



Effect of time to resumption of ovarian cyclicity postpartum on fertility and survival of Holstein Cows

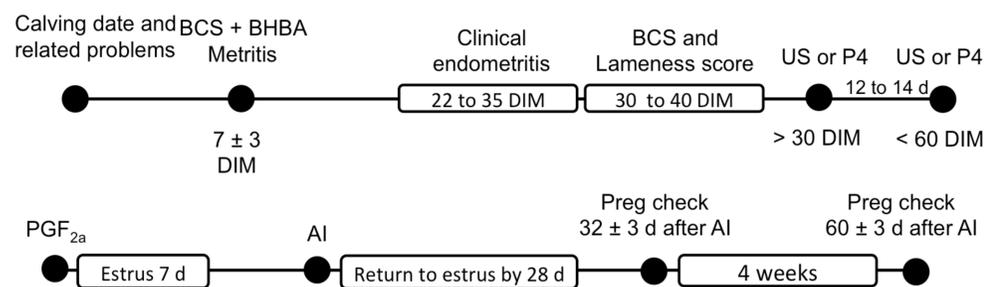
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OVERALL OBJECTIVE

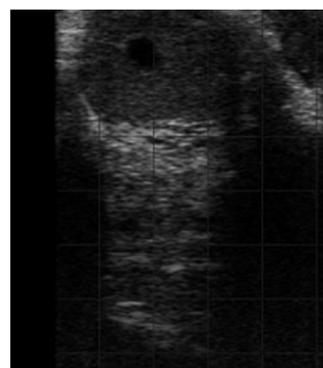
To evaluate the effect of time to ROC on fertility and survival in a large multi-State Holstein population. A secondary objective was to analyze potential risk factors for delayed cyclicity.

Figure 1: Procedures performed for phenotypic determination



Diseases included retained fetal membranes, metritis (7±3 DIM), subclinical ketosis (7±3 DIM; serum BHBA > 1.0 mmol/L), mastitis (farm records), left displaced abomasum, clinical endometritis (28±3 DIM; from mucopurulent to fetid vaginal discharge) and lameness (35±3 DIM; score >3).

Statistical analysis: Multivariate logistic regression and ANOVA were used for testing potential associations between ROC and multiple explanatory and outcome variables, with farm included as a random effect in all the models.



Pregnancy at 33 d

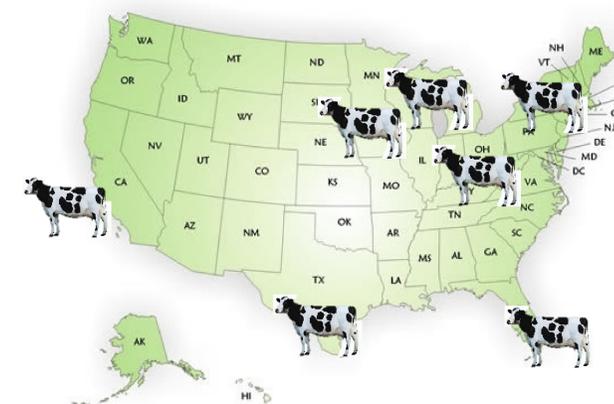
The presence of a corpus luteum was considered as indication for resumption of ovarian cyclicity

Resumption of OC was assessed via transrectal ultrasonography at 40±3 and 54±3 d postpartum. Pregnancy diagnosis was performed by ultrasonography on d 32±3 d after AI and reconfirmed at d 60±3 of gestation.

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

Early ROC was affected by parity, calf gender, BCS at calving, BCS at 40, subclinical ketosis, lameness, and clinical endometritis.

Table1: Variables affecting resumption of ovarian cyclicity

Variable	Reference	OR (95% CI)
Parity	Primiparae vs. multiparae	0.79 [0.72-0.87]
Calf gender	Other than female singletons	0.89 [0.81-0.97]
BCS at calving	BCS <2.75 vs. BCS ≥2.75	0.71 [0.64- 0.79]
BCS at 40 DIM	BCS <2.75 vs. BCS ≥2.75	0.62 [0.56- 0.68]
Subclinical ketosis	Affected vs. healthy	0.78 [0.70-0.87]
Lameness	Affected vs. healthy	0.65 [0.57-0.75]
Clinical endometritis	Affected vs. healthy	0.64 [0.58-0.70]

SUMMARY

Early ROC resulted in:

- Reduced days open (132 d vs. 150 d; P <0.001)
- Higher odds (95% CI) of pregnancy at first (1.92 [1.74-2.12]) and second AI (1.42 [1.26-1.60]).
- Lower odds of being sold after 55 DIM (0.79 [0.71-0.89]).

CONCLUSIONS

Resumption of ovarian cyclicity was affected by multiple variables and had a significant impact on fertility and survival of dairy cows. This trait shows potential value for inclusion into selection programs.