CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

DOMINION HORTICULTURAL SUBSTATION

McDONALD'S CORNER
NEW BRUNSWICK

S. A. HILTON, B.S.A. M.Sc. (Agr.)
SUPERINTENDENT

PROGRESS REPORT
1947-1952

Seedling strawberry trials show comparison in vigor and disease resistance.—Left foreground, healthy seedlings. Right foreground, leaf spot.

Published by authority of the Rt. Hon. JAMES G. GARDINER, Minister of Agriculture, Ottawa, Canada.

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DOMINION HORTICULTURAL SUBSTATION
McDONALD'S CORNER, N.B.

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Research Officer, small fruits ..... W. B. COLLINS, B.Sc. (Agr.)

Foreman ..... J. S. APPLEBY

EXPERIMENTAL SUBSTATION, McDONALD'S CORNER, N.B.

INTRODUCTION

The year 1947 saw the opening up of a new Substation at McDonald's Corner, Queens County, New Brunswick. The land area comprises some 160 acres overlooking Lake Washademoak, 60 acres of which are cleared. The remainder of the farm is in forest. It forms a valuable subsidiary to the parent farm, the Fredericton Experimental Station.

The purpose of this Substation is to advance horticultural research in New Brunswick, particularly as it applies to the Grand Lake, Maugerville-Sheffield, Jemseg, Belleisle and Washademoak areas of the province. These areas are located on bodies of water which influence the climate to some extent and are on soils particularly suitable for small fruit and vegetable culture. Of particular interest is the strawberry which is widely grown, but early potatoes, cucumbers, tomatoes and other crops are to be found growing on many farms.

This Substation has now been in operation for six seasons. In that initial period the work has fallen into four phases, namely, land clearing, construction, forestry and research.

Land clearing involved the removal of cross fences, field stone and fast rock, also the cutting and removal of brush and trees around the edges of the fields. Roads were laid out and some 18,000 feet of underdrainage installed.

The building program featured the moving and renovation of three buildings: the farm house, an old community hall and a woodshed. Other old buildings were dismantled. New construction included an office, laboratory, a two-car garage, an implement shed, and electric hotbeds. The Science Service also has a Fruit Insect field laboratory and insectory located on the Substation. Heating, lighting, water and sewage disposal were installed where needed and the grounds landscaped.

A two-acre farm pond was constructed in 1952 to provide water for fire protection and irrigation. This pond is located 600 feet from the farm buildings covering a swampy piece of land fed by springs and a natural watershed.

The forest was blocked off into compartments by the Dominion Forest Service and selective cutting practised from the outset. This provides a valuable demonstration to the farmers of the district in farm woodlot conservation.

The research work at this Substation has gradually assumed its proper proportions until it now constitutes the main work in hand. It lays stress upon those projects which for want of adequate facilities and differing soil and climatic conditions could not have been as successfully carried out at Fredericton. Large strawberry and raspberry cultural trials are already established, as are a great range of variety trials. Irrigation studies are pending.

The report covers the six-year period 1947 to 1952 inclusive and attempts to present in simple form the progress made to date. The writers wish to pay tribute to the former Superintendent of the Fredericton Experimental Station, C. F. Bailey, 1922-1947, who was instrumental in selecting the property on which this Substation is located.

VEGETABLE PRODUCTION

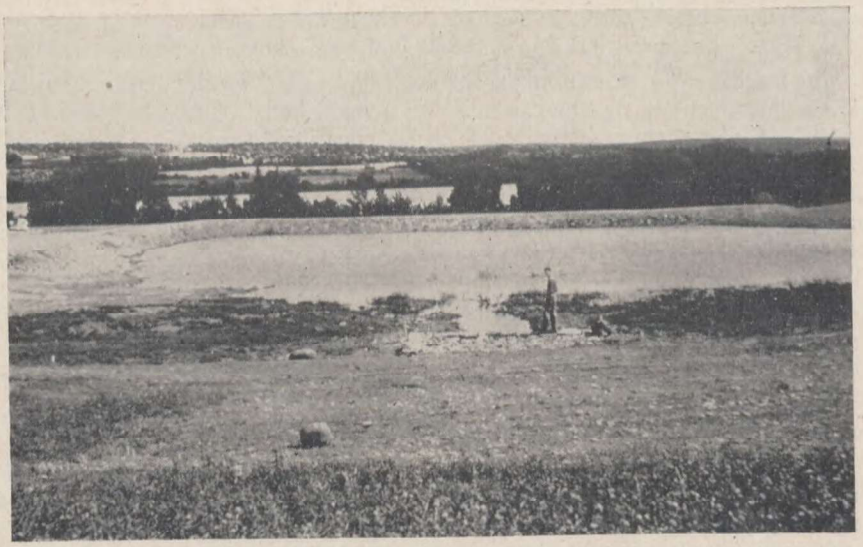
R. G. White

Vegetable variety trials were initiated at this Substation in 1948, one year after the property was purchased. The purpose of this series of projects was to compare the results of similar trials at the Fredericton Experimental Station with those obtained in the Washademoak area of New Brunswick, where the soil type and climate are different. Results, although somewhat similar, vary sufficiently to warrant a separate report.

Tomato Trials

Variety trials with tomatoes make it possible to assess the commercial value of the various tomato varieties as offered by the trade when grown for a ripe- or green-fruit market. To be successful, a variety must yield well, be early maturing, produce fruit of a size that best meets the market demand, be well colored and be free from blemish.

Thirty-nine varieties have been grown since 1948, 16 having been grown in extended trials, the remainder being subjected to only a limited test. A number of these appear well adapted to the area and as such are worthy of mention. Chief among these are Quebec #5, Burpeeana Early Hybrid, Stokesdale #4, Geneva John Baer, Bounty, Victor, Labrador #66, Stokeschatham and Mustang.



A farm pond can be a valuable asset. View of pond constructed at McDonald's Corner Substation in 1952. Picture taken after 6 weeks of drought.

Quebec #5 (59 days) is an early indeterminate type with moderate vine growth and good cropping ability. The fruits are medium sized, slightly flattened, well colored with very few culls. *Burpeeana Early Hybrid* (64 days) is also early and indeterminate, with similar fruit characters. It is a much better cropper of marketable fruit than Quebec #5 but there are more culls to handle and the seed is very expensive.

Stokesdale #4 and *Geneva John Baer* are indeterminate types that ripen some fruit quite early but should really be in a midseason class for this district. They are much more vigorous growers than Quebec #5 and Burpeeana and tend to have dense foliage. *Stokesdale* #4 (59 days) produces large round, attractive fruit, that has some tendency to crack when ripe, but the plants crop well and the variety has been useful for a green-tomato trade. *Geneva John Baer* (58 days) bears heavy crops of good size but not large, roundish to slightly flattened fruits. Some cracking will occur.

The varieties *Bounty, Victor and Labrador #66* are now quite well known as large fruited determinate types with compact growing plants that have proved their worth because they are early and have the ability to turn out profitable crops of ripe fruit. They also serve the green-fruit trade. Of late they have been faulted for their tendency to grow too large, with the result that smaller fruiting types are gaining popularity over them.

Of more recent origin are Stokeschatham and Mustang, which after two years' trial appear early and productive. *Stokeschatham* (66 days) is a semi-determinate midseason type with medium to good sized, slightly flattened fruits. It is an outstanding cropper that turns out plenty of marketable fruits. Approximately 85 per cent of the ripe fruits are saleable. *Mustang* (60 days) is an early determinate type with compact vines, that bear medium sized, somewhat pointed fruits. It seems to be a decided improvement over the Bounty class which grows too large.

Burpeeana Early Hybrid is the best cropper to date and very acceptable as to type of fruit. A second choice would be *Quebec #5*. *Stokeschatham* and *Mustang* would serve well as alternates to these two.

Sweet Corn

Sweet corn is another crop that is grown commercially. Here again variety trials help to determine which of the many new varieties being put out by the seedsmen have qualities superior to those in regular use. To be successful, a variety must have earliness of maturity, cropping ability, attractive ears and quality of kernel.

Thirty-two different varieties or strains have been grown at the Substation since its inception, confining the test to yellow corns. It is now apparent that a number of these will do well in the area concerned, the majority being early maturing. They may be classified into two general types, those with slender ears and large plump types. The latter have been the most popular to date but the slender eared sorts are assuming greater importance. Seneca 60 (77 days), Priscilla 13-8 (79 days), Dorinny (79 days), Kingcross Bantam TM-13 (85 days), early Hybrid M-13 (86 days), and Vinecross B5 (103 days) are slender eared types that have all done well.

The plump eared types are more numerous. Good results have been obtained with Spancross 13-3 (77 days), Marcross 13-6 (80 days), Golden Rocket (81 days), North Star (82 days), Sugar Prince (82 days), Golden Treasure (85 days), Earligold (85 days), Seneca Golden (86 days), Gold Rush (86 days), Carmelcross 13-30 (87 days), Carmelcross 13-39 (87 days), Seneca Arrow (89 days) and Golden Cross Bantam (97 days). Seneca Arrow, grown for the past two seasons, has been particularly outstanding from the standpoint of yield, appearance and quality.

The overall picture, while not yet clear, shows preference for *Seneca 60, Kingcross Bantam TM-13, Gold Rush* and *Seneca Arrow*.

Snap Beans

Nineteen varieties of snap beans have been under observation since 1949. In that time it has been demonstrated that *Cherokee Wax* has been the most satisfactory variety in the wax pod class, being superior in both early and total yield over all other varieties of its type. It is a round podded bean ready in 58 days, stringless, has good quality and is easy to harvest.

Outstanding green podded varieties are Topcrop, Logan Improved, Improved Commodore and Contender. *Topcrop* (58 days) is a first early that has superseded Cherokee Wax during the first week of the season, but fails to equal it in total yield. The glossy light green pods are round, plump, tender and of good quality.

Logan Improved is a later variety than Topcrop, taking 60 days to mature. It exceeds all the varieties tested for total yield, although the margin between it and Cherokee Wax is not great. The pods are pale green, downy, round, stringless, meaty with good quality. *Improved Commodore* (59 days) is similar in type, slightly earlier, superior to most but does not have quite the cropping ability of Logan Improved. *Contender* (54 days) is a new green pod tried for only one year. The performance of this bean was good enough to merit its being included in this report. It is early, a heavy cropper with long, plump, slightly flattened to round, pale green pods that are tender and tasty.

Garden Peas

A garden pea variety trial has been under way since 1950, the object to date being to determine what varieties of peas would be the most suitable for the fresh-pea trade, canning peas to be a later study.

A satisfactory variety should be early maturing, producing consistently heavy crops, should not require staking, and should have an appealing pod and pea size. Quality too is important. Medium to large podded varieties that contain six to eight or more good sized peas are generally easy to pick and look well in the container. Quality is expressed as a firmness yet tenderness of the peas themselves and a sweet flavour. Home gardeners prefer a variety which holds its quality over a reasonable period of harvest.

Twenty-six varieties have been examined to date, not all for the same number of years. The average yields of shelled peas show the varieties *Little Marvel, Thomas Laxton* and *Alton* to have been the most promising as early peas and *Little Marvel, Director* and *Ottawa PE-1* to have produced the heaviest total yields. *Director* has given a slightly higher three-year average yield than has Little Marvel, but the latter has produced a greater weight of shelled peas since it was introduced into the trial. *Little Marvel* is slightly better for quality than is Director and has less tendency to become overmature on the vines. *Alton* and *Ottawa PE-1* may be somewhat lighter croppers than the other two but are, nevertheless, promising high quality varieties.

STRAWBERRY RESEARCH

W. B. Collins

Strawberry Variety Trials

This project was transferred to McDonald's Corner in 1949, after being carried on for a number of years at Fredericton. It assumes added importance here, in the heart of the strawberry growing belt, as the variety question is one of constant interest to the producer. Senator Dunlap and Premier have been the two most popular varieties in commercial production in New Brunswick This

trial is designed to compare new varieties and seedlings, as available, with these standard varieties in order to assess their suitability for the area and their possible superiority over varieties now grown.

The first trial at McDonald's Corner was set out in the spring of 1949, yielding fruit in 1950. On the basis of yield data available in these three years, 1950 to 1952 inclusive, it is generally apparent that Senator Dunlap has maintained first place so far as yield of fruit is concerned. Only in 1952 was the Dunlap outyielded, because of drought conditions which severely curtailed yields on all midseason and late varieties. Early varieties such as Valentine were able to produce normal yields before drought effects were felt.

The best varieties grown to date from the yield standpoint, include *Senator Dunlap, Dresden, Premier, Valentine,* and *MacKenzie.* None of these, however, is exceptional from the quality standpoint. *Sparkle* and *Temple* are two varieties which have received high praise elsewhere, and which may prove superior here another year when they fruit in the variety trial. New varieties are being brought in at regular intervals, one of which may prove to be the berry for the district.

Cultural Studies With Strawberries

This series of studies is aimed at obtaining information on the cultural needs of the strawberry and introducing practices and materials which will increase yields and reduce the incidence of disease in this crop.

The continuous cropping of many soils in this area to potatoes and strawberries has seriously depleted the soil of organic matter and nutrients. These soils tend to be quite acid in nature. These factors, perhaps coupled with winter injury, are felt to have some bearing on the spread and incidence of strawberry root-rot or black-root disease.

Previous research has indicated that soil-borne plant pathogens may be controlled by the incorporation of fresh organic matter into the soil. A rapid increase in soil microflora is accomplished by this practice, which leads to increased competition for nutrients with the pathogens so that their incidence is reduced. The presence of available carbohydrate is said to be the first necessity for the production of these antibiotic substances in the soil.

Four series of experiments have been initiated as follows: (1) The use of various mulching materials to assess the effect of winter injury on the root-rot disease; (2) Using excess amounts of vegetative material incorporated into the soil as compared with sod as a means of building up the organic-matter content of the soil rapidly; (3) Following various rotations employing green manure crops, as well as standard rotation crops to determine the effect on the strawberry crop and its diseases; (4) A comparison of rates of liming, to assess this as a factor in strawberry production and disease.

The results, compiled to date on these experiments, while not conclusive, indicate some interesting leads.

(1) Strawberry Mulching Studies

Winter mulches play an important role in strawberry production. The problem, as to what material to use for optimum protection and in what amount, is of paramount interest to all growers. These studies were initiated for these reasons, as well as to evaluate the role of adequate winter protection and the subsequent decrease in winter injury in the occurrence of black-root disease.

Oat straw is the most commonly used of all winter mulches, and accordlingly figures prominently in this study. Applications were made at three rates, 1½, 3, and 4½ tons per acre. Three tons per acre is the approximate amount put on by

the average grower. In addition, straw applications at the rate of three tons per acre were made before and after ground temperature reached 20°F. Other materials in use include oats seeded in the fall, evergreen boughs, sawdust and shavings, along with check plots receiving no mulch treatments.

Several points of interest have arisen concerning some of the materials in use. It was found that with oats seeded in the fall, burning of the residue was necessary in the spring to prevent the dead stalks from smothering a proportion of the berry plants. Sawdust and shavings raked off in the spring between the rows very effectively smother weed growth and conserve moisture. They tend, however, to produce very narrow rows as compared with straw mulched plots.

It will be difficult to arrive at a true evaluation of the efficiency of the various materials and the relation of good winter protection to the incidence of disease until the results of several years are available.

(2) Heavy Organic Matter Studies with Strawberries

Seven treatments are employed in a rotation, which calls for three successive years of each treatment, followed by potatoes and two years of strawberries. The treatments are: *chopped hay* and *compost hay* at the rate of six tons per acre, *peat moss* and *sawdust* applied 4" deep, *manure* at 60 tons per acre, and *sod* and *sod limed* treatments. The sod without lime acts as the check treatment. Oats have been seeded on all treatments except sod and sod limed plots to serve as an indicator crop.

The rotations have not been completed and only preliminary results are available. In the final analysis the various treatments when seeded to oats have all produced comparable crops with the exception of the first year when oat yields on sawdust and peat moss treatments were very low. The extremely poor yields on these plots were traced to a nitrogen deficiency, which was corrected by increasing the rate of nitrogen application on these materials. This was effective in bringing their production up to normal standards. Thus with the exception of the first year, yields of oats have been comparable whether analyzed for single years or for the full three years of cropping.

When potatoes have been planted following application of the above materials it has been found that the manure treatments have given significant increases in yields. The remaining treatments have exercised varying effects but no consistent trend has been observable yet.

Soil analyses show that applications of manure and chopped hay have decreased soil acidity whereas sawdust and peat moss have raised it. Manure has increased soil nitrogen and readily available phosphorus. Sawdust and peat moss have decreased the amounts of this latter element, although they have built up the organic-matter content considerably. Full details may be found in Table 1.

Observations made on these plots have indicated that the effectiveness of these treatments has been somewhat nullified by the low pH existing over the area. Soil analysis has borne this out. To overcome this condition applications of a ton of ground limestone per acre are being made to each plot in the first year of the rotation, so that over a period of years the whole experimental area will be limed.

Manure, peat moss, and sawdust appear to be the most effective materials to date and their influence on the strawberry crop should prove interesting.

(3) Rotation Studies With Strawberries

A variety of rotations is employed in this study varying from three to six years in length. In detail they are as follows: Two three-year rotations; one of soybeans, strawberries, strawberries, and one of millet, strawberries, and straw-

ANALYSES OF SOIL SAMPLES OF PLOTS BEFORE AND AFTER RECEIVING TWO YEARS OF HEAVY ORGANIC MATTER TREATMENTS

(All results expressed on an air dry basis)

Treatment	Replicate	pH		Nitrogen (N) %		Organic Matter %		Ratio of Organic Matter to Nitrogen		Base Exchange Capacity m.e./100 gm.		Exchangeable Bases Ca m.e./100 gm.	Mg m.e./100 gm.	K m.e./100 gm.	Base Saturation %	Easily Acid Soluble and Absorbed Phosphorus	
		1949	1952	1949	1952	1949	1952	1949	1952	1949	1952	1949	1949	1949	1949	1949	1952
																p.p.m.	
Sod	1	5·0	5·1	0·21	0·19	4·18	4·46	20:1	23:1	14·8	14·1	2·14	0·40	0·11	17·9	50	40
Sod Limed	1	4·9	5·1	0·16	0·16	3·62	3·87	23:1	24:1	10·1	11·7	1·68	0·20	0·13	19·9	110	90
Chopped Hay	1	4·9	5·2	0·16	0·17	3·60	3·94	23:1	23:1	10·7	11·6	2·03	0·35	0·13	23·5	100	90
Compost Hay	1	5·0	5·1	0·17	0·17	3·34	4·04	20:1	24:1	12·5	11·6	2·14	0·35	0·13	21·0	115	80
Manure	1	4·9	5·4	0·20	0·26	4·14	5·54	21:1	21:1	13·0	15·6	2·75	0·55	0·15	26·5	50	140
Sawdust	1	4·9	4·8	0·18	0·20	3·91	14·09	22:1	70:1	12·4	15·7	2·03	0·25	0·15	19·6	90	70
Peat Moss	1	4·9	4·6	0·18	0·21	3·42	9·42	19:1	45:1	11·0	18·3	2·25	0·40	0·15	23·6	70	75
Sod	2	4·9	4·9	0·18	0·19	3·96	4·49	22:1	24:1	13·5	15·5	1·67	0·20	0·30	16·1	150	170
Sod Limed	2	4·8	5·2	0·19	0·23	4·60	5·47	24:1	20:1	14·5	12·8	2·03	0·20	0·45	18·5	200	210
Chopped Hay	2	4·7	5·0	0·16	0·18	3·45	4·19	22:1	23:1	10·8	14·8	1·46	0·15	0·25	17·2	145	150
Compost Hay	2	4·9	5·3	0·18	0·23	4·29	4·98	24:1	22:1	13·1	12·2	1·82	0·20	0·30	17·7	185	220
Manure	2	4·7	5·3	0·18	0·25	3·73	6·22	21:1	25:1	10·0	16·5	1·60	0·10	0·25	19·5	170	340
Sawdust	2	4·9	4·8	0·16	0·21	3·40	14·24	21:1	68:1	12·0	16·5	1·57	0·10	0·30	16·4	220	140
Peat Moss	2	4·8	4·4	0·19	0·25	4·04	10·48	21:1	42:1	10·7	23·6	1·43	0·15	0·25	17·1	200	140
Sod	3	5·9	5·7	0·18	0·19	4·61	4·51	26:1	24:1	15·2	15·6	5·06	1·59	0·47	46·8	170	140
Sod Limed	3	5·2	5·7	0·21	0·19	4·65	4·40	22:1	23:1	15·4	13·1	4·03	1·19	0·47	36·9	130	130
Chopped Hay	3	5·5	6·2	0·20	0·20	4·42	5·10	22:1	26:1	12·7	15·6	4·89	1·44	0·34	52·5	130	130
Compost Hay	3	6·1	5·8	0·22	0·24	5·21	5·60	24:1	23:1	17·8	13·9	7·10	1·98	0·34	52·9	140	160
Manure	3	5·7	6·1	0·19	0·26	4·44	6·12	23:1	24:1	15·8	15·4	5·00	1·74	0·40	45·2	150	190
Sawdust	3	5·8	5·5	0·19	0·20	4·42	10·42	23:1	52:1	13·0	15·9	5·42	1·54	0·40	56·6	160	100
Peat Moss	3	6·0	4·8	0·19	0·26	4·67	11·15	25:1	43:1	13·7	22·4	5·60	1·74	0·38	56·3	160	100

berries; one four-year, one five-year, and one six-year rotation. The four-year rotation is made up of grain, clover and two years of strawberries; the five-year rotation of three successive years of soybeans followed by strawberries. The six-year rotation consists of grain, clover, timothy, potatoes and two years of strawberries. The soybean and millet crops in these rotations are plowed under before maturity, in keeping with the theory that the incorporation of fresh carbohydrate material promotes the production of antibiotic substances.

A study of strawberry yields on plots following a year each of clover, potatoes, soybeans, and millet indicated no significant differences in yield of ripe fruit. When the various rotations have been completed, it is hoped that there will be information of a conclusive nature to report.

(4) Studies with Limestone on Strawberries

Applications of ground limestone at rates of 500, 1,000, 1,500, and 2,000 pounds per acre are applied previous to the grain crop in a four-year rotation of grain, clover, and two years of strawberries. Unlimed plots serve as checks. It is hoped that this study will yield some information on the optimum amount of lime to apply at any one time, as well as the optimum pH for growth and production of the strawberry crop.

Experimental results are not yet available for the strawberry crop but an analysis of grain and hay yields following lime applications has been made. This has shown that the differences in yield which have occurred, have not yet reached the point of significance. Soil analysis has shown that an application of a ton of limestone per acre on this soil has only raised the pH an average of about 0·4 and at the 500 pound rate about 0·0 to 0·1. This low response to liming may well account for the small responses shown to date on hay and grain yields.

Dependent, of course, on the effect in 1953 of these lime treatments on the strawberry crop, it would seem advisable to repeat these applications until such time as the high rates begin to exercise a deleterious effect on the strawberry crop. When this point is reached the information needed to assess the value of limestone in strawberry production should be available.

Spectrographic Analysis—Strawberries

The disease of strawberries known as strawberry root-rot or black-root has become increasingly important in the economy of strawberry production in New Brunswick, causing heavy losses in some seasons. This disease typically strikes at fruiting time. The plants show no evidence of it in the first year, remain healthy until fruiting time of the second year then become stunted, and the foliage shows red margins with red streaks towards the middle. Leaves and petioles become brown as the plant collapses and dies. The roots are found to be blackened, the cortex peeling readily from the stele which is usually brown in color, but on occasion may be white.

The spectroscope provides one approach to the problem of isolating the cause of this trouble. This instrument is able to determine the concentration of metallic elements present in diseased and healthy plants selected from the same plantation and as such will, it is hoped, provide valuable information on the subject.

The use of this method of analysis was started in 1948 as a co-operative study with the Physics Department of the University of New Brunswick, and has been continued with modifications to the present time. The elements analysed for included: boron, calcium, iron, manganese and magnesium.

The results of analysis indicate that magnesium appears to be in low supply in diseased plants for the samples examined. No clear picture for the other elements is apparent. This would appear to indicate that magnesium is the only one of these elements involved in a manner critical to the growth and health of the strawberry plant.

It is clear that an upset condition does exist in element concentration after a plant contracts this disease. It is more difficult to say whether this is a primary cause of the trouble or whether this upset condition is of a secondary nature resulting from the disease.

Preliminary attempts were made to confirm the role of these elements in the strawberry plant by applying magnesium, calcium and boron in varying amounts both as metallic salts to the soil and as a foliar spray. No appreciable effects were observed at the rates used and further work is necessary to fully indicate their importance in plant health.

BUSH FRUITS

W. B. COLLINS

Raspberries, currants and gooseberries occupy a relatively small place in small fruit production in New Brunswick. They have a definite potential, however, and for this reason a series of trials has been initiated to study their possibilities and culture.

Variety trials have been set out including a number of different varieties for testing under local conditions. Varieties included to date are: *Gooseberries*—Clark, Silvia, Poorman, Fredonia, Ross, Captivator, O-271, O-273, O-274 and O-275. *Black Currants*—Climax, Magnus, Saunders, Crusader, Coronet, and Consort. *Raspberries*—Trent, Muskoka, Rideau, Viking, Ottawa, Madawaska, and Gatineau. These plantings are young and future yields and performance will determine the suitability of the various varieties.

View of buildings, McDonald's Corner Substation—1951.
Apple seedlings in foreground

Raspberries are a more popular fruit and two additional trials dealing with cultural and management methods were started. The first of these involves comparisons of barnyard manure, sawdust, hay, a 9-5-7 fertilizer and annual cover crops as sources of plant food and mulches for this crop. The second employs various management treatments viz. a hedge-row system 2-3 feet wide unthinned and thinned to a 6-inch spacing of canes, a hedge-row system one foot wide unthinned and thinned as above, and plants grown in a hill system.

Information gained from these studies will add considerable knowledge on bush fruit culture in New Brunswick.

TREE FRUITS

R. G. WHITE

Severe winter conditions, and particularly the occurrence of test winters, have limited the production of pears and plums in the main fruit-producing sections of New Brunswick. Plantings were made following the opening of the Substation, to investigate the possibility of profitably growing these fruits in this area.

The plantation now consists of four trees each of 36 varieties of plums and 14 of pears. European, American and hybrid types of plums are included and varieties of both plums and pears were selected as having some possibilities under our conditions.

Two plantings of apples have also been made. The first consists of 112 apple seedlings originating both at Fredericton and Ottawa. These are grown in order to assess their commercial possibilities. The second apple planting is made up of several common varieties on East Malling dwarf rootstocks compared with the same varieties on standard roots.

All trees are young as yet and several have suffered from the depredations of deer. Some of the pear varieties have shown indications of winter injury but this may be due to the damage mentioned above.

ACTIVE PROJECTS

Tree fruit variety trial, (apple, plum, pear).

Bush fruit variety trial, (raspberry, gooseberry, black currant, grape).

Strawberry, variety trial.

Strawberry propagation.

Strawberry cultural studies.

Strawberry mulching studies.

Strawberry Root-rot studies, Spectrographic and Chemical.

Raspberry manurial and mulching studies.

Raspberry pruning and management studies.

Irrigation of horticultural crops, strawberry.

Vegetable variety trial, (corn, pea, snapbean, cucumber, melon, tomato).

Vegetable, date of harvesting cucumbers.

Potato variety trial, early and late.

Chemical weed killers, strawberry.

EDMOND CLOUTIER, C.M.G., O.A., D.S.P.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1954

17940—2½M—11:53