



# Off-Site Heifer Raising on U.S. Dairy Operations

## Information Brief

September 2021

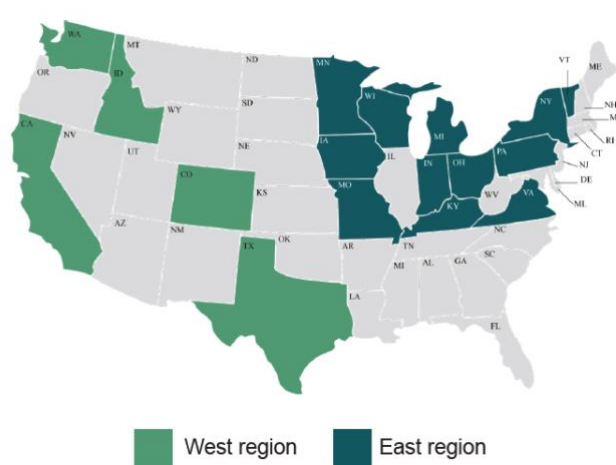
### INTRODUCTION

Off-site heifer raising operations include calf ranches which typically house calves within a few days of age to weaning and also heifer raisers that house calves until calving. Dairies use these operations for a number of reasons including resource constraints, such as employees, land, and feed. Since these operations focus on raising heifers and not milking cows, they may provide exceptional care to this class of cattle. The use of these operations may come with disease transmission risks as commingling cattle from multiple operations can result in disease spread among cattle and ultimately, to the operations where these cattle return. This information brief provides statistics on multiple aspects of operations that use off-site heifer raising operations.

### NAHMS DAIRY 2014 STUDY

In 2014, the U.S. Department of Agriculture’s National Animal Health Monitoring System (NAHMS) conducted the Dairy 2014 study. The study collected data on dairy health and management practices from 17 of the Nation’s major dairy States (figure 1). These States represented 80.5 percent of U.S. dairy operations and 81.3 percent of U.S. dairy cows. During January 2014, producers were asked about their use of off-site calf ranches. Operations were categorized into herd sizes based on the number of adult cows on January 1, 2014 – small (30-99), medium (100-499) and large (500+).

Figure 1. States/regions that participated in the NAHMS Dairy 2014 study



**West region:** California, Colorado, Idaho, Texas, Washington  
**East region:** Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, New York, Ohio, Pennsylvania, Vermont, Virginia, Wisconsin

## OFF-SITE CALF RANCHES

Heifer rearing represents about 20 percent of the total operating expenses on dairy operations, making it the second largest expense behind feeding costs.<sup>1</sup> In order to raise heifers, dairies invest money and resources in feed, labor, and housing without receiving a return on their investments until the heifers calve, usually around 24 months of age. As dairy farms become larger, use of off-site calf ranches is becoming increasingly common.<sup>2</sup> Calf ranches that raise a large number of heifers likely realize economies of scale that allow them to produce heifers at a lower cost than a single dairy farm. Typically, producers and calf ranches enter into a contract that specifies expectations of both parties. This contract may include the age at which calves are transported to the calf ranch and returned to the dairy, expectations of care and growing performance of the calves, and payment responsibilities.

Various types of contracts are used, e.g., contracts in which producers pay calf ranches by the day or by pound of gain and contracts in which the producer sells heifers to the ranch upon delivery and retains the option to buy them back prior to freshening. On operations with limited facilities or labor contracting, an off-site calf ranch has many potential advantages. Moving heifers off-site frees up both labor and space previously dedicated to heifer housing and feed-storage facilities that can be used for the milking herd.

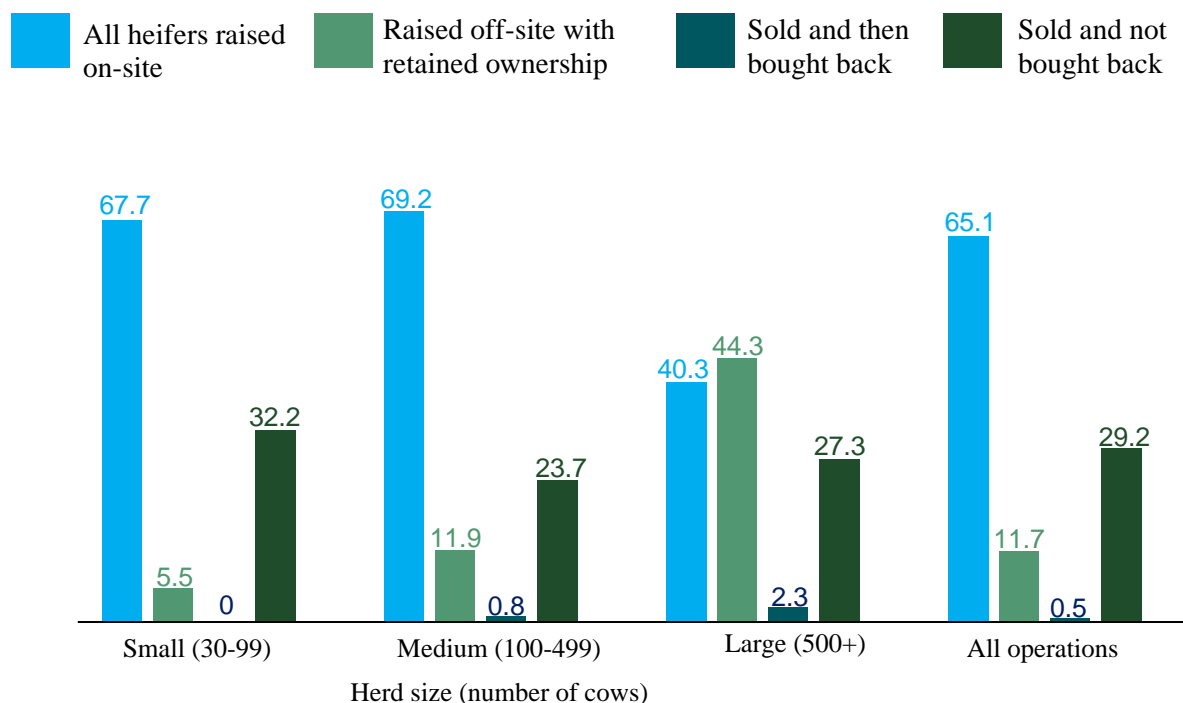
Raising heifers off-site also reduces the amount of manure produced at single sites and/or may allow producers to maintain larger milking herds on the same acreage. Additionally, raising heifers off-site has the potential to decrease heifer calf morbidity and mortality. Calf-ranch personnel are usually dedicated to working only with calves, which can result in increased attention to the feeding and health of calves. In addition, if calves are not commingled with older animals or animals from other operations, their exposure to adult cow diseases and disease agents unknown to their immune system is reduced.

However, commingling heifers from different operations at an off-site heifer ranch increases the risk of disease introduction into the herd. A previous study found that only 6 of 57 calf ranches permanently separated heifers according to farm of origin during the rearing period.<sup>2</sup> Other disadvantages of calf ranches include less control over management practices used in raising heifers, transportation cost associated with moving heifers to the off-site facility, and issues related to entering into and meeting contract obligations.

## HEIFER REARING AND MOVEMENT

The majority of small and medium operations raised all heifers on-site (67.7 and 69.2 percent, respectively). However, less than half of the heifers were raised on-site on large operations (40.3 percent). The percentage of operations that raised heifers off-site with retained ownership increased as herd size increased; 5.5 percent of small operations, 11.9 percent of medium operations, and 44.3 percent of large operations (figure 2).

**Figure 2. Percentage of operations by destination used for heifers, by herd size (number of cows)**

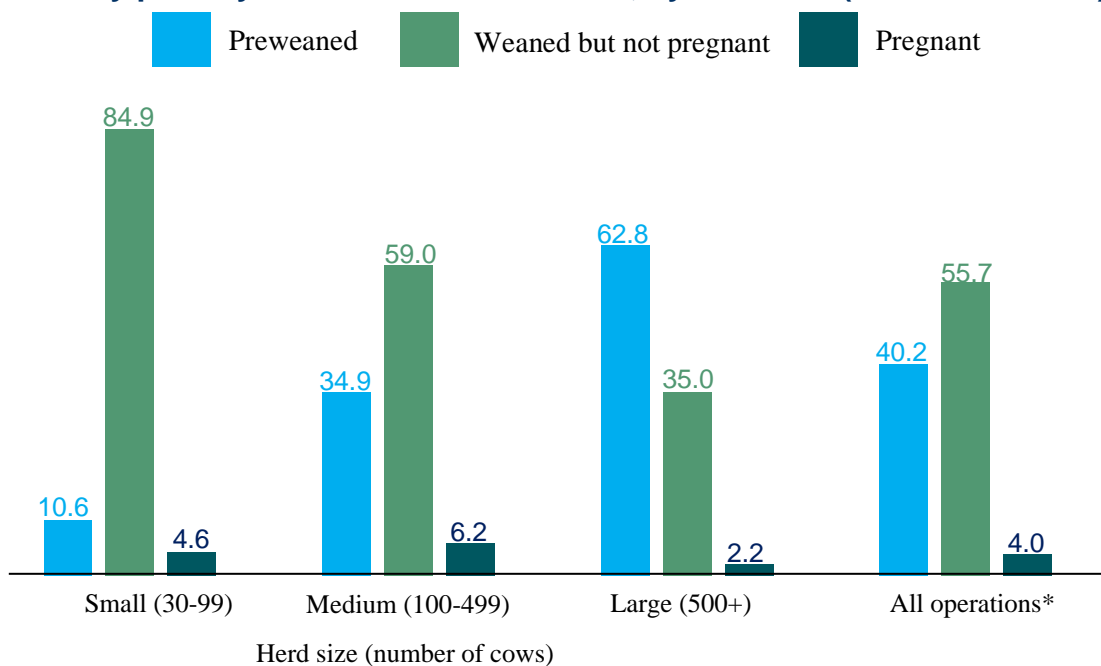


## RAISING DAIRY HEIFERS OFF-SITE

Approximately 12 percent of all operations raised some dairy heifers off-site. For these operations that sent any heifers to off-site rearing or sold heifers and brought them back, over half (55.7 percent) of all operations sent weaned but not pregnant heifers at an operation average\* of 200.3 days of age (figure 3). Preweaned calves were sent off-site by 40.2 percent of all operations. Preweaned calves left the operation at an average age of 6.4 days.

Only 4.0 percent of all operations sent pregnant heifers off-site at an average age of 400.6 days. Regarding operation size, small and medium operations most commonly sent weaned but not pregnant heifers (84.9 and 59.0 percent, respectively). The majority of large operations (62.8 percent) sent off calves as preweaned heifers.

**Figure 3. For operations that raised any heifers off-site, percentage of operations by primary heifer class sent off-site, by herd size (number of cows)**



\*The average value for all operations; a single value for each operation is summed over all operations reporting divided by the number of operations reporting.

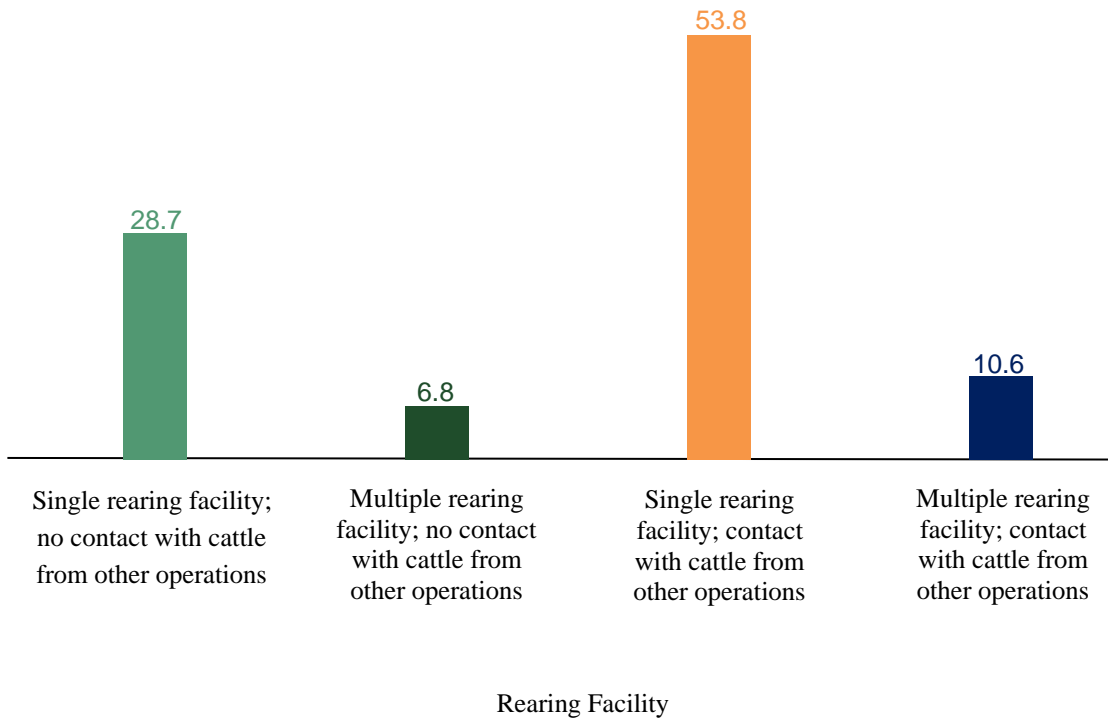
## OFF-SITE CALF RANCH LIQUID FEEDING

Of the 40.2 percent of operations that sent preweaned heifers to off-site facilities, 66.8 percent of operations sent them to facilities that pasteurized all milk fed to heifers. The majority of medium and large operations that sent preweaned heifers to off-site rearing facilities that fed only pasteurized milk (56.2 percent and 75.5 percent respectively). In order to minimize liquid feed costs on off-site heifer raising operations some dairies choose to supply waste milk to the off-site facility. Overall, 26.6 percent of operations supplied waste milk to the off-site calf ranch. More large operations supplied waste milk to off-site rearing operations compared to medium operations (38.4 percent and 4.5 percent, respectively).

## OFF-SITE CALF RANCH HOUSING ARRANGEMENTS

Ideally, to help prevent disease transmission, heifer-raising facilities would house animals from only a single operation. However, only one third of operations (35.5 percent) sent their cattle to rearing facilities where they did not have contact with cattle from other operations; 28.7 percent of these operations sent their heifers to a single facility, and 6.8 percent sent their heifers to multiple facilities. Nearly two-thirds of operations (64.4 percent) that sent heifers off the operation for rearing sent them to facilities where they had contact with cattle from other operations. For operations that sent heifers off-site to be raised and the calves had contact with cattle from other operations, 53.8 percent used a single facility and 10.6 percent sent their heifers to multiple rearing facilities (figure 4).

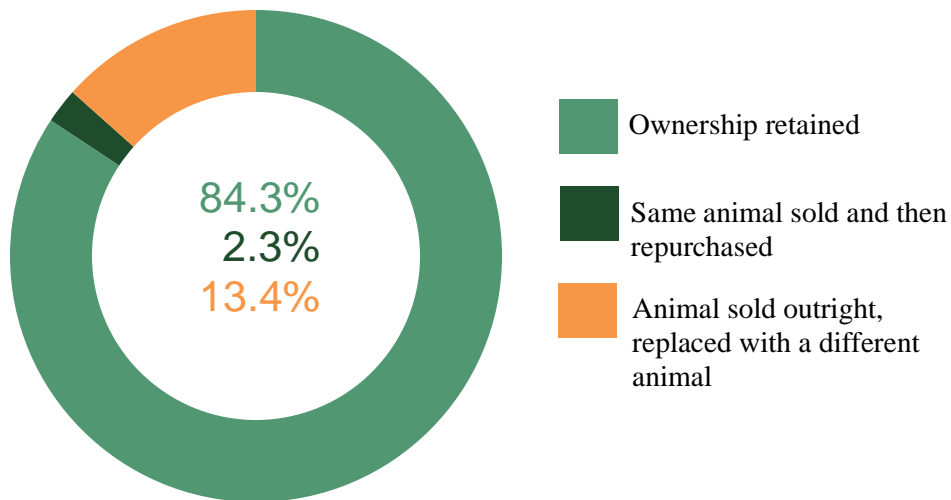
**Figure 4. For the 12.1 percent of operations that sent heifers off-site to be raised, percentage of operations by primary off-site rearing facility**



## OWNERSHIP ARRANGEMENTS

The majority (84.3 percent) of operations that sent dairy heifers off-site to be raised retained ownership of the heifers. A total of 2.3 percent of operations sold the heifers sent off-site and later repurchased the same animals and 13.4 percent of operations sold the heifers and replaced them with different females (figure 5).

**Figure 5. For 12.1 percent of operations that sent heifers off-site to be raised, percentage of operations by ownership of the majority of heifers**



## OFF-SITE HEIFER TRANSPORTATION

Most operations (84.6 percent) that sent heifers to an off-site rearing facility sent them to a facility within 50 miles of the operation (table 1). A higher percentage of small operations than large operations (42.0 and 11.2 percent, respectively) sent heifers to an off-site rearing within 5 miles of the operation. A higher percentage of large operations (12.3 percent) sent heifers 100 miles or more to the off-site rearing facility compared with small and medium operations (0.0 and 2.3 percent, respectively). Less than 5 percent of operations ever transported heifers out of state for rearing.

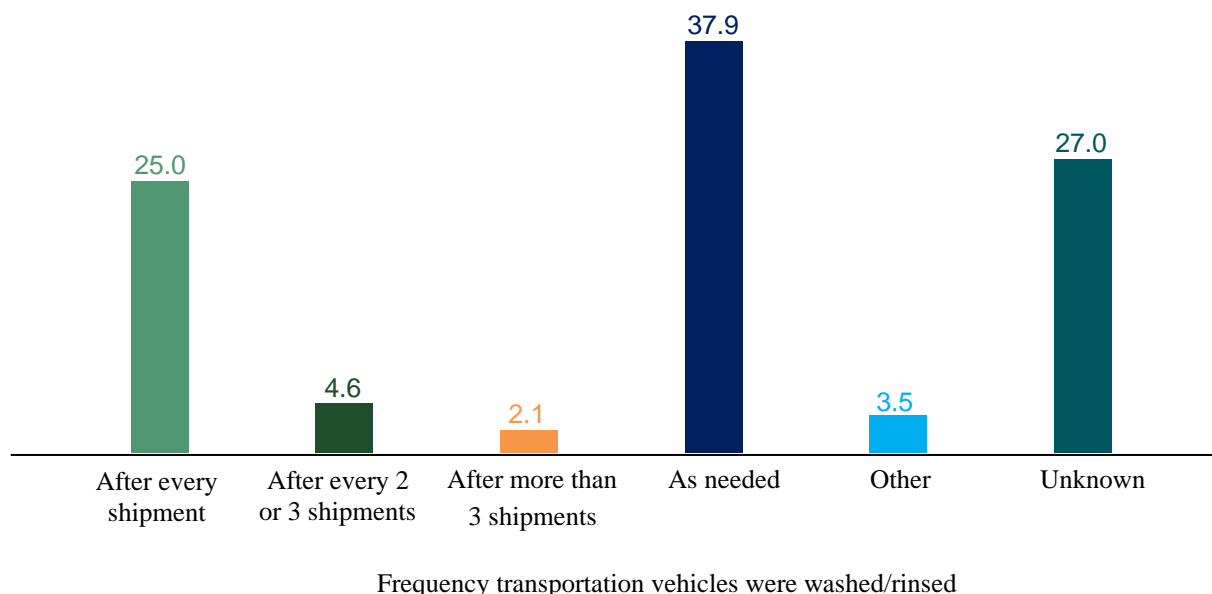
**Table 1. For the 12.1 percent of operations that raised any heifers off-site or sold heifers and brought them back, percentage of operations by distance dairy heifers were transported to the off-site rearing facility**

Percentage of operations by herd size (number of cows)

Distance (miles)	Small (30-99)	Medium (100-499)	Large (500+)	All Operations
Less than 5	42.0	20.3	11.2	22.5
5-19	36.2	49.1	29.1	37.2
20-49	15.4	21.3	33.8	24.9
50-99	6.4	7.0	13.5	9.6
100+	0.0	2.3	12.3	5.8
Total	100	100	100	100

Transport vehicles used to haul heifers or any cattle should be cleaned between shipments to reduce potential disease transmission. Calves' immature immune system puts them at a higher risk for acquiring disease than older animals. Exposure to cattle from other operations or to cattle feces from previous shipments during transport increases calves' disease risk. A quarter of operations (25.0 percent) washed/rinsed their transportation vehicles after every shipment and 37.9 percent of operations washed their transportation vehicles as needed (figure 6).

**Figure 6. For operations that sent heifers off-site to be raised, percentage of operations by primary off-site rearing facility**



## PRIMARY CLASS OF HEIFERS RETURNING FROM CALF RANCHES

Of all operations that sent any heifers to calf ranches about two-thirds (69.6 percent) brought them back to the operation primarily as pregnant heifers (table 2); these heifers returned to the operation at an average age of 21.5 months. About one in three operations (29.3 percent) brought back weaned heifers at an average of 7.5 months. Weaned heifers brought back to small operations were, on average, older (13.2 months) than weaned heifers brought back to medium and large operations (8.2 and 5.3 months, respectively). Only 1.1 percent of all operations, consisting of all large operations, brought back recently fresh heifers.

**Table 2. For the 12.1 percent of operations that raised any heifers off-site or sold heifers and brought them back, percentage of operations by class of most dairy heifers returned to the operations, and by herd size**

Percentage of operations by herd size (number of cows)

Heifer Class	Small (30-99)	Medium (100-499)	Large (500+)	All Operations
Weaned but not pregnant	20.9	24.1	38.2	29.3
Pregnant	79.0	75.9	59.4	69.6
Recently Fresh	0.0	0.0	2.4	1.1
Total	100	100	100	100

## CONCLUSION

The decision to use off-site calf ranches should be made based on the needs and goals of the individual dairy. The producer must decide whether using on-site or off-site heifer raising is the most economical method for achieving the desired replacement heifer quality.

## REFERENCES

1. Heinrichs, A.J. 1993. Raising dairy replacements to meet the needs of the 21st century. J. Dairy Sci. 76:3179-3187.
2. Wolf, C.A. 2003. Custom dairy calf ranch industry characteristics and contract terms. J. Dairy Sci. 86:3016-3022.

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