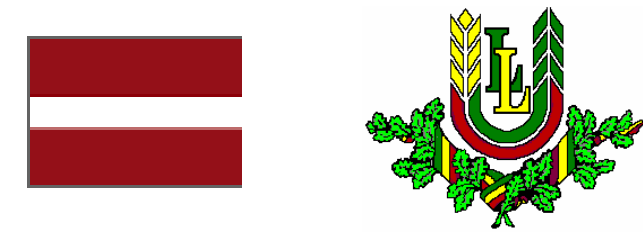


The influence of nitrogen fertilisation and legume species on the quality of multicomponent meadows



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Message: In Latvia's farms, the use of multicomponent grass-legume mixtures is a traditional practice, because swards can secure good persistence and stable productivity. Red clover *Trifolium pratense* (Tp) and lucerne *Medicago sativa* (Ms) are traditional forage crops, but fodder galega *Galega orientalis* (Go) is grown for a relatively short period.

The aim of research: determine the influence of N fertilisation and legume species on the herbage quality of multicomponent grass-legume mixtures.

Materials and Methods

Field trials were conducted at three experimental sites were conducted at three experimental sites in Latvia. At each of the three sites, the same mixtures were sown, in three replications, with a 10 m² plot size.

Sowing without a cover crop. Fertilization: P78, K90 and three N-fertilisation levels: N0, N60 (30+30), N120 (60+60) kg ha⁻¹, incorporating this norms as a digestate of cattle manure.

Grass combinations used in mixtures:

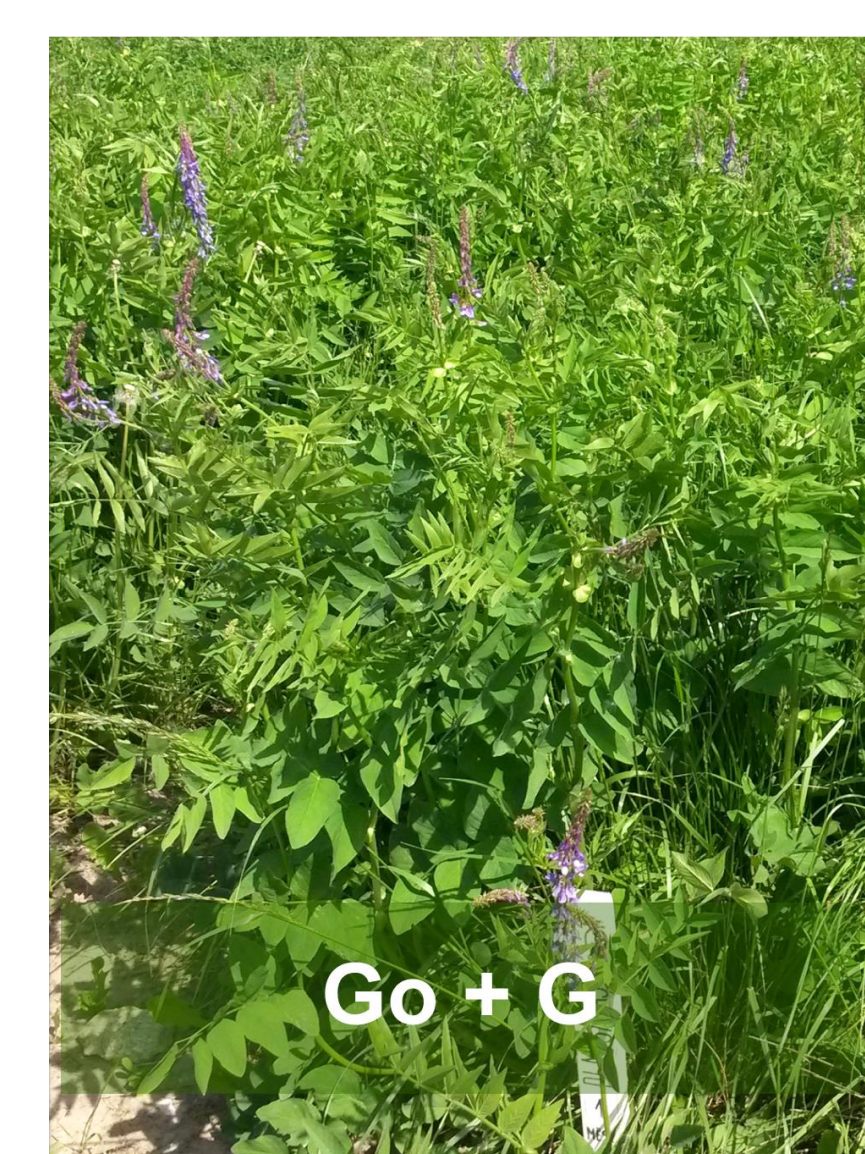
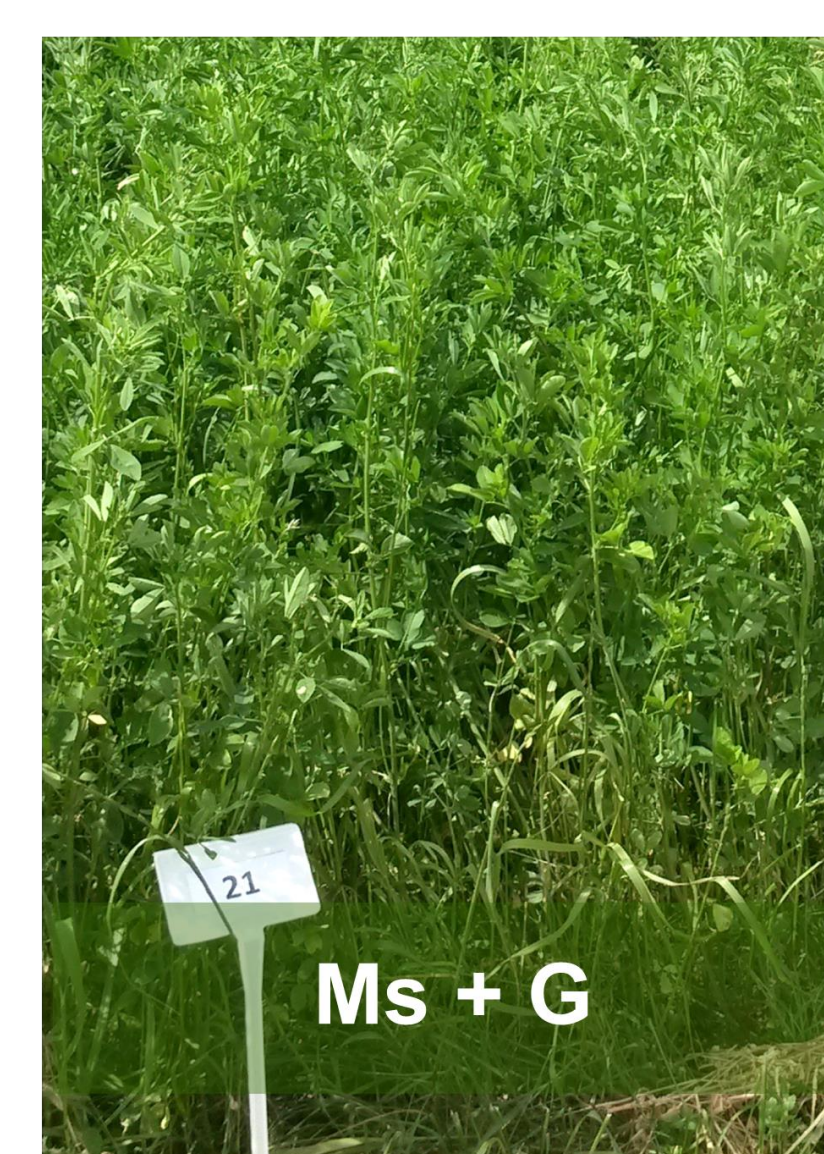
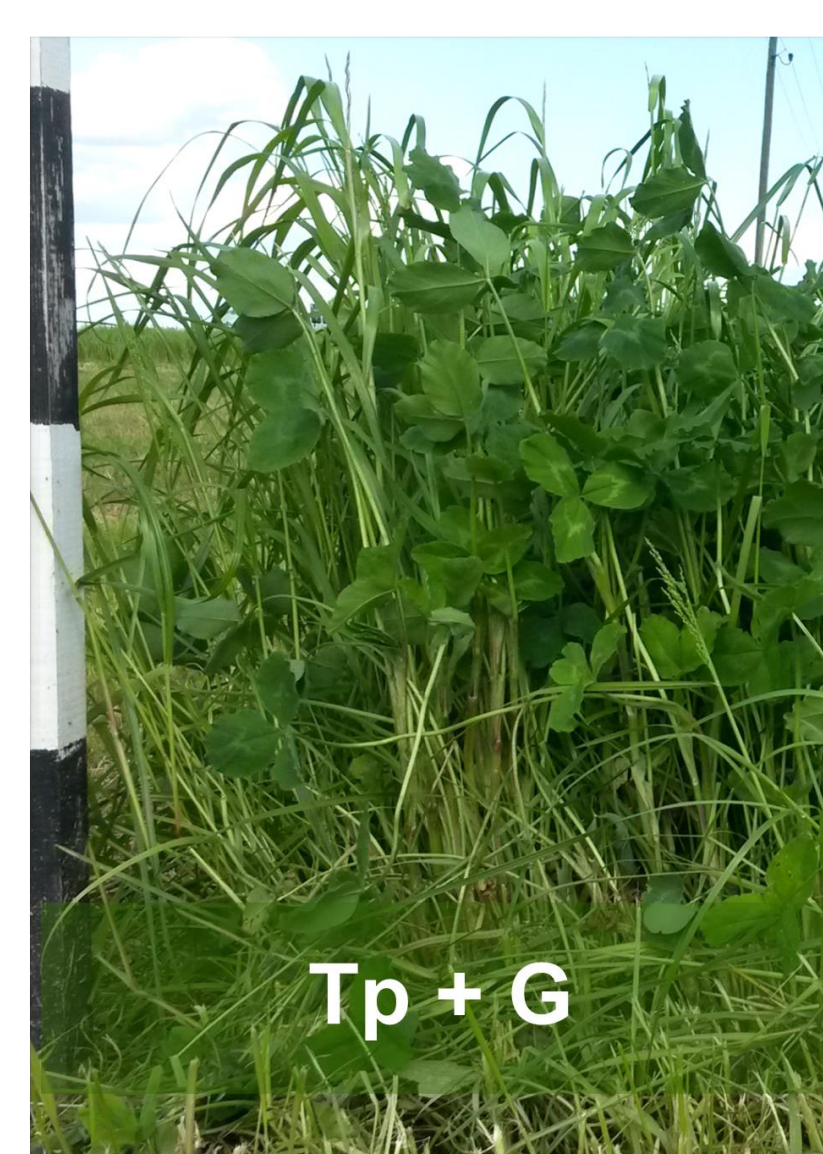
(G): *Festuca arundinacea*, ×*Festulolium loliaceum*, *Lolium boucheanum* in equal parts.

Mixtures:

Tp+G: *Trifolium pratense* 50% and grasses 50%

Ms+G: *Medicago sativa* 50% and grasses 50%

Go+G: *Galega orientalis* 50% and grasses 50%.



Results

Significant differences in the content of CP, Ca and ADF in DM yield were found between mixture types. The mixture containing lucerne (Ms+G) and galega (Go+G) had a significantly higher CP content in comparison with red clover mixture (Tp+G).

A significant N application effect on the CP, Ca, NDF and ADF content in DM yield was not found. N fertilizer application rate from 0 to 120 kg ha⁻¹ contributed to a significant increase in P content for all mixtures (Fig. 1).

Legumes accumulated more Ca than grasses, and Ca content in mixture DM is closely connected with legume content. The proportion of legumes in swards had a significant positive correlation with the content of CP and Ca in DM yield (Fig. 2).

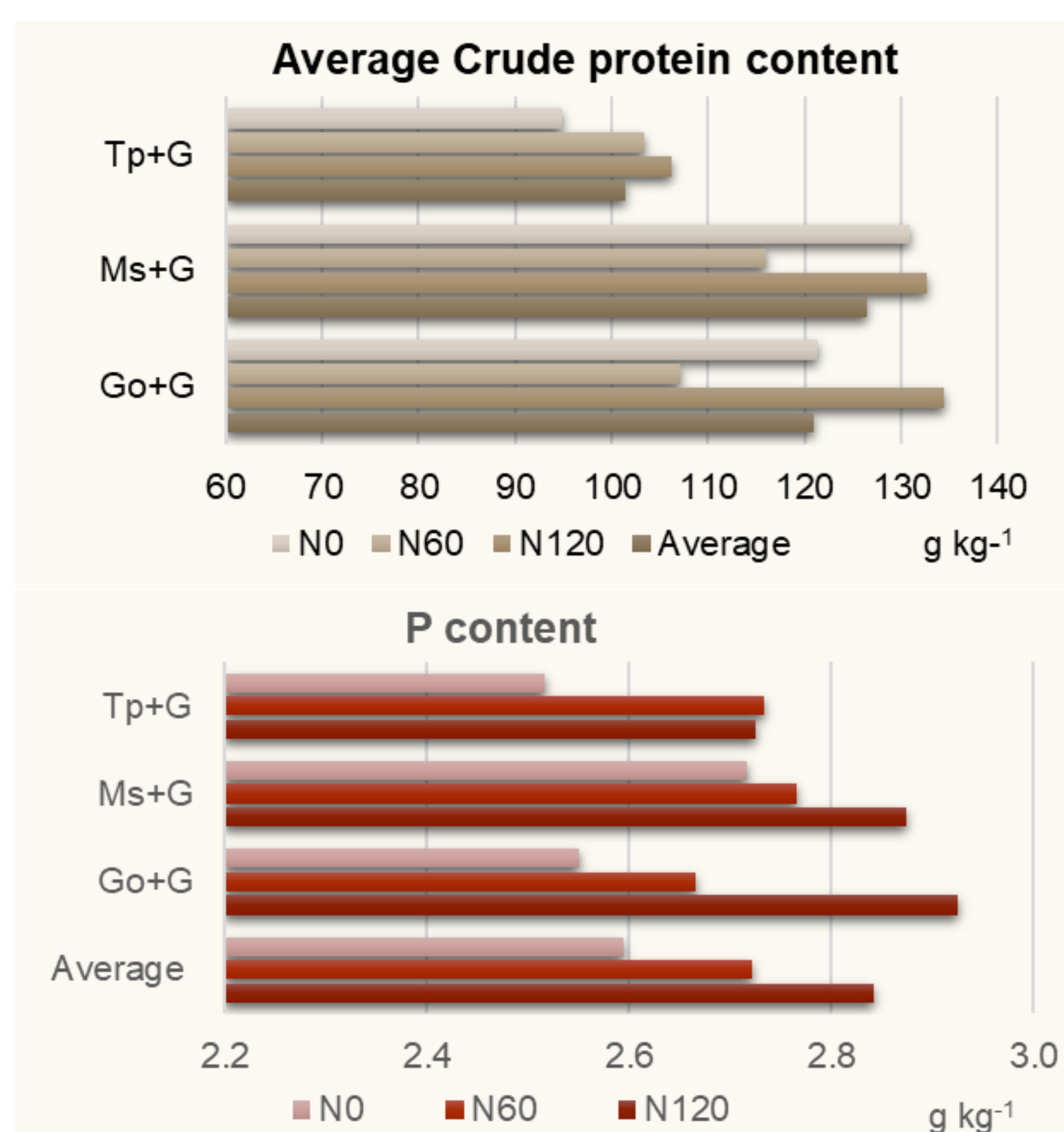


Fig. 1. Effect of N rate and legume species on the crude protein and P content in DM yield, g kg⁻¹

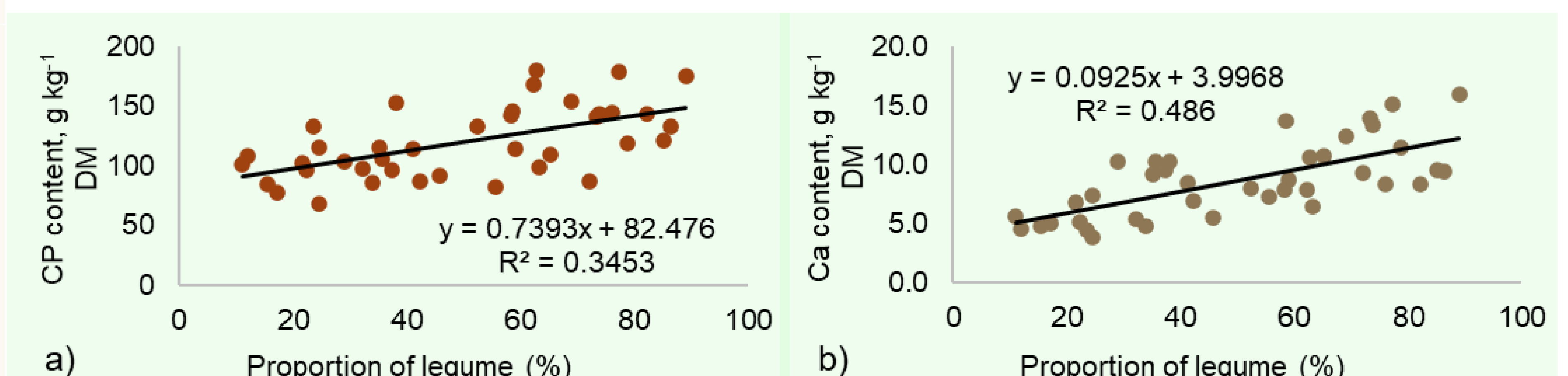


Fig. 2. Relationship (P<0.01) between CP content in herbage DM (a), Ca content in herbage DM (b), and the proportion of legumes in sward

Conclusion

Significant differences in the content of CP, ADF and Ca in DM yields were found between mixture types. No significant N application fertilization effect on the CP, NDF, ADF and Ca content in DM yield was found.



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