

in the actual work of producing the crop and this was supplemented by what he had learned as manager of a local co-operative association which purchased the seed and marketed the produce. Thus Mr. Broughton was in a position to treat his subject exhaustively from the two viewpoints of most interest to growers, namely, production and marketing. Another feature of this address which gives it a wider range of applicability was the emphasis placed on the undeveloped possibilities of early potato growing. Attention was directed to the fact that thousands of dollars go across the line annually in payment for this product which can be grown not by vegetable specialists only, but by farmers to a very large extent all over the province. The latter class could, and should when grown, adopt this crop as one item in a system of rotation. For a three-year rotation the speaker advised potatoes—wheat—clover; for a four-year rotation, potatoes—wheat—oats or barley—clover. By the third week in July, he said, we should be moving early potatoes; not in bushels or bag lots, but in car loads.

The culture of potatoes in the Sarnia District, which this year produced in the neighborhood of \$12,000 worth, was taken up in detail. In the first place, northern-grown seed is desired. This is obtained from the State of Wisconsin through a Chicago seed house, and the growers are willing to pay extra, if needs be, for seed of this nature, for the change to a warmer climate induces a greater yield and earlier maturity. Irish Cobblers and Ohio Juniors are the varieties used. The former is a white potato and the latter red. Some markets, such as Ontario urban centers, desire whites; lake towns will take reds and they frequently yield better than whites. Two eyes are usually left on each set. Two plants to the hill are desired but no more as this number has been found to give the maximum yield of marketable tubers. In preparing the soil, 12 tons of manure per acre are applied and plowed down not more than 5 to 6 inches deep. The land is given one stroke of the harrow and under Mr. Broughton's condition this is found sufficient, for he desires it loose and porous beneath rather than packed and sodden. The harrowing would, of course, depend upon the character of the soil. The sets are dropped with a planter which, at the same time, deposits in the drill about 500 lbs. of fertilizer per acre. Three inches is the depth of planting in favor. If a cold, backward spell follows planting the sets will not decay when not too deep. The machine leaves a slight ridge, and about one week after planting this is leveled down with a lever harrow with the teeth slanting backwards. In about another week the weeder is put on. By this time the plants are showing through the ground and the two-horse cultivator is brought into service. In another week the weeder is again used. Cultivating and weeding go on till the plants are about 8 inches high. This eliminates hoeing. The last cultivation hills the potatoes slightly. Throughout an effort is made to work the land as shallow as possible for it has been found that the shallower the crop is grown without being sun-burned the better will be the yield. Digging starts about the third week in July. As soon as the tubers are hard enough and have the weight they are lifted and they are usually in the green state when the most profitable time arrives. A little peeling of the skin does not matter if the potato is firm, large and has the weight.

The crop, as a general thing, is all lifted by the middle of August which leaves ample time for fall wheat as the soil is left in good condition for that crop.

The cost of producing one acre of early potatoes was itemized as follows: Rent of land, \$5; 12 tons of barnyard manure, \$18; plowing, \$2; harrowing, 40 cents; 500 lbs. fertilizer at \$36 per ton, \$9; 15 bushels of seed, \$15; cutting seed, \$1; planting and sowing fertilizer, \$3; harrowing, 40 cents; three times with weeder, \$1.20; cultivating, \$4; spraying twice, 50 cents for labor and 50 cents for 2 lbs. of Paris Green, \$1.00; digging, \$2.50; picking and bagging, (at 150 bags per acre), \$6; delivering to car or boat (50 bags per load and \$2 per load), \$6.00; 150 bags at 5 cents each, \$7.50. This makes a total cost per acre of \$82. An average crop in the district is 150 bags per acre and the average price for the last five years has been \$1.37 per bag, which amounts to \$205.50. A fair profit per acre then is \$123.50. The items in this cost sheet would not apply during 1916, they are average figures.

A discussion on the early-potato growing subject brought out the advantage of using northern-grown seed. Those with experience agreed that 25 per cent. increase in yield and from 7 to 10 days in date of maturity accrued from such over the home-grown seed. The following resolution was carried by the meeting. "Resolved that we, the Vegetable Growers of Ontario, having in mind the great importance to the market growers of the early-potato crop, and the difficulty of securing reliable seed, do hereby respectfully urge the appointment of a specialist to undertake experimental work with the crop along the line of working out the best method of producing high-class seed, and also with the object of improving by selection or breeding our present varieties.

Score Cards Revised.

Some difficulty has been experienced in the past by judges in using the score card in vogue for the purpose of awarding prizes in the field. The score card adopted some time ago for the "Garden Contest" gave the most trouble, and a revision was suggested by J. J. Davis, London, which was accepted. The old score card is given herewith:

Layout and general arrangement, considering:

	Points
(a) Straightness of rows and proper spacing of plants..	5
(b) Arrangement of space in garden.....	10
(c) Layout and general arrangement of necessary stables, greenhouses, etc.....	15
Neatness, care and cultivation.....	20
Condition of implements and other necessary appliances.....	5
Variety of crops grown (crops of less than 1-10 acre not to be considered.....)	15
Market value of crops.....	30
	100

If points are lost owing to natural difficulties impossible to overcome, the judge may allow a maximum of 5 points.

The new score card will read as follows:

	Points
Layout and general arrangement considering:	
(a) Straightness of rows and proper spacing of plants	10
(b) Arrangement of space in garden.....	10
(c) Neatness and cleanliness around yards and build- ings.....	10
Neatness, care and cultivation.....	40
Cleanliness in fence corners, headlands and pasture lots.....	10
Closeness of planting and market value of crop per acre to be considered.....	20
	100

If points are lost owing to natural difficulties impossible to overcome, the judge may allow a maximum of 5 points.

The reasons for these changes will be apparent to all. It was thought that under the new score system the small grower would stand a better chance than formerly. The results are emphasized in the new card, not the means by which they are brought about. The score card recommended by Mr. Davis pretty well sums up the chief features in profitable production and attractive surroundings.

The Vegetable Specialist's Report.

The Vegetable Specialist, S. C. Johnston, has been somewhat handicapped in his work during the past season. Demonstration and educational work among vegetable growers has been carried on during the past year to some extent, however, conditions have not been favorable for such on account of the spring being extraordinarily wet and the latter part of the season as dry as the early part was wet. The scarcity of labor has also curtailed the amount of work done. The demonstration work on prevention of celery blight had to be cut down somewhat this year; nevertheless, several plots of celery were looked after and the results were as good, if not better, than in other years. "I am glad to state," said Mr. Johnston, "that the spraying of celery is rapidly becoming a common garden practice, and even this year when the price of bluestone ranged from 20 to 32 cents per pound the celery growers did not hesitate to pay this price in order to protect their crop, and many new machines have been purchased for this purpose during the last year. Careful estimates show that \$50,000 worth of celery this year is saved in the Province of Ontario, due to some extent to the popularizing of the use of bluestone as a prevention for celery blight. I have nothing new to offer except that the celery grower must not relax his weekly habit of spraying. Some growers state that two rows can be more easily handled with a horse and cart than four, as heretofore recommended."

Onion growers in the Kingston district have suffered to such an extent from onion blight that many are ceasing to plant onions at all. For two years investigational work has been carried on in that district, yet nothing has been found up to the present that will control the blight. The results have all been of a negative character.

Between 10,000 and 12,000 cabbage and cauliflower plants were treated with corrosive sublimate as mentioned in last year's report to control cabbage root maggot. Conditions were such where these experiments were tried that while as many eggs as usual were laid, few hatched. Consequently the untreated rows showed little difference. From the viewpoint of economy the corrosive sublimate treatment was given preference over the use of tar-paper discs.

Some work was done with dust mixtures, in order to ascertain their fungicidal and insecticidal value when applied to vegetables. More time is required to complete this investigation before anything definite can be made public.

Home Grown Vegetable Seed.

While the production of vegetable seed has not yet become sufficiently common among growers to solve the seed question, they, as a body, appreciate the importance of the matter and what a good start means to the ultimate crop. A. McMeans, Brantford, the Ontario Representative, in matters pertaining to root and vegetable seed production, of the Dominion Seed Branch, enumerated some of the fundamental principles involved, and explained how the supply is produced. He also emphasized the value of good seed, and, when taking the amount received for the crop into consideration, the comparatively small cost of the seed used to engender it. Since this paper is of value to root and vegetable growers alike we shall not attempt, in limited space, to reproduce parts of it here. Mr. McMean's address in full will appear in the following issue of "The Farmer's Advocate."

Relative to the same matter Prof. J. W. Crow, of the Ontario Agricultural College, told of some results obtained by his department, and showed some good photographs to illustrate his remarks. The institution at Guelph has done very well in seed production. They have tested out several varieties and strains obtained from different sources in the Province, and Prof. Crow expressed a desire to co-operate with others in the matter of producing and distributing good seed.

Onion Growing.

An interesting discussion on Onion Growing was led by John Campbell, of Leamington. His words regarding the preparation of the soil, fertilization, seeding and weeding were illustrated by moving pictures taken on his own farm and mentioned in the introduction to this report. In "The Farmer's Advocate" issue of June 15, 1916, a complete story of Mr. Campbell's methods and conditions was printed, and since his remarks to the recent convention were along the same line as told to a representative of this paper in June when at his place and reproduced in these columns, we shall not repeat them here. However, it might be interesting to know that from 26 acres this grower sold 22 carloads of onions this year, for which the gross returns were in the neighborhood of \$18,000. In a carload there are about 600 bushels. One point emphasized by the speaker touches every producer of farm products, and, for that matter, any line. He said: "My product can pass through the hands of the wholesaler and retailer, but I consider that my duty ends only when the last man or the consumer is satisfied." Absolute honesty was emphasized throughout the convention as one of the best stimulants of business that vegetable growers could make use of.

Greenhouse Tomato Growing.

A large percentage of the vegetable growers now have a considerable area of glass. One crop that has been found fairly remunerative when grown in the greenhouse is the tomato, and J. D. Nairn, of Hamilton described his methods in this connection to the growers assembled. The seed is sown about January 1, and the Carter's Sunrise variety is preferred. The plants are transplanted into the ground, no benches being used, 14 inches apart one way and 32 inches the other way. Steel stakes are driven into the ground and the plants made fast to them with raffie previously moistened in a tank of water. After the crop has set a strawy mulch is spread over the ground to conserve the moisture and prevent the dirt being dashed on to the foliage when watering. The over-head system of watering is not recommended in such a case. After 7 or 8 clusters have set the top trusses are snapped off. While many plants will produce 7 or 8 pounds Mr. Nairn is satisfied with an average of 4 pounds per plant, and too large fruits are not desired when tomatoes are selling high. A peculiar blight has attacked the greenhouse tomato of late years, and for which no satisfactory means of control have been discovered. It starts at the top of the plant and works down, but often by clipping off the top as soon as the diseased condition is discovered some fruits may still be matured on the lower trusses. For the white fly he recommended the cyanide treatment, which should be executed on a dark night. He also advised running the boilers sometimes even up till the first of June and providing thorough ventilation.

The Standardization of Vegetables.

C. E. Durst, Urbana, Ill., gave a complete review of the history and troubles connected with the nomenclature of vegetables. Seedsmen, he said, sold the same varieties under different names, and described their stock in such a way as to cause much confusion among growers. He recommended a system whereby their seeds could be tested and new varieties registered in the name of the seedsmen creating or introducing it.

Prof. Crow pointed out that the amount of seeds taken by market gardeners were only a small percentage of the amount sold by a seed-house. Back-lot gardeners, farmers and others took the largest percentage, and well-compiled catalogues were a good medium through which to make sales to these customers. He opined that market gardeners should take the matter into their own hands to some extent, and either grow more of the seed themselves or contract with some house to give them the strains and quality they desired.

Celery.

The production of celery on a large scale was taken up by Chas. Ayer, of Bartonville. His method of producing early celery to be marketed about the first of August is somewhat as follows: The seed is planted in hot-beds about the last week in February. By the last of April the seedlings are transplanted into beds from which a crop of lettuce has been taken. Here the young plants are set 2 to 3 inches apart. Spraying starts as soon as the rough leaves appear, and from then on through the season it is a weekly operation. In the field Paris Golden Yellow is set 6 inches apart in rows 30 inches apart. The hand instead of the dib is used when transplanting, as the former leaves a space at the bottom of the hole which is not filled when the roots have considerable earth on them. Mr. Ayer has muck soil, which makes this method practicable. The crop is bleached with 12-inch boards, which are found preferable to other practices. In preparing the ground for a crop, one-half ton per acre of ground bone is plowed down in the fall, and in the spring a coating of manure, all that can be turned under, is plowed down, which operation brings the bone meal to the top again.

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