

Risk factors for early pregnancy loss in primiparous Holstein cows

Data from 5,176 primiparous cows in a herd in CO, USA were analyzed

Multiple risk factors affected early pregnancy loss in primiparous cows.

A strong effect was established for number of AI at conception, specially for **number of AI ≥ 4** .



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Background

- Substantial pregnancy loss occurs within the first 60 d of gestation in dairy cows
- New diagnosis tools allow for a better understanding of the dynamics of pregnancy loss
- Identifying factors affecting pregnancy loss could help producers to reduce costs associated with this source of reproductive inefficiency



Objective:

To identify risk factors associated with early pregnancy loss in primiparous Holstein cows in one herd in CO, USA.

Study population

- Cows were maintained in a cross ventilated barn, milked 3X, and subjected to artificial insemination at about 80 DIM, following a double OvSynch protocol
- Data included 5,176 pregnancies in primiparous cows conceiving between January 2017 and October 2019

Risk factors

1. Number of services per conception as heifer (1;2; ≥ 3)
2. Age at first calving
3. Calving season
4. Average milk yield up to 100DIM (MY100)
5. Number of AI at conception (1; 2-3; ≥ 4)
6. Season of conception
7. DIM at conception

Assessment of pregnancy loss

- Pregnancy diagnoses were performed by ultrasonography on d 33 ± 3 after AI and reconfirmed at d 52 ± 3 of gestation
- Early pregnancy loss was defined as a **positive** pregnancy diagnosis at first examination followed by a **negative** diagnosis at reconfirmation

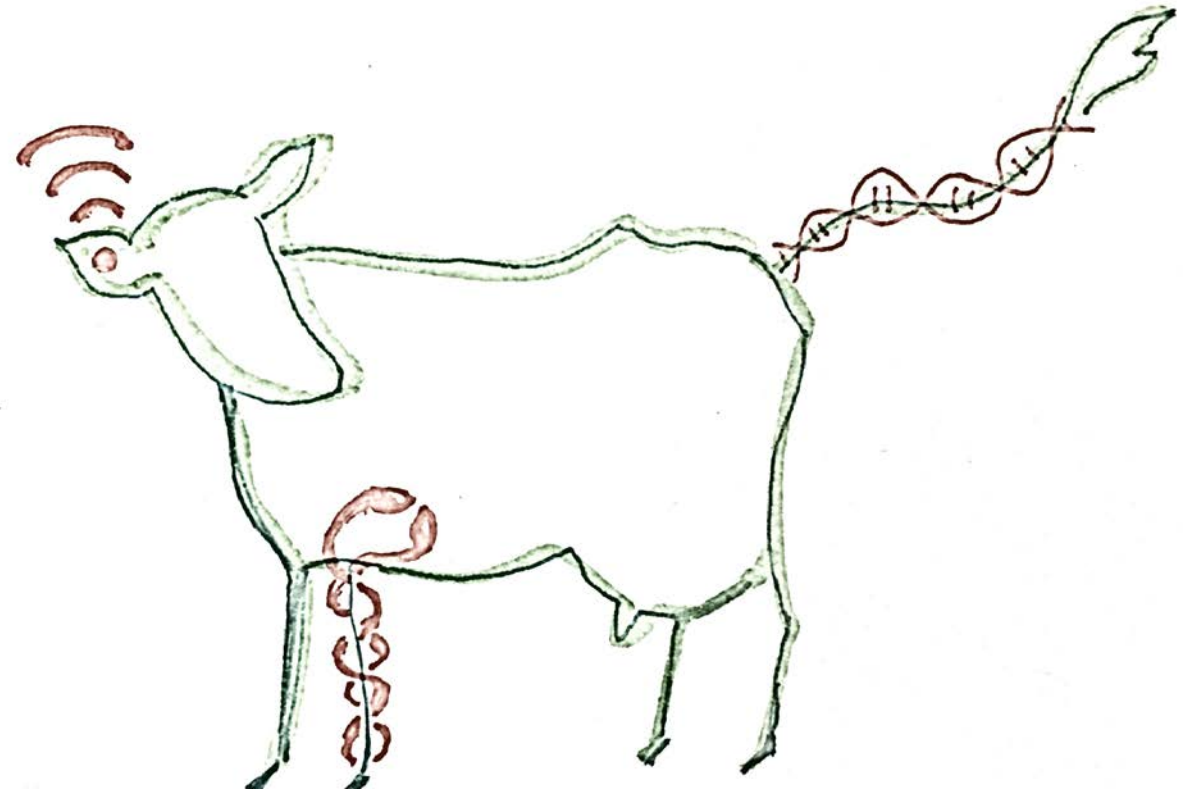
Statistical Analyses

- Continuous data were analyzed by ANOVA and binary data by logistic regression



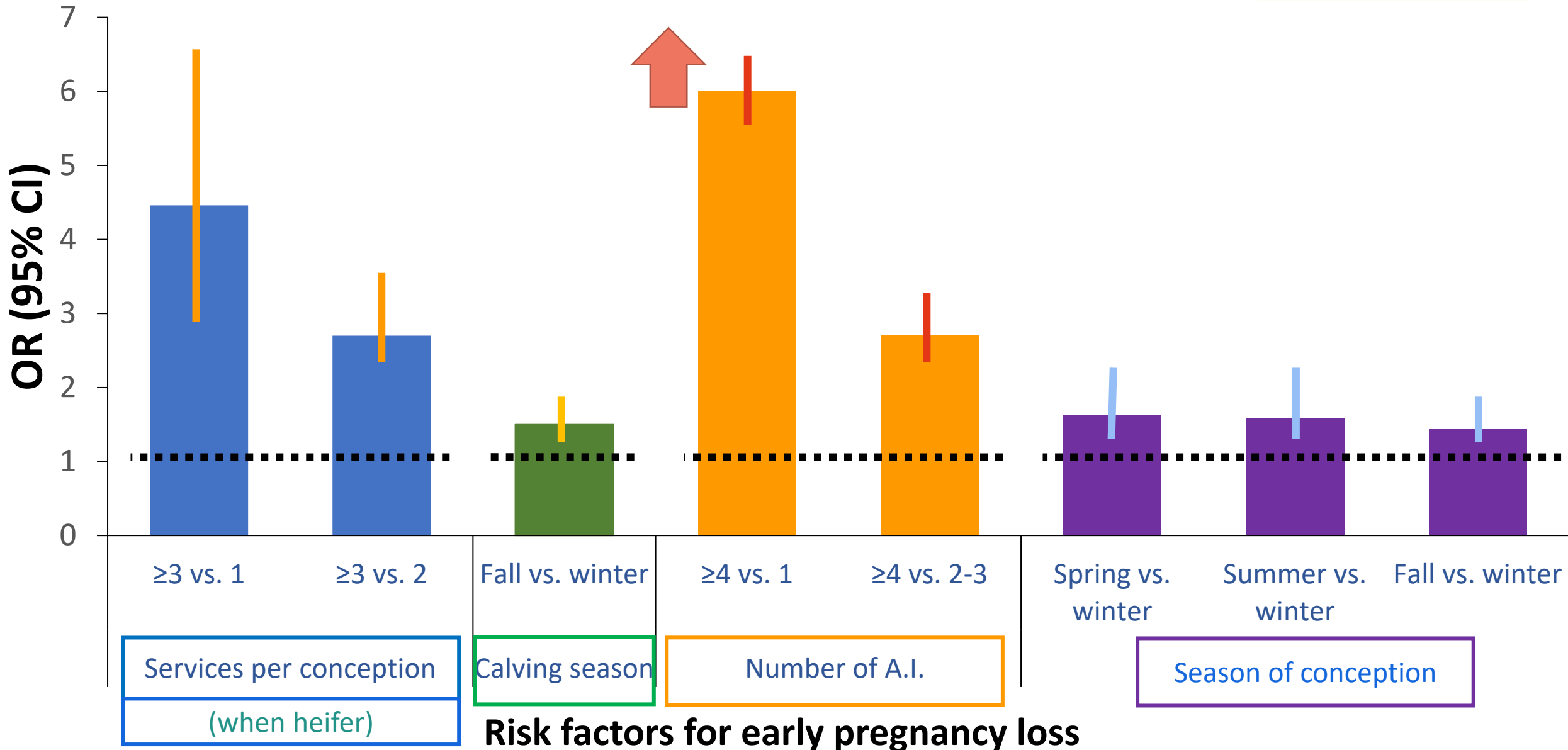
Results

Average (95% CI) early pregnancy loss was 10.2% (9.21-10.9%)
[from d 33 to d 52 post AI]



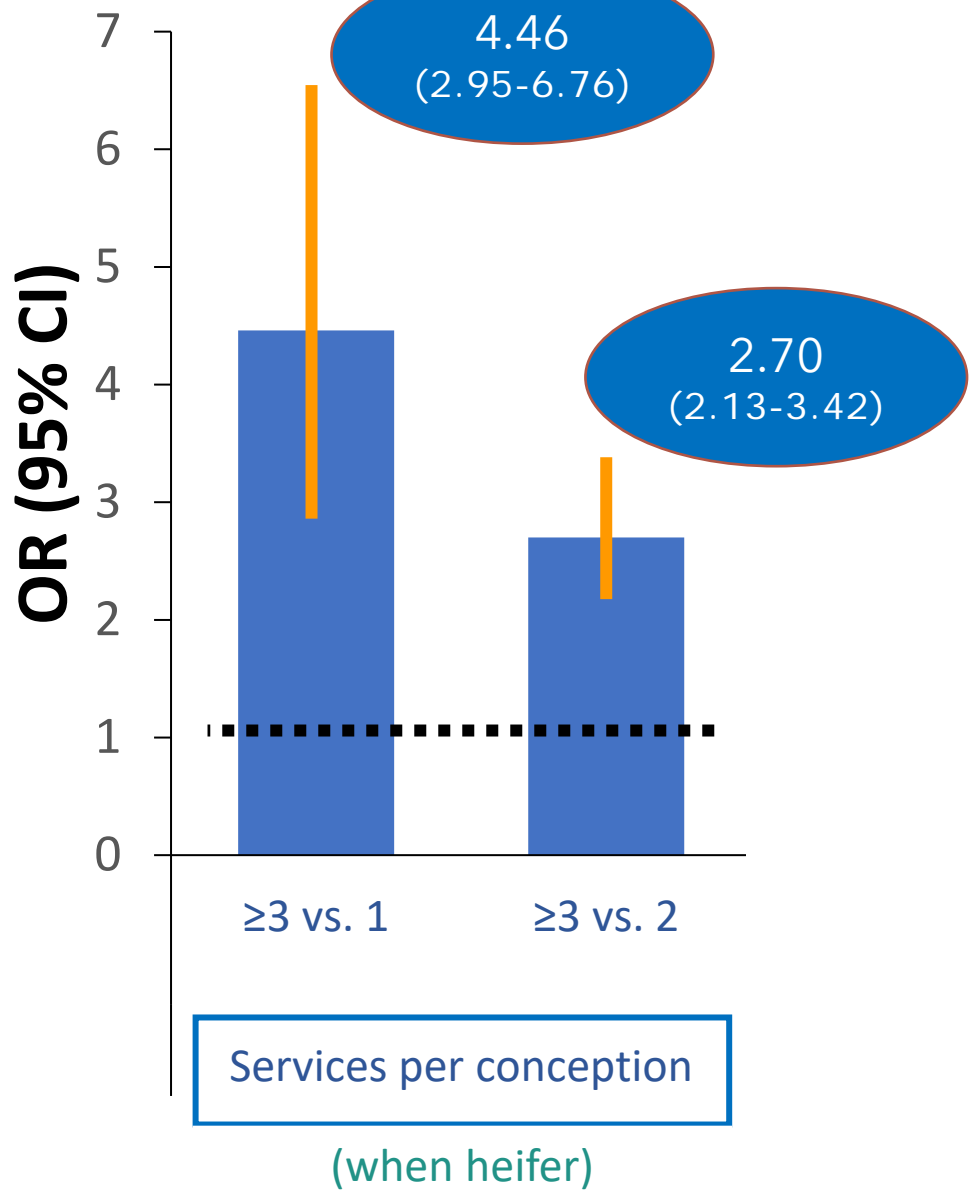
ODDS OF EARLY PREGNANCY LOSS

Results



ODDS OF EARLY PREGNANCY LOSS

Results



Services per conception when heifer

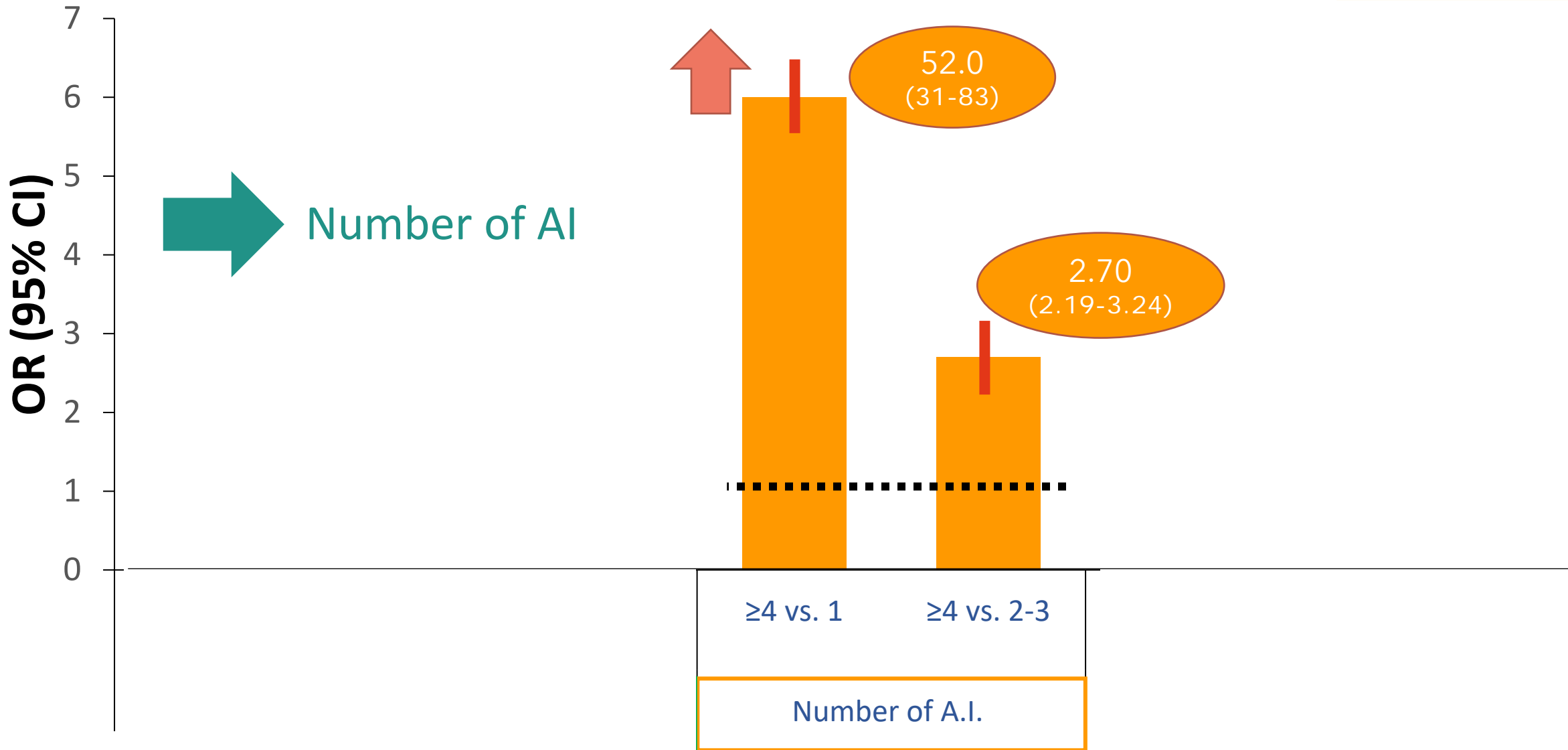
ODDS OF EARLY PREGNANCY LOSS

Results



ODDS OF EARLY PREGNANCY LOSS

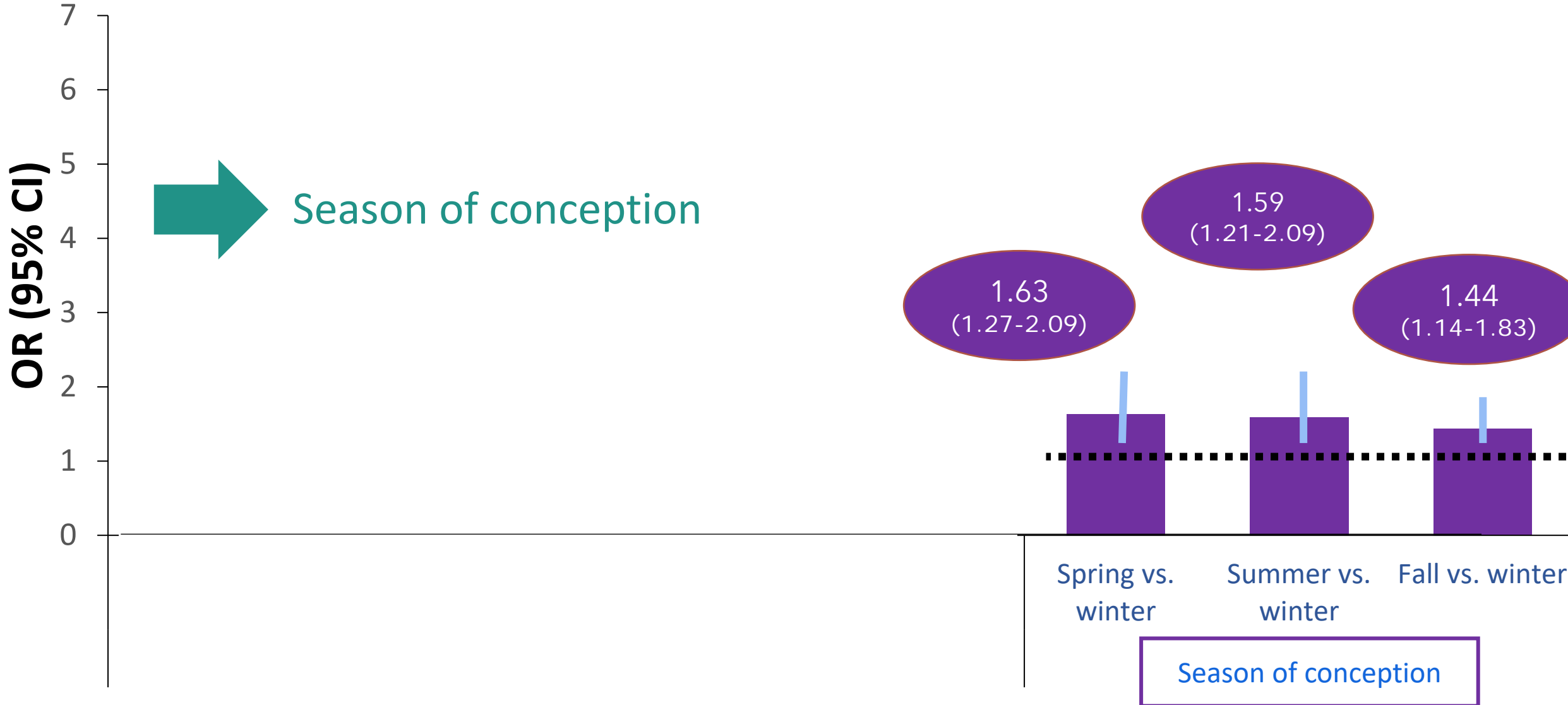
Results



ODDS OF EARLY PREGNANCY LOSS

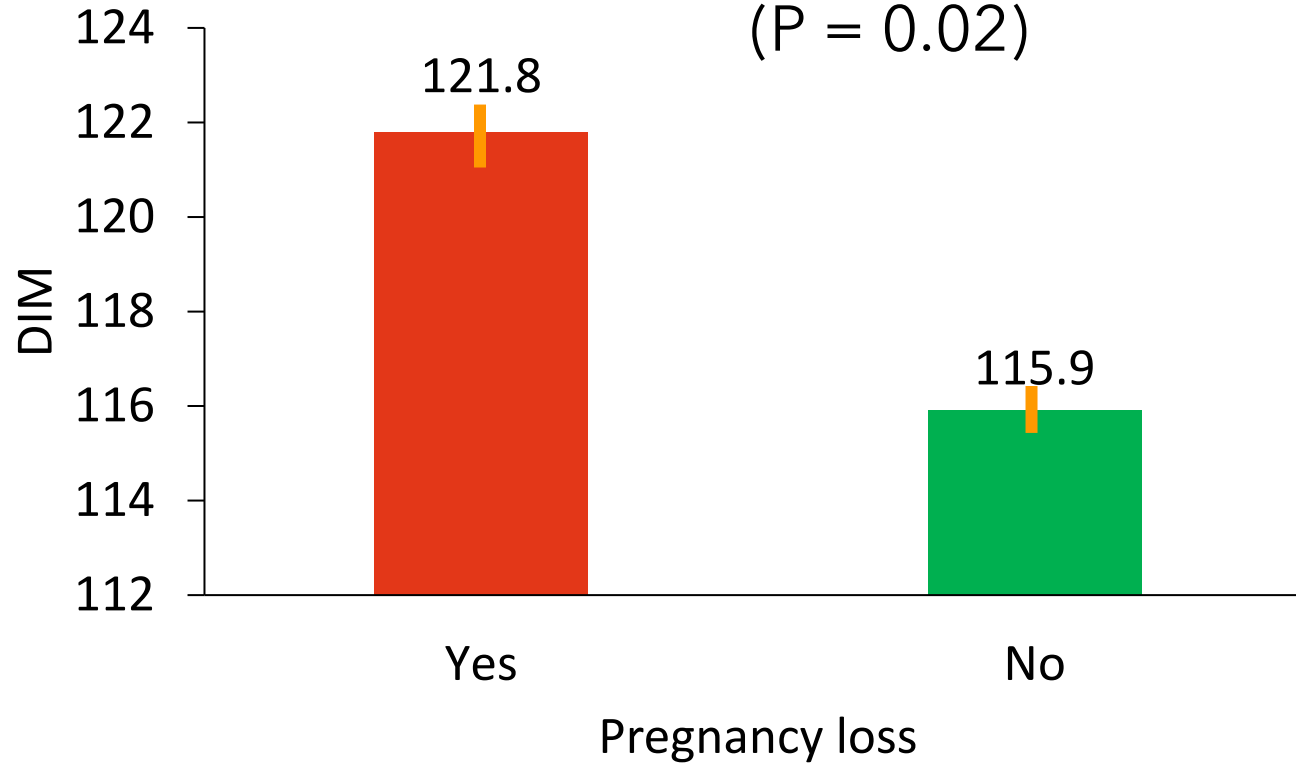
Results

Season of conception



Average DIM at conception

(P = 0.02)



No significant associations between age at first calving or MY100 and pregnancy loss were determined

Conclusion

Early pregnancy loss was associated with multiple risk factors including:

Number of services per conception **when heifer**, calving season, season of conception, and DIM at conception

A strong effect was established for number of AI, especially for **AI \geq 4**



Future research question:

What is the combined effect of disease and the change in body condition on pregnancy loss?

The authors thank the support of Wolf Creek Dairy CO in this research



Thanks!



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