

Calf, heifer symposia held at Midwest ADSA/ASAS meetings

By AL KERTZ

Over about the last 10 years, the Midwest Branch of the American Dairy Science Assn. (ADSA) has met jointly with the Midwest Section of the American Society of Animal Science (ASAS). The ADSA contingent has made an effort in developing the program to have a concentration on calf and heifer subject areas. At the March 2004 program in Des Moines, Iowa, two symposia were held in this subject area. What follows is my rendition of some key vignettes from these presentations.

The first symposium was entitled "Raising Dairy Replacements: A Comprehensive Publication and Decision Aid for the Dairy Industry." This is based on the publication available from the Midwest Plan Service and is a good, recent complement to the book *The Development, Nutrition & Management of the Young Calf* available from store.blackwell-professional.com/0813829801.html.

Hoffman (2004) reviewed factors that are a source of variability in performance of heifers, including:

- Seventeen variables affect performance other than nutrition.
- Calf or heifer growers often lump many changes into one event, such as weaning, because it is convenient to do so. An unintended effect is stress, which can negatively affect performance.
- On the available CD for this publication is software that can plot heifer performance. An example was presented for entering heifer weights over

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time, plotting the points and then further identifying animals/points by whether heifers had problems such as pneumonia, low immunoglobulin G (IgG) levels or hairy heel warts. These data points then really stand out — generally as poorer performers.

Godden and Wallace (2004) addressed health management of calves, noting:

- 31% of heifer variability could be prevented by good colostrum management.
- Management should be more aggressive in fluid treatment due to dehydration/scours; early detection, accurate and consistent diagnosis, and early, efficient, aggressive treatment.
- Three major things to note in calves: appearance, appetite and feces.
- CD contains a pasteurizer spreadsheet to calculate predicted payback for implementing a pasteurized waste milk feeding program.

Tyler (2004) addressed managing the dairy cow and calf at parturition.

- Three basic principles of biosecurity programs: animal, agent and environment.
- Three approaches to problems: ignore the problem and live with the consequences, treat the consequences or prevent the problem.
- Calf birth weights are 6.5-7.0% of dam's bodyweight. This is largely controlled by the communication between the placenta and fetal calf, and this interaction determines calving as well. Jerseys are more consistent in this regard and have much easier calvings than Holsteins. Twins range from 2-20% of dam's bodyweight.
- Stillbirths average 9% of all calf births. This has become an increasing problem but is largely ignored. This death loss is in addition to the high calf mortality after birth. Together, these two categories average about 20% of all calf births resulting in dead calves. Again, Jerseys fare better than Holsteins with lower stillbirths.

• Practice with assisting calves at birth is not good — experience does not equate to expertise. A major part of this is not understanding the stages and timing of labor and birth — the chapter explains this well. Calf mortality is doubled when assisting calvings during Stage 1 or 2 of labor.

Fricke and Rivers (2004) addressed some aspects of reproductive management in heifers.

- Only 55-68% of dairy heifers in U.S. are bred by artificial insemination.
- Endorsed 23-25 months of age for first calvings. This maximizes lifetime milk yield, 305-day lactation yields and lifetime profits of replacement heifers.
- Synchronized breeding is most beneficial to smaller operations as large operations breed heifers daily.
- Showed some data from the largest heifer growing operation in Wisconsin in that one employee (the manager) had a much higher conception rate breeding heifers than two other employees. Expertise and commitment are the keys.

Profitability

The second symposium was on "Dairy Replacement Profitability: Considerations for the Heifer Grower and Dairy Manager." This was an update from Project NC1119.

Franklin (2004) addressed some aspects of the immune system in calves.

- Her motto was "Ready, Set and Go" in terms of what we must do to help the calf.
- This system in young calves initially lacks specificity and does not modulate well.
- Showed some data from a study with mannanoligosaccharides in that it helped both the dam and calf.
- Showed data from the University of Kentucky herd that immunity in calves is affected by ambient temperature and has a seasonal effect.
- Also showed some data from crossbreeding Holsteins and Jerseys and the improvement in immunity over

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straight-bred Holsteins.

Chester-Jones (2004) addressed some management and housing alternatives for the growing heifer.

- Illustrated various types of housing with pictures, including their new facilities at Waseca, Minn., which were built in partnership with Ridley Inc.

- Indicated that transition problems at weaning carry over through the first six months of life.

- Showed financial data of the range of costs in raising heifers on pasture or in confinement.

- Key principles are: meet fundamental needs of heifers, provide optimum labor and feeding management systems and there is always trade-off between labor and capital.

Heinrichs (2004) addressed the relationship between protein and energy for growing heifers. (related web site is www.das.psu.edu/dcn/calfmgt).

- Changes like more confined operations — less exercise, more total mixed rations — less pasture and more rapid (controlled) daily gains have changed the scenarios for growing heifers.

- Even the 2001 National Research Council recommendations used much data from the 1970s. An argument to indicate the magnitude of this change is to consider the genetic change in cows that has occurred over time since then — that genetic change has also occurred in heifers.

Reviewed their work with ratio of grams crude protein per megacalorie of metabolizable energy (g CP/Mcal ME).

I largely covered that in a previous *Feedstuffs* column (Kertz, 2004).

- Optimum dietary ratio of g CP/Mcal ME is about 63 pre-puberty and about 60 after puberty, based on organic matter digestibility and nitrogen utilization.

Faust (2004) reviewed value of good heifer management from a genetics standpoint.

- High-quality heifers return about \$680 more over their lifetime.

- Heifer data, such as bodyweight, twins, genetics, health, etc., accounts for about 60% of within-herd variability for first lactation yield.

- Selection should: take into account high lifetime net worth dollars, avoid extreme dairy character and cull/mate based on multiple factors including calving ease.

- Calf birth weight is correlated with first lactation milk, lifetime milk yield, dystocia and mature size and length of puberty.

- Evaluation of calf birth weights over a range of 50-130 lb. found that a target range of 70-90 lb. was associated with the highest first lactation milk yield.

- To select for optimum birth weight, select for “moderate” size, eliminate tall or short bulls and eliminate strong or frail bulls.

- High versus average IgG results in more bodyweight gain over four weeks.

- IgG at two days of age is correlated with faster gains to six months of age, more ME fat and milk and lower problems and culling.

- Lifetime effects from disease: source such as respiratory (greater effect) or digestive, future milk yield (1-5 kg more milk per day), effects not consistent and management stress likely important.

The Bottom Line

These presentations and resources are an excellent update and review of the multiplicity of factors impacting calf and heifer performance. They also indicate subsequent value when these calves and heifers become lactating cows.

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