FARM AND DAIRY & RURAL HOME

We Welcome Practical Progressive Ideas. The Recognized Exponent of Dairying in Canada.

Trade increases the wealth and glory of a country; but its real strength and stamina are to be looked for among the cultivators of the land.—*Lord Chatham.*

Vol. XXXIV PETERBORO, ONT., SEPTEMBER 16, 1915 No. 37

The Growing of Field Root Seeds in Ontario*

PROF. C. A. ZAVITZ, ONTARIO AGRICULTURAL COLLEGE, GUELPH, ONT.

Home Grown Seed Has Proven its Value at Guelph—Methods of Storing and Planting Discussed

A CONSIDERABLE amount of interest has been taken in Ontario within the past few years with the prospect of growing field root seed more extensively in this province. The interest has increased at the present time owing to the fact that such a large percentage of the root seed is obtained annually from those countries which are at war at the present time. Just what influence the unsettled condition in Europe will have on root seed production is unknown. It is well for us at this particular time to consider more carefully the advisability of giving more attention to the production of root seed in this country. My remarks will deal particularly with observations made in connection with experiments which have been conducted at the Ontario Agricultural College.

The following table will give approximately the amount of root seed which will be required in Ontario in 1915 based on the areas devoted to the different crops of 1914, in conjunction with the average amount of root seed frequently sown per acre:

Crops.	Acres in Ontario in 1914.	Average Pounds of Seed Sown per acre.	Number of Pounds of Seed required.
Mangels	50,665	5	253,325
Sugar Beets	18,534	12	222,408
Turnips	96,371	3	289,113
Carrots	2,448	3.5	8,568

It will, therefore, be seen that nearly one million pounds of root seed is required in Ontario annually. For recent years mangel seed has been largely obtained from France, with smaller quantities from Britain and from Germany; and sugar beet seed from Germany and from the United States. A considerable amount of turnip seed has been obtained from Britain. The amount of Canadian-grown seed in any one of the above-named classes has been exceedingly small.

Experiments at the O. A. C.

Within the past few years experiments have been conducted at the Ontario Agricultural College with mangels, turnips, and carrots for seed production. As varieties of these different crops naturally cross-fertilize, we have confined our attention to one variety of each class. The experiments have been confined largely to the storing of the mother roots in the winter; the planting of the mother roots in the autumn and in the spring; the yield of seed; the improvement of the variety by the selection of roots and of the seeded plants; the germination of home-grown seed; and the yield per acre from home-grown as compared with imported seed.

In each of seven years, mother roots of mangels, carrots, and Swede turnips have been stored in three different ways, viz., in loose piles in a cool root cellar; in sand in a cool root cellar; and in pits in the field. The results would seem to indicate that if a farmer wishes to grow a small quantity of root seed the mother plants may be stored in a cool cellar to good advantage. If the object, however, is to grow root seed in a commercial way, the mother plants can probably be kept through the winter in the best condition in properly constructed and well ventilated pits. Any one of the three methods here indicated, however, might be used satisfactorily. There was the least amount of decay from the mangels which were stored loosely in the cellar, and from the carrots and the Swede turnips which were stored in the sand. The roots which were stored in the sand were exceptionally free from mould and were about equal in firmness to the roots which were stored in the pits. The mangels and the carrots gave the greatest percentage of sprout in the spring when stored in the pits, and the turnips when stored in the sand. It should be understood that the roots in all cases were of ordinary size, and were not in the form of stecklings as frequently used in the production of root seed for commercial purposes.

Why Grow Root Seed?

AN ONTARIO farmer, who reads Farm and Dairy, has been growing his own mangel seed for years. He grows his own seed because he finds that with it he can get a better stand and a better yield than from the best seed he can buy. This home-grown seed costs him no more to produce than the best grades of imported seed would cost at the seed house. He believes that Ontario farmers, and farmers in the other provinces as well, should grow their own seed in any year.

There is an additional reason why farmers should plan to save a few dozen good roots this fall for seed production next summer. War is still raging in the seed producing districts of Europe and seed may be scarce and high in price. The address by Prof. Zavitz, on this page, is as timely now as when delivered last fall and the application of its teachings is more urgent.

Planting of Mother Roots

In some of the warmer countries the roots are allowed to remain in the land throughout the winter, covered by a slight protection of soil. In the colder climates, however, it is the usual custom to store the roots over winter and to plant them in the field in spring. Some interesting experiments have been conducted at the College in a comparison of autumn and spring planting of the mother roots. For the autumn planting the land is slightly trenched with the plow about the first week in November, and the roots are planted three feet apart in the rows, the rows being about five feet apart. The roots, after being placed, are covered with loose, dry straw, after which they are covered with the plow by turning two furrows on each side of each row. After the land has become slightly frozen, usually about the middle of December, strawy manure to the depth of three or four inches is placed over the ridges. In the spring when danger of severe frost is over, the manure and the surface soil is removed from over the roots. This usually takes place early in May. Our experience has been that when roots are planted in this way they will give a considerably larger yield of seed in comparison with similar roots which are planted in the spring when the danger of frost is past.

Harvesting the Seed

For commercial purposes the plants are usually cut when about two-thirds of the seed has turned brown. The plants are placed in small stooks or stacks and threshed when dry. In the growing of root seed in a small way, the seed may be stripped from the plants, or the plants may be gathered and the seed threshed with an ordinary grain thresher. At the College we usually gather the ripe seed early in September, and later in the month secure the seed, which matures at a later date. From observations made, it seems very important to collect the seed before it is injured by frost. In 1912 a frost of two degrees was registered before any mangel seed had been gathered. The germination of the seed in that year was exceptionally poor.

Individual plants of mangels, carrots and turnips vary considerably in seed production. As the result of six years' work at the College, we have obtained on an average 6.6 ounces per plant from mangel seed obtained from a considerable number of the best plants each year. Our average yield of carrot seed per plant for the same period has been a little less than two ounces, and that of the Swede turnips only about four-fifths of an ounce per plant.

Improvement of Variety by Selection

In connection with this work throughout it has been our object to select mother roots uniform in size, shape and color, and of good quality. It has also been the practice to select some of the choice plants from the standpoint of seed production with the object of securing seed as foundation stock for Ontario, not only of

(*Concluded on page* 14)

*An address delivered at the Winter Fair, Guelph, last winter. Prof. Zavitz's remarks are of particular value at this season when roots for seed production next year may be selected.