MILK UREA CONTENT AS AN ESTIMATOR OF NUTRITIVE BALANCE ON GRAZING OR SILAGE CONDITIONS

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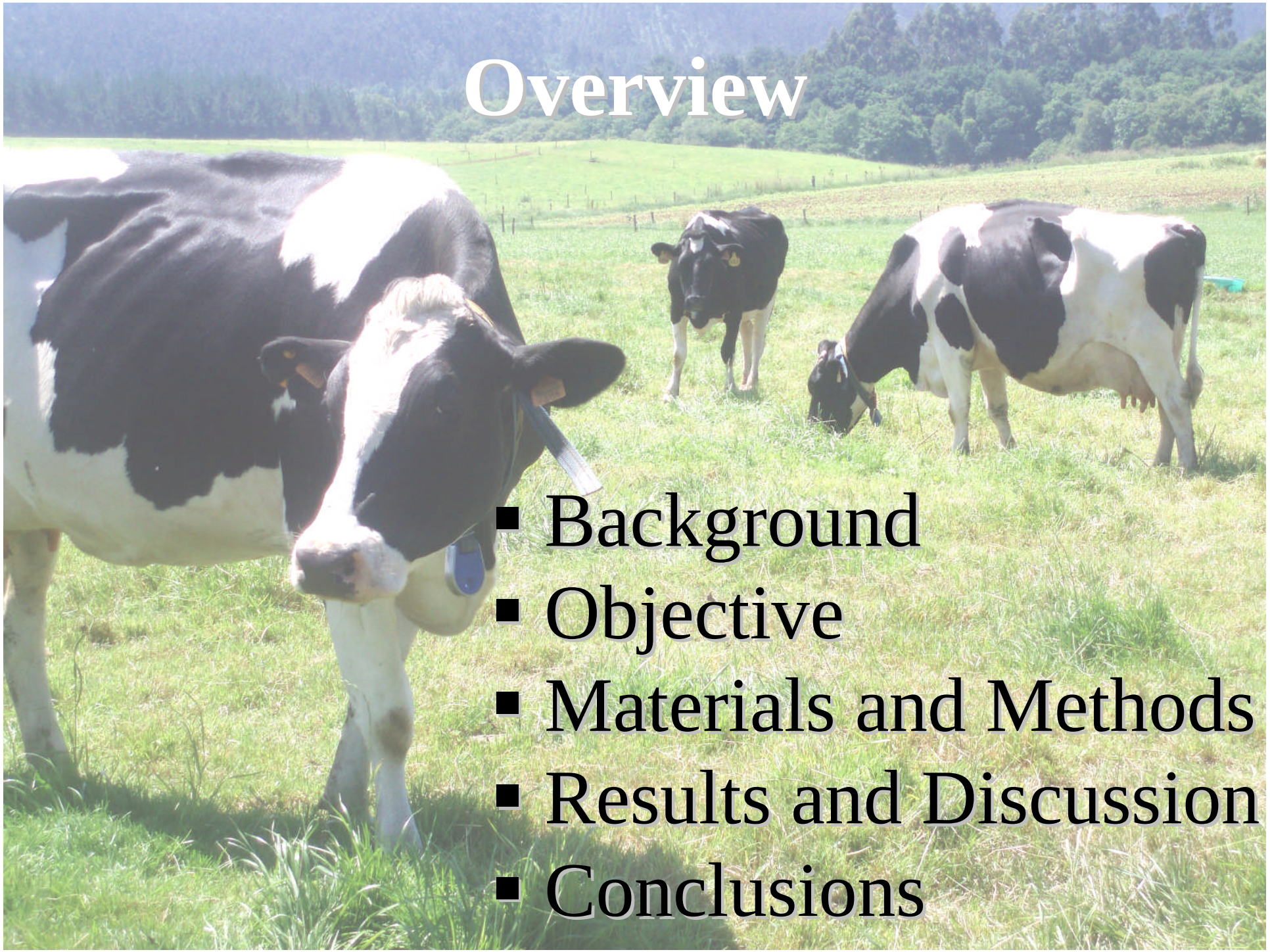

Overview

- Background
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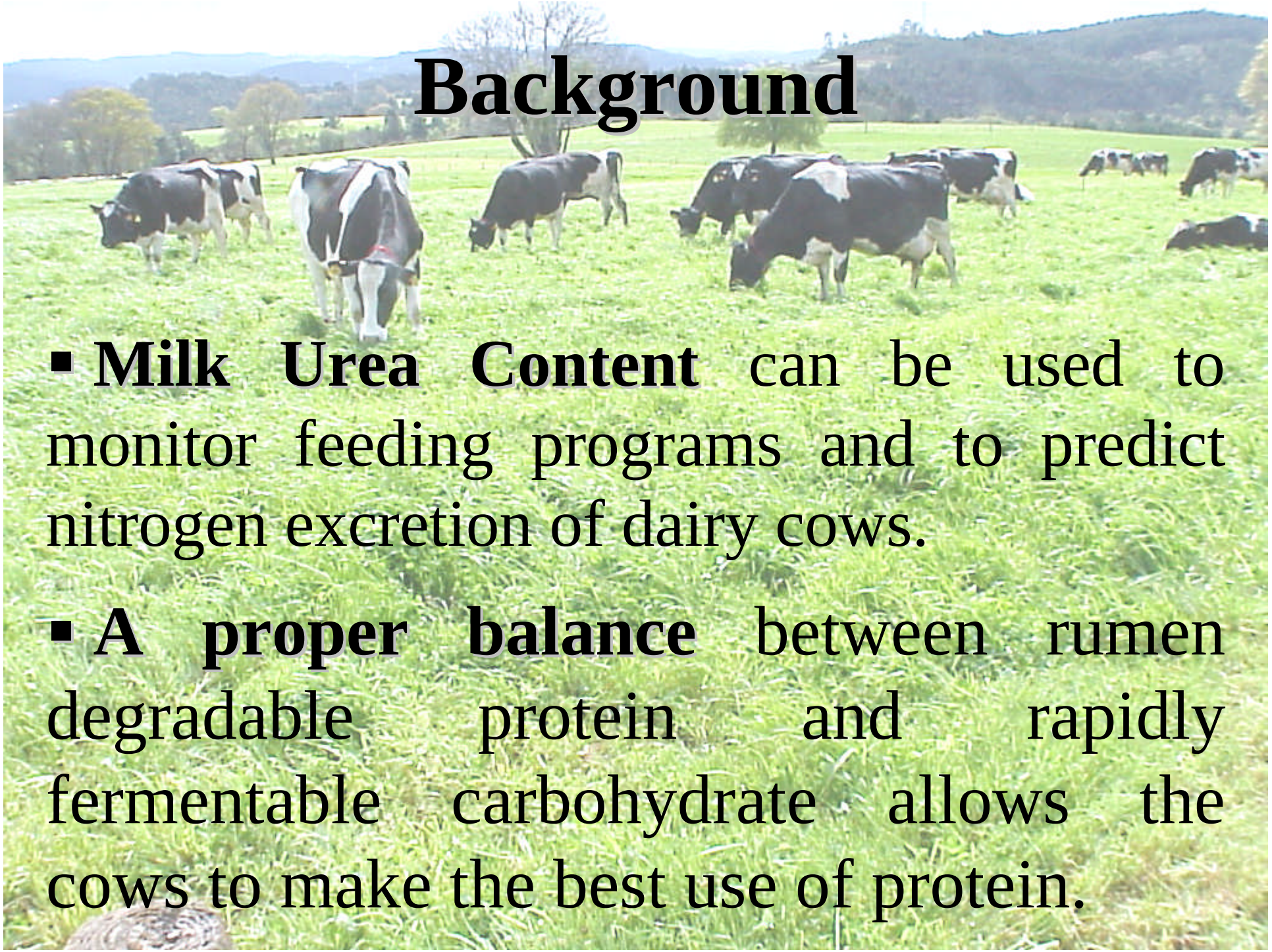
- Conclusions

Background



- **Milk Urea Content** can be used to monitor feeding programs and to predict nitrogen excretion of dairy cows.
- **A proper balance** between rumen degradable protein and rapidly fermentable carbohydrate allows the cows to make the best use of protein.

The recommendations for the **amount of crude protein to be included in dairy cows ration**, depends on:

- milk yield and crude protein content
- animal growth rate
- body weight
- energy content and type, as well as amino acid composition and degradability of dietary protein

Objective

To evaluate the milk urea content as an index for diagnosis of nutritive balance on grazing or silage conditions for dairy cows at two stages of lactation.

Materials and Methods

3 Treatments: 92 Holstein Friesian dairy cows during spring-early/summer (139 days)

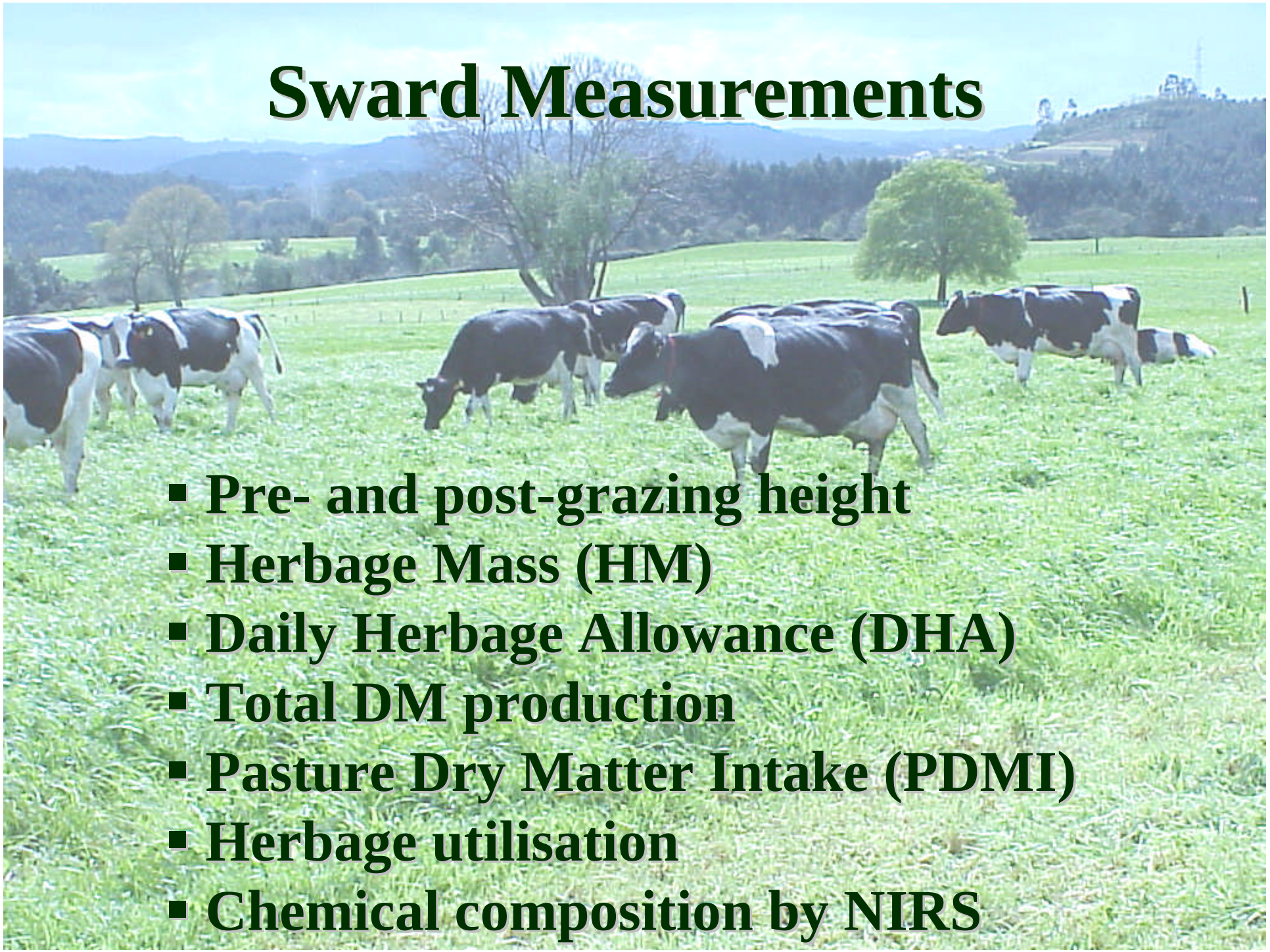
2 Grazing herds (on perennial ryegrass and white clover) **with different calving date**:

- **GS,** 44 spring calving
- **GA**, 32 autumn calving

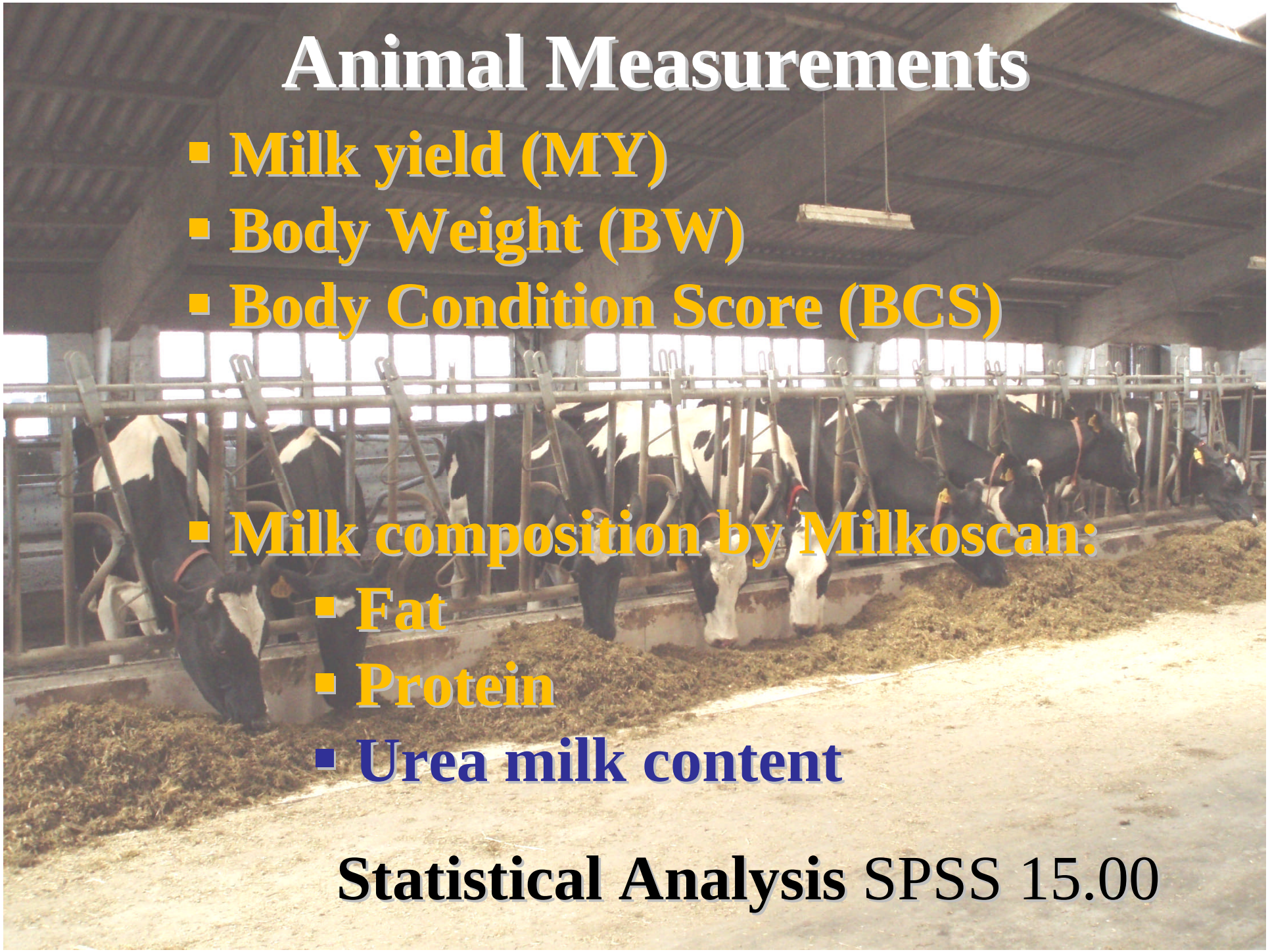
1 Indoors silage herd (with concentrate):

- **IS,** 16 spring calving

Sward Measurements



- Pre- and post-grazing height
- Herbage Mass (HM)
- Daily Herbage Allowance (DHA)
- Total DM production
- Pasture Dry Matter Intake (PDMI)
- Herbage utilisation
- Chemical composition by NIRS



Animal Measurements

- Milk yield (MY)
- Body Weight (BW)
- Body Condition Score (BCS)

- Milk composition by Milkoscan:
  - Fat
  - Protein
  - Urea milk content

Statistical Analysis SPSS 15.00

Materials and Methods

Treatments	Grazing		Indoors
Calving date	Spring	Autumn	Spring
Pasture intake (kg DM/cow)	14	13	0
Silage (kg DM/cow)	1^{a}	1^{a}	9^{b}
Concentrate (kg DM/cow)	3^{a}	1^{b}	6^{a}

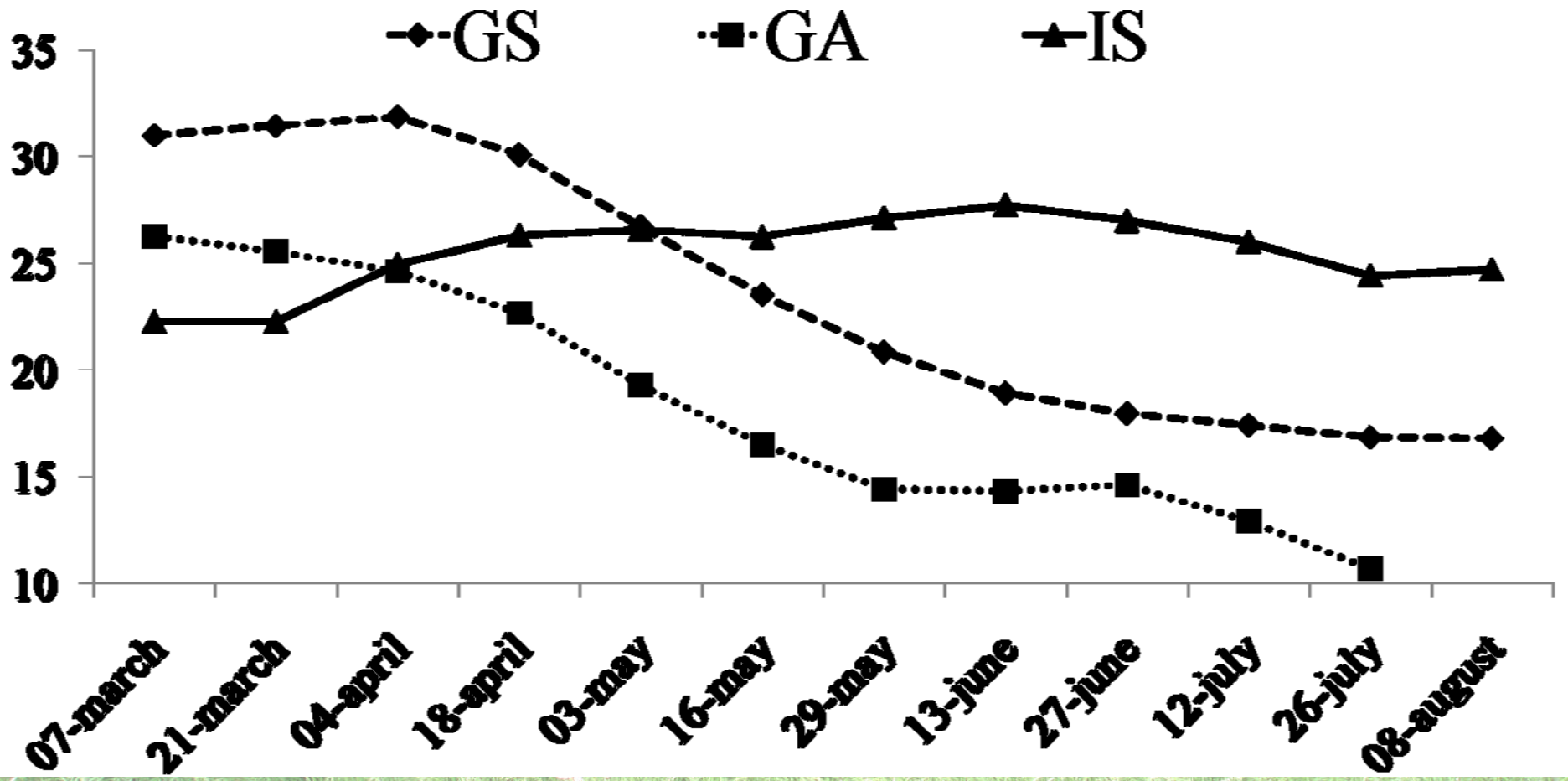
Grazing: Control of pasture intake and low concentrate.

Indoors: Silage intake, no pasture and higher concentrate.

Results and Discussion

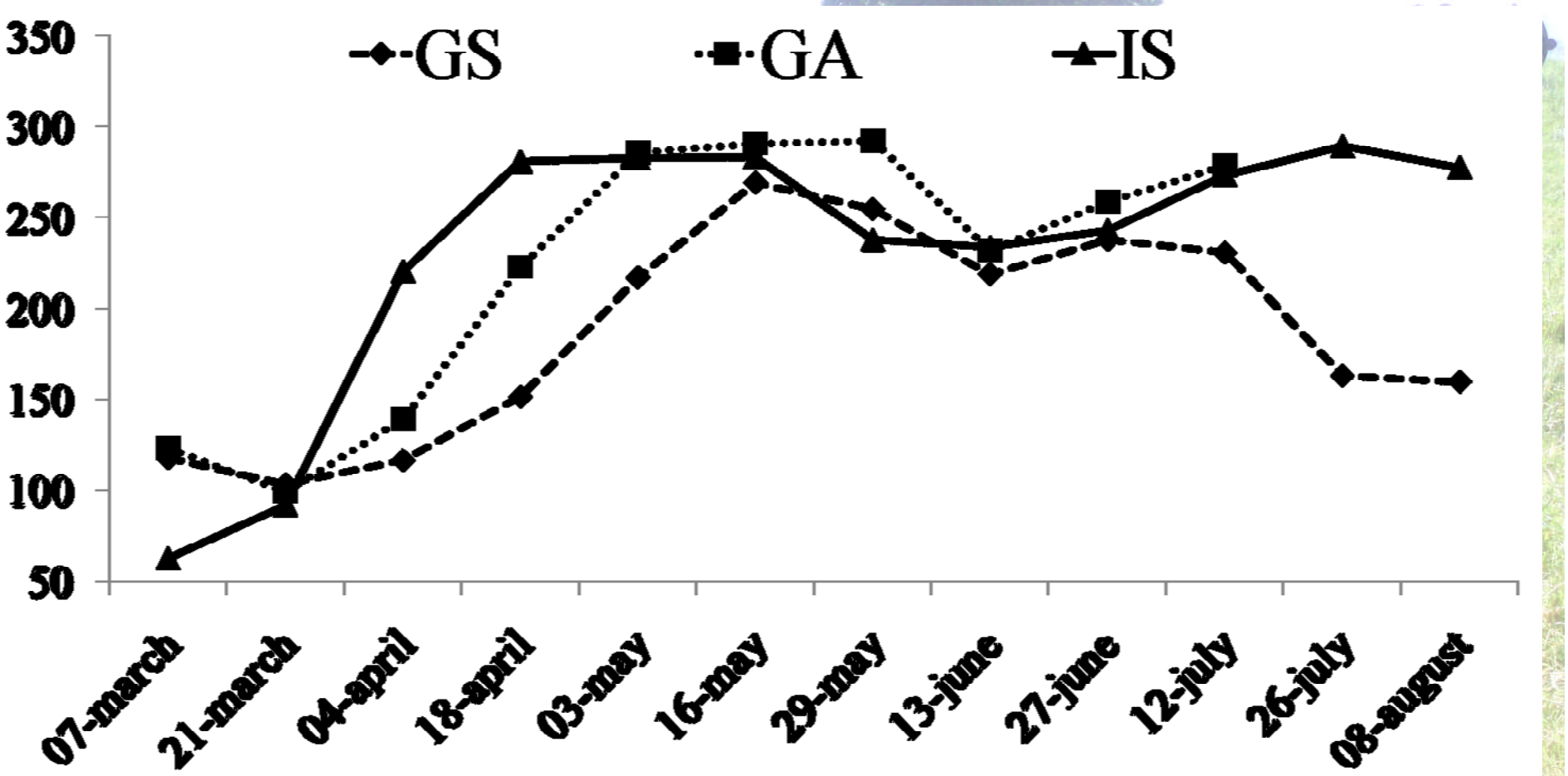
Treatments	Grazing		Indoors
Calving date	Spring	Autumn	Spring
Body Weight (kg)	569[a]	601[b]	614[c]
Body Condition Score	3	3	3
Milk yield (kg/day)	24.3[a]	18.4[b]	25.6[a]
Milk protein (g/kg)	29[a]	32[b]	29[a]
Milk fat (g/kg)	37[a]	39[a]	37[a]
Milk urea content (mg/kg)	192[a]	222[b]	231[b]

Milk yield (kg/cow/day)



Milk yield was considerably lower in early lactation in the silage herd **(IS)** as a result of a **protein deficiency** in the ration.

Milk Urea Content (mg/kg)



The **milk urea test** detected the imbalance ration in the silage herd **(IS)** and it was possible to **correct the protein-energy levels.**

Conclusions

Using the urea test:

- The **spring-calving grazing treatment** had a balanced diet with high herbage intake, sward utilisation, and good grass quality, resulting in a high milk production.
- The **indoor treatment** showed a protein deficiency after calving and in the early lactation.
- The **milk urea content** was a decisive parameter for detecting an imbalanced ration and correcting the protein-energy levels.

Acknowledgements

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Questions?????
Thank you very much
for your attention