DHIA, IA Contribute To Dairy Genetics

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NEWARK, DE — Over the last few decades, great emphasis has been placed on better dairy herd health programs and improved genetics. Thanks to A.I. and DHIA, dairy cows in many countries, especially in the United States, have had phenomenal success stories in genetics. Records that I have kept on Delaware dairy herds, in addition to our University of Delaware herd, indicate an almost 100% improvement in milk production per cow per year since 1959, from 9,400 pounds to 18,100 pounds in 1989, with the fat test changing only slightly from 3.9% to 3.7%.

Herd health also greatly benefitted from the introduction of A.I., by eliminating, to a large extent, many costly reproductive diseases that used to plague dairy cows and were transmitted from cow to cow by natural service bulls. The fight against mastitis also has benefited greatly from DHIA adopting somatic cell-count testing as a routine part of a monthly monitoring mastitis herd health program. Since its adoption by Delaware DHIA 5 years ago, we have progressed 33 percent from 512,000 down to 343,000 somatic cell-count per herd rolling average.

However, fertility as part of satisfactory or even improved reproduction has not enjoyed similar progress. There is even indication that the tremendous progress in the production of milk volume, milk fat, milk protein, milk lactose and milk mineral yields has something to do, in a negative way, with the lack of fertility improvement or even its regression.

A study of New York DHIA herds shows that fertility rates are lower in high-producing herds than in lower-producing herds. Pennsylvania studies found significantly lower first-service conception rates in high-producing cows when inseminated before 100 days after calving than in lower-producing cows. However, in cows milking more than 100 days after calving, there was no difference between high- and low-producing cows in conception rate. This suggests that high milk production during the peak period of the first 100 days of lactation and all related factors, especially feeding and nutrition for that peak production, have something to do with the problems in conception rate.

Studies have focused on the role of protein in the dairy ration with respect to fertility. When dietary protein levels were increased, conception rates improved in some trials but worsened in others, depending on other factors, obviously, besides the change from 16 percent to 20 percent protein in the ration. New studies on the degree of undegradability of protein in the rumen seem to indicate that high rates of degradation of protein in the rumen lower fertility because of liberated ammonia that is absorbed into the cows' bloodstream from the rumen.

When extra energy sources are fed, the free ammonia is bound up by rumen micro-organisms, and fertility is improved. Direct evidence of the involvement of the percent of rumen-degradable protein comes from studies with superovulating embryo-producing cows, because fewer embryos were harvested when rations contained high levels of rumen-degradable protein.

Levels of urea in the circulating blood of dairy cows can provide an indication of whether, for example, a 19 percent crude protein dairy ration will affect cow and heifer fertility or not, because blood urea contents are related to rumen-degradation rates of protein. In recent studies, cows with a blood urea test of 10 mg/dl had a conception rate of 57 percent; others with 10-20 mg/dl had 47 percent; and a third group with more than 20 mg/dl had a conception rate of 39 percent.

Routine testing for blood urea levels of a few cows in that critical time period of 40-100 days after calving, when new estrus and new conception is supposed to occur, would be a good new idea. Better monitoring of nutrition and feeding improves dairy herd health as it relates to reproduction and profit.

Holiday Deadlines

The *Lancaster Farming* office will be closed Monday, December 25, in observance of Christmas. Deadlines for the December 30 issue are as follows:

- Mailbox Market Ads — 5:00 p.m. Friday.
- Public Sale Ads — 5:00 p.m. Friday.
- General News — 5:00 p.m. Wednesday.
- Late Breaking News — Noon Thursday.
- Classified Section B Ads — 5:00 p.m., Wednesday.
- All other classified Ads — 9:00 a.m., Thursday.