

# Effect of purulent vaginal discharge on ovarian cyclicity, pregnancy, pregnancy loss, and cow survival in a large multi-farm population of Holstein cows

P. Pinedo<sup>1</sup>, J. Santos<sup>2</sup>, G. Schuenemann<sup>3</sup>, R. Bicalho<sup>4</sup>, R. Chebel<sup>2</sup>, K. Galvao<sup>2</sup>, R. Gilbert<sup>4,8</sup>, S. Rodriguez-Zas<sup>5</sup>, G. Rosa<sup>6</sup>, C. Seabury<sup>7</sup>, W. Thatcher<sup>2</sup>

Colorado State University, Fort Collins CO, USA<sup>1</sup>, University of Florida, Gainesville, FL, USA<sup>2</sup>, The Ohio State University, Columbus, OH, USA<sup>3</sup>, Cornell University, Ithaca, NY, USA<sup>4</sup>, University of Illinois, Urbana-Champaign, IL, USA<sup>5</sup>, University of Wisconsin, Madison, WI, USA<sup>6</sup>, Texas A&M University, College Station, TX, USA<sup>7</sup> Ross University, St. Kitts, West Indies<sup>8</sup>

## INTRODUCTION

Purulent vaginal discharge (PVD) is characterized by presence of purulent (>50% pus) uterine discharge detectable in the vagina 21 days or more after parturition, or mucopurulent (approximately 50% pus, 50% mucus) discharge detectable in the vagina after 26 days postpartum.

This condition has been associated with reduced fertility; however the reported effects on subsequent survival in the herd are conflicting.

The analysis of a large experimental data set using a standardized disease definition would help to clarify these long term responses.

## OVERALL OBJECTIVE

To analyze the effect of PVD on multiple reproductive responses and survival in a large population of Holstein cows across US regions.

## MATERIAL & METHODS

### Variables in analysis:

- **PVD** was assessed at **28±3 DIM** and defined by presence of mucopurulent to fetid vaginal discharge
- **Resumption of ovarian cyclicity (ROC)**: Transrectal ultrasonography at **40±3 and 54±3 DIM**
- **Pregnancy**: Ultrasonography on **d 32±3** after AI and reconfirmed at **d 60±3**
- **Pregnancy loss**: **d 32 vs. d 60** after AI

### Statistical analysis:

- Multivariate logistic regression for testing associations:

**PVD** →

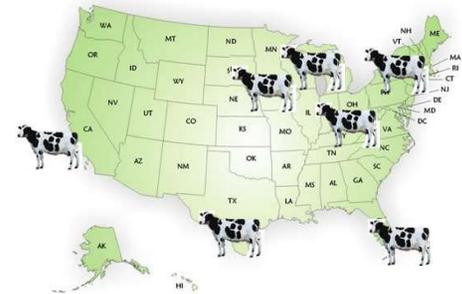
- ROC
- Pregnancy / pregnancy loss at first and second AI
- Survival after 50 DIM

- Parity and season were included as fixed effects, and farm and region as random effects in the models

## MATERIAL & METHODS

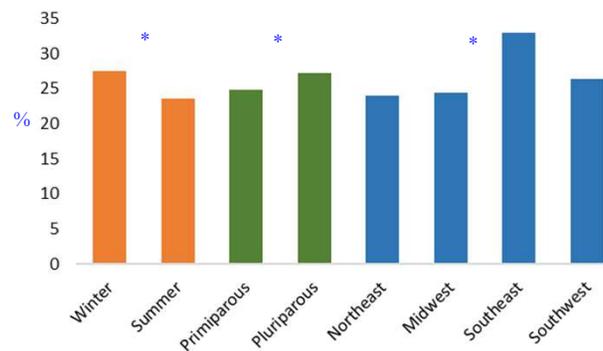
**Study Population:** A total of 11,733 cows calving in 16 farms located in 4 regions: Northeast [4 herds], Midwest [6 herds], Southeast [1 herd], and the Southwest [5 herds].

**Procedures:** Cows were enrolled at parturition and monitored weekly for multiple reproductive events, disease occurrence, and survival.



## RESULTS

Figure 1: Frequencies (%) of PVD by explanatory variable



Mean (range) farm incidence of PVD was 25.7 % (11.8 – 35.1)

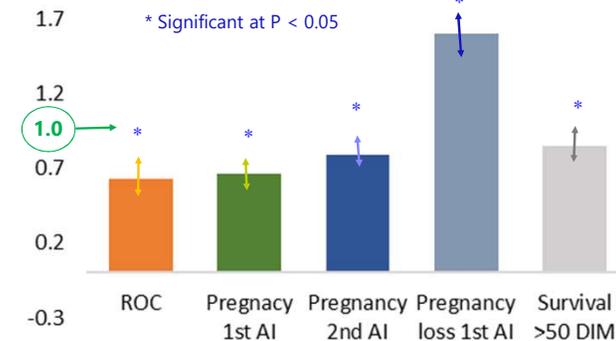


Figure 2: Odds (95% CI) of ROC, pregnancy, pregnancy loss and survival for PVD cows (Non-affected cows reference = 1)

## CONCLUSION

Occurrence of purulent vaginal discharge had a significant detrimental effect on multiple fertility responses and survival later in lactation.