The Northeast Center for Risk Management Education

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College of Agricultural Sciences

Cooperative Extension Lancaster County

REDUCE HEAT-RELATED DAIRY PROBLEMS

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The big challenge in summer is to keep cows eating, milking and conceiving, to keep them alive, and to protect them from environmental mastitis. Also protect dry cows and heifers from heat stress. Once stressed by heat, it can take a long time for cows to recover. Heat stress in the last trimester of pregnancy reduces the birth weight of calves, increases calving-related problems and subsequent milk production.

Keep Cows Cool and Comfortable:

1. Provide plenty of shade in dry, breezy locations, preferably close to feed and water. To help prevent sloppy rest areas, provide pastured cattle with lots of well-drained shade areas that can be rotated and kept dry. Another option is to stretch shade nettings over feeding areas.
2. Well ventilated barns can make good shades. Open side walls fully, and install ridge vents. Use fans to exhaust stale air, heat and moisture from the barn and to create some breezes.

   Most 2-row tiestall barns can be tunnel-ventilated by installing four 48-inch fans in one end of the stable. All side wall vents, doors and windows are closed, and all the air is admitted through large openings (about 40 sq. ft. for each 48 in. fan) at the opposite end of the barn.
3. Sprinkle cows at the feed bunk. Use fans in the freestall area to blow air over the wet cows for evaporative cooling, and to encourage them to lie in clean stalls and not in the feed alley. Use low pressure nozzles that deliver 0.5 gal. of water per minute as coarse droplets - - not as a fine mist. Soak cows to the hide. Coarse droplets will do this. A fine mist will coat the tips of the hairs, which can actually hold in body heat and make cows more uncomfortable. Run the nozzles 3-5 minutes at 15-20 minute intervals to minimize water problems and to give cows time to dry off. Most cooling occurs as cows dry off, not when they are wet.

   Some fans have built in misters to cool the air as it leaves the fans. In this case, the mist does not get on the cows. If used indoors, misters can raise relative humidity levels in the stable.
4. Don't crowd cows. Provide plenty of bunk space. Minimize the time cows stand in the holding area, and keep the holding area well ventilated.
5. Don't get cows excited and overheated, and don't force them to walk long distances. If cows are overcome by heat, hose them down.

Improve Dry Matter Intake and Ration Formulation:

1. Provide easy convenient access to an abundant supply of good quality water that is close to feed and shade. Also make water convenient to cows as they exit from the parlor.
2. Provide easy, convenient access to fresh, good quality feed close to water, shade and breezes.
3. Keep feeds fresh. Feed frequently and mix feeds close to the time of feeding. TMR's help.
4. Provide plenty of bunk space. Keep waterers and mangers clean, and remove leftover feeds.
5. Feed a well-balanced, nutrient-dense, cooler ration that contains more grains, molasses, added fats, oil seeds, etc., BUT be sure cows get enough effective fiber and forage in the ration to support normal rumen function. Feed higher-quality, easier-digested forages, and feed most of them during the cooler hours of the day and night. Remember, the digestion of forages produces

more body heat than the digestion of high energy grains, fats, etc., and it takes 4 or more hours for cows to cool down after sunset on a hot afternoon.

6. The following nutrient guidelines for heat stress conditions are suggested by Michael F. Hutjens, Illinois Extension Dairy Specialist: Crude Protein - 16 to 18%, 38 to 40% of which is undegradable; ADF - 19 to 21%; NDF - 25 to 28%, about 75% of which is effective fiber from sources such as high quality, coarse-chopped forages; Fat - 5 to 6% rumen degradable plus another 2% that is rumen undegradable; potassium - 1.2 to 1.5%; sodium - 0.4 to 0.5%; and magnesium - 0.3 to 0.35%. Cows might also receive on a daily basis, 0.3 to 0.5 lbs. of sodium bicarbonate, 6 grams of niacin and 3 grams of aspergillus oryzae.
7. Monitor cows closely, and work closely with your nutritional advisor and veterinarian.

Improve Conception Rates in Hot Weather:

1. When body temperatures get too high, cows don't display good heats and they don't conceive well. Bulls can become temporarily sterile, too. Once the heat spell ends, it can take several weeks for cows and bulls to recover and produce normal eggs and sperm.
2. When cows go off-feed in hot weather, or at any other time, they go into a negative energy balance. If they lose too much flesh or lose flesh too rapidly conception rates decline sharply.
3. Keep cows in good flesh. Don't get them excited and overheated. Also keep them cool for 2-7 days after breeding. If they are overheated, cool them down with shade, breezes and water, as discussed earlier.
4. Develop heat expectancy lists, and observe cows twice daily during the cooler hours.
5. Use heat detection aids (pressure sensitive rump mounts, crayons, activity monitors, etc.).
6. Synchronize heats so more cows are sexually active at appointed times.
7. Plan your breeding program so cows don't have to calve, reach peak milk flow and conceive during stressful hot weather seasons of the year.

Reduce Environmental Mastitis:

1. Keep cows clean and dry! This alone, will prevent much of the problem!
2. Avoid slop in shady rest areas. Provide lots of shade and rotate cows among different areas.
3. Keep stall beds clean and dry. Use sufficient bedding, ensure good drainage of the stall bed and remove manure and wet materials frequently. Use brisket boards and neck rails to help position cows properly in their free stalls.
4. Scrape alleys and lots frequently to keep them as clean and dry as possible. Ventilation helps.
5. Freshen cows in a well-sodded, shaded pasture whenever possible. Clean out the maternity pen and let it stay idle as much as possible to break up disease cycles.
6. Pre dip cows teats thoroughly with an effective germicidal teat dip, and milk dry udders.
7. Fence cows away from ponds, streams and sloppy areas. Fill in holes and drain barn yards. Better yet, concrete them. Don’t let cows linger long in any one spot; keep rotating them.
8. Seed small exercise plots close to the barn yard to a rugged grass such as Kentucky 31 tall fescue. Then rotate and manage these fescue areas to maintain them as clean, well-sodded lots.

Keep Milk Cool:

1. Provide good air circulation around the compressor.
2. Use a pre-cooler or heat exchanger to pre-cool milk before it goes to the tank.
3. Increase compressor size.