Cows limiting their milk yield and body condition loss during feed restriction have better reproductive performances

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Robustness of dairy cows is a key of the success of farming systems

Areas in favour of grass production

\(\uparrow\) production costs

\(\downarrow\) environmental impact

Grazing systems

Winter compact calving

Diversity of systems
Low inputs / ... / High inputs

A good ability of dairy cows to reproduce = key element
Milk production and reproduction...

concomitance and competition!

+10kg of milk at peak = -15 points of CR at 1st service!

Strong unfavourable genetic correlation between production and reproduction traits.

Strong genetic selection on milk yield led to reproduction decline.

Meta-analysis
5 studies = 15 different treatments
(N. Bedere, unpublished data)
What reproductive performances for dairy and dual-purpose breeds in contrasting grazing based feeding systems?

Hypotheses:
1. Some steps of the reproductive process are impacted by the breed
2. Through their impact on milk yield and body reserves management, feeding systems can affect dairy cows’ reproduction
Experimental design: «The cow for the system» 500 lactations 2006-2014

- **Calving season**
  - Jan.
  - Feb.
  - Mar.
- **Breeding season**
  - Apr.
  - May
  - Jun.

**HIGH**
- 55 MS : 15 Alfalfa : 30 C
- Grazing + 4kg C

**LOW**
- 50 GS : 50 Haylage
- Grazing only

Milk yield 1/d + BCS 1/month
Progesterone 3/wk. + Oestrus 5/d + Ultrasonography x2
Cows in the High feeding system produce more milk… and lose less body condition.

**Graphs:**
- **Holstein:**
  - Milk yield (kg) over days in milk.
  - BCS (0-5 scale) over days in milk.
- **Normande:**
  - Milk yield (kg) over days in milk.
  - BCS (0-5 scale) over days in milk.

**Legend:**
- MY: Milk yield
- BCS: Body condition score
- Low
- High
Reproduction of dairy cows: a succession of steps

- Resumption of ovarian activity
- Ovulation
- Œstrus
- Ovulation
- Conception
- Non-fertilization
- Embryo mortality
- Gestation
- Re-Calving
- Service
Cyclicity is mainly impacted by genetic characteristics.

Breed effect: similar to Disenhaus et al. (2009)
Feeding system (no)effect: importance of body reserve management (Friggens et al., 2010)
Both breed and feeding system affect oestrus expression

Feeding system:
High Milk Yield = \( \downarrow \) oestrus intensity (López-Gatius et al., 2005)
Holstein cows suffer different fertility problems regarding to the feeding system.

Cutullic et al. (2012)

- NF/EEM ↔ body condition management
- LEM ↔ lactation persistency
This results in higher recalving rate for Normande cows and a tendency in the High feeding system
Contrasted adaptive strategies according to the flexibility of milk production and body reserves

Low input grazing based systems = low inputs

- Holstein
  - Supporting Milk production
  - \[\downarrow \text{reproductive performance}\]

- Normande
  - Supporting Body reserves
  - Maintaining reproductive performance

Adaptive Strategy
Thank you for listening!

Looking for more information?
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