

56th Annual Meeting of the European Association for Animal Production, Uppsala, Sweden, 2005  
Commission on Cattle Production, Session CPh6

**Normal and Atypical Progesterone Profiles in Swedish Dairy Cows**

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**Introduction**

- Progesterone - measure of the dairy cow's fertility
- Less influenced by management decisions
- Start of luteal activity – higher heritability
- Normal profile – better fertility

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**Atypical profiles**

- U.K. (Royal et al., 2000)
  - Increase in atypical progesterone profiles from 32 % to 44 %
- Belgium (Opsomer et al., 2000)
  - 54 % normal progesterone profiles
    - 20 % delayed cyclicity
    - 20 % prolonged luteal phase

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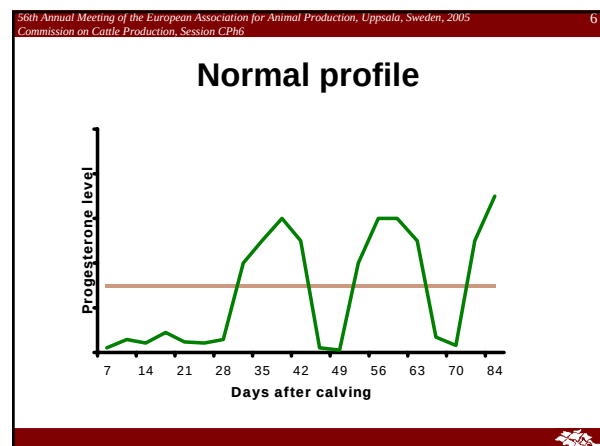
**Material**

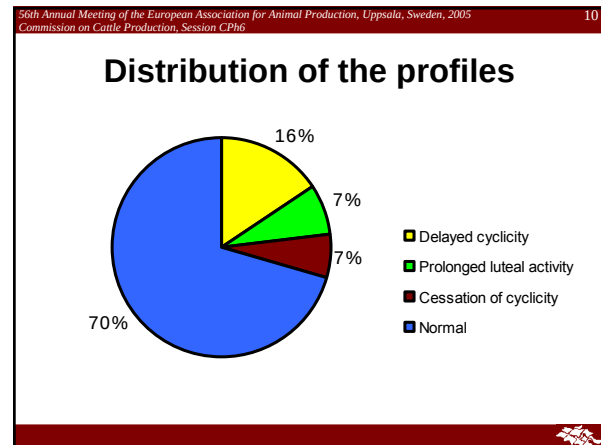
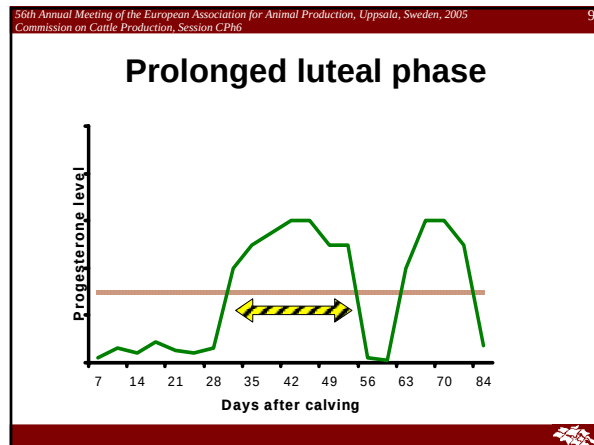
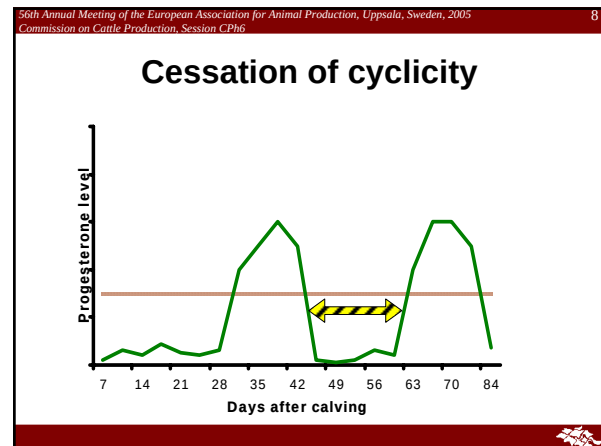
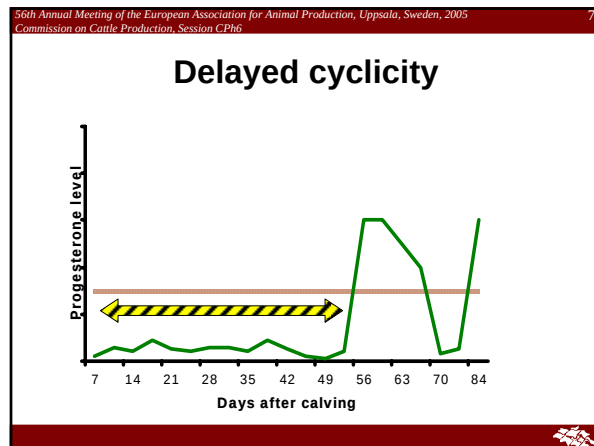
- Experimental herd, registrations from 1987-2002
- 1050 lactations from:
  - 200 Swedish Holsteins (SLB)
  - 300 Swedish Red and White dairy cows (SRB)

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**Material, cont.**

- Tied and loose housing
- Progesterone sampling:
  - 2 times/week until cyclicity
  - 1 time/week until first AI
- Intensive heat registrations
- Clinical examinations of sexual health





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### Atypical profiles

- Increased odds of atypical profile...
  - SLB 1.5 x higher than SRB
  - 1st parity cows
    - 2.1 x higher than 2nd
    - 1.5 x higher than 3rd and above
  - Tied cows 2.3 x higher than loose housed

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### Atypical profiles, cont.

- Winter 2.6 x higher than summer
- Year class 2000-2002
  - 1.8 x higher than 1994-1996
  - 2.0 x higher than 1997-1999
- 15 months CI\* 2.5 x higher than 12 months CI

\*Calving Interval trial group

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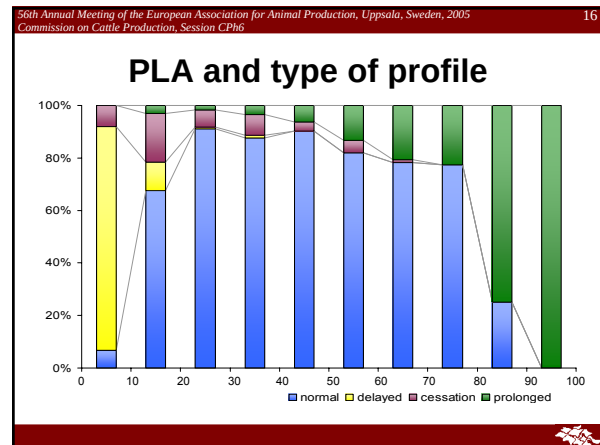
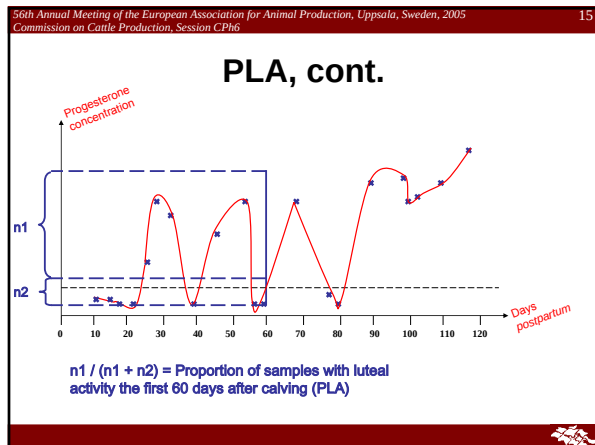
### Atypical profiles, cont.

- Lamé cows 1.8 x higher than healthy
- Atypical previous lactation 2.1 x higher than normal profile
- Weight loss  $\geq 50$  kg 1.6 x higher than less weight loss
- Fertility disorders like anoestrus, cystic ovaries and endometritis were associated with type of progesterone profile

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### PLA

- Proportion of progesterone samples the first 60 days after calving with luteal activity
- High correlation to CLA – commencement of luteal activity
- Easy to automate and probably less dependent on sampling frequency



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### Conclusions

- Influence of breed, parity, housing, calving interval, season, year class, lameness, and weight loss
- Association with anoestrus, ovarian cysts and endometritis

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### Conclusions, cont.

- Higher risk of atypical if atypical in previous lactation
- Different PLA mean per type of profile
  - Separate delayed cyclicity and prolonged luteal phase from normal profiles

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## Implications

- Future use in herd-health management programs?
- Future use in genetic evaluation for improved fertility?

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## Atypical profiles and fertility disorders

- Anoestrus
  - Diagnosed 35.7 x higher than healthy
  - Treated 16.7 x higher than healthy
- Cystic ovaries
  - Treated 7.0 x higher than healthy
- Endometritis
  - Treated 3.5 x higher than healthy