Phase I Dairy Genetic Improvement Program Can Have Income Impact

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Many counties have approved funding from their Phase I funds for the cattle genetic improvement program. The cost share funds for dairy producers can be used for purchase of semen from AI bulls ranking in the 80th percentile or higher for Lifetime Net Merit $. This index gives milk, fat and protein yield about two-thirds of the weight and the rest to productive life, somatic cell score, udder, feet and legs and body weight.

This program can have tremendous returns for the dollars invested in the semen. First, the Lifetime Net Merit Dollar Index for AI bulls estimates the difference in the lifetime net profit of a daughter of each bull compared to a daughter of an average AI bull. Dairy farmers can use this information to select bulls whose daughters will have higher lifetime net profit. Secondly, the benefit of using bulls with higher NM$ indexes is permanent change in the genetic capacity of the herd through higher quality replacements. Thus the investment in purchase of semen can produce returns generation after generation. Thirdly, the advantage of using 80th percentile bulls depends on the average level of bulls currently being used and percentile level of bulls chosen.

Table 1 shows the level of genetic capability for heifer replacements produced by use of different groups of bulls. Obviously, use of natural service non-AI bulls is the least desirable choice. Use of 85th percentile bulls instead of non-AI bulls should result in daughters with $365 greater lifetime net profit. If bulls of the 40th percentile are being used, moving up to the 85th percentile would yield a $159 greater lifetime net profit. Using the average active AI bull instead of an 85th percentile bull would result in daughters with $116 lower expected lifetime net profit. Economists call these kinds of comparisons opportunity cost comparisons. They are an attempt to estimate the cost of making one decision compared to an alternative one. How do these opportunity cost relate to the potential return on investment from the cost share money for cattle genetic improvement in Phase I?

If a farmer spent $2500 on semen, he might expect to produce about 34 heifer replacements. This outcome assumes it takes 5 doses of semen at $15/dose to produce a heifer. Total semen cost would be $75per heifer replacement. The opportunity cost for herds using non-AI bulls would be $12,410 (34 x $365 = $12,410), almost 6 times the original total investment. Herds already using AI who are using average AI bulls

would have an opportunity cost of $3,944 (34 x $116 = $3,944) for 34 heifers. Because, the program has a 50% cost share, the benefit would be doubled. The producer's return for his $1,250 investment would be $24,820 or $7,888 for these two examples.

If the producer was already using 85th percentile bulls and purchased semen on equivalent quality bulls he would have no opportunity cost but would receive 16 replacement heifers free if his semen costs were the same as above.

Table 1. Genetic Capability of Different Groups of Bulls

Group	**NM$ Level (Feb, 2002)**
85th Percentile NM$	$454
80th Percentile NM$	$433
Active AI Bulls (52nd Percentile)	$338
40th Percentile NM$	$295
20th Percentile NM$	$213
Non-AI Bulls (6th Percentile)	$ 89