



Northwest Veterinary Associates, Inc.

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Hot Weather Reproduction Management

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We are all well aware that this summer will go down in the meteorological record books as having record-breaking days of very hot temperatures and terrible humidity. When we are miserably uncomfortable, our cows are affected similarly. One obvious and unfortunate effect is on breeding. After a brief review of the specific negative consequences of hot summers on dairy reproduction, we will address some possible management responses for the cooler fall.

The temperature-humidity index (THI) is a simple measurement of the combined effects of air temperature and humidity. When the THI reaches 72, cows will show signs of heat stress. THI charts are easily found on the internet.

Four elements of reproduction are really hit hard with this summer's weather:

- Estrus detection

The length and intensity of heats are dramatically reduced in hot weather. Cows will limit their physical activity to reduce body heat production which means fewer signs of standing and secondary heat signs. This, of course, makes heat detection more challenging.

- Maturity of follicles

When cows are under heat stress, the emergence of the dominant follicle in the second wave occurs earlier. Additionally, hot cows will have more cycles with three rather than two waves and this cycle extension will reduce pregnancies.

- Fertility

Because these follicles emerge earlier, the fertility and pregnancy rate are significantly reduced. The "young" premature follicles begin their development around 40 days before ovulation making oocytes very sensitive to heat damage. This can immediately compromise egg quality.

- Development of the embryo

During the first 40 days post-breeding, the developing embryo is especially susceptible to heat damage. When the cow's internal temperature is elevated, the number of embryos that grow normally is greatly reduced. The heat stressed cow will redistribute blood flow away from her core. This is helpful in dissipating heat, but reduces blood flow supporting fetal development and uterine growth.



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If you are using natural service, the impact of hot weather on bull fertility lingers for up to two months after the weather cools down. So be prepared for a long lag period of reduced pregnancy rates.

Although it is probably too late to implement heat abatement strategies for this summer, it is helpful to review the tools we have to decrease summer breeding problems. Cow comfort tops the list. Fans, sprinklers, holding area cooling and side-wall shade cloth are key. Nutritional changes can help as well. Raising buffer levels, increasing ration density and frequent push-ups are helpful. Keeping up with your foot trimming schedule is critical. Lameness doesn't breed well. Bull selection for future heifers is important, too. Genetic variance for heat tolerance exists among Holstein bulls such that more heat tolerance bulls have daughters with higher pregnancy rates.

So what do we do when the cooler fall weather arrives and we have more open cows than usual?

No magic bullet exists for this situation but aggressively using the array of synchronization tools we have is a good place to start. In addition to the standard ovsynch protocols, consider using double ovsynch, presynch-ovsynch or double PGF injection protocols. After hot summers, most herds find that their breeding efficiency improves dramatically and by Thanksgiving or Christmas breeding is back on track. Please talk with us about how to adjust your breeding strategy for the fall.

After a summer like this one, we are actually (almost) looking forward to winter. Doing some winter brainstorming on how to prepare for the next hot summer may be very worthwhile.

