Managing Heat Stress of Dry Dairy Cows

By: Katie Wolf and Donna Amaral-Phillips, Ph.D.

Heat stress is often to blame for milk loss on the dairy, but often the dry dairy cow group is forgotten during hot weather. Much of the success (or failure) of a lactation can be chalked up to what happens during the dry period, and neglecting dry cows can negatively impact your profits. For example, heat stressed dry cows produce 1000 to 2000 pounds less milk in the following lactation. Even the fetus is affected; calves from heat stressed cows are 13 pounds lighter at birth and 28 pounds lighter at weaning, and reduced IgG absorption results in compromised immune systems in newborn calves. Below are a few key areas to work on to help reduce heat stress in dry cows.

- **Late gestation is a critical stage for the cow and the fetus.** Heat stress during the dry period results in fetal hypoxia (lack of oxygen) and malnutrition, resulting in decreased fetal growth. Moreover, cows that are heat stressed in late gestation have decreased mammary development prior to parturition, and less mammary development means less milk. Greater milk yield in early lactation sets the cow up for improved milk production throughout that lactation.

- **Make water readily available.** Just as milking cows should be no further than 50 feet from a water source, dry cows should have an ample supply of clean, easily accessible water. Water tanks should be cleaned at least weekly to make it more appealing to cows. It should also be kept shaded as much as possible not only so it stays cooler, but to minimize algae growth.

- **Maximize heat abatement.** Often dry cows are kept outside where fans and sprinklers aren't really options, but there are still ways of modifying the cow environment to reduce heat stress. There should be plenty of shade available, and the shady areas should be clean. Very often there are only one or two prime shady spots in the dry cow area, and the areas quickly become muddy, leading to cows coming in with high cell counts. Of course, if a barn is available, fans should be plentiful and spaced according to their size (every 20-30 feet for 36" fans), and placed on a temperature sensor to kick in at 68 degrees temperature humidity index. A periodic sprinkler system is also a great tool for adding evaporative cooling. Even if a barn is not designated specifically to dry cows, they can spend time in the holding pen each day to reap the evaporative cooling benefits. However, extra stress in moving cows can reduce the potential benefits, so your individual situation should be evaluated. Close-up cows within 3 weeks of expected calving date should be put in the best possible cooling situation since most problems throughout lactation stem from transition cow problems.

- **Modify the diet.** Heat stress results in 7 to 25 percent increases in energy requirements for maintenance. The dry period is a critical stage in terms of nutrition to prevent the myriad of late-gestation metabolic disorders, so work closely with your nutritionist in this area.