



Using Sire Evaluations to Reduce Calving Difficulty

Bennet G. Cassell, Extension Dairy Scientist, Genetics and Management
Virginia Tech

Calving difficulty or dystocia refers to a prolonged or difficult calving. Consequences can include death of the cow, lost production, impaired reproductive performance, and increased mortality rates in calves. Sire evaluations for "Expected percent difficult first births" (often called %DBH) help minimize the impact of the sire on dystocia. Only Holsteins are evaluated for dystocia. Sires with evaluations of 9 %DBH or lower are acceptable for use on heifers. Ignore %DBH when choosing service sires for cows.

Introduction

Loss of a promising heifer to calving difficulty is both a disappointment and a financial setback. Economic losses can include lost production, prolonged calving intervals, and increased calf mortality. Problems with dystocia are primarily limited to Holsteins. This guideline examines the role of the sire in calving difficulty, but that role is limited. Only about 10% of differences between heifer births are due to genetic differences in the calf being born. The sire is responsible for only half of these. Heifers must be properly reared and managed at calving. It is easy to blame the service sire for a high percentage of difficult births. Unfortunately, it is also not very realistic as about 95% of dystocia problems are NOT due to service sire.

Calving difficulty proofs

Dystocia information is collected by farmers who observe the birth of calves sired by the various bulls. Calving difficulty is evaluated using a five point scale. The data are collected by the National Association of Animal Breeders which oversees the evaluation process. Bull studs distribute the information. Abnormal presentations of calves during birth (breech births, etc.) are not included in sire evaluations. Therefore, dystocia problems usually involve large calves (by weight) or calves with large shoulders or hips.

Some sample information is shown in Table 1. The evaluation is called "expected % difficult first births" or %DBH. Some sire evaluation listings would report the number of comparisons as well as the evaluation as in our

LD
5655
A762
no. 404-087
VPI
Spec

example. Two bulls, Pontiac and Pete Tidy, are evaluated on only 30 and 24 reported calvings. Even with such sparse information, the evaluations published for them represent the most likely "true breeding value" for %DBH that we can estimate today. Two other bulls, Mandingo and Melvin, are evaluated on several thousand births. %DBH for these two bulls is well established. We would prefer lots of information, but we can seldom afford to wait for it. Use top proven bulls out of sampling programs early rather than wait for more information on %DBH.

Table 1. Sample NAAB calving ease proofs for some Select Sires bulls in January 1989.

Sire	Number of Comparisons	Expected % Difficult 1st Births
Levi	642	6%
Pontiac	30	8%
Mandingo	5,852	9%
Pete Tidy	24	11%
Melvin	3,185	14%

* Usually reported as "%DBH" for "percent difficult births in heifers."

Table 2 shows the distribution of expected % difficult first births for active AI Holstein bulls in January 1989. Currently, 60% of active AI Holsteins have dystocia evaluations. The average expected % difficult first birth value is 8.5% and the range is from 3% to 23%. Only 15% of active AI bulls have %DBH of 10% or higher, but 40% have no information available. These bulls should not be used on heifers. **Use the active AI bulls with expected %DBH of 9% or lower on heifers and use bulls with higher evaluations or no evaluation at all on cows.** This would limit a Holstein breeder to 45% of active sires from which to select.

Table 2. Distribution of %DBH on active AI Holsteins in January 1989.

Range of %DBH	Number of sires	Percent of active AI sires
less than 7%	97	20
8 to 9%	117	25
10 to 12%	63	13
above 12%	14	2
no dystocia proof available	194	40

A common error is to select for easy calving bulls instead of eliminating bulls with high evaluations from use on heifers. We cannot justify such intensive selection for %DBH. Setting a maximum %DBH of 9% on service sires for heifers leaves about 50% of the active AI bulls available for selection on traits more important than calving ease. This is more prudent use of %DBH information than selecting for the lowest values.

Genetic implications of selection for calving ease

Dystocia is not strongly related to other production or type traits. Selection for traits such as PTA\$ will not have much impact on %DBH of the bulls selected. (Reference to PTA\$ in this guideline refers to the product value index which includes value of milk, fat, and protein.) The independence of %DBH is helpful in that easy calving bulls can be found among the top PTA\$ bulls as well as among the best bulls for other traits. Table 3 shows about as many bulls with low %DBH values in the top PTA\$ (the term preceding PTA\$) group as there are bulls with high values for %DBH.

Table 3. Number of active AI Holsteins in each quartile of PD\$ for different %DBH values in January 1989.

<u>PD\$</u>	<u>Percent Difficult First Births</u>	
	<u>Below 9%</u>	<u>Above 9% or No evaluation</u>
less than \$95	23	96
\$95 to \$118	57	58
\$119 to \$141	65	53
above \$141	69	46
Total	214	253

* 467 of 485 active AI Holstein sires had PD\$ including protein in January 1989. PD\$ is replaced by PTA\$ in genetic evaluations from the animal model.

Even though dystocia evaluations are not antagonistically related to PD\$, there aren't many choices in the lowest %DBH and highest PD\$ category. Only 41 bulls from which to choose leaves few options for secondary traits, semen price, choice of studs, or semen in high demand. Including bulls coded 8 or 9 for %DBH in the acceptable category for use on heifers would leave 69 top PD\$ bulls. PD\$ above \$140 was not especially high for Holstein bulls in January 1989 as 30% of active AI Holsteins were above that level. It is important not to be so restrictive in selecting for easy calving that other economically important traits suffer.

The 46 bulls with either no dystocia proof or %DBH above 9% which also are in the highest group for PD\$ are still very useful sires. These bulls can and should be used on lactating cows.

Other management practices affecting dystocia

Service sire selection will not eliminate dystocia as a problem on the dairy farm. Proper growth rates for heifers is a critical management factor. Dairy Guideline 404-108, Feeding heifers for early calving, provides useful standards for heifer growth. Holstein heifers should weigh 800 lbs by 15 months, the proper age for breeding. Continued good management is essential to produce a Holstein heifer at 1150 lbs by freshening time. Heifers must gain a minimum of 1.3 lbs/day during gestation to achieve this weight at freshening. Failure to grow heifers out properly is a common fault on many farms experiencing calving difficulty. No service sire can be expected to

prevent dystocia in stunted heifers.

Management and nutrition of heifers just prior to calving is also important. The fetus grows very rapidly in the last trimester of pregnancy and will receive priority over other nutritional needs during this period. Improper nutrition can result in a developed fetus in an undeveloped mother! Care should be taken, however, to avoid overfeeding as fat heifers have several problems of their own in first lactation. Refer to Dairy Guideline 404-212 for dry cow rations (which apply to heifers 1-2 months prior to calving) and Dairy Guideline 404-108 for proper rations earlier in the life of a heifer.

Recommendations

1. Use bulls with %DBH of 9 or less and high PD\$ on heifers.
 - a. Avoid use of AI beef bulls or natural service for both calving ease and genetic reasons.
 - b. Young sires in AI sampling programs could have unacceptably high %DBH values, but 1 to 4 pregnancies to each of several such bulls reduces risk to levels many producers find acceptable.
2. Do not select for the easiest calving sires. Such a policy is too expensive in lost opportunity for improved production.
3. Ignore dystocia proofs when choosing service sires for cows. Feel free to use bulls with good production proofs but dystocia evaluations above 9% for services to these animals.
4. Grow heifers to calve at 1150 lbs at 24 months of age. Bulls with low %DBH values will not eliminate poor heifer management practices as a source of dystocia problems.

Commercial services are named in this publication for information purposes only. The Virginia Cooperative Extension Service, Virginia Polytechnic Institute and State University, and Virginia State University do not endorse or warrant these services, and they do not intend or imply discrimination against other services that also may be suitable.