

GENETIC ANALYSIS OF ATYPICAL PROGESTERONE PROFILES IN *Holstein* COWS



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AIM

Investigate the genetic parameters for progesterone profiles in Holstein cows. Is there genetic variation in atypical progesterone profiles that could be used to improve the breeding evaluation for fertility?

CONCLUSION

There is genetic variation in Delayed cyclicity and CLA that might be important for an improved breeding evaluation



BACKGROUND

- Fertility in dairy cows has decreased
- Progesterone levels in milk can be used to identify cows with normal or atypical estrus cycles
- Earlier studies have shown that atypical progesterone profiles are associated with decreased fertility

RESULTS

Heritabilities (h^2) and genetic correlations (r_g) with traditional fertility measures

	h^2 (SE)	CFS	r_g (SE)	CI
Delayed cyclicity (0-1)	0.29 (0.047)	0.14 (0.19)		nc (c)
Prolonged luteal phase (0-1)	0.02 (0.043)	0.42 (0.56)		nc (c)
Cessation of cyclicity (0-1) (b)	0.00 (0.043)	-		-
CLA (days) (a)	0.23 (0.041)	0.42 (0.11)		0.18 (0.53)
IOI (days) (a)	0.06 (0.092)	0.71 (0.16)		0.52 (0.73)

^a CLA=Commencement of Luteal Activity and IOI=Inter-Ovulatory Interval

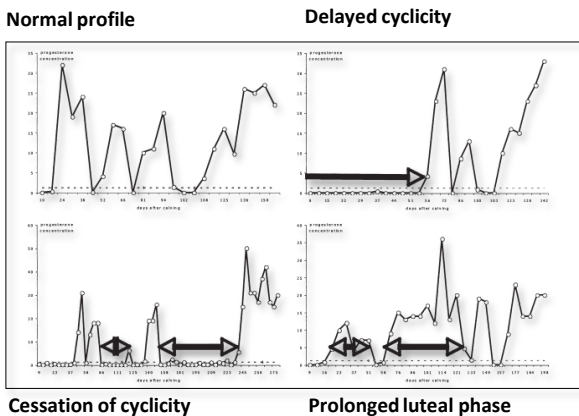
^b Cessation of cyclicity had no genetic variation and was not included in the genetic correlation analysis

^c nc=not converged

MATERIAL AND METHODS

- 1122 multiparous Holstein-Friesian cows (1611 progesterone profiles) from Sweden, Ireland, the Netherlands and United Kingdom were analysed
- Milk progesterone sampling 1-3 times per week from calving to pregnancy
- Sire model to estimate genetic parameters

4 DIFFERENT PROGESTERONE PROFILES



WHAT'S NEXT?

Genome wide association studies to identify regions associated to atypical progesterone profiles



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