

Calf health treatment protocols, compliance and economic impact: Northern New York research results

by Kimberley Morrill

Throughout 2018, the Northern New York Regional Ag team conducted research to determine protocol compliance for calfhoo illnesses on Northern New York dairy farms, determine the treatment cost associated with calfhoo illness and to bring awareness to antibiotic stewardship to increase consumer confidence in our food supply.

Farms were selected based on three criteria:

- 1** Having written youngstock treatment protocols for respiratory and scours
- 2** Having written or electronic youngstock treatment records that include: animal ID, reason for treatment, date of treatment, drug used and dosage
- 3** Allowing access to protocols and treatment records

Treatment protocols were collected from all participating farms to compare to actual treatment records and determine if an animal was treated per protocol. Animals were classified as not on protocol for the following reasons: if the drug listed on the treatment record did not match the drug listed on the written farm protocol, if the treatment

was not provided for the full duration as written on the protocol, and if the correct dosage of the drug was not provided.

Treatment records (paper and/or electronic) were collected from all farms. Records were reviewed for protocol compliance, to evaluate

the total number and percentage of youngstock treated per farm, the number and percentage of pre-weaned heifers treated per farm, and the number of times an individual animal was treated over the eight-

Continued on back

TABLE 1

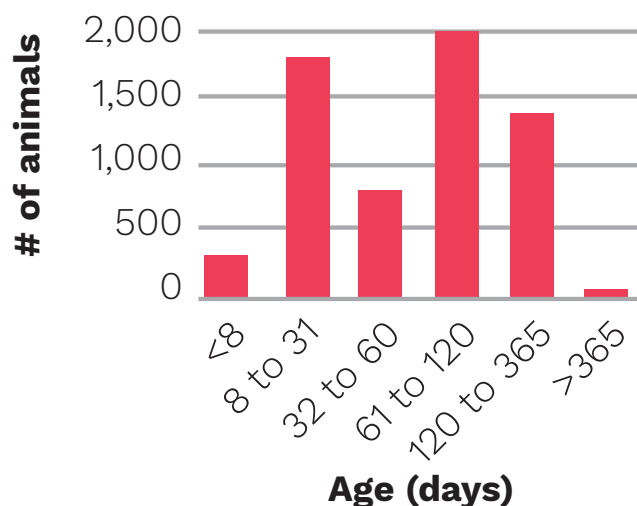
Average age (days) at onset of event by illness type

| Illness | n | Mean | SD | Low | High |
|--------------------|------|-------|-------|-----|------|
| Pneumonia | 4304 | 82.76 | 65.12 | 0 | 626 |
| Scours | 471 | 13.05 | 10.52 | 0 | 104 |
| Metaphylaxis | 823 | 73.24 | 20.34 | 0 | 112 |
| Navel | 365 | 12.19 | 12.19 | 3 | 73 |
| Other ¹ | 278 | 209 | 73.95 | 93 | 444 |
| Overall | 6241 | 77.74 | 67.76 | 0 | 626 |

¹Other includes: bloat, joint-ill, pink eye, ear infection, and arthritis.

FIGURE 1

Age at treatment



Calf health treatment protocols, compliance and economic impact: Northern New York research results, cont'd from front



month period of the study (January 1 to October 31, 2018). During the review of records, events were standardized to “respiratory, scours, navel, metaphylaxis and other.” Other included: bloat, joint-ill, pink eye, ear infection and arthritis. If multiple treatments were provided to the animal for the same bout of illness, it was considered one event (i.e., a five-day treatment for a navel infection = one event).

To standardize the treatment price across participating farms, costs were determined for each treatment based off the purchase price from Valley Veterinary Supply. A cost of individual treatment, and total treatment cost per calf was then calculated. It is important to note that only drug cost was included in the calculation of cost.

A total of 6,255 treatment records, from 2,618 non-lactating heifers were collected from eight Northern New York dairy farms between January 1 and August 31, 2018. Average herd size was 1,836 mature cows with a range of 709 to 3,240. Average size of the heifer herd was 2,056 with a range from 810 to 3,006. In total, this study represents approximately 14,391 non-lactating animals. Average herd size reported in this study is greater than many Northern New York herds. This is because all small farms that were contacted to participate in the study did not reach at least one of the three criteria.

A total of 5,732 (91.59 percent) of treatments were given to non-lactating heifers, according to the

written on-farm protocol. Compliance across herds ranged from 73.58 to 100 percent. Protocol compliance was similar across treatment events and ranged from 90.03 percent compliance for pneumonia to 100 percent compliance for treatments categorized in other. Compliance to treatment protocols was very high in this study. It’s important to note that the farm that had 100 percent compliance was recording all events and treatments in Dairy Comp 305, and there were no written records. This observational study only compared records to protocols. We did not evaluate how accurate the records were on the farm (i.e., did the treatment record match what was actually provided to the calf?). It is also important to note that three farms did not report any treatment events for calves less than 31 days of age.

Average age of treatment was 77 days of age (range = 0 to 626; Table 1). The largest number of calves were treated between eight to 31 days, primarily scours, and 61 to 120, primarily scours (Figure 1). Only 14 heifers were treated after 365 days of age, nine for pneumonia and five for “other.” Treatment of navel infections occurred early in life, with an average of 12.19 days of age, but ranging from three to 73 days (Table 5). Scour treatments occurred within the first few months of life, with an average age of 13.05 days of age, but ranged from 0 to 104 days.

Average treatment cost per event was \$8.08 per animal, with a range

of \$0.09 to \$34.28. Average total cost of treatment(s) per animal over the eight-month period was \$18.17, with a range of \$0.20 to \$129.10. Average event treatment cost ranged from \$1.12 for scours (\$0.35 to 29.12) and navel infections (\$0.20 to \$29.12), to \$9.08 for pneumonia (\$ 0.09 to \$34.28) and \$9.57 for metaphylaxis (\$0.489 to \$9.79). It is important to note that for treatment cost we only evaluated the cost of the drug that was administered. We did not include costs associated with labor, supplies (needle, syringe, IV tube, etc.), lost future milk production, increased cost of heifer rearing related to losses in feed efficiency, growth rates, as well as costs related to developing carrier animals and risk of relapse.

Calves that received treatment were treated an average of 2.19 times over the eight-month period with a range of one to nine times.

CONCLUSION

The two greatest challenges with this project were identifying, and subsequently enrolling, farms that had written calf treatment protocols, and accurate calf treatment records that included: ID, date of treatment, reason treated, drug administered and dosage. Many farms did not have written calf treatment protocols. For those that did, many either did not keep calf treatment records or kept very minimal records that didn’t include necessary information. This is concerning from

Continued on back

*Calf health treatment protocols, compliance and economic impact:
Northern New York research results, cont'd from pg. 2*

both an animal welfare and food safety standpoint. Without written treatment protocols, an employee may not know how to identify and properly treat an animal based on the symptoms observed. They may wait until another employee or manager is present. If the herdsman who normally treats calves is on vacation, the calf is left to suffer for the time being. This is an unacceptable practice and can easily be avoided. Written protocols should identify what to look for in the calf and the course of treatment. This should include what

antibiotic should be given (if any), the dosage, where to administer the shot, how often the shot should be given and the withdrawal time. The treatment protocol should also include who the employee contact should be if there is a question. If only certain people are allowed to treat animals, all employees should know who they are and how to contact them. Without written treatment records, it's unknown as to what animal was treated. This can lead to an animal accidentally being sent to slaughter with a residue. While the two



aforementioned points are concerning, this study does demonstrate that with both written treatment protocols and written treatment records, protocol compliance is high. ■

Kimberley Morrill (uskimo@chr-hansen.com), Ph.D., is a former regional dairy specialist for Northern New York Cornell Cooperative Extension. She is currently the Technical Services Manager for Animal Health and Nutrition with Chr. Hansen