

# *Rhizobium* and mycorrhiza inoculation affect yield components in *Pisum sativum* L.

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## Introduction

Role of *Pisum sativum* L. and microbial symbionts (*Rhizobium* and mycorrhiza) interaction:

- Enhance environmentally-balanced production (e.g. decrease pollution)
- Increase regeneration of nutrient-deficient soils through atmospheric nitrogen fixation and mobilizing of low mobile nutrients in the soil solution
- Health benefits to humans and animals by providing needed proteins, minerals and vitamins

- Increases plant's tolerance to drought and resistance to pests and diseases

Previous research endeavors to increase yield of peas were mostly based on breeding and area expansion. However, the significance of integrated agronomic practices such as inoculation of microbial symbionts has received less attention.

## Aim

Evaluation of the effects of combined and single inoculation with *Rhizobium* and the mycorrhizal fungus on yield components of field pea.

## Materials and methods

- Two field pea cultivars (Messire = V1 and Model = V2)
- Five nutrient sources (combined and single microbial symbionts of *Rhizobium* = +R; arbuscular mycorrhiza fungi = +M; dual +NP fertilizers; control = C)
- Data were analyzed with one-way factorial ANOVA tests (SPSS18.0)



Fig. 1: Plant growth response to *Rhizobium* and mycorrhiza compared to non fertilized control of the cultivar Messire (a); with *Rhizobium leguminosarum* nodulated roots (b)

## Results

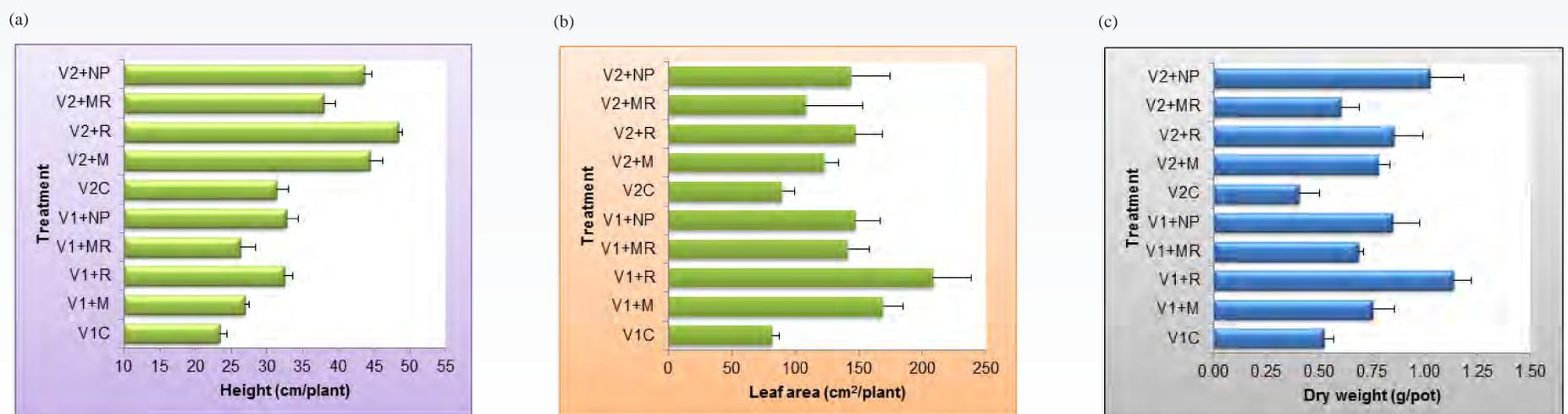


Fig. 2: The treatment effects on plant height (a); leaf area (b); and dry matter yield (c)

## Conclusions

- As indicated above, similar increases in field pea yield components with inoculation of microbial symbionts could lead to reduction or replacement of N and P fertilizer requirements
- The obtained results may be vital for organic farmers and efficient sustainable farming practices to increase field pea production under low soil fertility conditions
- Further verification of these results might be necessary by field trials

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