**AB1293 Broad-spectrum infrared thermography for use as an early detection method for digital dermatitis in dairy cattle**

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Background: Approximately 50% of cows have foot lesions that contribute to lameness, of which 43 % are DD. DD is painful and decreases comfort, longevity, milk production and fertility. Detection of DD lesions is difficult due to manure on feet and legs of cows. Infrared thermography (IRT) detects heat associated with inflammation and may aid in the detection of DD hoof lesions.

Objective:

1. Determine if IRT can be used to detect visible DD lesions
2. Determine if IRT can distinguish different stages of lesions
3. Determine if IRT can identify lesions before they are visible
4. Determine if lameness is related to inflammation in the hoof as measured by IRT (max temp.)
5. Determine if cost-friendly cameras can obtain similar results to the expensive model

Method: 40 cows were randomly selected from 5 farms and IRT/visual measurements occurred every 3 weeks. IRT images of both clean and dirty hind feet were captured and DD lesions and lameness was scored.

Outcome: A significant temperature increase was measured for M2 lesions, which are painful, ulcerative lesions with the potential to infect other cows. IRT is able to detect M2 lesions on clean and dirt feet and with more data the temperature difference between other stages may be detectable.

Recommendations: IRT can be used to detect M2 lesions earlier and more accurately.

Benefits to Industry: M2 lesions are crucial for early detection and treatment to prevent lameness and spread to other cows in the herd. With early and accurate detection as well as targeted treatment DD can be reduced on the farm.

KTT:

* Results communicated with participating farmers
* Presentation at WCDS