

Dairy Heifer Health, Disease Control, and Vaccinations

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The future of the dairy herd is dependent on the production of superior heifers to replace culled lactating animals. Therefore, it is imperative that the health status of the replacement animal is optimized to present a healthy first calf heifer to the lactating herd. Studies have consistently demonstrated the detrimental effects of pneumonia in calves on age at first calving and on milk production once these animals enter lactation. Calves with respiratory infections were twice as likely to leave the herd and age at first calving was delayed by 6 months when compared with calves that did not experience respiratory disease or pneumonia. In another study, calves treated for scours were three times more likely to calve at 30 months of age or greater.

The areas of management of primary concern in maintaining the optimal health of the heifers include parasite control, coccidiosis, infectious diseases like IBR, BVD, PI3 and BRSV, and other problems such as pink-eye and foot rot. Mastitis control in pre-partum heifers is also included in this list.

Health

Both parasite control and the feeding of growth promotants improve feed efficiency and enhance growth. Regular deworming and treatment programs for internal and external parasites are essential to improve heifer performance. At the Virginia Tech dairy facility, we use a strategic deworming protocol. This protocol not only deworms the heifers, but decreases the parasite (worm) larva population on the pasture. Heifers are first dewormed in early May, using an Ivomectin® or Eprinomectin® product. This rids the heifers of the initial parasite burden obtained during the early warm, moist days of spring, when parasite loads are begin-

ning to peak in cattle and on the pastures. The second deworming occurs 5 weeks later dependent on whether the product is a pour on, injectable or bolus. The reason for this second 5-week injection is two-fold. First, the ivomec has residual internal parasite killing activity for 2 weeks. Therefore, any parasites developing in the digestive tract during this time period of 2 weeks will be eliminated. After this 2-week period, many parasite larva ingested on the grass or pasture contamination will develop into adults. This development period is approximately 3 weeks (larva to adult parasite). The second injection, 5 weeks later in mid June will eliminate or kill these adults. By keeping the adult infection (which produce larva for the pasture) to a minimum within the digestive tract of the calf, we maintain minimal parasite burdens on the pasture as well. These two injections give adequate protection during the peak period of parasite contamination.

When using the Eprinomectin® pour-on product, the second deworming should be administered at 5 weeks, as well. There is some data to support a residual activity of 4 weeks with the Eprinomectin® product; however, to date this is not supported with adequate information.

Typically by early July, pasture parasite loads will begin to decrease due to hot weather and decreased moisture. If good parasite management has been implemented, parasite burdens on the pasture will be negligible. Producers should be cautioned against introducing heifers that have not been dewormed, as they can be a source of parasite contamination for the pasture and the original dewormed heifers. A third deworming of a single dose of either product may be beneficial in late October. This would eliminate internal and external parasites (grubs and lice) obtained during the summer and decrease the

parasite load prior to winter feeding. Also, if the summer season has been mild and moisture has been high, parasites will survive in higher numbers on the pasture, causing a higher heifer parasite load.

Coccidia control measures should be started in baby calves at 5 to 10 days of age and continue until 30 days prior to calving. These products are found in some milk replacers as well as a feed additive in concentrate. Medicated feeds may improve performance and can aid in the prevention of coccidiosis, when calves are fed a specific coccidiostat like Decoquinate, Rumensin[®], or Bovatec[®]. Ionophores, such as Bovatec[®] or Rumensin[®], are effective as an aid in reducing coccidiosis, but have the added benefit of improving feed efficiency. However, ionophores are not effective as a treatment against coccidia. If calves have been diagnosed with coccidiosis, they should be treated with Corid[®] (amprolium,) or sulfonamides (sulfa) and then fed one of the ionophores for prevention. Supplementation costs pennies per heifer per day, which is more than offset by decreasing the amount of grain required per pound of gain or supporting adequate growth with lower quality forage for older heifers. The use of ionophores in confinement-treated heifers or those fed excessive energy rations may lead to over-conditioning. This is especially important during the time calves are 3 to 9 months old or the prepubertal phase of rapid mammary gland development. Excess feeding during this period can lead to a decrease in milk secretory tissue.

Cryptosporidiosis is perhaps one of the larger problems we face in nursing replacements. It has been diagnosed on essentially every dairy farm in the United States. In our experience, it strikes calves at approximately 8 to 14 days of age, causing a profuse diarrhea with subsequent dehydration. Morbidity (number of calves with the disease) is high, however mortality is low with the proper administration of fluids and supportive therapy. Therapy and vaccinations are now being tested to eliminate this problem, but at this time products have not been adequately tested to advocate their use. Adequate intake of quality colostrum and keeping calves clean, dry and comfortable, thereby reducing stress, are the essential components to combat cryptosporidiosis.

Vaccination Protocols

Vaccination programs in the heifer herd are tailored to protect against the diseases prevalent in the area and specific diseases on individual farms. Herd owners should consult their herd veterinarians for specific vaccination protocols for your area. Most vaccinations are initiated

between 4 and 5 months of age, when maternal protection gained from colostrum has subsided. These vaccinations may need to be repeated 3 weeks later, following label directions to insure peak immunity or protection. Follow all label directions, as some vaccinations must be repeated, while others are single injections. Vaccinations should be repeated 45 days prior to breeding or at approximately 12 to 13 months of age. Injections are then repeated at 18 months of age and 45 to 60 days prior to calving for sufficient levels of immunoglobulins (antibodies) in the colostrum for the calf. Many of the diseases that cause infertility and early embryonic death or abortion can be prevented with proper vaccination procedures. Again, the type of vaccination will depend on the diseases that have been isolated on a specific farm or are found in your specific region. On the following page is a list of typical management procedures and vaccination protocols. These can vary depending on the area of your farm location or specific diseases that have been isolated on your farm. This protocol should only serve as a guide, as specific vaccination questions should be directed to your veterinarian.

References

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Suggested Vaccinations and Procedures in a Dairy Heifer Program: Birth to Calving

The Newborn (1 to 10 days of age):

- Inject with 3 cc Vit E and Selenium at birth (white muscle disease)
- Inject with 2 cc Vit A and D (calves are born with small reserves)
- Tattoo and/or Identify calf
- Begin ionophores at 4 to 5 days of age for coccidia prevention (in milk replacer or calf starter)
- Bleed at 2 to 10 days of age to determine immunoglobulin levels (colostrum management)

One Month Calf:

- Dehorn with electric dehorers
- Vaccinate with 7-way clostridium
- Measure height and weight when removed from the hutch

2 to 5 Months:

- Clean and disinfect hutches when calf is removed
- Start fly control program (summer months), concentrate on udder area if using sprays
- Monitor weight, height, body condition scores
- Continue coccidia control
- Strategic deworming if turned out to pasture

5 to 6 Months:

- Vaccinate for brucellosis
 - Vaccinate with 7-way clostridium (repeat in 3 weeks)
 - Vaccinate for IBR, PI3, BVD, BRSV ** (follow label directions for repeating procedure)
- ** (Use the modified live product—keep calves away from adult cows)
- Deworm
 - Check for extra teats
 - Measure weight, height, and body condition score

6 to 13 Months:

- Monitor weight, height, and body condition score
- At 13 months**, repeat IBR, PI3, BVD, BRSV-modified live product (MLV)
- **At least 45 days prior to breeding
- Vaccinate for leptospirosis
- Vaccinate for Vibrio if natural service is used
- Deworm

Pregnant Heifers:

- Monitor weight, height, and body condition score
- Maintain sound nutritional management for adequate growth
- Maintain coccidia control and strategic deworming program
- Vaccinate against Leptospirosis at 18 to 20 months
- Vit E and selenium 45 to 60 days prior to freshening
- Vaccinate with E.Coli, Rota and Corona beginning 60 days prior to freshening

Follow label directions on all vaccines. Some vaccines require boosters at specific time intervals following the initial vaccination. Consult your veterinarian for specific directions and vaccination protocols. We do recommend modified live vaccines; however, directions must be adhered to for safe use of the product. Remember, the heifer vaccination program is the foundation of disease control in the lactating cow herd.

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