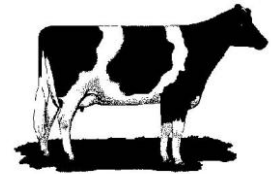




Kentucky Dairy Notes

August 2009



Diagnose Freemartins Early *George Heersche, Jr.*

In these tough times, it is prudent to cut expenses in the right places. One of those "right places", although small, is to identify as early as possible which heifers born twin to a bull are sterile and not spend money raising these freemartin heifers.

About 90 to 95 percent of heifers born twin to a bull are sterile. Even among single births, a few heifers will be sterile as a consequence of the death of the male twin early in the pregnancy. The joining of the blood circulations of the two fetuses early in pregnancy allows testosterone from the male fetus to alter development of the female reproductive tract. Most heifers born twin to a bull have a vulva and vestibule, but the vagina, cervix, uterus and ovaries are underdeveloped.

Measuring the length of the vagina in the young calf is one way to get an idea if a heifer born twin to a bull is a freemartin. In normal Holstein calves less than one month of age, the vagina is about 5 inches (13 cm) long, but in freemartin Holstein calves it is 2 to 3.25 inches (5 to 8 cm) long. In one study all Holstein heifers less than one month of age with a vaginal length of 2 3/4 inches (7 centimeters) or less were freemartins. The measurement can be made with the lubricated round end of a vacutainer or a commercially available curved plastic probe. Precaution should be taken to make sure one is measuring the distance to the front end of the vagina and not the distance to the hymen in a normal heifer.

A probe can be inserted beyond 7 centimeters in about 10 percent of the Holstein heifers born twin to a bull up to one month of age. About half of the heifers in this category are normal. These heifers can be positively identified by cytogenetic testing or raised until a diagnosis can be done by ultrasound or palpation.

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Tips for Harvesting and Storing High Quality Corn Silage *Donna M. Amaral-Phillips*

Corn silage forms the backbone of many winter and year-round feeding programs for dairy cows and heifers. With today's dairy economic situation of tight to non-existent profit margins, corn



silage is an excellent source of energy that can reduce the costs of providing energy (starches) in the dairy cow's diet while also serving as a digestible fiber source. Paying attention to a few details while harvesting and storing corn silage can help ensure that a high quality feed is preserved. These details are outlined below.

1. **Spend time getting equipment ready before harvest-** General maintenance, such as greasing equipment and sharpening knives, needs to be done well in advance of anticipated chopping date. Advanced planning is important for timely harvest at the proper moisture content.
2. **When should I start harvesting** - Harvesting at the correct moisture promotes favorable fermentation in the silage crop and decreases storage losses. Thus, the moisture content of the chopped plant should be the determining factor for when to harvest. For bunkers, silage should contain between 30 to 35% dry matter (65 to 70% moisture). Upright silos and bags can be a little drier at 35 to 40% dry matter (60 to 65% moisture). Silage that is put up too wet results in a butyric acid type fermentation which decreases feed intake and can result in ketosis in early lactation cows. Silage that is too dry will have more and larger air pockets which results in a poorer fermentation and less beneficial acids for cows to use to make milk and meat.

The moisture content of fresh corn plants can be determined by chopping a small amount and using a microwave or Koster tester to determine moisture content. A small digital scale that measures to the tenth of a gram helps obtain more accurate results. Agronomists generally estimate that the corn plant dries down 0.5 to 1.0% per day. To estimate the percent dry matter, you can use the grab test. Squeeze a handful of chopped material as tightly as possible for 90 seconds. Release your grip and if the ball of material expands slowly and no dampness appears on your hand, the material contains 30 to 40% dry matter. However, this method only allows a general estimation of the moisture content of the chopped silage.

During "normal" growing conditions, corn is harvested approximately 40 to 45 days after tasseling. In the past, the appearance of brown leaves was used as a factor in determining the optimum harvest window. With today's corn genetics, corn plants stay green longer and this target is not an appropriate benchmark.

Moisture content is related to the stage of maturity of the corn grain. Corn is harvested for silage at a $\frac{1}{2}$ to $\frac{3}{4}$ milk line. However, weather and growing conditions can change the optimum stage of maturity for harvest. An experiment showed that the stage of maturity of the corn plant only correctly predicted harvest moisture content 68 to 85% of the time. Thus, the strong recommendation is to actually measure the moisture or dry matter content of representative chopped corn plants.

3. **Correct length of chop:** Silage needs to be chopped fine enough for good packing to quickly eliminate oxygen and to establish a good fermentation process. At the same time, the chop length needs to be long enough to promote cud chewing. Thus, the recommended theoretic length of chop (TLC) is a compromise between these two factors. Alfalfa haylage or silage

should be chopped at 3/16 inch, unprocessed corn silage at 3/8 to 1/2 inch, and processed (kernel processor) corn silage at 3/4 inch.

4. **Adjusting silage choppers with on-line kernel processors-** The optimum moisture content of silage harvested with a chopper containing a kernel processor is 62 to 65% (35 to 38% dry matter) to capture additional starch accumulation in the corn kernels. Most nutritionists want to see the most of the corn kernels pulverized to a similar size. To optimize starch digestion and provide adequate effective fiber, the recommendation is to cut to 3/4 inch theoretical length with an initial roller clearance of 0.12 inches. If kernel breakage is not adequate, the roller clearance should be decreased. To test whether adequate kernel damage is occurring, collect a silage sample from several loads in a 32 ounce cup. Pick out and count the number of whole and half kernels. If the number of whole or half kernels exceeds 2 or 3, improve kernel damage by adjusting the roller clearance (Mahanna, Feedstuffs, 2008). Essentially, the goal is to have between 55 to 64 percent of the kernels damaged.
5. **Keep knives sharp and properly adjusted throughout the filling process:** Sharp knives prevent the shredding of silage, resulting in a more uniform chop. This allows for maximum forage compaction, good fermentation, and sufficient particle size to prevent health problems in the cow.
6. **Fill silos rapidly:** Silos should be filled quickly to help eliminate air from the feed. Silos should be filled within a week to prevent dark brown and black bands within the silo. Silage bags should be placed in an area that can be protected from damage by birds, rodents, and other wildlife. Bunkers should be filled from the back to the front by adding forage on a wedge and not from the bottom to the top in layers.
7. **Pack, pack, and pack some more:** Tightly-packed silage ferments more quickly and contains fewer yeasts and molds than loosely packed silage. Packing silage helps decrease the size of oxygen pockets resulting in fermentation end products the cow can use better to make milk. For a bunker, the statement that when you think you are done packing, you should pack that much more is definitely true. For silage stored in a bag, it is important to monitor the diameter of the bag to achieve the proper packing density.
8. **Cover silos immediately after filling:** Bunkers or piles of silage need to be covered with 6 mil plastic tarps and weighted with tires (*tires should touch each other*) immediately after filling. The sides of bunkers also should be lined with plastic. Upright silos should be leveled and capped with a silo cap immediately after completion of filling. Uncovered silos lose a tremendous amount of feed and feed nutrients.



9. Let silage ferment 3 to 4 weeks before feeding (if possible): Unfermented feed is higher in fermentable sugars and can cause cows to go off-feed. Gradually transitioning cows over 7 to 10 days to newly-fermented silage is recommended, if possible, or use dry hay to buffer cows through the transition.

10. Is silage done fermenting 3 weeks after harvest? Some data from the Cumberland Valley Forage Testing lab indicates that fermentation and maximum percentage of available starch may not be achieved until 4 months after ensiling. Does this mean we do not feed newly harvested corn silage in the fall? No, but these data may explain why your cows milk better on silage around the first of the year.

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2008 Garland M. Bastin Scholarship Award Winner
Larissa H. Tucker

The 2008 Garland M. Bastin Scholarship and award winner was recently announced at the State 4-H Dairy Cattle Judging Contest. The winner was Makenzie Waymeyer of Walton, Kentucky. She is the daughter of Bill and Kim Waymeyer and she will be a Senior this fall at Simon Kenton High School. To utilize the scholarship the 4-H'er must attend the University of Kentucky and major in agriculture. Each year one member of the Kentucky 4-H Dairy Judging Team who exhibits outstanding leadership, hard work and dedication to the dairy industry is presented this award.

Makenzie developed an interest in the dairy project even though she did not live on a dairy farm. So she has worked with a local dairy farmer for the past few years and has been able to purchase a few dairy animals for herself. She was a member of the 2008 Kentucky 4-H Dairy Judging Team. As a member of the judging team she helped lead the team to High Jersey Team at the National 4-H Contest in Madison, Wisconsin. Makenzie was fourth high individual in Jersey's and 16th high individual overall in the national contest. She has also represented Kentucky at the National 4-H Dairy Conference and has participated in various statewide dairy events. She is also an active FFA member. Congratulations to Makenzie Waymeyer, 2008 Garland M. Bastin Scholarship and award winner.



Larissa Tucker presented Makenzie Waymeyer with the 2008 Garland M. Bastin Scholarship and award at the State 4-H Dairy Judging Contest banquet.

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Improving Heat Detection
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2009 University of Kentucky Dairy Challenge Team Member

Artificial insemination (AI) has become one of the most common tools for a dairy operation's reproduction program. It is advantageous over natural service because of dramatic gains in genetic improvement and reduced dangers of dealing with unruly bulls. Visual estrus detection is still of importance to dairy producers, even for those utilizing timed AI protocols.

Days open is currently the most common measure of reproductive efficiency. The average gestation length is 280 days for most dairy breeds and the ideal calving interval is 12 to 13 months. Therefore, the days open average required to reach these goals is 85 to 115 days.

Many factors affect the ability of an operation to obtain this level of reproductive efficiency. These include:

- good dry cow and transition cow programs to eliminate health-related problems after calving
- adequate nutrition
- having environmental conditions that allow cows to express visual signs of estrus (facilities, decreasing heat stress, preventing lameness)
- correct AI techniques
- efficient and accurate heat detection

If you are aiming to get a cow pregnant at day 85 of her lactation, you only have 25 days after a 60 day voluntary waiting period to get a cow to conceive. On average, this is only long enough for a cow to come into heat once. To be able to breed her during this time, a great heat detection protocol is a must.

Improving heat detection to reduce Days Open

- Observe 3 times a day for 30 minutes each
- Observe all cows and record all observed heats
- Observe when moving cows from concrete to dirt
- Keep all records and organize them to help pinpoint a cow's next possible heat

Economic impact of decreasing days open

Currently, Kentucky Holstein herds on DHI average 183 projected minimum days open with an average herd size of 124 cows. Implementing some of these techniques to better detect heats, average days open could be decreased by at least 10 days. Using the common estimation of \$4.00 lost for every day open over 135, this could increase the average Kentucky dairy herd profits by almost \$5000 per year.

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September 29- October 3 World Dairy Expo