

Mixture benefits on forage yield are not reflected in root mass



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Research Question

Are species interaction effects similar for forage yield and root mass?

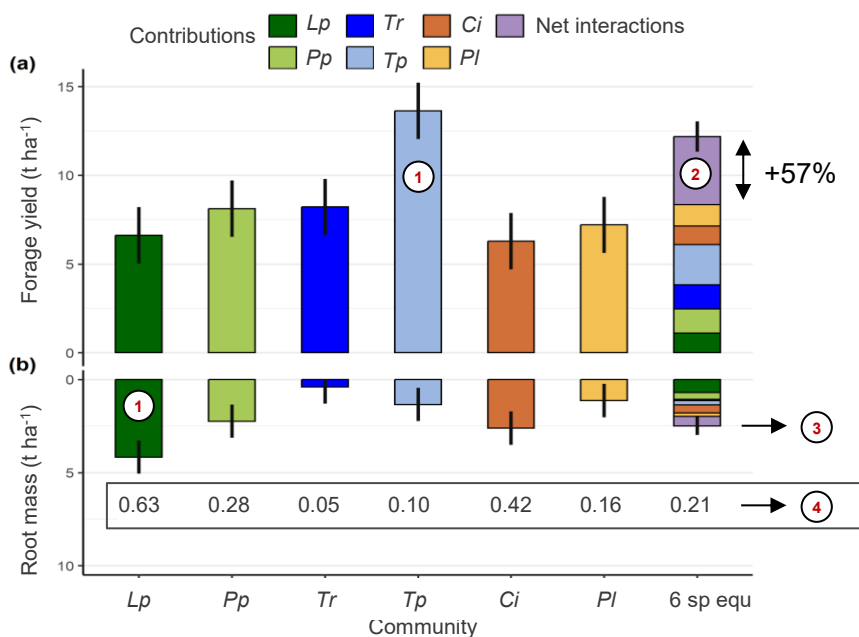
Materials and Methods



- Field experiment with monocultures and mixtures of richness 2, 3, 4, 6
- Cumulative forage yield from spring till root sampling in summer
- Root sampling in selected 33 plots; 6.25 dm³ monolith for 0-10 & 10-20 cm depth; 6 soil cores (1.1 dm³) for 20-30 cm depth

Results

Forage yield, root mass and root-to-shoot (R:S) ratio



Key messages (Figure 1):

- 1 Largest forage yield with *Tp*, while largest root mass with *Lp*.
- 2 57% overyielding in forage yield from species interaction effects.
- 3 No significant interaction effect with respect to root mass.
- 4 Root-to-shoot (R:S) ratio varies considerably between species.

Key messages (Figure 2):

- Root depth distribution: 0-10 cm > 10-20 cm ≥ 20-30 cm.
- Lack of interaction at all three depths: no difference predicted vs expected (d).

Root mass depth distribution

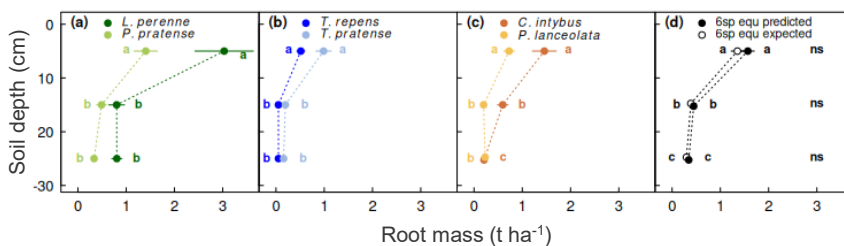


Figure 2. Root mass of the monocultures and of six-species equi-proportional mixture (6sp equ) across soil depths. The inference to the right refers to the difference between predicted and expected root mass (ns: $P > 0.05$). Error lines are standard errors (SE). Different letters indicate significant differences in root mass among soil depths within each community type ($P \leq 0.05$).

Conclusion:

No species interaction effects on root mass in spite of strong interaction effects on forage yield.

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