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NORWEGIAN INSTITUTE OF  
BIOECONOMY RESEARCH

# Long-term grassland productivity with and without ploughing

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**Aim**  
To test different renovation strategies of 25-years old sward. We hypothesised that sod-seeding after chemically fellow improves grassland productivity equally than reseeding by ploughing.

## Introduction



Norwegian milk and meat farming located in marginal areas. Unfavourable weather conditions resulting in limiting ploughing and reseeding activities. There is a need for alternative renovation strategies.

## Material and Methods



The long-term trial established at Fureneset in 1974

61°18'N 5°4'E 15 m asl

Permanent grassland established in 1974 (PG)  
Semi-permanent grassland plots established in 1991 was either renewed by ploughing (S-PGp) and sod-seeding (S-PGs) in 2016/17 and 2020. Frequently ploughed and reseeded treatments renewed in 2016 (Ley-12 and Ley-6)



### Fertilisation

**MF 210** Mineral fertiliser 210 kg N ha<sup>-1</sup>  
**CS+MF 210** 30 t cattle slurry combined with MF 210 kg N ha<sup>-1</sup>  
**CS+MF 340** 60 t cattle slurry combined with MF 340 kg N ha<sup>-1</sup>

3-cut system

## Results

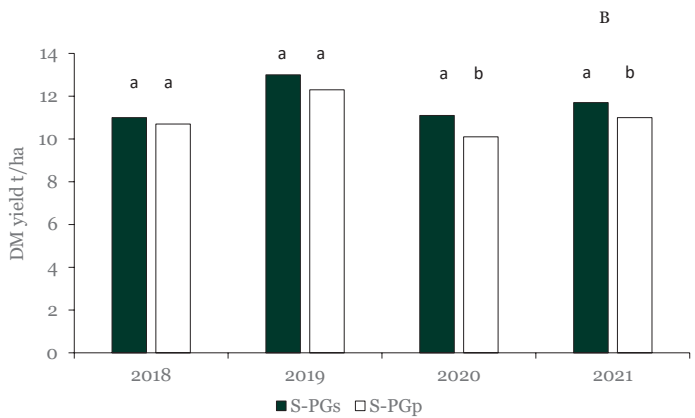
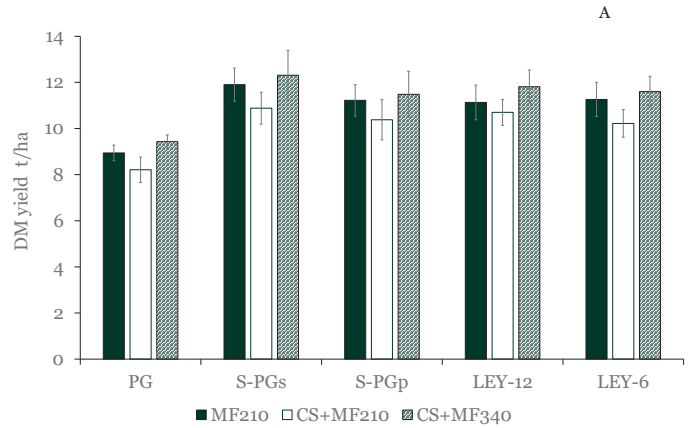


Figure 1 Average DM yield for four production years (2018–2021) for permanent grassland (PG; A), semi-permanent grassland sod-seeded (S-PGs) and reseeded after ploughing (S-PGp; A and B) and reseeded ley (Ley-12 and Ley-6; A) fertilised with mineral fertiliser only (MF 210) or cattle slurry in combination with mineral fertiliser (CS+MF 210 and CS+MF 340). Different letters denote differences within renewal strategies

## Conclusion



Both reseeding by ploughing and without ploughing essentially increased grassland productivity.

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