



Sulphur Survey and Evaluation for Processing Carrots



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Introduction

Carrot (*Daucus carota* L.) is a major vegetable crop in Nova Scotia contributing over \$12 million to the economy (Lada and Blake, 2002).

The importance of S to members of the umbelliferous family, such as carrots, for flavour, is recognized (eg. Schung, 1990).

Until recently, S supplies from other fertilizers as contaminants met the S requirements of carrots.

However, the shift from using high S-containing fertilizers and the reduction in SO₂ emissions have greatly reduced the S inputs to the soil (eg. Zhao et al., 1993; Fan et al., 1997).

At the same time S removal from the soil by crops has increased.

An understanding of the S status of Nova Scotia soils and the S requirements of processed carrots for optimum growth, yield, and root quality is needed.

Materials and Methods

For the S status of Nova Scotia soils, soil samples were taken at 0-6" and 6-12" in 9 fields in Colchester County and 5 fields in King's County at the beginning of the growing season.

Field trials in Colchester and King's Counties consisted of the application of elemental S at rates of 0, 20, 40, and 80 kg S/ha.

Variety Oranza was seeded at 33 seeds/30 cm

Plot size: 6 rows x 10 m

4 replications

Leaf fresh weight, final yield, and recovery were compiled

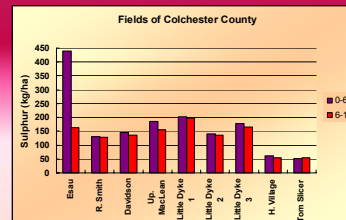


Figure 1: Sulphur content in Colchester county soils

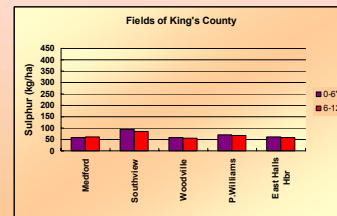


Figure 2: Sulphur content in King's county soils

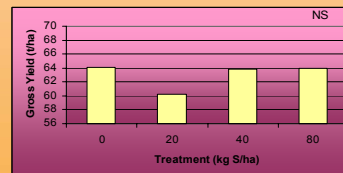


Figure 3: Gross yields in Great Village S trial

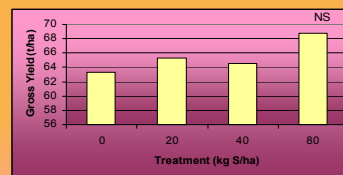


Figure 4: Gross yields in Berwick S trial

Results

In general, King's county fields were lower in S than Colchester county fields.

The amount of S declined as the depth increased to 6-12"

There was no statistically significant effect of S application on yield and quality at any rate at both locations.

Recovery of root grades was not affected by S application as well.

There were no significant differences in leaf fresh weights and dry weights as a result of S application.

Conclusion

The S status of NS soils does vary throughout the province.

Carrots do not appear to require the addition of S for optimum yields and quality at this time.

References:

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