Dairy farm use, and criteria for use, of beef genetics on dairy females

Spring 2019

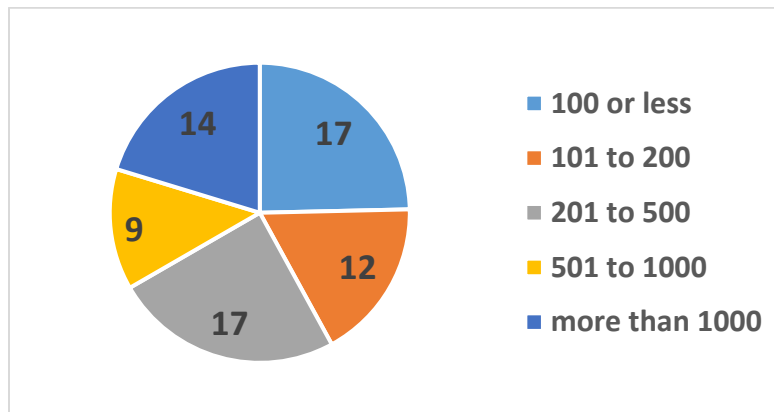Bill Halfman & Ryan Sterry; Division of Extension, University of Wisconsin-Madison

Interest has grown in utilizing beef genetics on dairy cattle. Dairy x beef cross calves may provide an opportunity to increase revenue from calf sales, and improve feedlot performance, and carcass characteristics. Conversely, crossbred calves may introduce more variability in performance and carcass characteristics compared to their purebred dairy counterparts.

In the fall/winter of 2018 dairy farms in Iowa, Michigan, and Wisconsin were surveyed to assess how they utilize beef genetics on dairy cattle, their beef sire selection criteria, and dairy female selection criteria to breed to beef vs. dairy semen.

Percentages reported are based on the number of participants responding to each specific question. Not all participants answered each question. The number of participants responding is reported with each survey question.

Sixty-nine dairy farms responded; 47 in Wisconsin, 15 in Michigan, and seven in Iowa. Efforts were made to survey a broad range of herd sizes. Figure 1 shows the distribution of responses by herd size.

Figure 1. Participants by herd size.

The majority of farms responding reported Holstein as their predominant breed (n=58); with four Jersey herds, and seven herds self-identified as crossbred.

Herd's most likely using beef on dairy were targeted for the survey. The survey was not intended to determine the prevalence of the use of beef semen on dairy cattle. It was intended to identify on-farm decision making criteria for how farms utilize beef on dairy. Fifty-three responding herds indicated using beef genetics on dairy females, of which 45 answered the majority of the survey questions regarding usage. All data was self-reported.

Use on Replacement Dairy Heifers

Forty-five participants responded to the question about use on replacement dairy heifers (Table 1).

Table 1. Farm response summary of percentage of replacement heifers bred to beef semen.

Percent of replacement heifers bred to beef semen	Number of farms	Percentage of farms responding to question
No replacement heifers bred to beef semen	18	40
10 percent or less	21	47
11 to 25 percent	3	7
26 to 35 percent	1	2
Greater than 35 percent	2	4

Use on Lactating Dairy Cows

Forty-five farms answered questions on how they used beef genetics on the lactating cow herd.

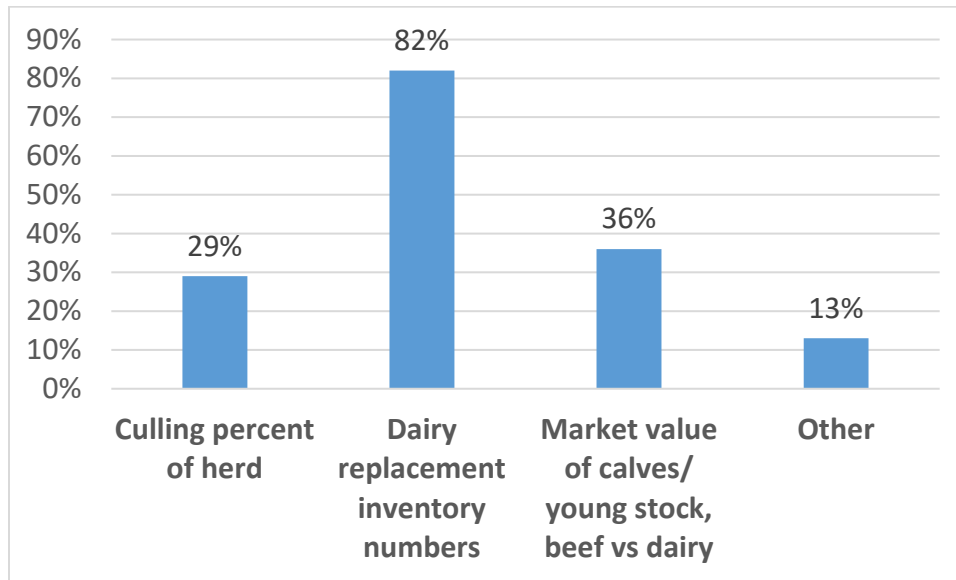**Table 2. Farm response summary of percentage of lactating herd bred to beef semen.**

Percent of lactating cows bred to beef semen	Number of farms	Percentage of farms responding to question
10 percent or less	9	20
11 to 25 percent	17	38
26 to 35 percent	4	9
Greater than 35 percent	15	33

Farms were also asked which lactation numbers were selected for service to beef sires.

- Eighty percent of farms (n=36) said lactation number was not a consideration
- Twenty percent (n=9) reported using beef sires on second lactation or older cows only

Next, farms were asked how they determine what percent of dairy animals to breed to beef, and were allowed to select more than one response. Forty-five participants identified at least one criteria. (Figure 2).
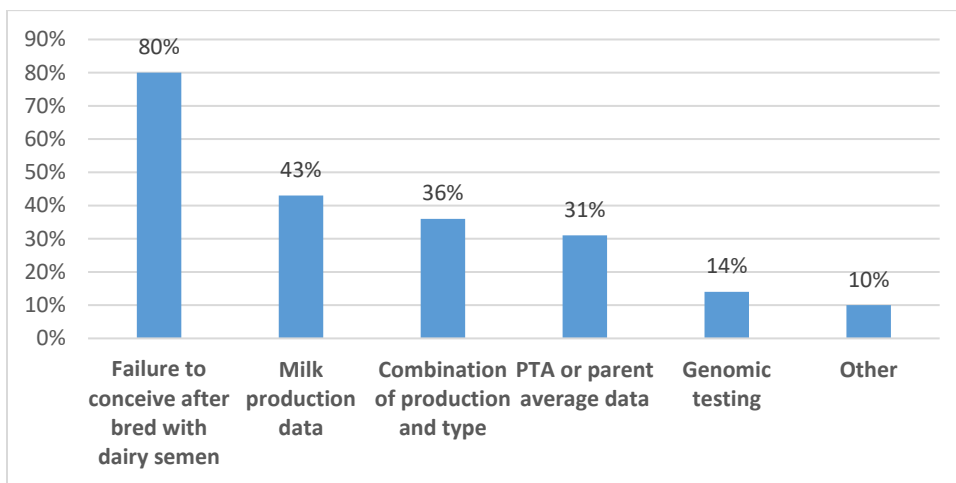
Figure 2. Criteria used to determine percent of dairy herd to breed with beef semen.

Selection of Females to Breed to Beef Genetics

Participants were asked to rank criteria that were used to select dairy females to breed to beef bulls. Respondents could select more than one response. Forty-two participants identified at least one criteria (Figure 3).

Figure 3. Percent of farms indicating each criteria was used to select which cows they breed to beef semen.

Respondents highest priority criteria for determining which cows to breed to beef semen is listed below for the top two choices by farms.

The following criteria were identified as first choice (highest priority) for which cows were bred with beef semen (N=42), they are listed in order from most frequently selected to least frequently selected.

- failure to conceive was the number one first choice (n=16; 38 percent),
- followed by PTA/parent average data (n=8; 19 percent),

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- combination of production and type data came in third (n=7; 17 percent),
- genomic data and milk production data tied at fourth (n=4; 10 percent each),
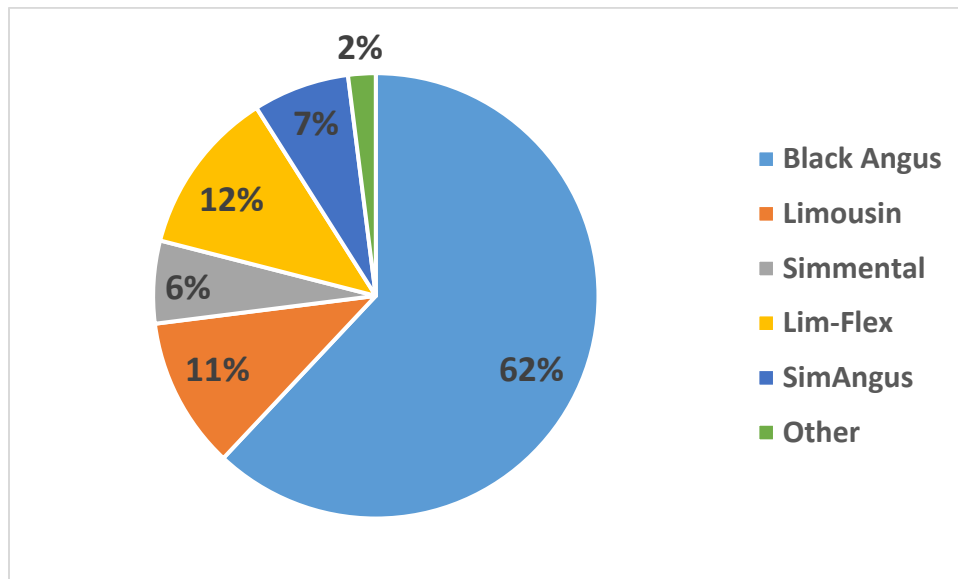- and other criteria came in fifth (n=3; 7 percent).

Second choice (N=32) selections are ranked in the following list from most frequently selected to least selected second choice.

- failure to conceive was also the top second choice (n=15; 47 percent),
- followed by milk production data (n=9; 28 percent),
- PTA/parent average data and combination type and production data and tied at third (n=3; 9 percent each),
- and genomic data or other criteria tied at one response (3 percent) each.
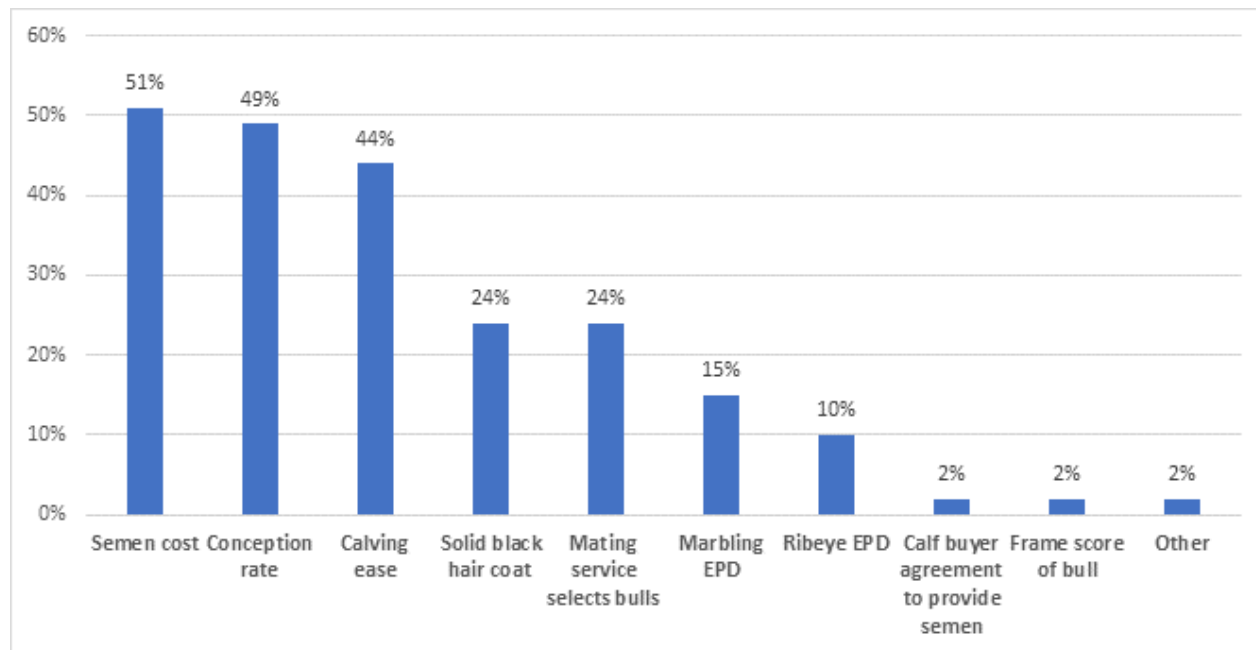
Beef Sire Selection

The remaining survey questions focused on beef sire selection. Participants were asked the beef breeds used in their herds, by assigning a percentage of use to each breed. They could add additional breeds not listed. (N=45; Figure 4).

Figure 4. Beef breeds by percentage used on dairy females.

The survey asked participating farms to rank, in order of priority (highest to lowest) criteria they used to select beef sires. Forty-one participants identified at least one criteria for selecting beef sires (Figure 5).

Figure 5. Percentage of farms that indicated each criteria was a priority used to select beef bull semen.

The highest priority criteria for selecting beef sires is listed below for the top two choices by farms.

First choice (highest priority) selections ranked by frequency of choice (N=41),

- conception rate was the number one first choice (n=12; 29 percent),
- followed by mating service makes sire selection decisions (n=10; 24 percent),
- semen cost (n=8; 20 percent),
- calving ease and solid black hair cost with four selections each (10 percent each),
- and ribeye EPD, agreement with calf buyer and calf buyer makes sire selection decisions, and some other criteria at one selection each (2 percent).

Second choice in order of frequency of selection (N=28) was

- calving ease (n=9; 32 percent),
- followed by conception rate (n=7; 25 percent),
- semen cost (n=6; 21 percent),
- marbling EPD (n=4; 14 percent),
- and ribeye EPD and frame score each with one selection (4 percent each).

Marketing

The age at which dairy x beef cross calves are marketed, and how they are marketed, is an important consideration as it may affect sire selection. Thirty two out of 45 farms in this survey marketed beef x dairy calves at a week old or less. A few farms were marketing at weaning (n=2) or 400-600 lbs (n=2). Nine farms were retaining ownership and marketed as finished cattle.
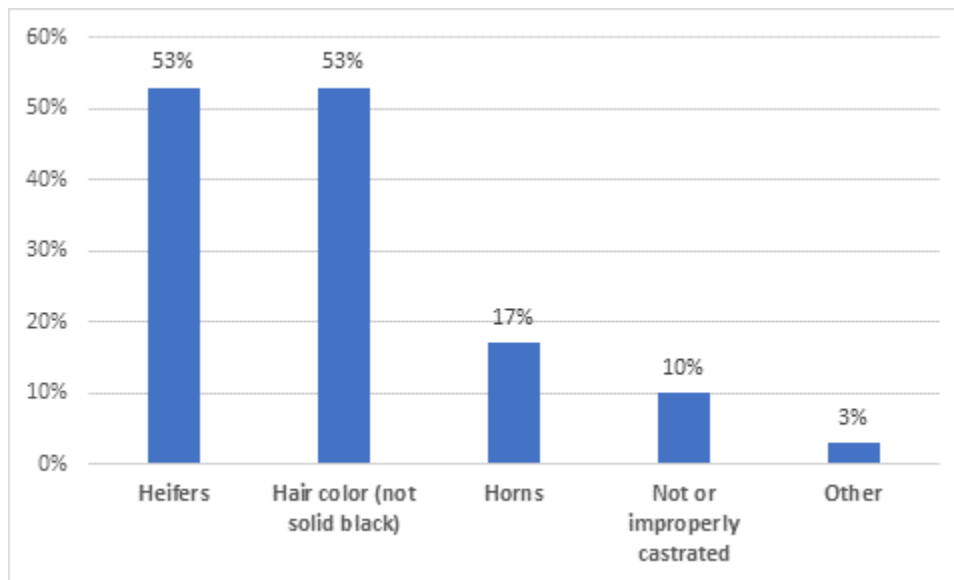
Of the 36 farms marketing young calves and feeder cattle:

- 54 percent (n=19) were sold through an auction market
- 29 percent (n=10) of farms sold private treaty
- 8 percent (n=3) were sold though contract agreement with a cattle feeder
    - 6 percent (n=2) the farmer choose the sires
    - 3 percent (n=1) the buyer selected the sires
- 1 participant did not answer the question

Of the nine farms marketing finished cattle, 67 percent (n=6) were sold through and action market, and 33 percent (n=3) were sold grade and yield.

Participants were asked what discounts they have received at marketing, regardless of age. They could select more than one response. Thirty participants identified at least one criteria they had been discounted for (Figure 6).

Figure 6. Percent of respondents indicating they received discounts on traits.

Some participants indicated they were unsure if they were receiving discounts or had not marketed enough dairy x beef crosses to confidently answer the question.

Participants were asked what resources would be helpful for raising and marketing dairy x beef cross cattle. Farms could select more than one response. Forty-five participants answered this question with at least one topic.
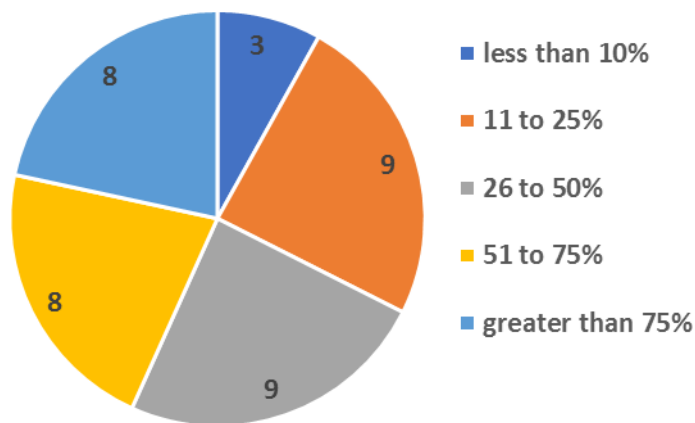
- 49 percent (n=22) selected general marketing information
- 20 percent (n=9) selected beef genetic selection
- 16 percent (n=7) selected health management
- 16 percent (n=7) selected bunk management
- 13 percent (n=6) selected performance benchmarks
- 4 percent (n=2) selected other

AI representative perceptions of use, and criteria for use, of beef genetics on dairy females

A similar set of questions was also asked of AI company representatives / technicians. Thirty-seven AI representatives responded; 31 from Wisconsin, five from Michigan, and one from Iowa.

When asked was percentage of their *customers* were breeding a percentage of their dairy herds to beef (N=37; Figure 7), AI representatives responses were:

Figure 7. Percent of customers breeding beef on dairy.

Legend:
- less than 10%
- 11 to 25%
- 26 to 50%
- 51 to 75%
- greater than 75%

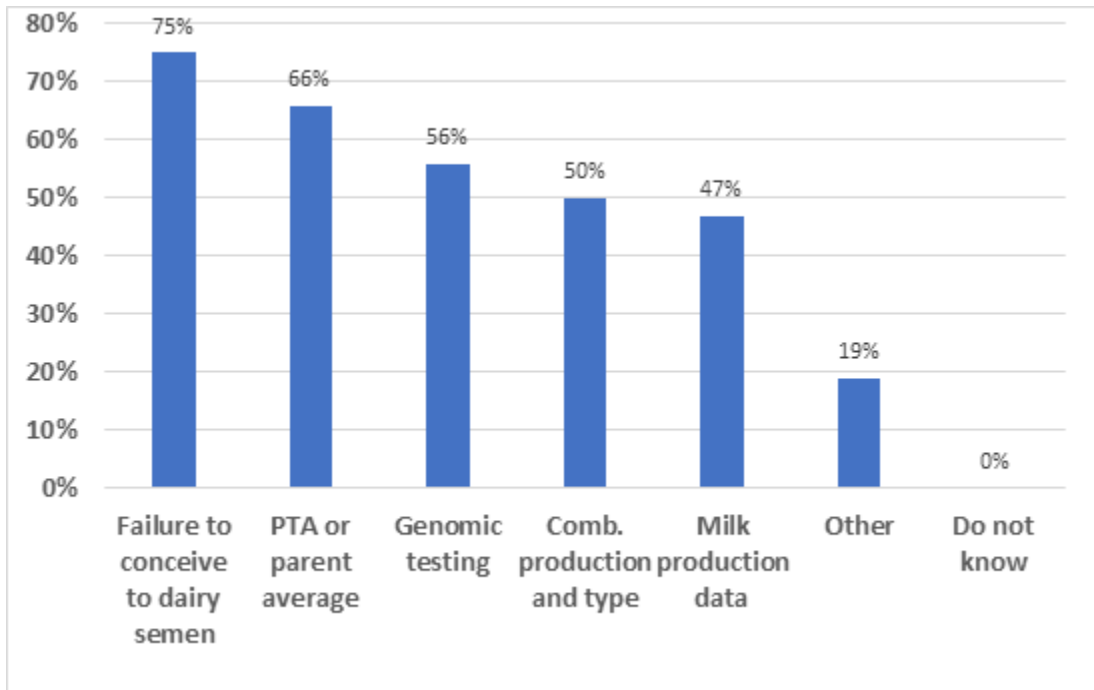**Selection of Females to Breed to Beef Genetics**

AI representatives were next asked their estimated percent of the average *dairy herd* being bred to beef (N=32; Table 3):

Table 3. Estimated percent of customers herds being bred to beef.

Percent of dairy herd bred to beef semen	Number of farms	Percentage of farms responding to question
10 percent or less	3	9
11 to 25 percent	19	59
26 to 35 percent	7	22
Greater than 35 percent	3	9

AI representatives were asked what criteria their customers use to select dairy females to breed to beef. Respondents were allowed to select more than one answer. Thirty-two participants identified at least one selection criteria (Figure 8).
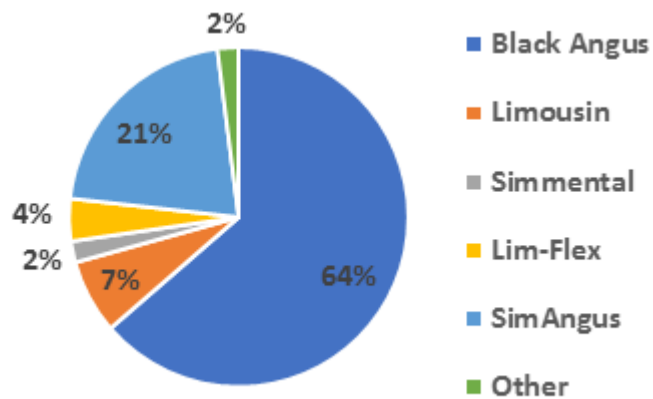
Figure 8. Customer criteria for selecting dairy females to service to beef sires.
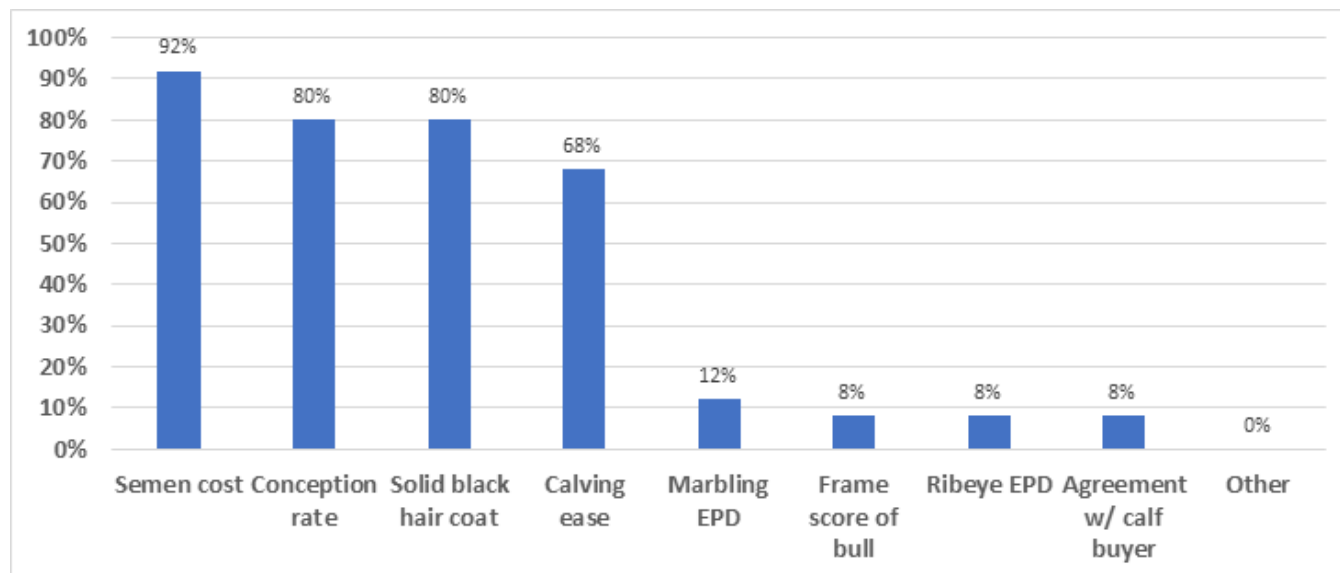

Beef Sire Selection

The survey asked AI reps what beef breeds their customers were using by assigning a percentage of use to each breed. They could add additional breeds not listed. Thirty-two participants answered this question (Figure 9).

Figure 9. Beef breeds by percentage used on dairy females.

The survey asked participating A.I. reps to rank, in order of priority (highest to lowest), criteria their customers used to select beef sires. Twenty-five participants answered this question with at least one criteria selected (Figure 10).

Figure 10. Percentage of respondents indicating criteria was a priority used by their customers to select beef sires.

The highest priority criteria used by their customers for selecting beef sires is listed below as reported by AI reps for the top two choices by rep.

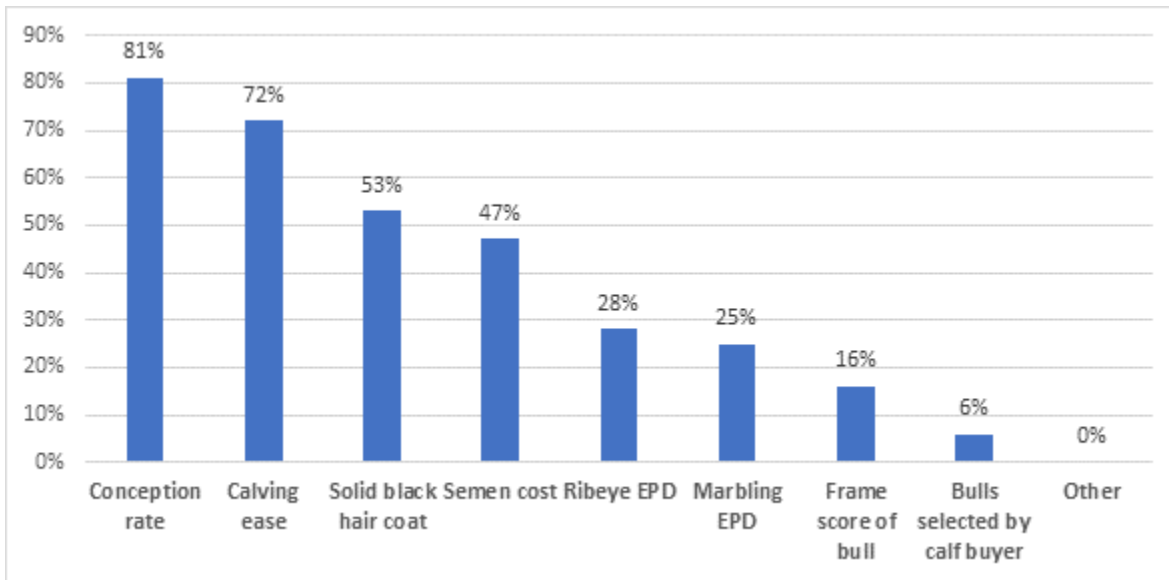Highest priority choices ranked from most frequently selected to least selected were (N=25):

- semen cost and solid black hair coat were tied for the number one first choice (n=9; 36 percent each)
- conception rate was third (n=5; 20 percent),
- and calving ease came in fourth (n=2; 8 percent).

Second choice order ranked from most frequently selected to least selected were (N=24):

- conception rate (n=9; 38 percent),
- followed by calving ease (n=6; 25 percent),
- semen cost (n=5; 21 percent),
- solid black hair coat (n=3; 13 percent),
- and marbling EPD (n=1; 4 percent)

AI representatives were also asked to prioritize, from highest to lowest, what criteria they *would like* their customers to use when selecting beef sires. Thirty-two participants identified at least one criteria (Figure 11).

Figure 11. Percentage of respondents indicating criteria they would like customers to use to select beef sires.

Resources

Participants were asked what resources would be helpful to their customers. They could select more than one response. Thirty-two participants responded with at least one needed resource.

- 78 percent (n=25) selected general marketing information
- 50 percent (n=16) selected beef genetic selection
- 41 percent (n=13) selected health management
- 28 percent (n=9) selected performance benchmarks
- 16 percent (n=5) selected bunk management
- 3 percent (n=1) selected other