Réseau laitier canadien
Canadian Dairy Network

Calving Ease & Young Sires

Young sire testing programs are the cornerstone of genetic improvement in dairy cattle. Every producer is encouraged to use some level of young sire semen in their herd and A.I. companies provide significant incentive programs to reward them for contributing to the next pool of elite proven sires.

A study conducted during 2005 at Canadian Dairy Network (CDN) showed that Canadian young sire testing programs are quite efficient (see October 2005 issue of Holstein Journal and the CDN web site). On average, young sires start the testing program at 16 months of age and are used for 1200 inseminations, which yield 150 registered daughters and 100 daughters in their first crop production proof.

One important area of concern revealed in that study was an increasing reluctance of producers to use young sires for mating virgin heifers. For young sires tested in 2004, approximately 9% of their total inseminations were used to mate virgin heifers, which was a significant reduction compared to 15% for bulls tested in 1998. This trend reduces the efficiency of young sire testing programs since virgin heifers have higher conception rates relative to cows so more daughters would result from the same number of inseminations.

When inquiring further with producers about this trend, the main concern is the thought that calvings from young sire matings to virgin heifers would more frequently be difficult or require surgery. The fact that proven sires have a genetic evaluation for calving ease allows the producer to select “Calving Ease” sires to breed their heifers. For young sires, while it is desirable to mate them to virgin heifers from a genetic perspective, no tools have been available for producers to calm their fear of potential calving difficulties. Recently, CDN addressed this question by analyzing Holstein calving ease data used for genetic evaluation.

Facts and Figures

For sires born since 1990, over three million Holstein calvings reported by producers to their milk recording agency are used by CDN for calculating genetic evaluations for direct and maternal calving ease. Across the entire data set, nearly one quarter of all reported calvings are first calvings following the breeding of virgin heifers. Within specific bull groups, however, about 20% of young sire mates are virgin heifers whereas this rises to about 30% for proven sires that are returned to active service. Interestingly though, the total percentage of unassisted and easy births for first calvings is consistent at 88% for both groups of bulls, yielding 12% of the calvings from virgin heifers appraised by producers as “Hard Pull” or “Surgery”.

Due to various reasons, it is well known that births from second or later calvings have fewer difficulties with 95% being recorded as “Unassisted” or “Easy Pull” and only 5%

being “Hard Pull” or “Surgery”. As for first calvings, these percentages are consistent between mates of young sires and proven sires. Due to this advantage towards easier calving cows, it has often been recommended to not breed heifers and smaller cows to sires that are known to have progeny born with greater difficulty.

Young Sire Usage Considering Calving Ease

Until recently, information has not been available to assist producers in evaluating the potential of specific young sires for calving ease. Due to this void, the trend of not using young sires to breed virgin heifers has been growing. Earlier in 2006, CDN implemented a service of calculating Parent Averages for all traits, including calving ease. Although Reliability levels for calving ease parent averages are generally between 30 and 35 percent, they are an early indicator of genetic potential that could be used to identify a subset of young sires that are not expected to have any more calving ease problems than proven sires when mated to virgin heifers.

Based on an analysis of parent averages as predictors of eventual proofs for calving ease, the following probability table shows the likelihood of achieving certain proof levels for calving ease given the young sire’s parent average. As expected, young sires with a calving ease parent average of about 85 or 86 have a 50 percent chance of receiving an official calving ease proof based on progeny births that is breed average (85%) or better.

Calving Ease Parent Average	Probability that the Young Sire is Equal to a Proven Sire With a Calving Ease Proof of at Least:								
	90	89	88	87	86	85	84	83	82
92	53%	61%	68%	75%	81%	86%	90%	93%	95%
91	47%	55%	62%	70%	76%	82%	87%	91%	93%
90	40%	48%	56%	64%	71%	77%	83%	87%	91%
89	34%	41%	49%	57%	65%	72%	78%	84%	88%
88	28%	35%	43%	51%	58%	66%	73%	79%	84%
87	23%	29%	36%	44%	52%	60%	67%	74%	80%
86	18%	24%	30%	37%	45%	53%	61%	68%	75%
85	14%	19%	25%	31%	39%	46%	54%	62%	70%
84	10%	15%	20%	26%	32%	40%	48%	56%	63%
83	8%	11%	15%	21%	27%	34%	41%	49%	57%
82	6%	8%	12%	16%	22%	28%	35%	43%	50%
81	4%	6%	9%	12%	17%	22%	29%	36%	44%
80	3%	4%	6%	9%	13%	18%	23%	30%	37%
79	2%	3%	5%	7%	10%	14%	19%	25%	31%
78	1%	2%	3%	5%	7%	10%	15%	20%	26%
77	1%	1%	2%	3%	5%	8%	11%	15%	21%
76	0%	1%	1%	2%	4%	6%	8%	12%	16%
75	0%	1%	1%	2%	3%	4%	6%	9%	12%
74	0%	0%	1%	1%	2%	3%	4%	6%	9%
73	0%	0%	0%	1%	1%	2%	3%	5%	7%
72	0%	0%	0%	0%	1%	1%	2%	3%	5%
71	0%	0%	0%	0%	0%	1%	1%	2%	3%
70	0%	0%	0%	0%	0%	0%	1%	1%	2%

As the calving ease parent average increases, so does the likelihood of the young sire receiving an official proof of at least breed average. In terms of a general tool for considering when to use a young sire to breed virgin heifers, two thirds of the young sires with a parent average of 88% for calving ease are expected to receive proofs of at least breed average and about 80 percent of them are expected to receive a calving ease proof of 83% or better.

Summary

On average, 88% of first calving births are unassisted or require an easy pull whereas this percentage reaches the 95% level for cows calving for at least a second time. Due to this biological difference, which affects herd profitability, it is wise to be prudent when selecting sires to breed virgin heifers. Increasingly, producers are opting to avoid using young sires as mates to their heifers, which is less than optimal from a young sire testing efficiency and genetic improvement perspective. Parent Averages for calving ease are now available at CDN for inclusion on young sire pedigree sheets to assist producers in making young sire decisions wisely, especially as mates for heifers. Young sires with a parent average for calving ease of at least 88% could be considered for use on heifers since two-thirds are expected to receive an official proof that is breed average or better.