FARM AND DAIRY
& RURAL HOME

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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. XXXIII. FOR WEEK ENDING APRIL 2, 1914 No. 14

How to Grow Big Crops of Roots*

Some Novel Methods of Handling the Root Crop Advocated by a Specialist. Suggestions as to Best Varieties. Hand Work Almost Eliminated by Judicious Use of Wheel, Hoe and Harrow. The Preparation and Fertilization of the Soil

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HOW can we obtain big root yields? It is the old, old story. We must prepare the land well, buy or grow good seed, sow it in right time, thin the plants early, and cultivate properly during the season.

Land intended for roots should be broken out of sod, the first plowing being done in August to a depth of three inches. Discing, rolling and harrowing, repeated at intervals of every 10 days, will exterminate many weeds and make work easier in the spring. Just before cold weather a second plowing should be made to a depth of six to eight inches, the manure having first being applied.

If the supply of stable manure is limited, commercial fertilizers can be properly applied. Each farm should be tested to ascertain its own requirements. We have obtained good results from 500 lbs. per acre of the following mixture: 50 lbs. Nitrate of Soda, 50 lbs. Sulphate of Ammonia, 250 lbs. Acid Phosphate, 25 lbs. Muriate of Potash.

RESULTS FROM FERTILIZERS

The following table shows the results of a duplicate experiment at the College in 1912:

This experiment indicates the requirements of our particular soil. On other farms different results might be secured.

Fertilizer per acre.	Inc. in yield. Tons.	Value of increase.	Cost of fertilizer.	Inc. of profit.
1. No fertilizer				
2. 50 lbs. Nitrate Soda ... 50 lbs. Sulphate of Ammonia	5.545	$13.86	$3.25	$10.61
3. 50 lbs. Nitrate Soda .... 50 lbs. Sulphate Ammonia 250 lbs. Acid Phosphate	6.760	16.95	5.50	11.45
4. 50 lbs. Nitrate Soda .... 50 lbs. Sulphate Ammonia 250 lbs. Acid Phosphate. 75 lbs. Muriate Potash.	8.945	22.36	7.07	15.29

Mineral fertilizers should be spread early in the spring. The nitrogenous fertilizers may be applied just before seeding when in such small quantities as just mentioned.

Good seed is an essential. It should not only show high germination but also come from good stock. Our experience has been that home-grown seed from carefully selected roots will give better results than seed purchased in the market. Last year the former gave 1½ tons an acre more than the best imported seed.

BEST YIELDING VARIETIES

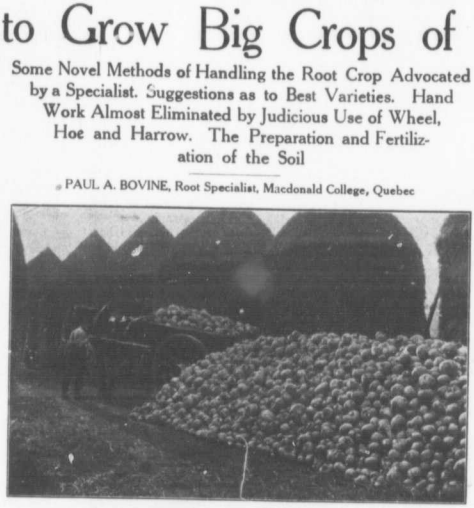
The following table shows the best yielding varieties of different classes of roots, 1909-1913:

	Tons Dry Matter.	Tons Roots.
Mangels—		
Giant Yellow Intermediate	32.6	3.7
Sugar Mangel	36.7	3.6
Perfection Red Mammoth	33.4	3.4
Prize-winner Yellow Globe	36.9	3.3
Carrots—		
Champion Intermediate	30.1	3.1
Yellow Intermediate	26.1	2.6
Swedes—		
Hall's Westbury	27.7	2.8
Queen	28.7	2.8
Kangaroo	25.9	2.6
Turnips—		
Imperial Yellow Globe	32.6	2.5
White Globe	30.5	2.2

It is to be noted that the varieties yielding the most tons of roots did not always give the most dry matter, on which depends the feeding value. Of course, the dry matter is not the only deciding factor; we must consider crown, shape, pronginess and keeping quality.

WHERE TURNIPS ARE PREFERRED

Although mangels yield best with us the same does not hold true everywhere. On heavy, land, swedes can be expected to do better; on light, sandy soils, one can expect fair returns from carrots, provided there is enough moisture. Soft turnips do well in almost any soil. Mangels require a soil that is in good heart.



Roots are an Important Factor in the Feeding of Old Country Cattle

Wm. Duthie, one of the most famous Shorthorn breeders of the Old Land, was once asked by a Canadian visitor how many turnips he fed to a cow. His reply was, "As many as they will eat; usually one wheelbarrow load to two cows." The Old Country feeder has discovered the value of succulent feeds in the proper development of good stock. Their success in producing some of the best breeds of cattle in the world testify to the correctness of their practice. Scenes such as the one here illustrated are common on English farmsteads.

The next table, compiled from four years' experiments, will help us to decide which is the best variety of mangels.

Variety.	Tons Roots.	% Dry Matter.	Tons Dry Matter.	Order of Merit.
1. Prizewinner Yellow Globe	36.9	9.12	3.36	4
2. Sugar Mangel	36.7	9.82	3.61	2
3. Our Ideal	35.2	7.42	2.61	12
4. Yellow Leviathan (Ferry)	34.07	9.02	3.07	8
5. Tankard Cream Sugar Beet.	34.02	9.42	3.20	6
6. Perfection Red Mammoth ..	33.4	10.20	3.41	3
7. Yellow Globe	33.3	9.06	3.02	10
8. Giant Yellow Interned.....	32.6	11.39	3.71	1
9. Mammoth Long Red	32.5	9.91	3.20	5
10. Golden Tankard (8)	31.6	9.61	3.04	9
11. Long Red Mammoth. .	32.5	10.32	3.15	7
12. Golden Tankard (E)	28.8	9.85	2.84	11

We may here note that No. 1, while first in regard to yield of roots, comes fourth in content of dry matter, and thus fourth in order of merit. No. 8 in yield is first in dry matter and order of merit. Comparing No. 2 and No. 8, a man would haul four tons more of water from the field in the case of the latter. When feeding only a small quantity of roots, this extra water may be of value, but when feeding 25 to 30 lbs. a day, it need not be considered.

The time of seeding is the next important point. As a general rule carrots should always be sown first, then mangels and swedes. Turnips can be sown to advantage in late June. With us, early seeding has given the highest yields in all cases, as the results of three years' experiments show.

	Seeded May 8 Tons roots.	Seeded May 22. Tons roots.	Seeded June 8. Tons roots	Seeded June 22. Tons roots
Carrots	29.6	24.3	18.2	...
Mangels	32.1	26.6	16.6	...
Swedes	34.2	29.7	20.4	16.5
Turnips	...	31.4	26.3	21.9

If swedes are sown for table use it is better to sow a little later and get a smaller yield of smoother roots.

Thick sowing ensures a good stand. When the rows are 25 to 30 inches apart, four to five lbs. carrot seed, 12 to 16 lbs. mangel seed, four to five lbs. swede seed and three to four lbs. turnip seed may be considered normal seeding. It may appear heavy, but a good stand is half the crop, and enables us to use the harrows effectively.

In regard to drills versus flat culture, I prefer the latter. The former is advisable in two cases: point. As a general rule, carrots should be sown

(*Continued on page 6*)

*Extract from an address at the Guelph Winter Fair of 1913.