TECHNICAL NOTE

SusCatt - Increasing productivity, resource efficiency and product quality to increase the economic competitiveness of forage and grazing based cattle production systems

Improving milk output from permanent grassland

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Challenge

Between 10% and 70% of European grassland is permanent. Much of this land offers a dilemma - while some offers important semi-natural habitats, there are large areas where years of mismanagement has led to poor biodiversity, despite the plant populations having low productivity. Could renovating these degraded pastures by introducing more productive forages support higher dairy production?

The cows on the pasture at Biebrza farm in Poland . Photo: J. Barszczewski.

Challenge and objectives

The main goal of this study was to monitor milk yield and quality following the introduction of tetraploid grasses, legumes and herbs into permanent pastures used for grazing and silage making. Pasture renovation is described in another SusCatt Technical note 3.2.1.

What did we do?

Milk yield and cheese making quality was monitored from Holstein Friesian and Simmental dairy cows for 2 years, comparing output from renovated pasture with that from improved swards. All animal grazed in the summer and were housed and fed silage diets in winter with low levels of concentrate supplementation. Half the cows from each breed were allocated to the 'renovated' pastures and forage from the 'control' cows came from comparable areas of unimproved pasture.

What did we find?

Renovation of pastures and meadows reduced weeds in the sward from 28% to only 6-7% with the proportion of productive grasses increasing from 60% to 69-71% and legumes (mostly red and white clover) from 3% to 22-25%. The figure below shows the recorded performance for the different pasture types over summer and winter.

The sward on the renovated (left side – High share of white and red clover) and not renovated meadows (on the right side). Photo: J.Barszczewski

For winter milk from cows fed grass silage diets, the renovated pasture resulted in higher milk fat, protein (including casein) and urea compared with silage from control pastures but there was little difference in milk yield (overall average of 22.6 vs 21.9 kg/cow/day). On the other hand, in summer cows grazing the control pasture produced more milk than cows on renovated pasture (24.6 vs 21.9 kg/cow/day) although

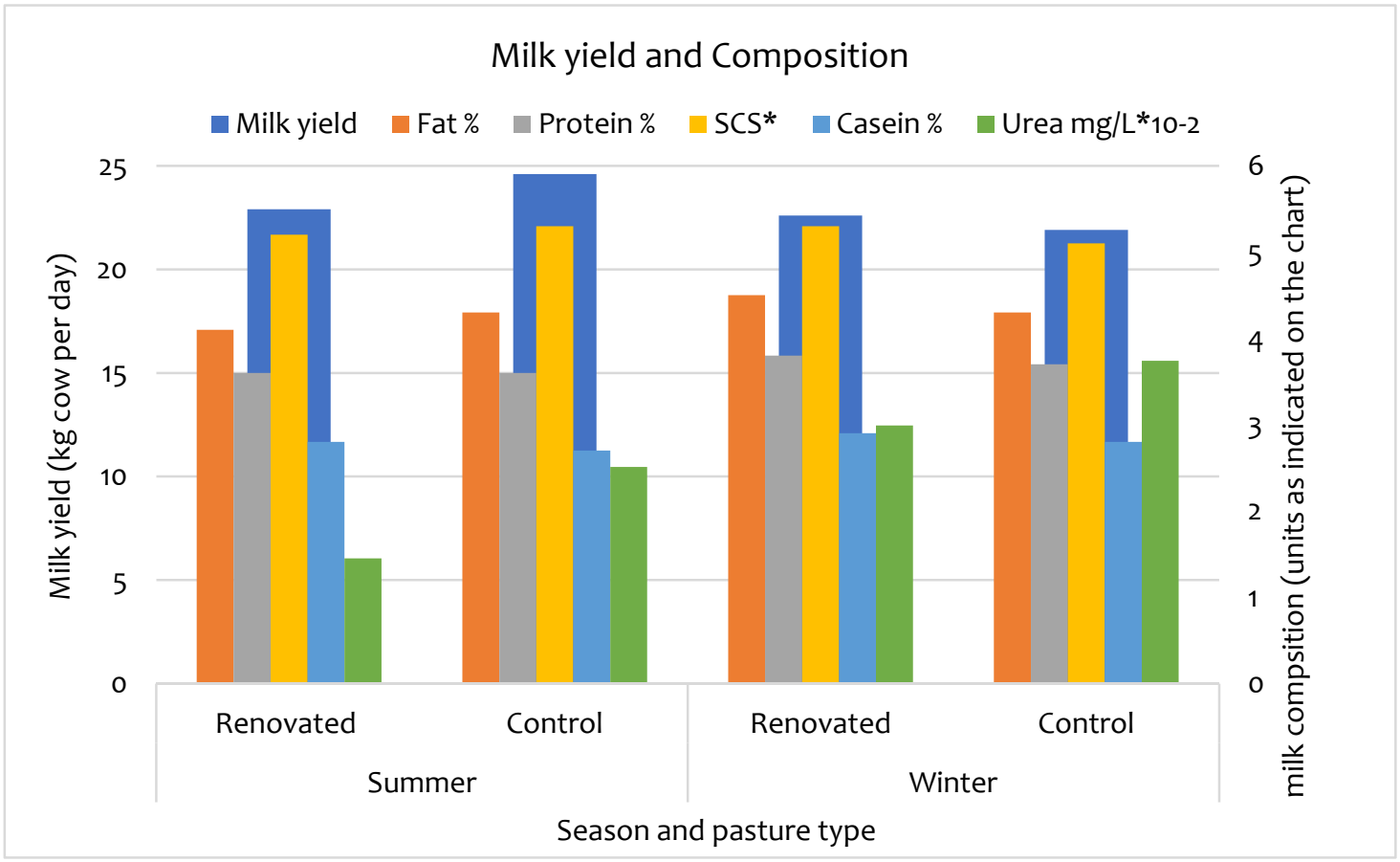

Figure. Effect of season (summer and winter) and grassland type (Renovated and Non-renovated=Control) on milk production and composition. *Somatic Cell Score = log2 (SCC/100) + 3

there was little difference in milk composition, except for lower urea levels from cows on control pastures. Overall there was little difference between the 2 breeds although there was an indication Holstein Friesian cows had a greater response in milk yield to better nutrition from improved pasture silage.

Conclusions

Pasture establishment and growth were successful in the 1st year, leading to higher milk output. However, atypical drought conditions causing poor herbage growth and quality during 2019 confounded results in year 2 with cow grazing unimproved pasture giving more milk. Further monitoring is needed for a true picture of the longer-term potential of this technique.

Imprint

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