

Marketable yield increase of 21,8%

CARROT

J. Ouellet, Premier Tech, and
H. Desilest, Laval University. 1998

OBJECTIVES

- 1- Evaluate the impact of mycorrhizal inoculation on the yield of 2 cultivars of carrot under experimental conditions similar to commercial production conditions.
- 2- Determine the impact of the reduction of phosphate fertilization on yield in relation to the contribution of mycorrhizal inoculant.

METHODS

Two cultivars of carrots have been used, the Caro-Choice and the Presto. The seeds used were treated with the fungicide thiram. The inoculation treatment consisted of inoculating mycorrhizal *Glomus intraradices* and a control (medium without fungus), both applied at a rate of 10 ml/row meter. Plants were set up in a completely randomized design with four replicates. Each experimental unit consisted of 4 rows of 6 meters spaced at 0.7 m.

The control culture corresponded to that of commercial production. The following rates of fertilizer were applied: nitrogen was applied at the rate of 80 kg/(mono ammonium phosphate (MAP) and ammonium nitrate), phosphorus (mono ammonium phosphate) was applied at rates 120 and 60 kg/ha P₂O₅ respectively for plots receiving 100% and 50% of P, sulfate and muriate of potassium (50/50) were given to get a total rate of 120 kg/ha K₂O, and finally, 11 kg/ha Mg were applied as Sul-Po-Mag.

Mineral fertilizers were broadcasted before the formation of mounds. Two months after sowing, an additional input of nitrogen was applied in strip at about 10 cm on each side of the row (coated calcium nitrate, 25 kg/ha). Required phytosanitary treatment, herbicide and fungicide, were applied during the season.

Carrots were harvested 22 weeks after sowing. They were sorted into 3 categories. Grade No. 1 (or cello) included carrots with a diameter between 1.9 cm and 3.8 cm and having at least 11.4 cm long. The jumbo category comprised carrots with a diameter exceeding 3.8 cm. Finally, the rejected carrots, all that were forked, malformed or too short (<1.9 cm). Measurements of total and marketable yields were calculated. Total yield included the 3 categories and the marketable yield included the category 1 and jumbo only.

RESULTS

The fungus *G. intraradices* improved the average total yield by 14% ($p = 0.007$) and the average marketable yield by 21.8% ($p = 0.004$) compared to non-inoculated controls. Phosphorus fertilization had no significant impact on the treatment effect.

