Extension
UNIVERSITY OF WISCONSIN–MADISON

# Using Bovisync Reports to Assess Potential Impact of Heat Stress on a Dairy

## How Can You Find the Tell-Tale Signs of Heat Stress in Your Records?

Here are a few of the key areas to watch for:

- Reduced milk production.
- Butterfat depression.
- Declines in reproductive performance.
- Increases in clinical and sub-clinical mastitis.
- Increased morbidity in transition cows.

In this fact sheet you will see examples of the resulting data you can use to unlock the power of your herd's Bovisync records. A supplementary factsheet will include details about how to create graphs depicted here.

## Milk Production

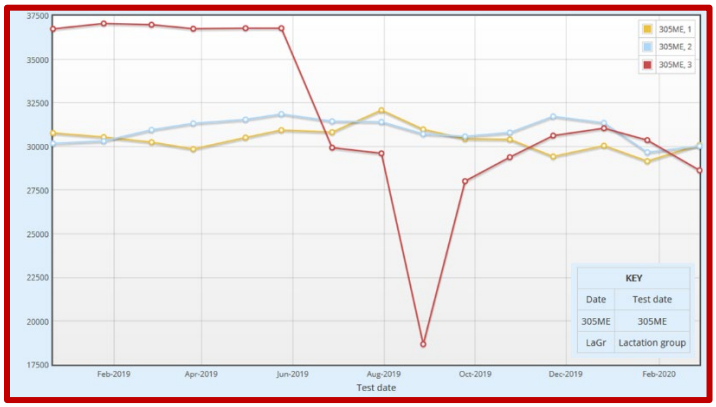


**Figure 1**. Mature Equivalent 305 (305 ME) by lactation group over a 12-month period.

In figure 1, 305 ME of lactation group 3 (lactation ≥3) started dropping in June until September. This is an example of what milk depression could look like when cows experience heat stress. 305 ME of first and second lactation cows remained consistent.


**Figure 2**. Average daily milk production per cow by lactation group over a 24-month period.

In figure 2, a sharp depression in milk production in lactation group 3 is observed in July 2019. Compared to average daily milk production of February, milk production from March to July decreased about 30 pounds (range of 10 to 60 pounds) per cow per day. There are no evident seasonal impacts on daily milk production in first and second lactation cows.

## Fat Percent

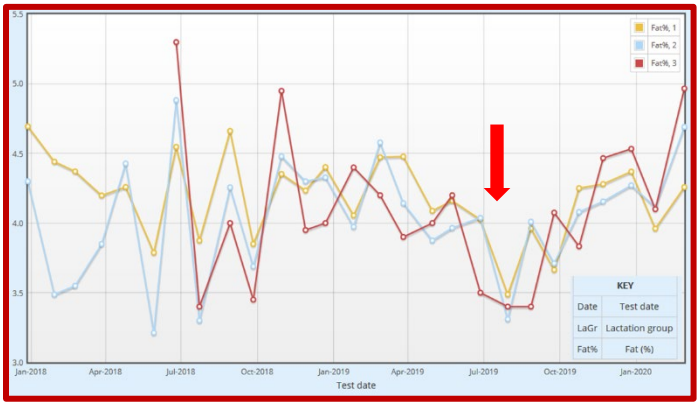


**Figure 3**. Average percent fat by lactation group over a 24-month period.

In figure 3, an arrow indicates a period where fat decreased in all lactation groups. Losses in all lactation groups were about 0.35 (range from 0.10-0.57)

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percentage points per month starting in June, continuing through September when compared to percent fat in May. Remember that milk fat varies depending on when (AM or PM) plant conduct monthly testing—fat is higher in the morning.

## Milk Quality

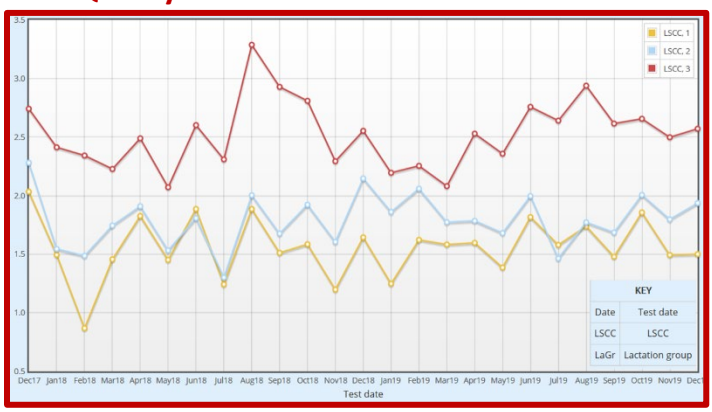


**Figure 4**. LSCC by lactation group over a 24-month period.

In figure 4, there is an increase of LSCC between July and October 2018. LSCC peaks in August 2018. Between July and August there a one point decrease in LSCC.

## Reproduction


**Figure 5**. Pregnancy risk or rate and conception rate over a 14-month period.

In figure 5, pregnancy risk or pregnancy rate, which are used interchangeably throughout this factsheet, measures the percentage of eligible animals that become pregnant during a determined period of time. There is a sharp decrease in pregnancy risk and conception rate in July 2019.

## Clinical Mastitis and Transition Cow Health

Figure 6 provides a visual picture of health events during the critical transition cow period over the last year.

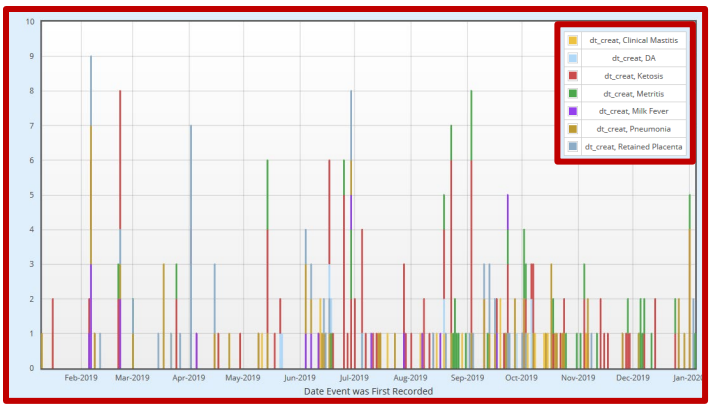


**Figure 6**. Health events over a 12-month period.

## Economic Impact

Economic impact of heat stress is large. By following the information extracted from the Herd Summary, it is possible to estimate the potential losses.

Assuming a marginal milk production of 2.4 pounds per pound of feed, the loss would be $0.11 per pound of milk not produced (at $0.16 per pound milk and $0.12 per pound of feed). A daily loss of 30 pounds per cow per day (Figure 2) equals to losses of $3.30 per cow per day during summer months.

Considering a price of $2.68 per pound of fat, 0.35% milk fat depression (Figure 3) represents a reduced price received for milk sales of $0.938/cwt due to heat stress during warmer months.

A decrease of pregnancy risk or rate from 35 to 25% (Figure 5) would represent a loss of $7.90 per cow in the month of July compared to the month of May (https://dairymgt.info/markov/reader.php).

## Take Home Messages

- Use ME 305 because it reflects seasonal changes.
- Milk fat varies depending on when the plant is testing—morning versus afternoon.
- Create a team to help you investigate seasonal depression in milk production. You can use your herd veterinarian, dairy and nutritional consultants, and herd manager.
- It is important to determine the economic impact of heat stress in your herd to motivate actions and investments to alleviate them.