$0.80/lb. of gain	53,728	107,456	161,184
\$0.85/lb. of gain	57,086	114,172	171,258
Total Expenses	39,154	78,309	117,463
Returns to labor @			
\$0.583/lb. of gain	0	0	0
\$0.65/lb. of gain	4,500	8,999	13,499
\$0.70/lb. of gain	7,858	15,715	23,573
\$0.75/lb. of gain	11,216	22,431	33,647
\$0.80/lb. of gain	14,574	29,147	43,721
\$0.85/lb. of gain	17,932	35,863	53,795

*Breakeven charge for expenses, does not include labor charges

Table 1 (\$1.072), \times 365 days \times the number of head. The total cost of \$1.072 per head per day was calculated by adding up the total expenses for the three age groups (102.89 + 318.66 + 265.80 = 687.35) from line III in Table 1 and dividing that by the number of days (641).

Table 3 consist of the same calculations for the same age groups based on income and expenses per pound of gain. The average daily expenses per pound of gain was calculated by dividing the total expenses for the three age groups by the total pounds of gain ($\$687.35 / 1,180 \text{ lb.} = \0.583 per pound of gain per day). An average daily gain of 1.84 lbs per day was assumed for the purpose of the calculations in Table 3.

To determine the value of the grower's labor and management in this situation, simply divide the annual returns by the number of hours required per year for the number of heifers. For example, the grower's wages from labor and management for a grower raising 200 heifers and charging \$1.30/head/day would be calculated as follows:

Wages For Labor and Management	
Returns to labor from Table 2	= \$16,644
Estimated hours of labor*	= 1,944
\$16,644 / 1,944 hours = \$8.56 /hour	
<i>(0.81 hours/heifer/month \times 200 heifers \times 12 months)</i>	

Considerations for the Custom Grower and Dairy Producer

Facilities Considerations

An evaluation of heifer raising facilities is vital for success. Facilities are often overlooked and assumed adequate. Considerations of adequacy must include: ventilation, cubic feet per animal, bunk space, water supply, lighting, and handling equipment. These environmental factors are critical for proper growth and health of heifers. Both growers and producers should evaluate facilities to insure that they do not limit growth and health standards established for the heifers in the contract. For facilities recommendations, see Midwest Plan Service publication 7 (9).

Contract Considerations

A *written contract* should be utilized for the protection of both the owner and the custom grower. The main benefit of a contract is to identify the responsibilities of the owner and custom grower. Contracts should also specify growth guidelines (weight, height, and age at end of contract), and indicate fee and payment arrangements. Any written contract should be dated, and signed by both parties. Example 2 (2) on the following page contains a list of items that could be included in a written heifer contract between the grower and dairy producer.

Example 2. Potential Items to Include in Contract.

Breeding	Feed
AI services	forage
semen	grain
sire selection	protein supplement
heat detection aids	mineral
pregnancy checking	salt
heat detection	feed additive
Veterinary	General
deworming	bedding
dehorning	labor
hoof trimming	identification
emergency health care	insurance
medications	power/fuel
parasite control	barn repairs
autopsy	maintenance
vaccinations	manure handling
	part-time labor
	death loss
	fly control
	trucking
	growth monitoring
	water

Types of Contracts

The real reason for having a contract is to establish a starting point for communication between the heifer owner and the grower. A contract is a way to level the different expectations that dairy producers and growers might have. There are several types of contract arrangements that growers and producers can draw up.

(1) Option-to-purchase agreement. The grower purchases the calves and agrees to give the contracting dairy producer the first option to buy the heifers back at a later date for an agreed upon price.

(2) Direct contract agreement. The title to the animals remains with the contracting dairyman and the custom grower is hired to provide the labor, feed, buildings, equipment and other items for a specified period for a specified price. This type of agreement appears to be more common in Michigan.

(3) Daily charge per head per day. This type of arrangement is also common and has the advantage of complementing both parties by having a monthly billing for cash-flow planning.

(4) Gain-based contracts. This type of contract is more common with beef producers but has implications for heifer growers. Under this arrangement, the dairy producer would pay the grower per pound of gain up to the optimum weight specified in the contract.

(5) Feed plus yardage. This is another contract common for beef businesses. Under this type of contract, the dairy producer would pay for feed, plus a pre-set management fee to cover labor, facilities and operating costs of the grower.

Contract Essentials

A written contract can contain any information desired by the grower and producer, but a clear understanding of five business factors must be well understood before either sign the bottom line.

- ☐ PAYMENT - There are probably as many different kinds of payment plans as there are people in business; make sure it is clear!
- ☐ PERFORMANCE STANDARDS - Spell out the expectations for age, weight, body condition and other standards. Specify how heifers that do not end up pregnant will be handled.
- ☐ HEALTH - The grower should provide the producer with details about a health care plan designed by the veterinarian. Details about dehorning, breeding, and treatment should be included. Transportation issues should be clearly understood. There always will be some death losses no matter who is raising the animals. Many plans assess a % loss to the dairy producer and the grower accepts responsibility for losses above the agreed level.

- ☐ NUTRITION - The grower should have pre-determined rations to meet the performance expectations. Table 1 lists the total amounts of feed estimated during the course of each management age, but nutritional requirements per day change throughout that time frame. The grower and producer need to agree about what to do with non-performing animals.

- ☐ INSURANCE - Both parties need to determine whose insurance company will cover losses due to a catastrophe. Include a legal description of where the animals will be kept during the growing period (township, section, and range) for insurance records.

Develop Your Own Budget and Contract

The insert included in this publication is a blank copy of Table 1. Use the categories to develop a heifer budget using your expenses. An example contract between a custom heifer grower and a dairy producer is also included on the back of the insert. This should give you an idea of how a written contract could be developed for your custom heifer growing arrangements.

Summary

As the dairy industry in Michigan grows and specializes, many dairy producers may contract out replacement rearing to professional heifer growers. This trend will provide a business opportunity for people with the labor, facilities, and desire to grow heifers. There certainly is profit potential for the custom grower as long as expenses, labor, and animal management requirements are carefully estimated. Before jumping into a custom heifer grower business, growers should decide how much time and money they want to spend, and how much profit they can realistically expect. There is no formula or exact list of things to follow that will absolutely indicate whether a contract heifer rearing business will succeed. Establishing a good working relationship with the dairy producer providing the heifers is a must. Growers should use a written contract to establish economic and management conditions of the heifer rearing agreement. The contract should be the starting point for communication between the grower and producer to discuss expectations and preferences. Both parties must clearly communicate their expectations in order to lay the groundwork for a successful partnership.

Suggested References

(These references are available through your MSU Extension Dairy Agent)

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Table 1. Budget Calculations for Determining Cost of Growing Heifers For Your Business.

	Management Age Group							
	0 to 2 months <u>(100-185 lb.)</u>	2 to 6 months <u>(186-410 lb.)</u>	6 to 16 months <u>(411-972 lb.)</u>	16 to 23* months <u>(973-1366 lb.)</u>				
\$/lb.	Amount(lb.)	Cost(\$)	Amount(lb.)	Cost(\$)	Amount(lb.)	Cost(\$)	Amount(lb.)	Cost(\$)
I. Variable Costs								
A. Feed Requirement								
1. hay, 22% CP								
2. alfalfa silage								
3. corn silage								
4. corn, ground								
5. soybean meal								
6. vitamins/minerals								
7. calf starter								
8. milk replacer								
Total Feed Costs								
B. Livestock cost								
1. bedding - \$40/T								
2. veterinarian, medical								
3. breeding								
4. power & fuel								
5. supplies, etc.								
6. overhead								
Total Livestock Cost								
Total Variable Cost (feed & livestock)								
II. Fixed Costs								
1. building costs								
2. equipment								
Total Fixed Costs								
III. Total of Above Costs								
IV. Labor Hours								
Total costs/day (line III)								
Total cost/lb. of gain(line III)								

* Pre-fresh heifers should be transferred back into the dairy producer's herd by one month before calving to assure proper nutrition and management.

Sample Contract

Example of a custom rearing contract. "For Educational Purposes Only"

This contract is made between (custom grower) of (address and phone) and (dairy producer) , (address and phone) on (date) and is for the purpose of custom housing and feeding of heifers.

 (dairy producer) will be responsible for veterinary costs (vaccinations, worming, pregnancy checks), insurance, AI costs, ear tagging for identification, and trucking to and from facility.

 (custom grower) will provide the feed (mineral, salt, grain mix, haylage, silage, dry hay, grazed forages), heat detection, breeding, bedding, dehorning, foot trimming, housing, labor, and daily observation.

Note: Only healthy animals are included in this contract, (custom grower) assumes no responsibility for animals with any illnesses or contagious diseases upon arrival.

Responsibility for death losses will be as follows:

<u> (%) </u>	Dairy producer
<u> (%) </u>	50/50 split of market value
<u> (%) </u>	Custom grower, market value

The dairy producer will deliver (age) old heifers in good health and weighing (lb.) to the custom grower. The custom grower will return pregnant animals to the dairy producer approximately 1 month prior to freshening, weighing (lb.) and measuring approximately (inches) tall. Animals will be bred to calve at (age in months) to (age in months) .

In case of animal mortality, an autopsy will be performed at the expense of the (responsible party) .

Financial terms of this contract are (\$) per head per day, payable monthly on the (day) of each month. Contract will be renewed on an annual basis on (date) of each year.

A (number of days) notice is to be given by the dairy producer when removing any animals from the agreement.

A (number of days) notice is to be given by the custom grower when removing any animals from the agreement, except in cases of illness.

 (signature of custom grower)

 (signature of dairy producer)