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Dairy heifer raising “Gold Standards”

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The Dairy Calf and Heifer Association (DCHA) recent released its “Gold Standards” for production and performance for Holstein calves from birth to six months of age across the U.S. Each dairy needs to evaluate its own performance to determine how well it is raising heifers.

While each dairy is different, it is interesting to compare U.S. statistics against the Gold Standards to see areas that need improvement. Information used for comparisons is from the National Animal Health Monitoring System 2007 series of reports. Gold Standards are listed first, followed by current status details.

Mortality

A. Given that some calves are born with a heartbeat and breathing, but die not long after birth, the age of 24 hours shall be used to distinguish between “dead on arrival” (stillbirth) and “calf mortality.”

B. All newborn calves should be placed in an environment that will be safe from adult animals and adult animal diseases.

C. Every newborn calf should receive care to its navel to control infection.

D. Target mortality rates are:

- 4 hours to 60 days of age: less than 5%
- 61 to 120 days of age: less than 2%
- 121-180 days of age: less than 1%

Current status:

The definition for mortality is a little different in the NAHMS study, but can still be instructive. Calves born and still alive at 48 hours compared with the cow inventory were 86%. Based upon total calves born,



93.5% were alive at 48 hours. The number of calves stillborn or died within 48 hours was 6.5%. Almost 80% of these were born dead (stillborn). Unweaned calves had 7.8% mortality compared with 1.8% for weaned heifers. Mortality is higher than the standards; especially troubling is the level of stillborn calves.

Among unweaned heifer calves, 56.5% of deaths were due to scours, diarrhea or other digestive problems; 22.5% were due to respiratory problems (pneumonia). Weaned heifers had roughly the opposite reasons for death. Unweaned heifers had 12.6% death loss due to digestive issues and 46.5% due to respiratory problems. Many of these occurred around the time of weaning and putting into group pens.

Morbidity

A. Scours is defined as a case of diarrhea which requires any intervention for more

than 24 hours. Target morbidity rates are:

- 24 hours to 60 days of age: less than 25%

- 61 to 120 days of age: less than 2%

- 121 to 180 days of age: less than 1%

B. Defining pneumonia as a case of respiratory disease that requires individual animal treatment with an antibiotic (does not include feed-grade medication fed with regular ration), target morbidity rates are:

- 24 hours to 60 days of age: less than 10%

- 61 to 120 days of age: less than 15%

- 121 to 180 days of age: less than 2%

Current status:

Approximately 93% of unweaned heifers are treated with antibiotics for respiratory problems and 75% of calves are treated with antibiotics for diarrhea. For weaned heifers approximately 50% use antibiotics in the ration (33% of this is ionophores). Considering that many of the disease organisms identified as causing these problems are viruses that aren't affected by antibiotics, it seems education is needed to help identify the organism and come up with a better plan of action.

Growth Rate

A. Target growth rate standards for Holstein calves are:

- 24 hours to 60 days of age: Double

birth weight.

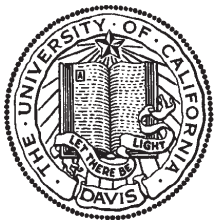
- 61 to 120 days of age: 2.2 pounds average daily gain.

- 121 to 180 days of age: 2.0 pounds average daily gain.

Current status:

Median weight of heifer calves at 1, 2 and 3 months of age is 126, 177, and 236 pounds, respectively. This corresponds closely to the recommendation of doubling birth weight by 60 days of age (assuming around 90 pounds birth weight). It is a lit-

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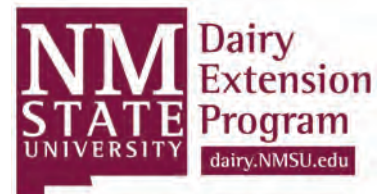
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“Gold Standards” . . .

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tle lower than the recommended 2.2 pounds per day (1.97 lbs).

Colostrum Management

A. First feeding

Colostrum equaling 10% of body weight should be fed in the first four hours of life. [For example, a 90-pound calf should receive four quarts of colostrum.]

B. Colostrum quality

- Colostrum should be free of blood, debris and from non-mastitis
- Colostrum should be from disease-free animals
- Test for quality with a colostrum tester or IgG test
- Target bacteria count (also known as standard plate count) is <100,000 CFU/mL
- Target immunity level of animals at 2 to 7 days of age is:
 - blood serum total protein of >5.2 g/dL for maternal-source-colostrum-fed calves; or
 - serum IgG of >10.0 g/L

Current status:

Colostrum management and feeding is critical for the health and productivity of a calf. Feeding of colostrum is a time-sensitive practice meaning that the first 24 hours after birth is your window for getting colostrum, and subsequently immunoglobulins, into the calf.

The NAHMS 2007 report found that the average time after birth that calves were fed any colostrum was a little over 3 hours. About 60% of calves were hand-fed the colostrum and about 40% received the recommended amount (4 quarts or more). Another 43% received 2 to 4 quarts. About 17% of calves received less than 2 quarts of colostrum (approximately 1 in 5 calves).

The part that was troubling was that over 26% (1 in 4) of calves were allowed to nurse the dam which means that the quantity of colostrum received by the calf was unknown plus the potential to come in contact with a whole host of pathogens. In the survey, calves allowed to nurse were more likely to have failure of passive transfer than those that did not nurse.

Colostrum quality can be a problem because of variability between cows. Therefore, knowing or estimating the quality of colostrum is important in making sure the calf receives the proper amount in order to develop some type of immunity. This is important because it protects the calf until its own immune system produced immunoglobulins on its own.

However, the NAHMS 2007 report found that only about 13% of the operations made an effort to estimate colostrum quality (87% did not). Of that 13%, about 44% used a colostrometer and about 42% used visual appearance as the criteria. About 10% used volume as the evaluator. There was a definite increase in operations that evaluated colostrum as herd size increased. This means that most of colostrum being fed is of unknown quality.

Storing colostrum can be a good way to ensure availability of colostrum of high quality. About two-thirds (65%) of small dairies (less than 100 cows) did NOT store

any colostrum, while only about 12% of dairies of 500 cows or more did NOT store. Colostrum was primarily stored in a freezer (28%) or the refrigerator (11%). About 4% was stored without refrigeration.

Method of storage was variable due to herd size, with small dairies lower than large dairies. In warm weather, milk provides a great media for bacterial growth and less than optimal cooling will expose the calf to high bacteria counts.

Approximately 19% (1 in 5) of calves had failure of passive transfer based on serum IgG levels. Evaluation of serum total proteins or IgG within the first 3 days of life is a simple way of evaluating your colostrum program because it can tell you if you passive transfer of IgG was successful (or unsuccessful). Around 2% of operations routinely screen for failure of passive transfer; large herds were 14-15%.

Evaluating for IgG using total serum protein may not be quite as precise as measuring IgG directly, but it is very cheap and easy to run and should be part of your normal health evaluations.

Nutrition

A. Structure your nutrition program to achieve health and growth standards defined previously, and monitor performance regularly. Consult your veterinarian and nutritionist routinely.

B. Clean water and starter grain should be offered to calves with continuous availability by 3 days of age, and refreshed or replenished daily.

Current status:

Medicated milk replacer (58%) and unpasteurized waste milk (31%) are the two most popular liquid feeds for unweaned calves. The next most popular is unpasteurized whole (saleable) milk (28%) (numbers are over 100% due to multiple feeds being used). While feeding unpasteurized milk is common, unpasteurized waste milk, and possibly whole milk can introduce an element of risk into the dairy by increasing bacterial load and exposure to Johne's and other pathogens. If the calf also has failure of passive transfer then you have just created a health risk for the calf.

One of the areas where practice and recommendation differ substantially is the feeding of starter grain and water. In the survey, on average, water was offered at 15

days after birth (16 to 8 days for small and large dairies, respectively). Starter grain was offered at 8 to 9 days (no difference due to herd size) and hay or roughage was offered by 25 days (range of 22 to 40 days for small to large dairies).

Available water is essential in order for calves to begin eating grain. Consumption of one is closely associated to the other, yet water is not offered for another week after starter is introduced. Another concern is the feeding of forages. Proper rumen development occurs from eating concentrates, not forages. Forages should not be introduced until after weaning, which occurred at approximately 8 weeks in the survey.

Housing

A. Target housing standards for calves 24 hours to 60 days of age:

- clean
- dry
- draft-free
- good air quality
- sized so calf can turn around

B. Target housing standards for calves 61 to 120 days of age:

- clean
- dry
- draft-free
- good air quality
- minimum of 34 square feet per animal of resting space

– adequate feeding space for all animals to eat at the same time

C. Target housing standards for calves 121 to 180 days of age:

- clean
- dry
- draft-free
- good air quality
- minimum of 40 square feet per animal of resting space in bedded-pack housing
- if animals are in free stall housing, there should be one stall per animal
- adequate feeding space for all animals to eat at the same time

Current status:

Information necessary to evaluate this area is lacking in the survey. The only thing that can be gleaned from the information is that approximately 75% of unweaned calves were housed in individual hutches, and weaned heifers were housed in several different housing system combinations such as pasture, free stalls or open lots.

Managing heifers is important for long-term survival in these tight times. It is usually the second highest expense after feed costs. Compared to the Gold Standards, where we are suggests there is room for improvement on mortality, morbidity, colostrum management, disease control and feeding protocols.

Now is a good time to evaluate your current situation and determine if you have the ability to improve in areas that are deficient. Get some help if you are concerned. Perhaps sending your calves to a heifer ranch may be the answer. But don't try to eat the elephant all in one bite; prioritize and make improvements. Record-keeping is extremely important in measuring success. If calves are not currently being tagged and followed, begin now. Your future cow is in your hands today.

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