Feedstuffs, September 5, 2016 **Feedstuffs** Reprint

NAHMS 2014 report updates calf management stats

IN my first column 15 years ago this month (*Feedstuffs*, Sept. 10, 2001), I compared 1996 data from the U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) with 1991 data from the National Dairy Heifer Evaluation Project.

The NAHMS survey report was completed next in 21 major dairy states in 2002 (*Feedstuffs*, Sept. 8, 2003) and again in 2007 (*Feedstuffs*, March 10, 2008).

Most recently, the NAHMS study was done in 2014 in 17 major dairy states, representing 76.7% of U.S. dairy operations and 80.3% of U.S. dairy cows. This information was collected from 1,261 operations. By contrast, the 2007 study was of 2,194 dairy operations, which represented similar percentages of operations and cows as the 2014 study.

While 24 months of age at first calving has been generally accepted as a reasonable goal, and some have even suggested that it should be as low as 20-22 months of age, the reality is that little progress (just 0.8 month) has been made over the last 23 years towards meeting that goal (Table 1), which does not specify what reasonable bodyweights, heights and condition scores would be. Thus, there is room for further progress in achieving the goal of first calving at 24 months of age.

There was a progressive decrease in months of age at first calving by herd size, as small (fewer than 100 cows), medium (100-499 cows) and large (500 cows or more) herds averaged 25.4 months, 24.6 months and 23.4 months, respectively. While 6.9% of operations reported an average age at first calving of 30 months or more, these operations accounted for only 2.5% of heifers.

Mortality

Preweaning mortality increased to 11.0% in 1996 from 8.4% in 1991, but it decreased to 8.7% in 2002 and 7.8% in 2007 and then decreased further to 6.4% in 2014 (Table 1). That was accompanied by 5.6% stillbirths, down from 6.5% in 2007 (measure was not recorded in previous NAHMS surveys). So, in essence, 12% of the calf crop was lost annually; half of that would be a more viable achievement.

*Dr. Al Kertz is a board-certified, independent dairy nutrition consultant with ANDHIL LLC based out of St. Louis, Mo. His area of specialty is dairy calf and heifer nutrition and management.

Bottom Line

with
AL KERTZ*

Of those calves born alive, scours/diarrhea continued to be the major contribution to deaths, at about 56%, followed by respiratory problems at 24%. After weaning, mortality has leveled off at just below 2% for the last three surveys. While respiratory problems account for most heifer deaths, as noted in 2001, the bigger issue is respiratory problems that do not result in calf or heifer deaths but do impair those animals for life.

Early management

There has been major improvement in the early separation of calves after birth since 1991, with some progressive improvement from 1996 to 2014 (Table 2). Still, nearly 30% of operations do not separate calves from their dams until more than 12 hours after birth.

It is now generally recommended that calves receive a minimum of four quarts of colostrum within the first four hours after birth and another two quarts by the end of their first 24 hours of life. Nearly 90% of operations followed that recommendation in 2014 — a major increase from previous surveys.

Another part of a good colostrum management program is testing for antibody levels in colostrum. This is especially important if fewer than four quarts of colostrum are fed on the first day. According to the 2014 NAHMS report, the percentage of all operations that tested colostrum via colostrometer (11.4%) or Brix refractometer (4.1%) totaled: 2.6% of herds with fewer than 100 cows, 20.3% of herds with 100-499 cows and 69.3% of herds with 500 cows or more. Still, 45% of all herds relied on visual appearance for determining colostrum quality.

WEANING age increased to an average of nine weeks in 2014, compared to 8.2 weeks in 2007, 8.4 weeks in 2002, 8.2 weeks in 1996 and 7.9 weeks in 1991 (Table 3). The Figure shows the distribution of age when calves were weaned. Roughly one-third of operations weaned at nine weeks of age, but 31% more were weaned beyond that age, while 35% weaned at an age younger than nine weeks. This average age at weaning did not differ much among herd sizes, except for herds with fewer than 30 cows (37.4% of all herds), where the average age at weaning was 13 weeks or more.

The other significant weaning age peaks in 2014 were 18% at seven weeks and 19% at 13 weeks or more, with the latter number skewed by the smallest herds, as noted. Ages at weaning increased by one week in most comparisons to 2007 data, when the popular weaning times were eight, six, 12 and seven weeks of age.

In 2014, the amount of liquid fed increased from the traditional four quarts daily to the following daily amounts fed as a percentage of operations: 3.1% feed fewer than four quarts, 53.3% feed four to five quarts, 21.3% feed six to seven quarts, 16.2% feed eight to nine quarts and 6.1% feed 10 quarts or more.

However, operations decided when to wean heifer calves based on a few main

1. NAHMS data comparisons for heifer mortality

	1991	1996	2002	2007	2014
Age at first calving, months	25.8	25.5	25.4	25.2	25.0
Stillbirths (died at birth or within 48 hours)	—	—	—	6.5	5.6
Preweaning mortality, % of heifer calves born alive	8.4	11.0	8.7	7.8	6.4
Calf deaths by producer-perceived cause, %:					
Scours/diarrhea	52.2	60.7	62.1	56.5	56.4
Respiratory	21.3	24.5	21.3	22.5	24.0
Joint or navel problems	2.2	2.4	1.7	1.6	3.0
Other known causes	14.1	7.8	6.1	9.9	2.8*
Unknown	10.2	6.0	6.9	7.8	5.6
Weaned heifer mortality, % of heifer inventory	2.2	2.4	1.9	1.8	1.9
Heifer deaths by producer-perceived cause %:					
Scours/diarrhea	18.4	14.7	12.3	12.6	6.8
Respiratory	34.8	45.4	50.4	46.5	58.9
Joint or navel problems	1.0	1.2	1.4	1.0	0.5
Other known causes	27.5	21.3	19.9	24.6	20.8*
Unknown	18.3	17.4	16.0	14.6	11.4

factors: 50.2% based it on calves reaching the target weaning age, 21.6% based it on calves reaching a target weaning weight (but how many operations weigh calves at this time?), 21.5% based it on calves consuming at least 2 lb. of starter for three consecutive days (but how many operations weigh daily starter consumption?) and 4% were frank in acknowledging that they based it on needing the space for other preweaned calves.

Thus, age at weaning is the simplest target and does not require weighing calves or measuring starter intake. On the other hand, with increased liquid feeding, this delays the increase in starter intake that is needed for a good weaning transition program (two weeks before and two weeks after full weaning).

I generally recommend that calves be kept in a hutch or pen for two weeks after full weaning to minimize another big change at a time when calves are usually first moved into a group and subjected to too many changes at one time. Given that many operations wean at eight to nine weeks of age, the defensive response is usually that the producer then will need 25% more hutches. My response is to wean a week or two earlier, which can be done when properly managed and still can double calf birth weight at the end of two months of age (Stamey et al., 2012).

Housing

Housing information gets a little confusing because data were not always segmented the same across the various years of the studies. About 70% of heifers were individually housed, either inside or outside prior to weaning. The other major category is "multiple animal area," which would reflect any greater group feeding and housing prior to weaning, such as with automatic liquid feeders.

Contract rearing of calves and heifers was categorized more definitively in 2014, similar to 2002 and 2007. In 2014, about 12.4% of operations had calves that were born at the dairy but farmed out to be raised off site — about three times more than in 2002 and 2007. This is broken out further in the NAHMS report, such as for whether heifers were sold outright and then bought back or whether there was retained ownership. On the other hand, 65% of all heifers were raised on site. The doubled percentage of heifers born on site and raised off site (25.4%) compared to the percentage of operations reporting this practice (12.4%) indicates that this arrangement was used more by larger herds.

Many data categories reveal a pattern in which large herds achieved better results. This is likely due to these herds having better facilities, separate work groups that are managed more closely with established protocols and more financial and other resources.

The NAHMS report contains other extensive data and may be found at www.aphis.usda.gov/aphis/ourfocus/animalhealth/monitoring-and-surveillance/nahms/nahms_dairy_studies.

The Bottom Line

There has been a progressive decrease in both stillbirths and preweaned mortality since 1996, but together, they still average 12% of all calf losses. Improvements have been made in regard to feeding more colostrum and providing it sooner after birth. The average age at weaning has increased to nine weeks, along with more liquid being fed.

Weaning by age has become the default, with 50% of operations saying that's how they decide when to wean, whereas an-

2. NAHMS data comparisons for heifer early management

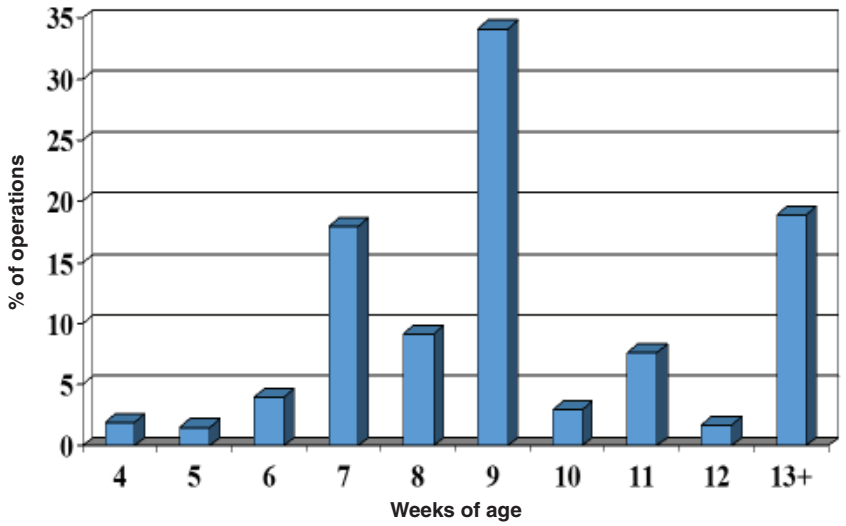
	1991	1996	2002	2007	2014
Age newborn separated from mother, % of operations:					
0 hours (before any nursing)	28.0	48.7	52.9	55.9	4.8*
<12 hours	39.6	23.0	22.5	22.2	66.7*
12-24 hours	22.0	16.9	15.9	14.6	28.5*
>24 hours	10.4	11.4	8.7	7.3	?
First colostrum feeding management, % of operations:					
First nursing	33.7	30.7	30.5	45.1	6.3*
Hand-fed bucket or bottle	64.0	65.4	64.8	50.9	86.1*
Esophageal feeder	2.3	3.8	4.4	3.8	7.6*
No colostrum	0.0	0.1	0.3	0.2	—
Colostrum hand-fed in first 24 hours, % of operations:					
2 quarts or less	25.6	20.1	21.4	23.3	—
>2 quarts but <4 quarts	48.2	45.5	47.2	45.8	12.6*
4 quarts or more	26.2	34.4	31.4	30.9	87.5*

3. NAHMS data comparisons for heifer weaning

Weaning age, weeks	**1991**	**1996**	**2002**	**2007**	**2014**
Operation average	7.9	8.2	8.4	8.2	9.0
Heifer average	8.2	8.6	—	—	—
Preweaned heifer housing, % of operations:					
Freestall	—	2.6	2.1	2.7	3.0*
Individual animal area	33.9	30.3	58.1	67.9	69.7*
Multiple animal area	33.3	37.8	30.3	14.2	14.7*
Tied	19.3	9.7	—	8.9	5.2
Drylot/pasture	6.8	16.1	—	0.6	3.9*
Hutch/super-hutch	32.7	38.1	None	None	None
Contract rearing, % of operations sending heifers elsewhere	1.6	5.0	3.6	9.3	NA
% operations with heifers born on site but raised off site	NA	NA	3.6	4.7	12.4
% heifers born on site but raised off site	NA	NA	7.2	11.5	25.4

*Note for all Tables: Category for 2014 not the same as previous years; it may be summed differently. Consult 2014 report for definitive data.

Distribution of age (weeks) at weaning by % of U.S. dairy operations, 2014



other 43% of operations combined say they wean either by bodyweight or starter intake, yet how many operations measure either?

Preweaned housing is still predominantly in individual hutches or pens. An increasing proportion of heifers are being raised off site from where they were born. There is good general agreement on goals for raising calves and heifers — such as for death and health losses, bodyweight and height parameters and age at first calving.

Goal setting per se is not likely limiting; rather, the priority given and commitment to achieving those goals have not been fully established and practiced, so there is still room for improvement.

References

National Animal Health Monitoring System. 2014. Dairy 2014: Dairy cattle management practices in the United States. U.S. Department of Agriculture, Animal & Plant Health Inspection Service, Veterinary Services, February 2016, Ft. Collins, Colo.

Stamey, J.A., N.A. Janovick, A.F. Kertz and J.K. Drackley. 2012. Influence of starter protein content on growth of dairy calves in an enhanced early nutrition program. J. Dairy Sci. 95:3327-3336. ■