

EFFECTS OF DIFFERENT ROOTSTOCKS ON TOMATO GROWTH AND FRUIT YIELD



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INTRODUCTION

- Tomato cultivars lack genetic disease resistance and are particularly susceptible to epidemics in the field.
- In Portugal, grafting in tomato is used to increase resistance to soil-borne diseases and pests, such as corky root rot and root-knot nematodes and also to enhance vigor and to increase yields.
- This study aims to evaluate the effects of different commercial rootstocks on tomato plant growth and fruit yield.



MATERIALS & METHODS

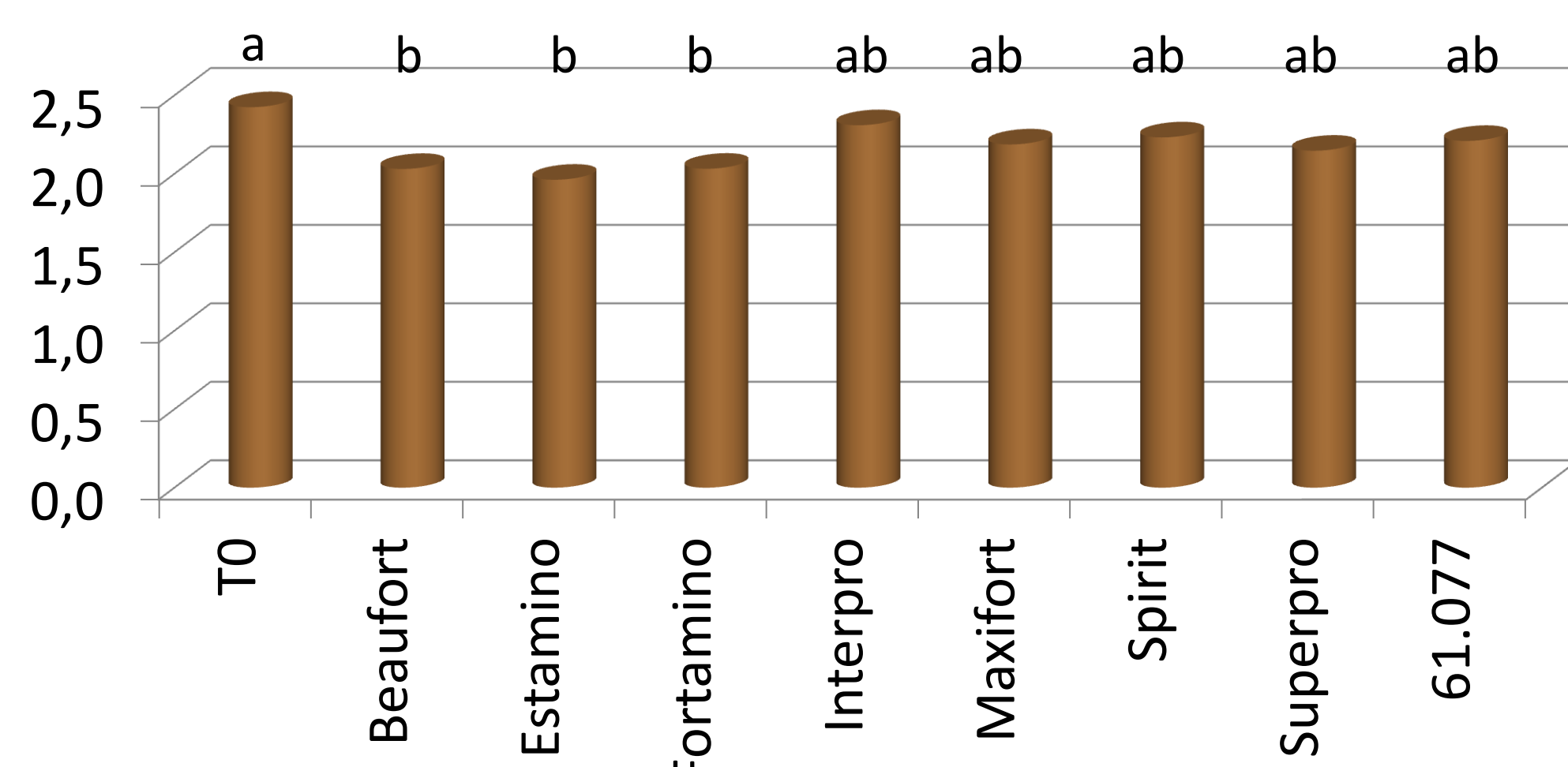


- The trial was established in a sandy clay loam soil in Coimbra, central Portugal.
- Ungrafted (T0) and grafted plants were produced in a commercial nursery plant, using the rootstocks 'Beaufort', 'Estamino', 'Fortamino', 'Interpro', 'Maxifort', 'Spirit', 'Superpro' and '61.077', and the commercial tomato cultivar 'Papai'.
- Experimental design was a randomized block design with 4 plots and 9 treatments.
- Plants were cultivated on 7th May in a greenhouse, applying the standard crop practices and IPM.
- Plant density was 3.3 and 1.7 plants/m² for ungrafted and grafted plots.
- Plant growth determinations: plant height and stem diameter.
- Yield evaluation: total, marketable and unmarketable.



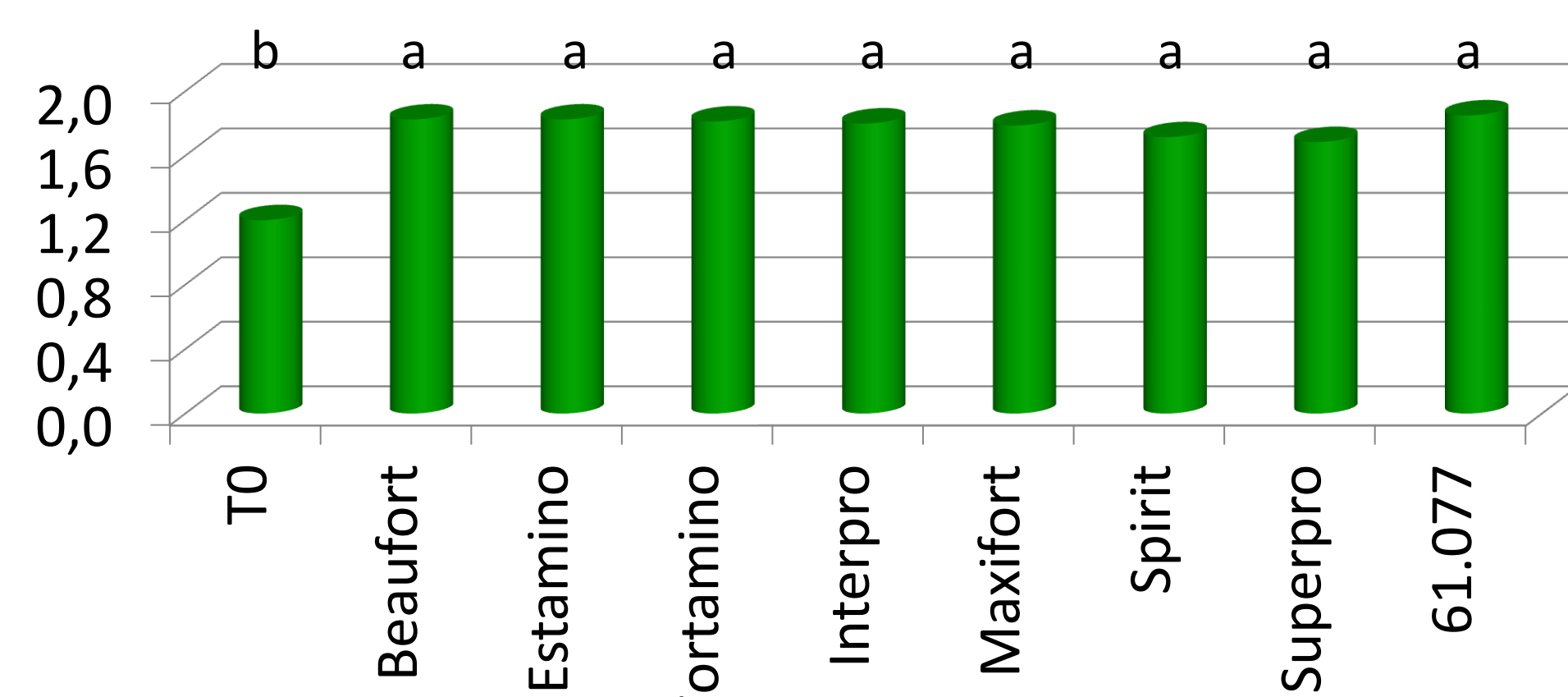
RESULTS

Plant height (m)



Ungrafted plants had the highest plant height, although with no differences with 'Interpro', 'Maxifort', 'Spirit', 'Superpro' and '61.077'.

Stem diameter (cm)



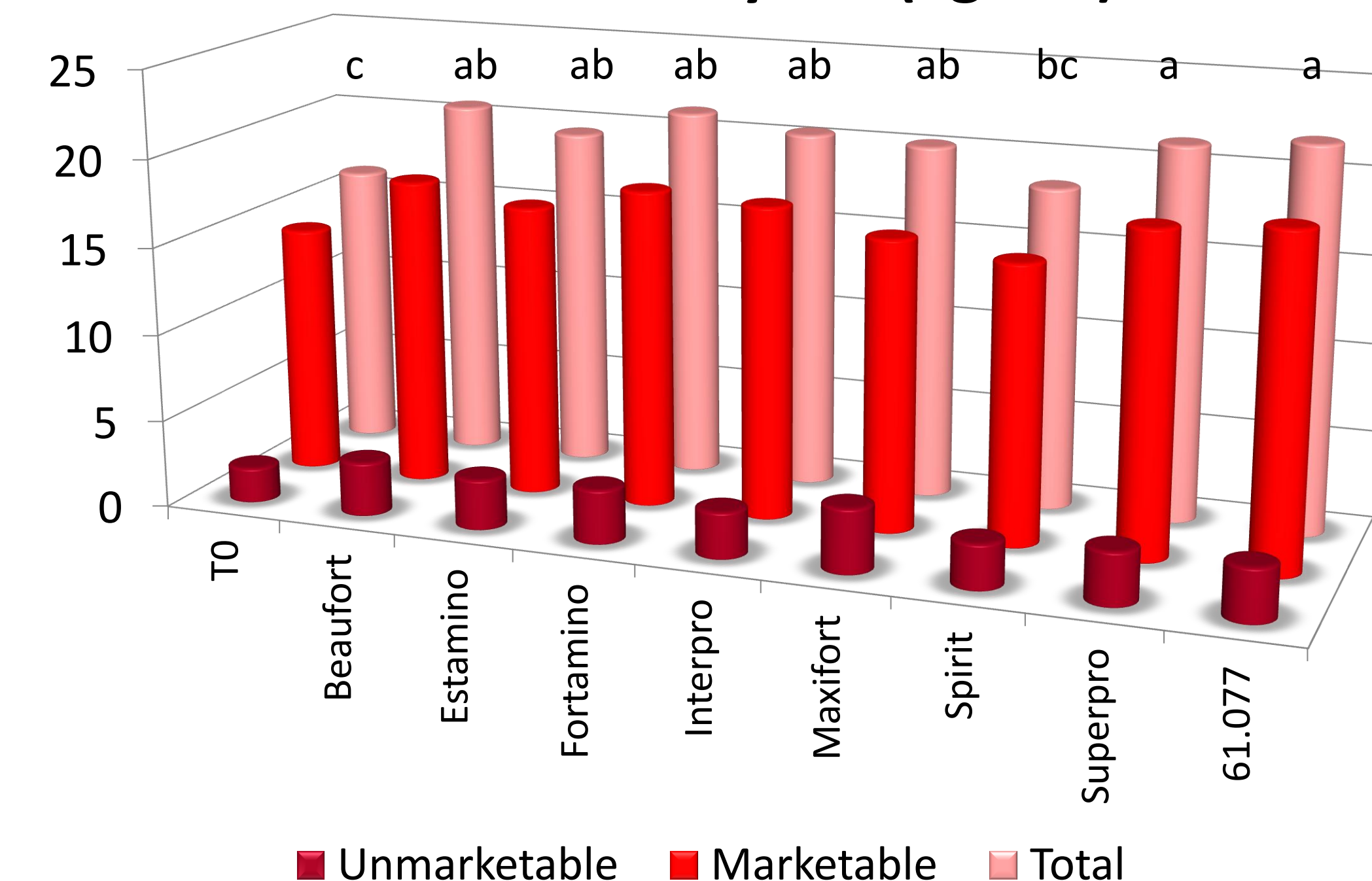
Plant stem diameter was higher in grafted plants than in ungrafted plants.

Fruit yield was significantly higher on grafted plants, except on 'Spirit' rootstock.

Grafting tomato plants in 'Superpro' and '61.077' rootstocks increased fruit yield up to 31 and 35% comparing to ungrafted plants.



Fruit yield (kg.m⁻²)



All rootstocks proved a slight susceptibility to nematode *Meloidogyne* spp. and to *Fusarium oxysporum*. The rootstocks 'Estamino' and 'Spirit' showed susceptibility to *Pyrenochaeta lycopersici*.



CONCLUSIONS

The use of grafted plants increases the amount of planting costs because of its high price which is more than twice the cost of the ungrafted plant. However, the less number of plants per unit area and the higher yield obtained with these plants, may represent a less investment for farmers.

REFERENCES

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