

## *Nutritional-Management Considerations in Dairy Embryo Transfer Programs*

Successful embryo transfer programs are a key component of a profitable dairy business on many of today's registered dairy operations. However, due to the significant cost of the embryo transfer procedure and high value of the donor cow, maximizing the production of high quality, transferable embryos during each transfer period is crucial.

There are multiple variables that can have a major impact on the success or failure of embryo transfer programs in each dairy operation. It is important to understand that nutrition and management programs geared toward increasing milk production may not be ideal for optimum reproductive efficiency. The proper identification of problem areas within each operation and the implementation of proven and manageable solutions at the farm level is the key to the success of this program. The following is a nutritional-management checklist that details important areas that should be considered in dairy operations involved with embryo transfer programs:

- Utilize the chelated trace minerals-zinc, copper and manganese in the diet to improve mineral status of these important trace minerals.
- Consider Selenium - Vitamin A & E injections prior to flushing.
- Analyze water to be sure it is of good quality and does not contain high levels of antagonistic elements that may interfere with mineral utilization and sound reproduction. The levels of iron, nitrates and sulfates are of most concern.
- Evaluate protein fractions in the diet. Monitor soluble protein and total percent protein in the diet.
- Check the Blood Urea Nitrogen (BUN) or Milk Urea Nitrogen (MUN) levels of cows at different stages of lactation. Higher levels tend to affect the production of degenerate embryos.
- In geographic areas with high molybdenum feedstuffs, analyze the TMR or individual feeds for this element. Molybdenum is a trace mineral that can tie-up copper and may therefore reduce reproductive performance.
- Consider testing the bunk mix for protein, fiber fractions, calcium and phosphorus to check for potential on-farm mixing errors.
- Evaluate the body condition and energy balance of your flush cows. It is hypothesized that negative energy balance affects the oocyte development of the early postpartum cow, resulting in poor egg quality once these oocytes mature and are ovulated as eggs 80-100 days later. This theory is called imprinting of oocytes. Maintaining a properly balanced ration, good body condition, high feed intake and sound bunk management are all important in achieving success in this area.
- Look at the number of times the cow has been flushed. Embryo production tends to decrease after 3-4 flushes.
- Utilize an ultrasound machine to evaluate the ovarian activity and determine when ovulation is occurring.
- Evaluate feedstuffs for molds and mycotoxins. Avoid moldy feeds in feeding programs for flush cows and recipients.
- Consider utilizing BST in your flush cows to increase the number of transferable embryos.
- Avoid flushing during heat stress conditions.

For recipient animals, provide a properly balanced diet and management system in order to maintain appropriate body condition and reproductive activity. In addition, other factors such as genetics (cow families), seasonal effects, cow comfort, AI technique, semen quality and set-up dosages must also be considered in determining the success rate of embryo transfer programs.

Achieving optimal results requires detailed attention to these nutritional and management areas. Following a comprehensive checklist can assist a dairy operation in accomplishing success in their embryo transfer program.

