

DAIRY PIPELINE

Herd life is an important trait to most dairy producers. Genetic evaluations for a trait called “**Productive Life**” or PL are available to increase length of herd life. PL is a tough trait to improve through sire selection because it has low heritability (8.5%), and a bull’s daughters need up to seven years to fully express the trait. Commercial bull studs usually put progeny tested bulls back in active AI service as their daughters approach second calving. That’s three years of age, not seven! So how can producers select for longer herd life when newly proven active AI bulls aren’t really “proven” for longevity? USDA uses what are called “direct” evaluations of PL based on survival of daughters, regardless of their age. Dead cows receive credit (maybe discredit is the right term if a cow died in first lactation) for months of production, while living cows less than seven years of age receive credit for predicted additional months. PL for living cows is like a partial milk record that is projected to expected yield through 305 days of lactation. USDA combines “direct” evaluations with “indirect” evaluations based on correlated traits – production, type, fitness - that are expressed in young animals. The strongest genetic correlation between PL and another trait for which genetic evaluations are available is for daughter pregnancy rate, which has a genetic correlation of 0.59 with PL. Cows with desirable genes for fertility live longer than genetically less fertile cows. Somatic cell score has a favorable genetic correlation of -0.35 with PL, while udder composite has a genetic correlation of 0.30. The next strongest genetic relationship with PL is daughter calving ease, 0.24, which makes sense considering the detrimental effects of a difficult first birth on production and fertility of a heifer. She may not even survive the process! Genetic progress in PL from selection on correlated traits depends on more than the genetic correlation, however. The heritability of the correlated trait and selection intensity to change it also come into play. Daughter pregnancy rate has the strongest genetic association with PL, but it has low heritability (4%). Udder composite, on the other hand appeals to many producers and is about as heritable, around 30%, as production traits. For producers, the best way to

improve PL is to select bulls based on genetic evaluations for PL, because genetic evaluations for PL make the best use possible of all the data available at any point in time on a bull. I have seen some promotional material advocating sire selection for PL using a formula that only includes type information. I just don’t understand the argument that producers should ignore the “direct” data, or the indirect information from cell score, fertility, or dystocia. There are challenges to improving herd life if the breeding program is going to include younger AI proven sires, but ignoring useful information won’t make the job any easier.

-- Bennet G. Cassell
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Is your milk cold enough? It is important to cool milk immediately after milking to reduce bacterial growth. Bulk tanks should operate to maintain milk temperatures below 40 degrees F (4 degrees C) and above freezing. Every degree above 40 increases bacteria counts and reduces the shelf life of finished products. A properly operating milk cooling system should:

- cool milk below 40 degrees F by 30 minutes after the first milking
- hold the milk at 36 to 38 degrees F (3 degrees C)
- prevent blend temperatures from rising above 45 degrees F (7 degrees C) during the addition of milk from subsequent milkings

While these goals are stricter than most state and national regulations, they are necessary to meet today’s standards for producing high quality milk.

Maintenance of your cooling system is important to meet the above listed goals. Some early warning signs of system malfunction include:

- excessive running time of compressor
- dirty condenser
- oil spots and leaks in refrigerant line
- bubbles in the sight glass
- refrigerant line after flow control is not cold
- refrigerant line from compressor to condenser is not hot

If your milk isn't cooling properly and staying cold, or you notice any of the above problems, contact your local equipment servicer to have the system checked. Better yet, have routine service checks to avoid these problems. By properly cooling and storing milk, producers can receive quality premiums and avoid penalties for high bacteria milk.

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Dr. Robert "Bob" James as of June 1, 2004, will be the Extension Nutrition Specialist working primarily with the Area Dairy Agents in the areas of nutrition, calf and heifer management, and forages.

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**** Upcoming Activities****

2004 Southeast Dairy Youth Retreat July 13-16
Virginia Tech

Grand Opening of the Virginia Tech July 16
Dairy Complex, *Virginia Tech*

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