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### Never Too Early to Think Heat Abatement

Get ready for summer heat before it gets here, because we know it is coming.

It's almost never too early to start thinking about hot weather. In Central Pennsylvania we hit 70 plus degrees during the last week of February, and it was a reminder that winter is coming to a close. As we begin to trade in our winter coats for sweatshirts and then sweatshirts for t-shirts, take some time to review your hot weather heat abatement plan for the coming summer.

The strategy for heat abatement remains the same, shade to protect animals from the solar heat load, high air exchange and air velocity to aid convective cooling, added drinking water for the animals, and finally added evaporative cooling. Although the basics of heat abatement are simple, I think a few points need to be discussed in more detail.

When circulation fans are hung over the feed area or resting area of an open, naturally ventilated shelter they should **not** be thought of as adding to or enhancing the air exchange of the shelter. In natural ventilation systems, the air exchange rate is driven by the size of the sidewall openings, the natural outside wind speed, and the building's exposure to that wind.

Circulation fans simply impart a velocity to the air already inside the building. In this application the fans are enhancing the air speed within the shelter, which will aid convective cooling, but they are not increasing the air exchange

rate. With this in mind, the directional orientation of circulation fans may be less important than once thought. While it is still popular to orient fans to blow air parallel to the length of the barn in the same direction as the prevailing outside winds, this may not be as beneficial as once thought. Recently, anecdotal evidence would say that orienting circulation fans from two directions may decrease cow bunching during the heat of the day. For example, a freestall shelter oriented east to west may have the fans on the west half of the shelter orientated to blow air west to east, while fans on the east half of the shelter would blow air east to west. While this at first may seem that we are making fans 'fight' against one another—remember, they are just creating air speed within the shelter, not air exchange.

Another question I sometimes get about circulation fans is, "Which is more important, the air speed created or the volume of air moved by the fan?" Well, I would like to have both. Higher air speed creates more turbulence around the cow's body and enhances convective cooling, while more air volume tends to increase the area covered and provides a larger volume of air to absorb heat and moisture from the cow. So I like to look for fans that provide a balance of high speed and high volume and not lean too far one way or the other.

The type of housing may also be part of this discussion. If fans are being placed over two rows of

head-to-head freestalls, there are more heat units (i.e. cows) per square foot than say a bedded pack, and cows standing in stalls will block the air movement for downstream cows.

When it comes to mechanical ventilation of dairy shelters, such as tunnel ventilation of a tie stall, the large exhaust fans in the end provide a high air exchange for the shelter. However, it has been observed that sometimes the air speed at and between cows is lower than desired. Several farms have seen increased performance of tunnel ventilation systems with the addition of circulation fans placed directly above the cow stalls in addition to the tunnel ventilation system. The circulation fans help boost the air speed around and between cows.

The final component of heat abatement is the addition of water for evaporative cooling. Before thinking of adding water, first make sure air exchange of the shelter has been maximized. If the added moisture is not removed from the shelter with air exchange, conditions within the shelter may become worse rather than better.

The question is often whether to use soakers (direct evaporative cooling) or misters (indirect evaporative cooling). The answer really is they both work, but it depends on your housing system and goals. Indirect cooling lowers the ambient temperature of the air circulating within the shelter by raising the humidity. This cooler air is then used to enhance convective

cooling of the animals. Direct evaporative cooling wets the skin of the animals and then, by this water evaporating from the skin, cools the animal directly. Direct evaporative cooling systems tend to use more total water and any water not directly put on a cow, but rather the floor, will add to the volume of material entering the manure system. Likewise, the ability of an indirect system to cool ambient air can be limited on humid days. The best evaporative cooling may be the use of both direct and indirect evaporative cooling together on the dairy. For example, use soakers in the holding area as cows wait to enter the parlor during milking, place indirect misters within the shelter for milder periods of heat stress, and add fence-line soakers for shorter periods of high heat stress. This may seem extreme, but with the use of good controls the whole system can be integrated and automated.

As we strive for maximum per cow performance and production, cow comfort needs to be maximized at all times of the year, and cows just aren't naturally built for summer heat. So, it's never too early to think about heat abatement. Get ready for summer heat before it gets here, because we know it is coming.

*By John Tyson, Agriculture Engineer and Educator, Penn State University Extension*

### Tractor Safety Classes

#### Spring 2017

Luxemburg: April 1 – April 8, April 22, April 29 (no class April 15) from 9 am– 3 pm

#### Summer 2017

Green Bay: June 19-22, 9 am - 3 pm

Luxemburg: June 26-29, 9 am - 3 pm

Shawano: June 19-23 (no class on June 21) from 9 am - 3 pm



#### Registration:

Please call: (920) 498-5444 or (888) 385-NWTC, and **register for class #21681**. Please have your Student ID and a credit card available for payment of all non-credit classes.

Green Bay Regular Hours:

Mon.-Thurs. 8 am-7 pm, Fri. 8 am-5 pm, Sat. 8 am-11 am

PLEASE NOTE: THESE CLASSES ARE SUBJECT TO CANCELLATION IF THERE AREN'T 20 STUDENTS ENROLLED IN THE CLASS.

### Kewaunee County Farm Technology Days

Kewaunee County Farm Technology Days 2017 is only 4 months away! If you would like to volunteer, exhibit, or find additional information on the show, visit: <http://www.wifarmtechnologydays.com/kewaunee/>



Kewaunee County Farm Technology Days logo wear is available at Ebert Enterprises 920-255-1896/920-255-1894 during normal business hours, and also at Pagel's Ponderosa 920-388-3333.

### 2017 Holstein Breeders Scholarship

Applications are now being accepted for the 2017 Kewaunee County Holstein Breeder Scholarship.

Applicants must be currently enrolled or a high school senior intending to enroll as a full time student in a Bachelor's Program at any college or university, or a two-year Associate Degree Program at any technical college or Short Course. The applicant must plan to pursue further education within the next school year. This scholarship is open only to Ag-related careers.

Applications should be completed and postmarked on or before June 1, 2017 to:

Dennis Christoph  
N4617 County Rd V  
Luxemburg, WI 54217.

Forms may be obtained by contacting the Kewaunee County UW-Extension Office or at the Kewaunee County UW-Extension website at <http://fyi.uwex.edu/kewauneeag/2017/02/28/2017-kewaunee-county-holstein-breeder-scholarship/>

### Kewaunee County 4-H Dairy Tour April 8

The Dairy Tour is open to all. Each tour will last approximately 1-1.5 hours.

**9:00AM Kinnard Highland Farm**  
N7869 Apple Rd in Casco

The tour at Kinnard Highland Farm will focus on the robotic technology on the farm, including two Lely robotic milkers installed in October 2015.

**10:30AM Ebert Enterprises**  
N6939 County Road D in Algoma

The tour at Ebert Enterprises will focus on the calf facilities, which feature auto feeders for up to 500 calves. The group will be at the calf barns on Oak Road.

Please RSVP by April 5 to Aericia Bjurstrom at [aericia.bjurstrom@uwex.edu](mailto:aericia.bjurstrom@uwex.edu) or 388-7138.



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### Is 60 the Magic Number?

Factors to consider before shifting voluntary waiting period or dry period length.

We see the number 60 a lot in dairy management, especially in reference to 60-day dry periods before calving and 60-day voluntary waiting periods (VWP) after calving. What is so special about 60?

A Penn State Extension publication from 1996 explains that the dry period for a dairy cow is an important event for mammary gland involution and secretory cell proliferation into early lactation. The publication summarizes research showing the impact of dry period length on subsequent lactation performance, concluding that a length of 60 days is an ideal target for maximizing milk production. Since 1996, various research and industry recommendations continue to favor a 60-day dry period.

After calving, the reproductive tract of the cow typically needs 30 to 40 days to involute (heal and shrink back to a normal size) after a trouble-free calving, and fertility will typically continue to increase until about 100 days in milk as negative energy balance is worked out, postpartum health issues are resolved, and the reproductive system establishes regular cyclicity. A short VWP (less than 60 days) allows more time for estrous detection and multiple services before excessive days in milk become a concern. Though waiting too long can be problematic, a VWP of 70 to 80 days may work well when some of the more successful timed AI protocols are effectively implemented, since first service can be accomplished within a narrow timeframe and conception rates are relatively high.

So what are we seeing about the length of the dry period or VWP in current research?

In an economic study reported by Inchaisri et al. (2011) it was found that, in the average Dutch dairy cow, any VWP longer than 45 days resulted in economic loss. However, a long VWP was beneficial for some first lactation cows or in situations such as low milk production, high milk persistency, postpartum disorders, or while costs of milk production are low.

Reviewing research on how short dry periods compare to a traditional 60-day dry period, van Knegsel et al. (2013) confirmed that a shorter dry period of approximately 30 days results in a drop of three pounds of milk per day across the subsequent lactation. With no dry period, production drops by thirteen pounds per day. Though a drop in production is generally undesirable, there are some things to consider. Short or non-existent dry periods typically involve fewer dramatic changes in diet and production. As a result, a remarkable improvement has been demonstrated in energy balance, postpartum health, and reproductive performance. Also, the extra days of production before calving, during the time the cow would have been dry if following a 60-day dry period, shouldn't be discounted.

Chen et al. (2016) reported findings from monitoring cows over their first two dry periods and the following lactations. Cows were assigned to dry periods of 0, 30, or 60 days. Young cows assigned to dry periods of 0 or 30 days had lower peak yields, a later time of peak yield, and lower overall production in their following lactation. However, after going through another dry period of similar length, leading into their third lactation, the effects of dry period length were less pronounced. Peak yield was impacted, but not time to peak yield or 305-day production. Persistency of lactation, typically better in first lactation cows than multiparous cows, was not affected by dry period length. Kok et al. (2017) found the length of a previous dry period did not significantly affect milk yield in relation to a subsequent dry period. Across the literature, first lactation cows seem to get more benefit from a full 60-day dry period than multiparous cows, presumably due to continued udder development in the young cow. If dry periods have

tended to be short, one might consider giving first lactation cows more time than the older cows.

With the development of new research findings and the advance of technology available to dairy operations, we can probably expect that there will soon be tools available to evaluate cow performance and select an ideal VWP (affecting length of lactation) and dry period length. Meanwhile, there are still many factors to consider before suggesting a significant shift in VWP or dry period length.

- For VWP, consider postpartum health, efficiency of heat detection, first service conception rates, and anticipated late lactation milk production. In a high-producing herd with an aggressive timed AI program, it might pay to have the VWP set somewhere closer to 70 or 80 days.

For dry period length, consider mammary gland health, feed costs, and labor.

Though it can be adjusted with valid reasoning in some situations, 60 is still a pretty good number to go by in many cases.

By Andrew Sandeen, Extension Educator, Penn State University Extension

#### References:

- Chen, J., A. Kok, G. J. Rummelink, J. J. Gross, R. M. Bruckmaier, B. Kemp, and A. T. M. van Knegsel. 2016. Effects of dry period length and dietary energy source on lactation curve characteristics over 2 subsequent lactations. *J. Dairy Sci.* 99:9287-9299.
- Heinrichs, A. J., V. A. Ishler, and R. S. Adams. 1996. [Feeding and managing dry cows](#). Penn State Extension Circular 372.
- Inchaisri, C., R. Jorritsma, P. L. A. M. Vos, G. C. van der Weijden, and H. Hogeveen. 2011. Analysis of the economically optimal voluntary waiting period for first insemination. *J. Dairy Sci.* 94:3811-3823.
- Kok, A., A. T. M. van Knegsel, C. E. van Middelaar, B. Engel, H. Hogeveen, B. Kemp, and I. J. M. de Boer. 2017. Effect of dry period length on milk yield over multiple lactations. *J. Dairy Sci.* 100:739-749.
- Kuhn, M. T., J. L. Hutchison, and H. D. Norman. 2007. Dry period length in US Jerseys: Characterization and effects on performance. *J. Dairy Sci.* 90:2069-2081.
- Stevenson, J. 2012. [What is the ideal waiting period?](#) *Hoard's Dairyman*.
- van Knegsel, A. T. M., S. G. A. van der Drift, J. Cermakova, and B. Kemp. 2013. Effects of shortening the dry period of dairy cows on milk production, energy balance, health, and fertility: A systematic review. *Vet. J.* 198:707-713.

### Save the Dates!

<b>April</b>	
<b>8</b>	4-H Dairy Tour, Kinnard Highland Farm and Ebert Enterprises
<b>22</b>	Meat Animal Quality Assurance, Kewaunee County Fair Grounds, Luxemburg
<b>22</b>	Clean Sweep, Hillside County Shop Hwy 54, Casco

**2017 KEWAUNEE COUNTY WISCONSIN FARM TECHNOLOGY DAYS**

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