SUMMARY

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Effect of transplanting and some soil born pathogens control on growth and yield of sugar beet :

Two field experiments and one pot experiment were carried out to study the effect of transplanting, calcium application and fungicide treatment on growth and yield of sugar beet. The field experiments were in Shalakan Agric. Res. Station of Int. Res. Center during 1998/99 and 1999/2000. The study involved three planting methods, namely; direct sowing, four weeks age transplanting and six weeks age transplanting; two calcium treatments in the first season, control and calcium chelate, and three treatments in the second one; calcium chelate, calcium sulphate and control and two fungicide treatments, control and Rhizolex application. The design of the experiment was split plot where the planting methods were allocated in the main plots and the combination between calcium and fungicide treatments in the sub plot.

Pot experiment included the same mentioned factors where the plants were left to reach 3 months age during which some vegetative measurements were recorded.

The results of the experiments could be summarized as follows :

I. Field experiments :

A. Effect of planting methods :

1. Direct sowing increased plant height, number be leaves per plant, leaf area, leaf area index, top fresh and dry weight as compared with transplanting at different stages of growth.
2. Root length and root diameter were not significantly affected by planting methods at different stages of growth.
3. Top, root, biological and sugar yield per fad were significantly higher with transplanted plants than direct sown ones. Four weeks age transplants produced the highest value of top, root, biological and sugar yield followed by direct sowing then six weeks age transplanting.
4. Sugar, T.S.S. and purity percent were not significantly affected by planting methods whereas protein percent was significantly higher in transplanted plants in the second season than direct sowing.
5. Transplanting caused a considerable increase in plant population as compared with direct sowing.

B. Effect of calcium application :

1. Calcium application as a chelate did not affect plant highest, number of leaves/plant, leaf area, leaf area index, top fresh and dry weight, root fresh and dry weight and total fresh and dry weight per plant.
2. Root length and root diameter were not significantly affected by calcium application.
3. Top, root and biological yield increased with calcium application as calcium sulphate.

4. Sugar yield, T.S.S. and purity percent were not significantly affected by calcium application whereas protein content increased with calcium application.
5. Calcium application increased plant population at harvest.

C. Effect of fungicide treatments :

1. Treating seeds with Rhizolex as a fungicide did not significantly affect plant height, number of leaves/plant, leaf area, leaf area index, top fresh and dry weight, root fresh and dry weight and total fresh and dry weight as compared with the untreated plants.
2. Root length and diameter were not significantly affected by fungicide treatment.
3. Fungicide treated seeds gave a slight higher top, root, biological and sugar yield than untreated seeds.
4. Fungicide treatments did not significantly affect sugar, T.S.S. purity and protein percent in sugar beet.
5. Rhizolex caused a slight increase in plant population of sugar beet at harvest.

D. Effect the interaction :

I. Effect of the interaction between planting methods (P) and calcium application (Ca) :

The following characters were significantly affected by Pxca interaction :

1. Number of leaves at 115 days in both seasons and 155 days in the second season.