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Beef x Dairy Crossbreeding Practices and Management of the Resulting Calves on Wisconsin Dairy Farms

Abstract

Extension educators surveyed 40 Wisconsin dairy producers known to breed dairy females to beef sires to gain knowledge of on-farm beef x dairy crossbreeding and calf management practices. The survey consisted of questions about beef sire selection criteria, selection of dairy females to breed to beef sires, newborn calf management, and how they market their beef x dairy cattle. Conception rate, calving ease, and semen cost were the top three sire selection criteria used by dairy producers for beef sire selection, leaving opportunities to incentivize sire selection criteria for carcass and growth traits. All producers reported feeding colostrum within the first 12 hours of birth; however, 32.5% of producers fed less than 4 quarts of colostrum at first feeding. Sixty-five percent of producers marketed their beef x dairy crossbred calves at one week or

less of age, with the remaining 35% marketing their beef x dairy crossbred calves at a few weeks of age on up to finished weights. Results identified the potential for the dairy and beef industries to better collaborate on beef x dairy crossbred sire selection for feedlot performance and carcass traits. The survey also identified the need for further investigation into neonatal calf care practices for beef x dairy crossbred calves.

Introduction

The practice of utilizing beef genetics on dairy cattle has increased since the mid-2010s. McWhorter et al. (2020) found the number of breedings of Holstein females to beef semen doubled between 2015 and 2019 in their analysis of the Council on Dairy Cattle Breeding's database, and Lauber et al. (2023) found an increase in sexed dairy and beef semen use between 2019 and 2021 in their analysis of Dairy Records Management Systems data. Recent gains in dairy herd conception and pregnancy rates, paired with sexed semen use, have changed the dynamics of culling and the number of replacement heifers needed. These advances in reproductive performance have allowed dairy farmers to selectively breed for genetically superior replacement heifers and breed a portion of the dairy herd to beef sires. Breeding some of the dairy herd to beef sires helps manage dairy replacement heifer inventories, reduces rearing costs, and provides greater potential calf sales revenue.

In 2018, Extension educators in Wisconsin, Michigan, and Iowa surveyed dairy producers and artificial insemination (AI) service providers on their use and marketing of beef genetics, respectively, on dairy cattle (Halfman and Sterry, 2019). To update this information, during the summer of 2021, Extension educators surveyed 40 Wisconsin dairy producers known to breed a portion of the dairy herd to beef sires. The purpose of this survey was to collect data on current beef x dairy sire selection and breeding practices and on-farm newborn calf care practices for beef x dairy crossbred calves.

Methods

Paper surveys were distributed in person and through the mail by collaborating Extension Educators in Wisconsin. Extension educators identified dairy farmers in their areas using beef sires for selection to receive the survey. Survey data were collected June 2021 through January 2022. The survey instrument included questions adapted from previous survey work (Halfman and Sterry, 2019). The current survey consisted of 46 questions organized into six broad categories: general farm information; breeding information (how cows and sires are selected); breeding data (which cows are selected and conception rates); newborn calf management; milk feeding practices; and marketing. A copy of the survey is at the end of this article.

All responses were collected on paper forms. Herds were coded by number to remain anonymous during analysis. Responses were entered into Microsoft Excel by an intern hired for this project. The Extension educators leading the project calculated the minimum, maximum, mean, median, and standard deviation for numerical data. Categorical questions on management practices were tabulated and reported as a percentage of the responses. Not every participant answered every survey question. The number of participants who responded to each question is reported in the results.

Results

Forty farms completed the survey. Efforts were made to survey a broad range of herd sizes. Herd size distribution may have been affected by the survey's focus on farms using beef sires. Dairy breed was not asked for in the current survey. The median herd size was 454 lactating cows (mean = 735 cows), ranging from 19 to 7,414 lactating cows. Six herds had 100 or fewer lactating cows, four had 101 to 200 lactating cows, 11 had 201 to 500 lactating cows, 12 had 501 to 1,000 lactating cows, and seven had over 1,000 lactating cows (Figure 1). A total of 29,406 cows were represented in the survey.

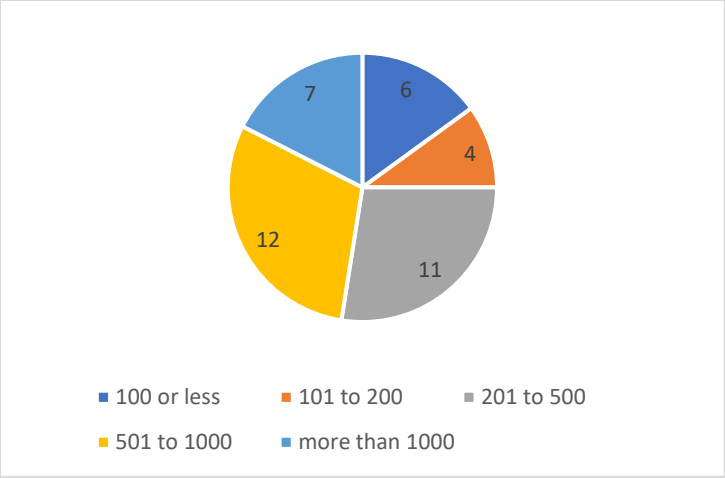

Figure 1. Participants by lactating herd size (n = 40 producers)

Producers also reported their current daily milk production. The median daily milk production was 40.1 kg per cow per day (mean = 38.7 kg), with a range of 21.3 to 49.0 kg reported. A summary of milk production and component values is reported in Table 1.

Table 1. Farm response summary herd milk production*

	Milk Per Cow (kg/day) n=40	**Fat %** n=40	**Protein %** n=39	**MUN (mg/dL)** n=37	**SCC (1000 cells/ml)** n=38	**Mature 305 Milk (kg/305d)** n=27
Mean	38.7	3.97	3.14	10.2	154	13,338
Median	40.1	4.00	3.00	10.0	130	13,568
St Dev	6.5	0.33	0.20	1.5	82	1,995
Min	21.3	3.10	2.85	6.3	14	8,214
Max	49.0	4.96	3.73	14.5	413	16,556

*The number of producers reporting each value is included in the heading title

The percentage of beef x dairy crossbred and replacement heifer calves born on surveyed producers farms varied. The average number of beef x dairy crossbred calves born per year was 454 per farm and ranged from 1 to 6,200. The percentage of beef x dairy crossbred calves born, calculated as the number of calves born divided by lactating herd size, ranged from 3% to 100% with an average of 45% (median = 52%).

Culling rate influences herd dynamics and replacement heifer needs. Annual culling rates were reported for lactating cows and non-lactating heifers at any time before calving. The median culling rate for the lactating cows was 30.0% (mean = 29.9%) with a reported range of 2.0% to 47.0%, and the median culling rate for heifers before calving was 5.0% (mean = 7.6%) with a reported range of 0.0% to 60.0% (Table 2).

Table 2. Average culling rates for cows and heifers (n=40 producers)

	Average Yearly Culling Rates (% per year):	
	Cows	**Non-lactating Heifers**
Mean	29.9	7.6
Median	30.0	5.0
St Dev	8.7	9.8
Min	2.0	0.0
Max	47.0	60.0*

*One farm with max heifer culling rate was at facility capacity and not expanding

Figure 2 illustrates the range in years respondents have been breeding dairy females to beef sires. Participating producers utilized beef sires for five years on average (median = 5 years), but a range of two to 20 years of experience was reported. Most producers, 70%, had between three and six years of experience using beef sires.

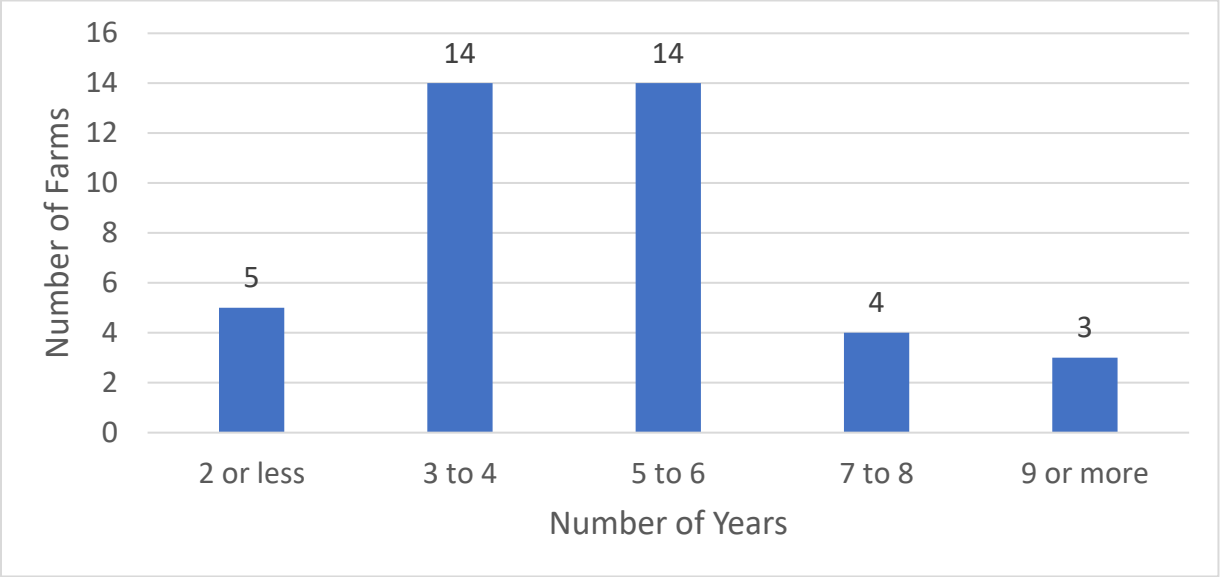

Figure 2. Number of years using beef sires (n=40 producers)

Participants were asked to identify the criteria they used to select the number of cows and heifers to breed to beef sires (Table 3). Replacement heifer needs were identified as the most common factor (by 70% of producers) used for determining how many females to breed to beef sires. Beef x dairy crossbred calf prices were identified by 20% of producers, and dairy calf prices by 7.5% of producers.

Table 3. Farm response summary of how the number of heifers/cows bred to beef sires is calculated (n=40 producers)

	Response % and (no.) of producers
Dairy Heifer Replacement Needs	70.0% (28)
Beef x Dairy Calf Prices	20.0% (8)
Dairy Calf Prices	7.5% (3)
Other	37.5% (15)

Farmers could select more than one response. Survey participants using "Other" criteria were asked to write in those responses, which were organized under these general themes:

Want More Beef X Dairy Crossbred Calves

- Number of animals needed for beef (two producers)
- Own a butcher shop/retail store, so will tend to raise more beef crosses for own use
- Breed all to beef
- Breed 95% of herd to beef

Service Number and/or Days in Milk (DIM)

- Angus semen on all cattle after second service
- Days in milk and repeat breeding
- Anything 150 DIM+ gets beef, no matter what

Based on Breeding Cows vs. Heifers

- Only breed cows to beef
- Breed all heifers to sexed female dairy and breed all cows to beef

"Other"

- Breed A2A1 cows and older cows to beef
- Breed based on crossbred or kind of cow
- Mating program (two producers)
- Full Barn!

Culling rates (cows and heifers) and reproductive efficiency (pregnancy rates) impact the number of replacement heifers each farm needs annually. When asked, 65% of responding producers used cow culling rates, 50% used heifer culling rates, and 50% used reproductive data to determine their replacement heifer needs (Table 4). Again, several other criteria were written in by respondents, with “consultant calculates” as the most common “Other” response.

Table 4. Farm response summary of data used to calculate dairy heifers needed each year (n=39 producers)

Criteria for calculating replacement heifer needs	Response % and (no.) of producers
• **Cow culling rates**	65.0% (26)
• **Heifer culling rates**	50.0% (20)
• **Reproductive Data (Pregnancy Rates)**	50.0% (20)
• **Other**	55.0% (22)
• **Within “Other” - consultant calculates**	15.0% (6)

Participants were asked to rank criteria used to select which cows and heifers are bred to beef bulls (Table 5). Thirty-three producers identified selection criteria, and 28 producers ranked those criteria in order of importance. Artificial insemination (AI) service number was most frequently selected by 29 of 33 responding producers. Next, parent average predicted transmitting ability (PTA) was selected by 21 producers, followed by lactation number by 17 farmers, and genomic PTA by 16 farmers.

Table 5. Criteria used for selecting which heifers/cows to breed to beef sires (n=33 identified criteria; n=28 ranked criteria)

	AI Service Number / Poor Fertility	Parent Average PTA	Genomic PTA	Lactation Number
Response % and (no.) of producers selecting this criterion	88% (29)	64% (21)	48% (16)	52% (17)
Response % and (no.) of producers ranking this criterion 1st or 2nd most important	64% (18)	43% (12)	36% (10)	29% (8)

“Other” criteria (16 responses):

Production

- Test day data (three producers)
- Production (three producers)

Type Conformation

- Cows with poor feet or legs get bred to get one last lactation before they are culled
- Type info (two producers)

Health

- Cow health, mastitis, metritis
- SCC history, relative value
- Health events (mastitis, ketosis, DA)

“Other”

- Number of cows open
- Breed all to beef (three producers)
- A2:A2 milk protein status
- Breed them based on how good or bad they are, not numbers
- Just started using genomics, so that is becoming the #1 source. Used mainly to look at NM$.

Producers shared which beef breeds they were using (Table 6). Eight different beef breeds were reported. Half of our survey producers reported using one beef breed, and half reported using multiple beef breeds. Angus was the most used breed, followed by Simmental x Angus, Limousin, and Simmental.

Table 6. Beef breeds used (n=40)

	Angus	**Simmental x Angus**	**Limousin**	**Simmental**	**Wagyu**	**Limousin x Angus**
# Producers Using Each Breed	34	8	8	7	5	1

Other breeds used (written in; n=2):

- Charolais
- Hereford

The survey asked the percentage of each breed used *within farm* (not overall use in the population; Table 7). Angus and Simmental x Angus were used the most within herd, averaging 72% and 83% of breedings, respectively. While Wagyu was used by 12.5% of

producers, the percentage of use within herd amongst our surveyed producers was lower, averaging 7% of breedings.

Table 7. Beef breed use for beef X dairy crosses (n=37 reported percent use)

	Angus	Simmental	Simmental x Angus	Limousin	Limousin x Angus	Wagyu
Mean % Use in Herd*	72.0	31.0	83.0	61.0	10.0	7.0
Median % Use in Herd*	99.5	10.0	95.0	65.0	10.0	5.0
St. Dev	35.9	33.3	23.1	24.6	n/a	2.7
Min	8.0	1.0	45.0	10.0	10.0	5.0
Max	100.0	90.0	100.0	85.0	10.0	10.0

* The mean and median percent use in the herd are calculated only from the herds reporting using that breed.

Twenty-one of the 40 survey producers reported that the AI representative selected the beef sires used on their farm. Sixteen producers reported that the farm owner or manager selected beef sires. Two producers indicated their calf buyer selected the beef sires to be used, and one farm indicated a consultant made beef sire decisions.

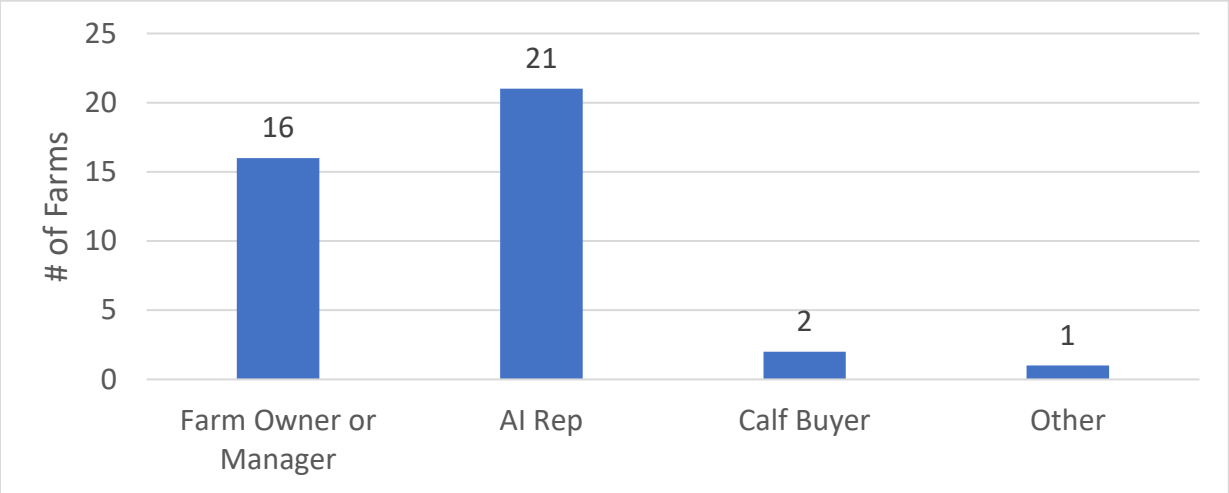

Figure 3. Who makes beef sire selection decisions (n=40 producers)

Thirty-seven producers shared the average price they paid for semen (Figure 4). Semen price was asked for in three categories: conventional dairy, sex-sorted dairy, and beef. Sex-sorted semen had the highest average cost, $31 per unit, as compared to $18 for conventional dairy and $10 for beef semen.

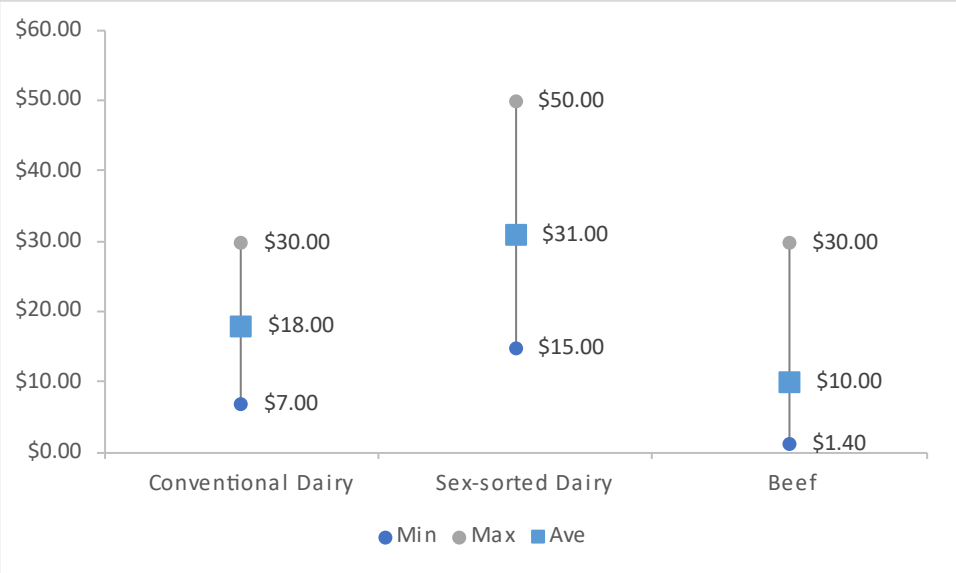

Figure 4. Average price and range in price per unit by semen type (n=37 producers)

Participants were asked to rank the traits used to select the beef sires used on their producers (Table 8). Conception rate was the number one consideration (78% of producers), followed by calving ease (67%), and semen price (58%). Less than 50% of producers indicated selecting for muscling / ribeye area, weaning / yearling weights, a terminal or all-purpose index, frame score, marbling, or any other selection criteria. When ranked by order of importance, 74% of producers ranked conception rate 1st or 2nd most important, followed by calving ease (55%) and semen cost (35%). Less than 10% of producers ranked muscling / ribeye area, weaning / yearling weights, a terminal or all-purpose index, frame score, marbling, or any other selection criteria as their top two most important criteria.

Table 8. Traits used to select beef sires (reported in order of importance; n=36 identified criteria; n=31 ranked criteria)

	Conception Rate	Calving Ease	Semen Price	Muscling / Ribeye	Weaning / Yearling Weight	Index (Terminal or All Purpose)	Frame Score	Marbling	Other
Response % and (no.) of producers using this criterion	78% (28)	67% (24)	58% (21)	22% (8)	22% (8)	14% (5)	14% (5)	14% (5)	8% (3)
Response % and (no.) of producers ranking this criterion 1st or 2nd most important	74% (23)	55% (17)	35% (11)	3% (1)	3% (1)	10% (3)	3% (1)	0% (0)	0% (0)

Thirty-eight producers reported the percentage of heifers bred by semen type (conventional dairy, sex-sorted dairy, and beef; Table 9). One farm reported that all heifers were used as embryo transfer recipients. One farm reported using natural service on all heifers but did not specify the breed of bull. One farm reported using natural service on half the heifers but did not specify the breed of bull but did report the percentage of those bred AI.

Farmers were asked the number of times heifers and cows were inseminated with dairy semen before switching to beef sires. Thirty producers reported the number of times heifers were serviced to dairy bulls, and 33 producers reported the number of times cows were serviced to dairy bulls before switching to beef sires (Table 10).

Table 9. Number of times bred with dairy semen before switching to beef semen

	Heifers (n = 30)	**Cows** (n = 33)
Mean	2.9	2.3
Median	3.0	2.0
St Dev	0.9	1.2
Min	1.0	0.0
Max	5.0	5.0

Thirty-nine producers reported the percentage of first lactation and second and greater lactation cows bred by semen type (conventional dairy, sex-sorted dairy, and beef; Table 10). Beef semen use was greater on 2nd lactation and older cows than for 1st lactation cows.

Table 10. Percent of heifers, 1st, and 2+ lactation cows bred by semen type (n=39 producers)

	Beef Semen			**Sex-Sorted Dairy Semen**			**Conventional Dairy Semen**		
	Heifers (n=38)	**1st Lact.** (n=39)	**2+ Lact.** (n=39)	**Heifers** (n=38)	**1st Lact.** (n=39)	**2+ Lact.** (n=39)	**Heifers** (n=38)	**1st Lact.** (n=39)	**2+ Lact.** (n=39)
Mean	18.0	41.6	60.4	58.0	26.6	10.2	23.0	31.7	29.5
Median	10.0	36.0	65.0	70.0	25.0	5.0	4.5	10.0	10.0
St Dev	26.6	30.3	32.9	36.0	24.3	12.2	34.0	36.3	34.2
Min	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Max	100.0	100.0	100.0	100.0	80.0	40.0	100.0	100.0	99.0

* One farm using natural service on heifers did not specify breed and is not included here.

Forty producers reported newborn calf management practices, specifically if beef x dairy calves are managed similarly to dairy heifer calves, if the navels of beef x dairy calves are disinfected, and if vaccinations are administered to beef x dairy calves (Table 11). When asked about their overall care of beef x dairy crossbred calves, 87% of

respondents indicated dairy replacement and beef x dairy crossbred calves received the same newborn practices. However, when we asked about specific practices, differences emerged. Vaccine use varied depending on if the farmer retained ownership of the calf (Table 12). Fifty percent of producers administered scours and/or respiratory vaccines to beef x dairy crossbred calves. All 10 of the farmers retaining ownership up to and past six weeks of age provided neonatal vaccinations to their beef x dairy crossbred calves.

Table 11. Newborn calf management (n=40 producers)

	Yes	**No**
Newborn Beef X Dairy Calves Managed Similarly to Dairy Heifer Calves?	87.5%	12.5%
Disinfect Beef X Dairy Calves Navels After Birth?	87.5%	12.5%
Provide Calf Vaccinations to Beef X Dairy Calves (Scours/Respiratory)?	50%	50%

Table 12. Newborn calf management – vaccination based on age at marketing (n=40 producers)

Provide Calf Vaccinations to Beef X Dairy Calves (Scours/Respiratory)?		
	Yes	**No**
Market ≤ 2 weeks	33%	67%
Market at 6 + weeks	100%	0%

Forty producers reported that they had enough colostrum (quality not specified) for beef x dairy crossbred calves, if beef x dairy crossbred calves receive a second colostrum feeding, and if they tested colostrum quality (Table 13). Twenty-two producers reported the method used to test colostrum quality, with 82% using a Brix refractometer and 18% using a colostrometer.

Table 13. Colostrum management for beef x dairy calves (n=40 producers)

	Yes	**No**
Sufficient Colostrum	100%	0%
2nd Feeding of Colostrum	50%	50%
Colostrum Quality Tested	52.5%	47.5%

All farmers reported the amount of colostrum fed at first feeding and how soon after birth beef x dairy crossbred calves received their first feeding (Table 14). Ninety-five percent (95%) reported feeding colostrum within six hours of birth, with the remaining 5% feeding colostrum within 12 hours of birth.

Table 14. Colostrum management for beef x dairy calves (n=40 producers)

Amount of Colostrum Provided at 1st Feeding					**How Soon After Birth is Colostrum Fed?**		
None	**1 Quart**	**2 Quarts**	**3 Quarts**	**4 Quarts**	**Within 6 Hours**	**Within 12 Hours**	**After 12 Hours**
0%	2.5%	17.5%	12.5%	67.5%	95%	5%	0%

All producers reported the age that most of their beef x dairy calves are marketed (Table 15). The majority, 65%, reported marketing at less than one week of age. All marketing endpoints were recorded in the survey, with producers additionally marketing calves at weaning, yearling, and finished endpoints.

Table 15. Age most beef x dairy calves are marketed (n=40 farms)

	Response % and (no.) of producers
< 1 Week	65.0% (26)
1-2 Weeks	10.0% (4)
2-8 Weeks	2.5% (1)
8 Weeks – 1 yr	10.0% (4)
Finished	12.5% (5)

All producers reported the marketing channels they use to sell beef x dairy calves (Table 16). Eleven producers reported using more than one marketing channel, eight of which used a combination of auction and direct sales. Sixty percent of producers utilized an auction barn, 57.5% private treaty, 10% a contract program, and 2.5% something else (direct marketed finished beef).

Table 16. Marketing channels used to sell beef x dairy calves (n=40 producers)

	Response % and (no.) of producers
Auction	60.0% (24)
Direct Private Sale	57.5% (22)
Contract Program	10.0% (4)
Other - Own butcher shop / retail store	2.5% (1)

Discussion

The farmers we surveyed had an average of five years of experience using beef sires; 12.5% had less than 2 years and 70% had between 3-6 years of experience. These experience levels were slightly greater than that observed by Periera et al. (2022) in a survey of California dairy herds, where 58% of producers had between one and three years of experience, and 20% had four to six years of experience using beef sires in their dairy herds. Likewise, when Quaassdorff and Hicks (2023) surveyed New York dairy farmers they found the most common response to be two to three years' experience using beef sires in their breeding programs. These results show that many producers who added beef sires to their breeding program were committed to the practice for multiple years. Most of our producers (52.5%) also reported that their AI representative selected the beef sires.

Current industry articles indicate dairy producers are enhancing their herds' genetic progress by breeding the best dairy females to sexed dairy semen and breeding poorer genetic merit females to beef. However, poor reproductive performance is still a leading reason for dairy producers to breed dairy females to beef semen. In our survey poor reproductive performance was identified as the top reason for deciding which females to breed to beef. Felix et al. (2023) also identified poor reproductive performance as the main selection criterion for determining who is bred to beef semen. Pereira et al. (2022) identified reproductive performance as the second leading criterion. Our study found that herd genetics was the secondary criterion for selecting beef semen. Our survey

found sexed dairy semen was most likely to be used in non-lactating heifers, and beef semen was most likely used in second and greater lactation cows. Lauber et al. (2023) also found that sexed semen was more likely to be used in non-lactating heifers, followed by second and greater lactation cows, and that beef semen tended to be used more in older cows.

Which beef breed to use on dairy cattle is a hot topic amongst dairy producers, cattle feeders, and cattle processors. Our findings coincide with other research findings with Angus as the most frequently used breed when crossbreeding (Felix et al. 2023; Lauber et al. 2023; Pereira et al. 2022; Quaassdorff and Hicks 2023). However, our survey found a wide range of breeds were used, with 20% of producers using Simmental x Angus cross sires or Limousin sires, and 17.5% using Simmental sires.

When it comes to beef sire selection criteria, the “3 C’s” were the leading selection traits identified in our survey: conception rate, calving ease, and cost per unit of semen. While performance traits were also identified, they lagged behind the “3 C’s.” For performance traits, muscling / ribeye area, and weaning and yearling weights tied for the highest ranking. These results indicate that opportunities still exist for cattle feeders and beef processors to incentivize dairy producers for placing greater selection emphasis on feedlot performance and carcass traits. Felix et al. (2023) also found that semen price was a leading factor in sire selection, with only 9.5% of Northeastern dairy producers using beef EPD’s for sire selection. Quaassdorff and Hicks (2023) also found that conception rate, calving ease, and semen cost ranked as the most important factors in sire selection.

Dairy industry standards for colostrum feeding have evolved over time, with a greater emphasis placed on the importance of early feeding. The amount of colostrum fed and timing of feeding is critical. Calves should be fed 10-12% of their body weight (3-4 Liters) in the first colostrum feeding. Additionally, colostrum should be fed within the first 24 hours of birth to transfer immunoglobulins across the intestinal wall, and ideally within the first couple hours of birth (Godden et al., 2019). Whether or not dairy bull calves and crossbred calves receive the same level of neonatal care as replacement

dairy heifer calves is a hot topic, with the perception that “surplus” calves may not receive the same care (Creutzinger et al., 2021).

A survey of northeastern US dairy herds found 44% of replacement heifer calves were fed colostrum within two hours of birth, 51% within two to six hours, and five percent were fed after six hours (Kehoe et al., 2007). Our survey results were similar. Farmers in our survey self-identified that they are feeding colostrum in a timely manner, with 95% feeding colostrum within the first six hours of life, and the remaining 5% within the first 12 hours. It is less clear if enough colostrum is being fed. Nine of the 13 farmers providing less than four quarts of colostrum at first feeding reported providing a second feeding of colostrum. Four of the 13 farmers providing less than 4 quarts of colostrum at first feeding did not provide a second feeding. Without testing calves' IgG levels and collecting further information, it is unknown if the producers feeding less than four quarts at first feeding are achieving adequate passive transfer of immunity.

A 2014 United State Department of Agriculture (USDA) survey found that dairy producers used a mix of marketing methods for dairy bull calves, with smaller producers more likely to use an auction barn and larger producers more likely to work through a calf buyer. Overall, the USDA survey found 61.8% of dairy bull calves were marketed through auction, similar to the 60% of beef x dairy crossbred calves marketed through auction by our surveyed producers.

Most producers (65%) from our survey reported marketing their beef x dairy crossbred calves at one week or less of age, with the remainder retaining them for a range of 1 week to finish. These results align with Felix et al. (2023) who reported 64.1% of beef x dairy crossbred calves were sold before one week of age in Pennsylvania and nearby states, and 10.9% were retained on the dairy farm to finishing. Pereira et al. (2022) reported 19.4% of California dairies were raising their own beef x dairy crossbred calves. Our results indicate an opportunity for Extension educators to work with dairy farmers to explore how adding a beef enterprise to the dairy operation impacts farm resources, and to establish good feedlot management practices amongst dairy managers.

Vaccine recommendations for neonatal calves vary based upon the calf's age, herd health history, and the product used (Dewell et al., 2016). Our survey found neonatal vaccine use depended upon the age at marketing. We did not ask the reasons why a farmer vaccinated or not.

Conclusion

Breeding beef sires to dairy cattle continues to evolve as a strategy to control dairy heifer inventories and optimize returns for calves across all farm sizes. The major takeaways of our 2021 survey are that dairy producers focus beef sire selection on conception rate, calving ease, and semen cost, similar to results from other surveys. We identified opportunities for continued research and education to improve dairies' beef sire selection to include performance traits (growth and carcass) which may improve carcass yield at harvest. Calf management was similar between dairy and dairy x beef crossbreds for the producers we surveyed; however, more information is needed to understand colostrum feeding amounts and quality to determine if there are opportunities to improve colostrum management and passive immunity for dairy x beef crossbred calves.

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Dairy Farmer Survey

UW Madison Division of Extension Dairy x Beef Calf Management Survey

Cooperating Farm:_____

Contact Person at Farm:_____ phone _____ e-mail_____

Farm Address:_____

County:_____ Extension Contact for Farm:_____

Please complete the survey using current farm data and management practices. If you need additional time or have questions about what data is requested, please let us know to ensure the data is as accurate as possible.

General Farm Information

Herd population (number of animals in each group):

Lactating cows _____ Dry cows _____ Weaned dairy heifers _____

Dairy heifer calves born last year _____ Dairy x beef cross calves born last year _____

Typical dry period length _____ days

Average yearly culling rates for: Cows _____% culled/year Heifers _____% culled/year

Milk production:

Current milk per cow _____lb/day

Current milk components: Fat% _____ Protein% _____ MUN _____mg/dL SCC _____

Average mature 305 day milk production (if available) _____ lb/cow

Herd record-keeping system used on farm: _____

Breeding Information

General information:

1. How long have you been using beef sires _____

2. What data do you use to calculate the dairy heifers needed each year? (check all that apply)

____ Cow culling rates ____ Heifer culling/death rates _____ Repro data (pregnancy rates)

____ Other – please describe _____

3. How do you figure the number of cows/heifers to breed to beef sires? (check all that apply)

____ Dairy heifer replacement needs _____ Dairy calf prices _____ Dairy beef calf prices

____ Other – please describe _____

4. Please rank in order of importance the criteria you use for selecting heifers/cows to breed to beef sires? (leave the criteria blank if you don't use it)

____ Parent average PTAs _____ Genomic PTAs

____ AI Service Number/Poor fertility _____Lactation number

____ Other - please describe _____

5. Please indicate the percentage each beef breed is used for dairy beef crosses on your farm. Total should equal 100%

_____ Angus _____Simmental _____ Simmental x Angus cross

_____Limousin _____Limousin x Angus cross _____Wagyu

_____Other – please describe _____

6. Who primarily makes the beef sire selections on your farm?

_____ You (farm manager/owner) _____ A.I. service representative _____ Calf buyer

7. Please rank in order of importance the traits you use to select beef sires.
(leave the trait blank if you don't use it)

_____ Calving ease _____Conception rate _____ Muscling/Ribeye area

_____ Marbling _____ Frame score _____ Growth/Weaning or Yearling Weight

_____ Semen price _____ Indexes (terminal or all-purpose)

_____ Other – please describe _____

8. What is your average cost of each type of semen ($/unit)?

Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen _____

Breeding data:

<u>Heifers</u>

1. What % of heifers are bred to:

Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen _____

2. When using dairy semen, how many times do you breed before switching to beef? _____

3. What is your conception rate % for heifers bred to:

Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen _____

Cows

1. What % of 1st lactation cows are bred to:
Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen_____

2. What % of 2nd and greater lactation cows are bred to:
Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen_____

3. When using dairy semen, how many times do you breed before switching to beef? _____

4. What is your conception rate % for cows bred to:
Conventional dairy semen _____ Gender sorted dairy semen _____ Beef semen_____

Newborn Calf Management

General:

1. Are newborn dairy beef calves managed similarly to dairy heifer calves? Yes ____ No ____

2. Do you disinfect dairy beef calves' navels after birth? Yes ____ No _____

3. Do you provide calf vaccinations (scours/respiratory) to dairy beef calves? Yes ____ No ____

Colostrum Feeding:

1. Do you typically have sufficient colostrum to feed to dairy beef calves? Yes _____ No _____

2. How much colostrum do you provide dairy beef calves for their 1st feeding?

___ No colostrum ____1 quart ____ 2 quarts _____ 3 quarts _____ 4 quarts

3. How soon after birth do you typically feed the 1st colostrum feeding to dairy beef calves?

___ Within 6 hours ____ Within 12 hours _____ After 12 hours

4. Do you provide a 2nd feeding of colostrum to dairy beef calves? Yes ____ No _____

5. Do you test the quality of colostrum fed to dairy beef calves? Yes ____ No _____

If answer no to question 5, then skip to Milk Feeding Practices.

6. If you test colostrum quality, what method do you use?

____ Colostrometer _____ Refractometer (optical/digital)

7. Do you only feed high quality colostrum (>50 g Ig/Liter) to dairy beef calves? Yes ___ No ___
If no, what do you feed instead?
____ High quality colostrum from other cows ____ Colostrum replacement
____ Lower quality colostrum

Milk Feeding Practices

1. What type of milk do you offer after the colostrum feeding?

_____ Whole milk (pasteurized or unpasteurized; circle one)
____ Transition milk _____ Milk replacer

2. If using milk replacer, what is its composition? Fat% _____ Protein% _____

3. If using milk replacer, how many ounces of powder are added per quart mix? _____ounces

4. How much liquid feed do you provide to dairy beef calves?
_____ quarts each feeding _____ feedings each day

Selling Management

1. At what age do you typically sell dairy beef calves? _____

2. What method do you use to sell dairy beef calves? (check all that apply)

_____ Auction _____ Direct private sale _____ Contract program ___ Other_____