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**EFFECTS OF TISSUE  
PARTITIONING ON PERENNIAL  
RYEGRASS SWARDS GRAZED AT  
DIFFERENT HERBAGE MASS AND  
PASTURE ALLOWANCE**

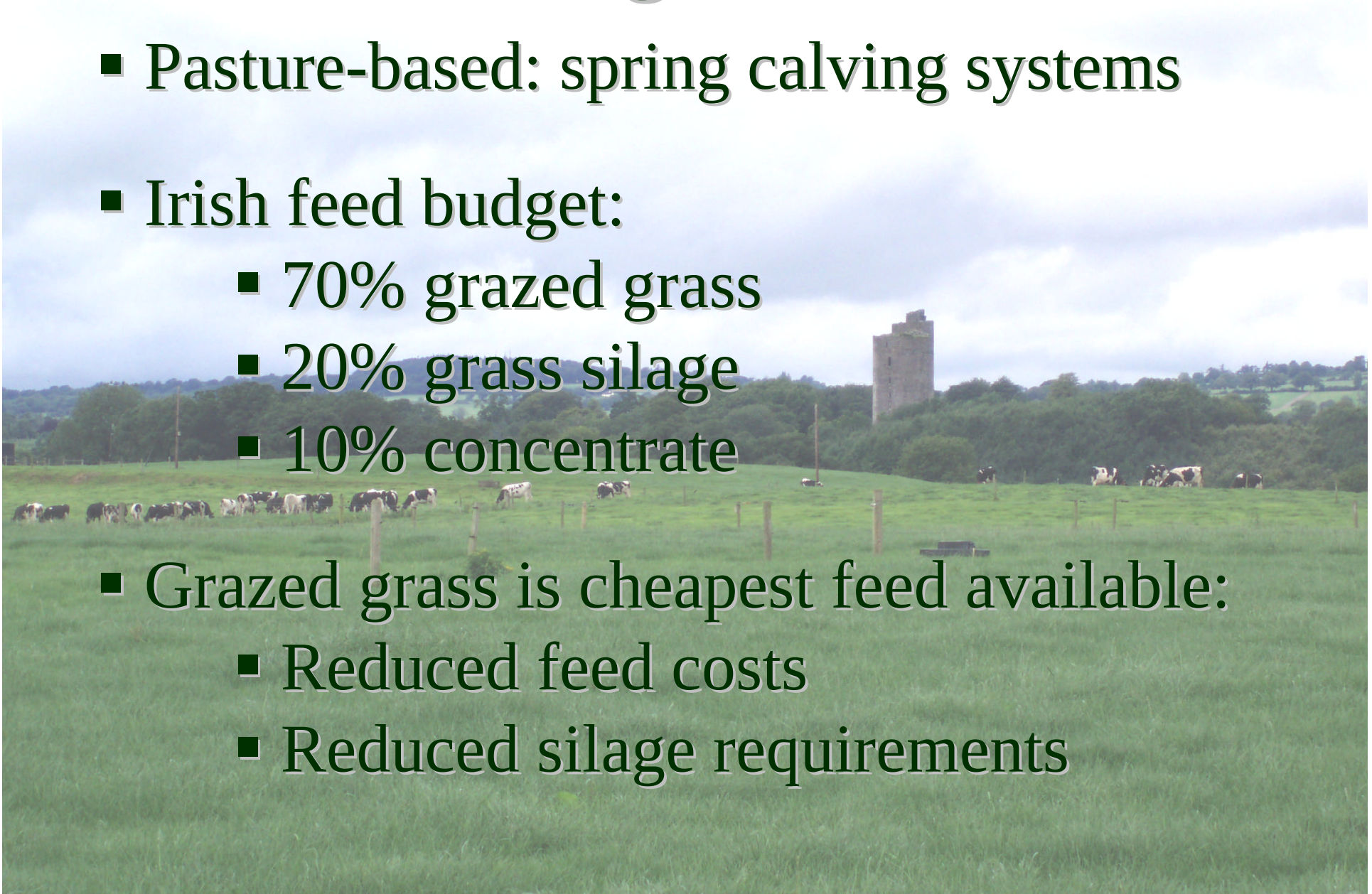
# Overview

- Background
- Objective
- Materials and Methods
- Results and Discussion
- Conclusions



# Background

- Pasture-based: spring calving systems
- Irish feed budget:
  - 70% grazed grass
  - 20% grass silage
  - 10% concentrate
- Grazed grass is cheapest feed available:
  - Reduced feed costs
  - Reduced silage requirements

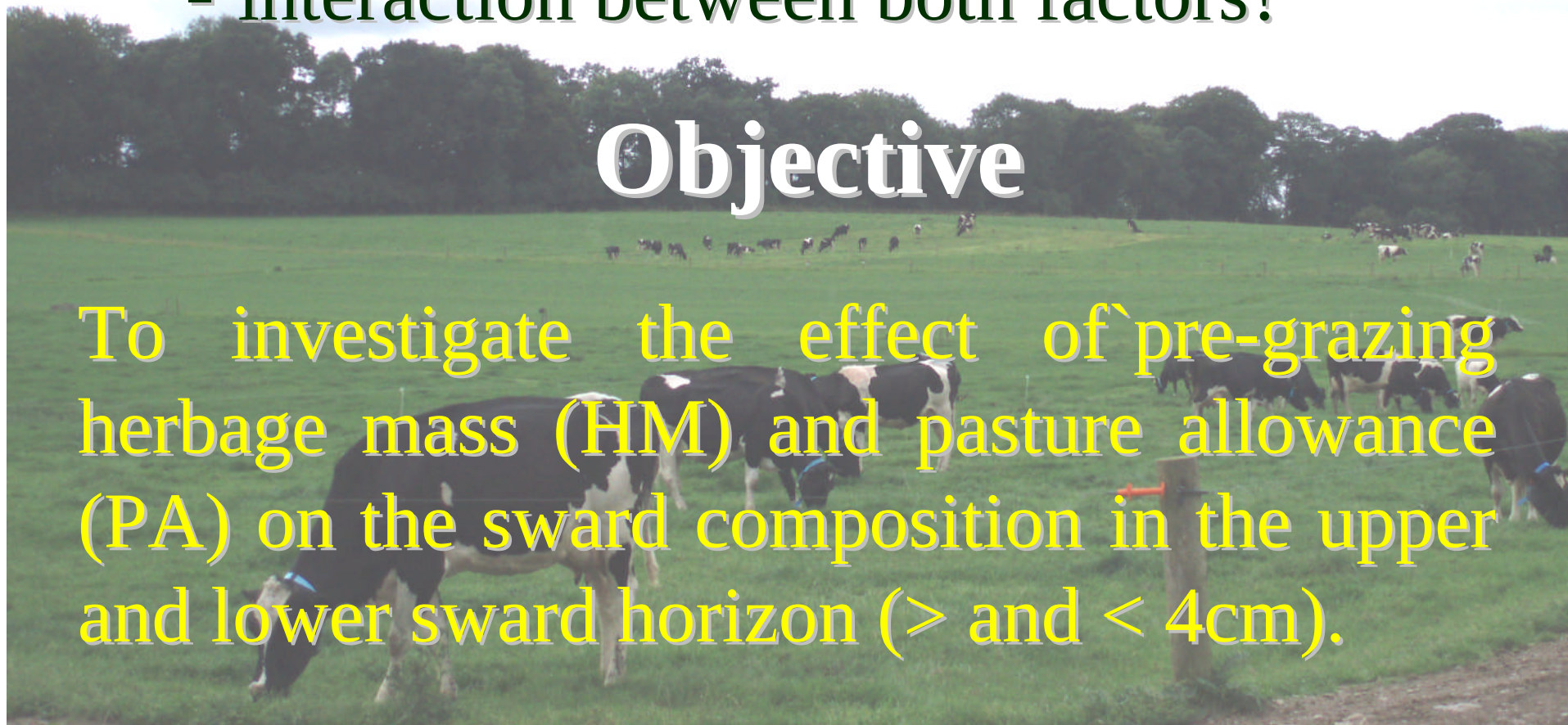


It is important to know how to increase grass quality for milk production:

- ideal herbage mass (low or high)?
- ideal pasture allowance (low or high)?
- interaction between both factors?

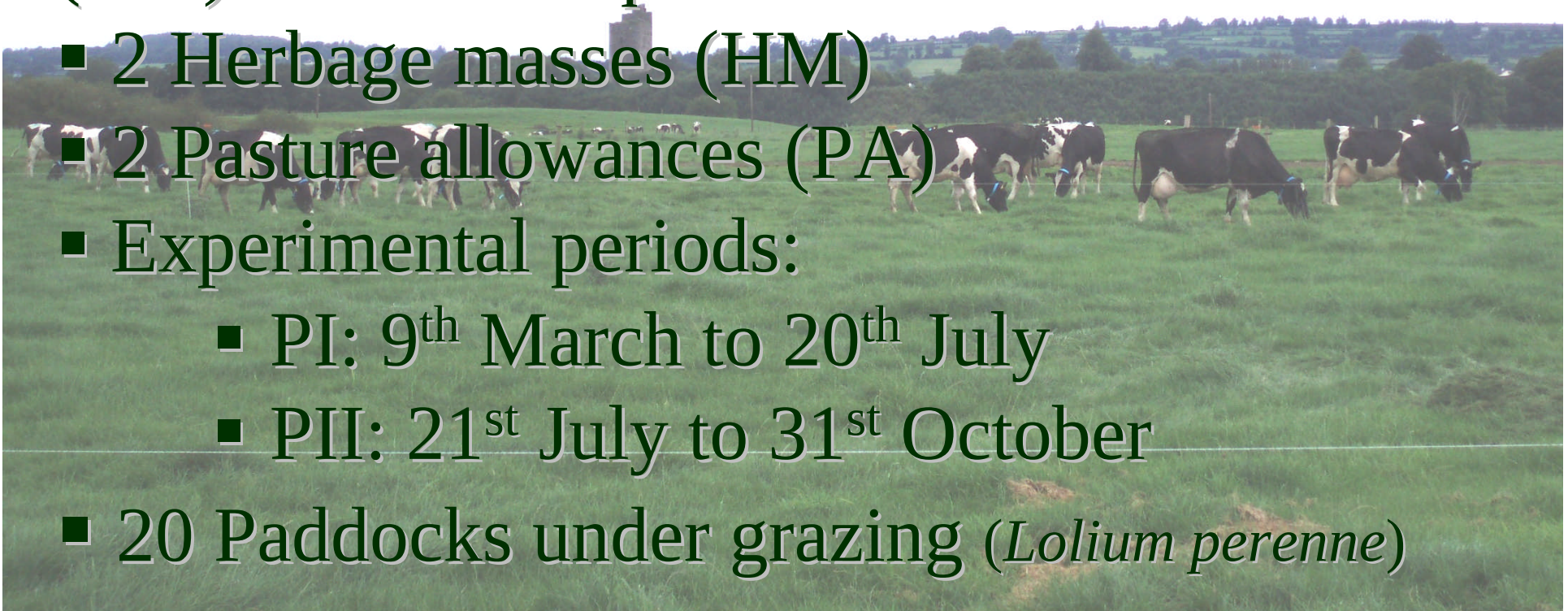
## Objective

To investigate the effect of pre-grazing herbage mass (HM) and pasture allowance (PA) on the sward composition in the upper and lower sward horizon ( $>$  and  $<$  4cm).



# Materials and Methods

- 64 Holstein Friesian spring calving dairy COWS (40% primiparous and 60% multiparous)
- 4 Treatments (n=16) imposed in a replicated (n=2) 4x4 Latin square
- 2 Herbage masses (HM)
- 2 Pasture allowances (PA)
- Experimental periods:
  - PI: 9<sup>th</sup> March to 20<sup>th</sup> July
  - PII: 21<sup>st</sup> July to 31<sup>st</sup> October
- 20 Paddocks under grazing (*Lolium perenne*)



# Experimental Design

**2 Pre-grazing  
Herbage Masses**

**1600kg DM/ha**

**2400 kg DM/ha**

**2 DHA (kg DM/cow)**

**15**

**20**

**LL**

**LH**

**15**

**20**

**HL**

**HH**

# Sward Measurements

- Herbage Mass and Density
- Pre- and post-grazing height
- Total DM production
- Herbage utilisation
- Leaf, stem and dead proportion (> and < 4 cm)

## Statistical Analysis SAS (2005)

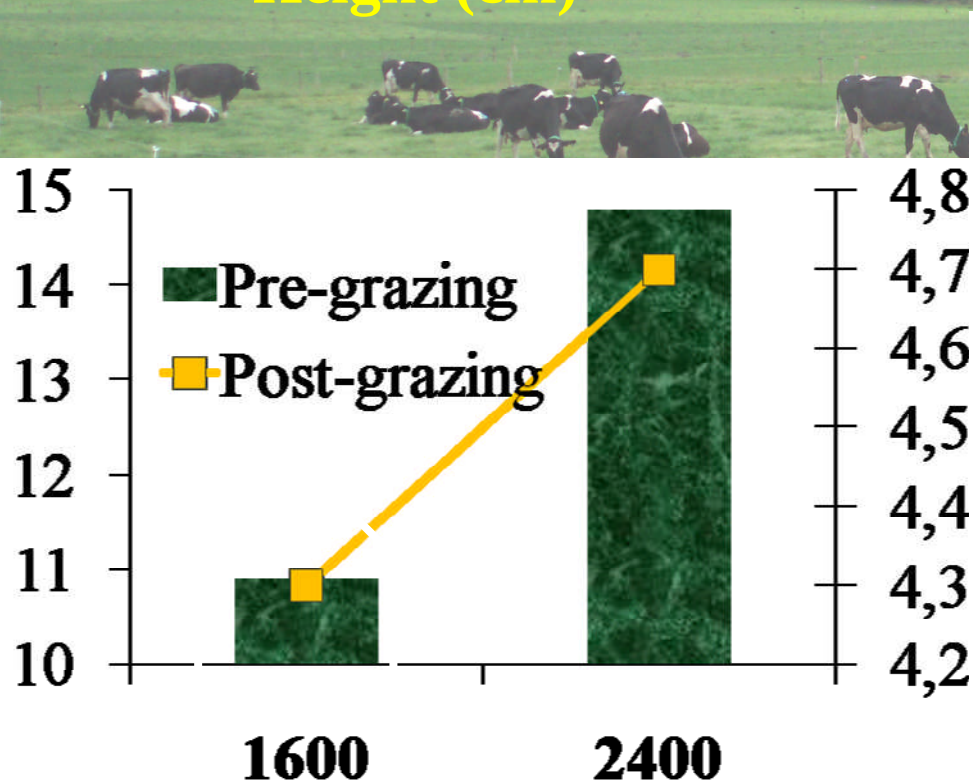
$$Y_{ijk} = \mu + H_i + D_j + R_k + R_k(W_j) + H_i \times D_j + e_{ijk}$$

Where:  $\mu$  = mean;  $H_i$  = HM ( $i = 1$  to 2);  $D_j$  = DHA ( $j = 1$  to 2);  
 $R_k$  = rotation ( $k = 1$  to 10);  $R_k(W_j)$  = week within rotation ( $j = 1$  to 30);  
 $H_i \times D_j$  = the interaction between pre-grazing HM  $\times$  DHA and  
 $e_{ijk}$  = residual error term

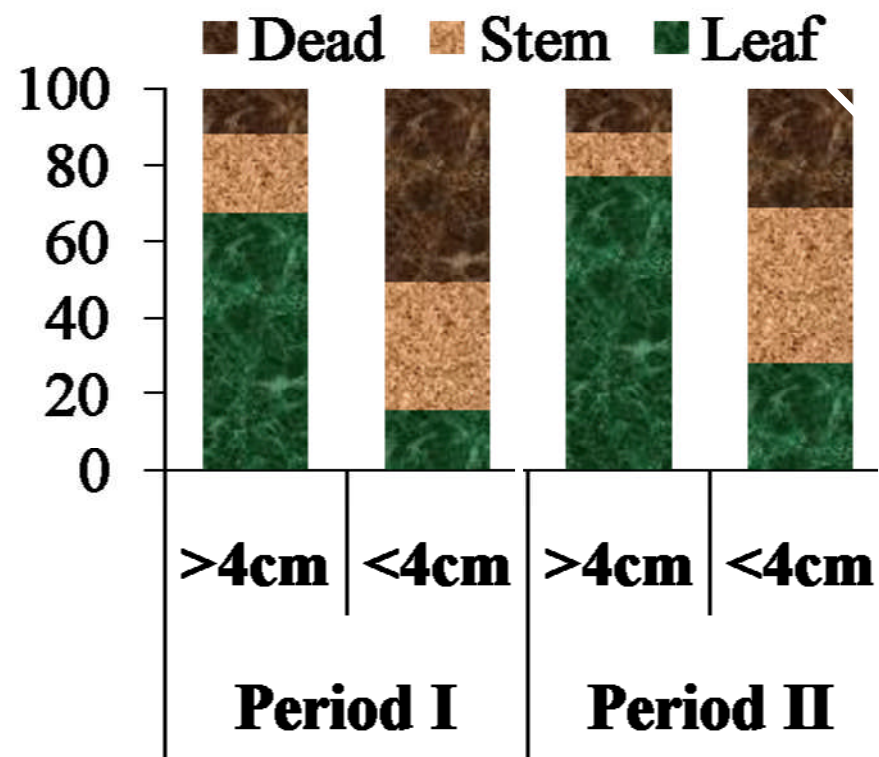
# Results and Discussion

- Sward density was significantly higher in both periods for the two high herbage mass (HM) treatments. **Pre- and post-grazing heights were significantly lower for the two low HM treatments.**
- Leaf proportion was higher in period II for the upper and lower sward horizons and dead proportion was lower.

Height (cm)



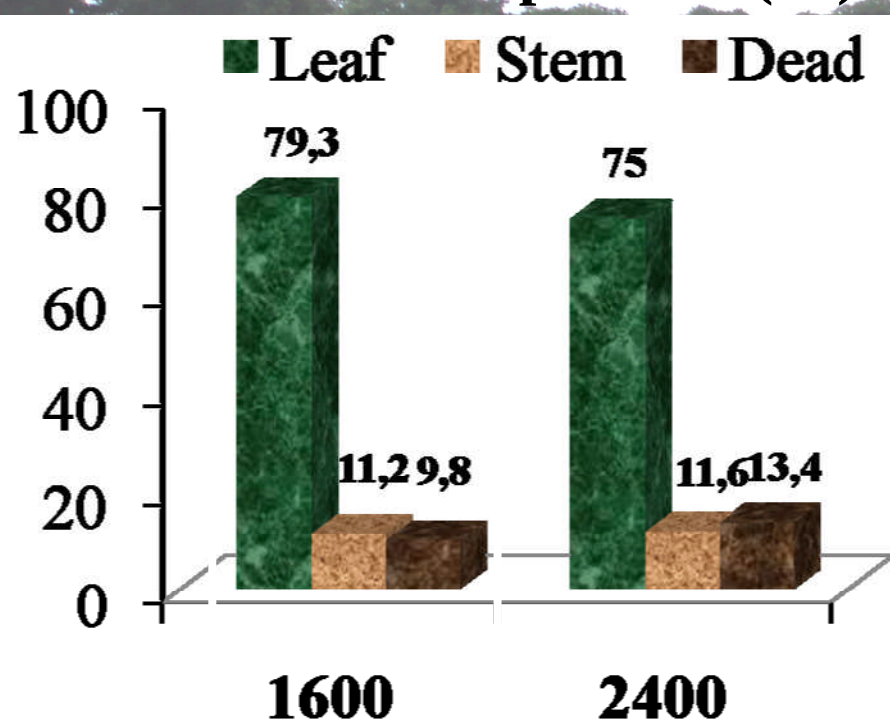
Sward structure (%)



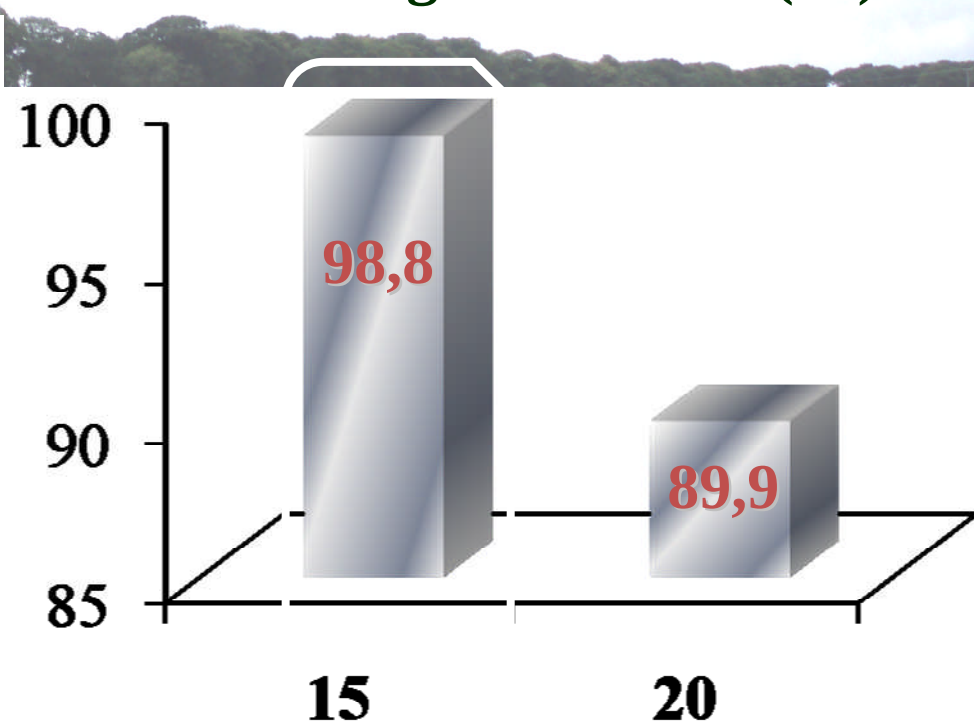
# Results and Discussion

- Leaf proportion was significantly higher in period II for the two low herbage mass treatments and dead proportion was lower.
- Intake was significantly higher in both periods when high pasture allowance is provided despite a higher residual mass and lower sward utilisation.

**Sward composition (%)**



**Herbage utilisation (%)**



# Conclusions

- Sward density, herbage removed and pre- and post-grazing heights were higher for the high herbage mass (2400 kg DM/ha).
- Grazing swards at lower herbage mass (1600 kg DM/ha) was a successful tool to get high grass quality in period II:
  - increased significantly leaf proportion
  - decreased significantly dead proportion
- High sward utilisation is achieved by using lower pasture allowance (15 kg DM/cow).

# Acknowledgements

- TEAGASC. Moorepark Dairy Production Research Centre. Dairy Production Department.
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**Questions?????**



**Thank you very much  
for your attention.**