DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

# REPORT OF THE CHIEF SUPERVISOR

J. FIXTER

ON

# THE ILLUSTRATION STATIONS

IN

## ONTARIO, QUEBEC, NEW BRUNSWICK NOVA SCOTIA, and PRINCE EDWARD ISLAND

FOR THE YEAR 1924

Saving labour and lowering cost of production. Two operations in one, rolling and harrowing.

Printed by Authority of the Hon. W. R. Motherwell, Minister of Agriculture, Ottawa, 1925

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1925

# CONTENTS

NEW BRUNSWICK—



NOVA SCOTIA—



PRINCE EDWARD ISLAND—

# ILLUSTRATION STATIONS

IN

**Ontario, Western Quebec, Eastern Quebec, New Brunswick, Nova Scotia and Prince Edward Island**

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## 1924 REPORT OF THE CHIEF SUPERVISOR, JOHN FIXTER

During the past year the division has established twenty new Illustration Stations, and has investigated a number of new districts with the intention of undertaking work there, in the spring of 1925. The number of these Stations has steadily increased from eighty-nine in 1922, to one hundred and twenty-five in 1923, and to one hundred and forty-five in 1924. Eight of these Stations are located in Prince Edward Island, thirteen in Nova Scotia, seventeen in New Brunswick, thirty-eight in Quebec, eight in Ontario, eight in Manitoba, twenty-three in Saskatchewan, sixteen in Alberta and fourteen in British Columbia.

For the collection of data and recording of results which have made possible the following report of the work of the division, the Superintendents of branch Farms and Stations, and Supervisors of Illustration Stations as named below, are responsible:—

| SUPERINTENDENTS | SUPERVISORS |
|---|---|
| Mr. J. A. Clark, Charlottetown, P.E.I. | Mr. F. B. Kinsman, Kentville, N.S. |
| Mr. W. S. Blair, Kentville, N.S. | Mr. T. G. Hetherington, Fredericton, N.B. |
| Mr. C. F. Bailey, Fredericton, N.B. | Mr. J. H. Tremblay, Ste. Anne de la Pocatière, Que. |
| Mr. J. A. Ste. Marie, Ste. Anne de la Pocatière, Que. | Mr. W. L. Chauvin, Ottawa, Ont. |
| Mr. S. Ballantyne, Kapuskasing, Ont. | |

### PRODUCTION AND SALE OF SEED

The use of good seed and the sowing of suitable varieties is being encouraged from the Illustration Stations. New or improved varieties are introduced into the district by growing them first on the illustration fields so as to let the neighbouring farmers see how they perform under their soil and climatic conditions. Any surplus seed is then offered to them at reasonable prices. The sale of seeds has increased materially during the past year, and 20,943 bushels of seed grain, 3,636 bushels of seed potatoes, and 9,399 pounds of grass and clover seed have been sold or exchanged by the different operators.

### LIVE STOCK IMPROVEMENT

The weighing of each cow's milk and the keeping of daily records are practices aimed at on all of the Illustration Stations, where dairying is carried on. The results obtained so far clearly indicate that such a procedure is necessary to successful dairying. In a certain herd worked with, the highest producing

cow in the herd gave 3,891 pounds of milk, the lowest producer 1,836, with a herd average of 3,156 pounds. In another herd the average production was 7,967 pounds of milk with the highest producer giving 11,049 pounds. This shows something of the condition which exists throughout the country, and the possibility of improvement, through such means as the weeding out of the low producers, by better feeding and by the use of good sires from high producing dams. During the past year, thirteen operators purchased such herd sires; in most cases the first pure-breds they have ever had.

### POULTRY WORK

An effort has been made to arouse greater interest in the housing, feeding and breeding of poultry on the Illustration Stations and in the surrounding district. Good laying strains of Barred Rocks are being developed on the Stations so that they will be in a postiion to supply the demands of their neighbours for bred-to-lay poultry and hatching eggs. During the past year, 256 cockerels, 198 pullets and 699 settings of hatching eggs were sold by the Illustration Station operators.

### THE USE OF COMMERCIAL FERTILIZERS

On many farms particularly in the eastern provinces the supply of farmyard manure is insufficient to supply the plant-food requirements of the crops. If satisfactory crops are to be grown some form of fertilizer has to be purchased until the land is back to a fertile condition. Good cultivation with systematic rotation of crop, light application of manure combined with commercial fertilizer seems a possible solution to this poor-land problem. Accordingly, the time and rate of application, and the use of commercial fertilizers singly and in combination with manure is being demonstrated on the Station concerned.

The following table gives this year's results, obtained on potatoes on thirteen Stations in Nova Scotia:—

FERTILIZING FOR POTATO CROP—ILLUSTRATION STATIONS, NOVA SCOTIA

| — | Average yield | Average profit over cost of fertilizer |
|---|---|---|
| | bush. | $ cts. |
| Manure, 20 tons | 193 | 39 66 |
| Manure, 10 tons + 750 lb. 4-8-4 fertilizer | 235 | 57 70 |
| 1,500 lb. 4-8-4 fertilizer | 210 | 54 27 |
| No fertilizer | 105 | |

Other fertilizer demonstrations include the use of nitrate of soda and sulphate of ammonia for top dressing old meadows; and the use of ground limestone.

### PRICES CHARGED WHEN MAKING UP PRODUCTION COSTS

In this report will be found the cost of growing each crop on each Station. In determining these costs, the following charges have been made against them:—

| | |
|---|---|
| Rent of land per acre | Based on value of land at prevailing rate of interest. |
| Horse and manual labour, spray material. | Based on prices in the district. |
| Cost of twine and threshing | |
| Use of machinery | $2 per acre. |
| Manure | $2 per ton. |

COST OF SEED

| — | Ontario | Western Quebec | Eastern Quebec | New Brunswick | Nova Scotia | Prince Edward Island |
|---|---|---|---|---|---|---|
| | $ cts. | $ cts. | $ cts. | $ cts. | $ cts. | $ cts. |
| Oats, Banner (Reg.), per bushel | 1 00 | 1 00 | 1 25 | 1 00 | 1 00 | 0 90 |
| Oats, Banner, per bushel | ..... | ..... | 0 80 | ..... | ..... | ..... |
| Oats, Alaska (Reg.), per bushel | 1 00 | ..... | ..... | ..... | ..... | ..... |
| Wheat, Huron, per bushel | ..... | ..... | 2 00 | 1 50 | ..... | 2 00 |
| Barley, O.A.C. No. 21, per bushel | 1 25 | 1 25 | 1 60 | 1 25 | 1 50 | 1 50 |
| Potatoes (Certified), per bushel | 1 00 | 1 00 | 1 25 | 0 60 | ..... | 1 12 |
| Corn, Leaming, per bushel | 2 25 | 2 25 | ..... | ..... | ..... | ..... |
| Corn, Longfellow, per bushel | 2 60 | 2 60 | 2 50 | 1 50 | ..... | 2 50 |
| Corn, Wisconsin, per bushel | ..... | ..... | 1 90 | ..... | ..... | ..... |
| Vetches, per bushel | ..... | 3 50 | 2 60 | 3 10 | 3 25 | 3 25 |
| Peas, Arthur, per bushel | ..... | 2 75 | 3 25 | 4 00 | 2 60 | 3 00 |
| Sunflowers, per pound | ..... | ..... | 0 09 | 0 10 | ..... | ..... |
| Timothy, per pound | 0 13½ | 0 13½ | 0 14 | 0 14¾ | 0 11½ | 0 13 |
| Red clover, per pound | 0 22 to 0 25 | 0 27 | 0 25 | 0 25 | 0 26½ | 0 23 |
| Alsike, per pound | 0 14 | 0 14 | 0 14 | 0 14½ | 0 16½ | 0 13 |
| Swedes (Halls Westbury, Perfection), per pound | 0 40 | 0 40 | 0 75 | 0 50 | 0 60 | 0 75 |
| Mangels, per pound | 0 40 | 0 40 | ..... | 0 50 | ..... | ..... |

RETURN VALUES

| — | Ontario | Western Quebec | Eastern Quebec | New Brunswick | Nova Scotia | Prince Edward Island |
|---|---|---|---|---|---|---|
| | $ cts. | $ cts. | $ cts. | $ cts. | $ cts. | $ cts. |
| Timothy hay, per ton | 10 00 | 10 00 | 11 00 | 10 00 | ..... | 10 00 |
| Clover hay, per ton | 9 00 | 9 00 | 10 00 | 9 00 | ..... | 10 00 |
| Oat, peas and vetch hay, per ton | ..... | ..... | 10 00 | 8 00 | ..... | 10 00 |
| Oat, straw, per ton | 4 00 | 4 00 | 4 00 | 4 00 | 6 00 | 4 00 |
| Threshed clover, per ton | 5 00 | 5 00 | ..... | ..... | ..... | ..... |
| Corn fodder, dry, per ton | ..... | 7 00 | ..... | 7 00 | ..... | ..... |
| Corn fodder, green, per ton | ..... | ..... | ..... | ..... | ..... | 3 25 |
| Corn ensilage, per ton | 3 50 | 3 50 | 3 50 | 3 50 | ..... | ..... |
| Sunflowers fodder, green, per ton | ..... | ..... | ..... | ..... | ..... | 3 25 |
| Sunflower silage, per ton | ..... | ..... | 3 50 | 3 50 | ..... | ..... |
| Oats, peas and vetch silage, per ton | ..... | ..... | ..... | 3 50 | ..... | ..... |
| Turnips, per ton | 3 00 | 3 00 | 3 00 | 3 00 | ..... | 3 00 |
| Mangels, per ton | ..... | 3 00 | ..... | 3 00 | ..... | ..... |
| Wheat, per bushel | ..... | ..... | 1 60 | 1 25 | ..... | 2 00 |
| Oats, per bushel | 0 75 | 0 75 | 0 75 | 0 75 | ..... | 0 60 |
| Barley, per bushel | ..... | ..... | 0 90 | 0 90 | ..... | 1 00 |
| Potatoes, per bushel | ..... | 0 60 | 0 60 | 0 30 | ..... | 0 30 |
| Red clover seed, per pound | 0 25 | 0 25 | ..... | ..... | ..... | ..... |
| Timothy seed, per pound | ..... | 0 10 | ..... | ..... | ..... | ..... |

The cost of manure is distributed over the crops in the rotation in the following proportions:—

40 per cent is charged to the hoed crop.
30 per cent is charged to the grain crop.
20 per cent is charged to the clover crop.
10 per cent is charged to the timothy hay.

The value of chemical fertilizers is charged to the different crops as follows:—

| | |
|---|---|
| First year | 55 per cent |
| Second year | 30 " |
| Third year | 10 " |
| Fourth year | 5 " |

## REPORT OF THE ILLUSTRATION STATIONS FOR ONTARIO

Seven Illustration Stations are now in operation in Ontario. Two are located in the eastern part of the province, and are supervised by the Supervisor for Western Quebec, and five in Northern Ontario under the supervision of the Superintendent, Experimental Station, Kapuskasing. An additional site has been located and a Station will be in operation at Casselman in 1925.

A brief description of the work under way at each of these Stations, and the yields obtained, are herewith enumerated. It should be borne in mind when considering the progress made on the Stations in Northern Ontario, or in Timiskaming county, that they are located on new land. Some were only broken out of bush last year in preparation for the Station, and others were only ploughed for the second time last fall.

### BOURGET, RUSSELL COUNTY

OPERATOR, NAPOLEON MARTEL

Since starting the work in 1923, a four-year rotation has been in the course of preparation. Seeding was later than usual, the oats not being sown until May 22. Nevertheless, crops came along well and gave remunerative returns with the exception of turnips. The clover seed crop also suffered considerably due to wet weather. Growth was rank and the seed did not fill properly.

The results of the season's work is as follows:—

OPERATIONS AT BOURGET

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ | $ cts. |
| "A" | Clover hay, 1st cut | ..... | June 26 | 2½ tons | 4·07 per ton | 12 32 |
| "B" | Timothy hay | ..... | July 15 | 2¾ tons | 4·54 per ton | 15 01 |
| "C" | Corn, ensilage | June 8 | Sept. 26 | 14 tons | 2·94 per ton | 7 84 |
| "C" | Turnips | June 10 | Nov. 6 | 7 tons | 6·45 per ton | 24 25 |
| "D" | Oats, Banner | May 22 | Aug. 27 | 60 bush | 0·40 per bush | 21 07 |

Live stock raising constitutes the main source of revenue on this farm, with the production of red clover seed as a sideline or cash-crop. The district is well suited to this line of farming due to its proximity to good markets. Clover seed is becoming a widely-grown crop in the district. For the beginner, especially, too much emphasis cannot be placed on the importance of getting the hay crop off early so as to give the seed-crop time to mature. As a rule, it is not safe to delay cutting later than the beginning of the last week in June.

### CURRAN, PRESCOTT COUNTY

OPERATOR, ALDEGE DUPONT

This is the first year that the regular four-year rotation has been in operation at this Station. Fields "A" and "B" were fall ploughed out of meadow, for oats, corn and turnips.

The following table gives the results of the season's work:—

OPERATIONS AT CURRAN

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| "A" | Corn ensilage | June 6 | Sept. 15 | 12 tons | 2 71 per ton | 9 48 |
| "A" | Turnips | June 7 | Oct. 16 | 25 tons | 1 95 per ton | 13 12 |
| "B" | Oats | May 23 | Aug. 26 | 52 bush. | 0 37½ per bush. | 19 56 |
| "C" | Clover hay, 1st cut | | July 1 | 1 ton | 10 13 per ton | —1 13 |
| "C" | Clover seed | | Oct. 3 | 51 lbs. | 0 18 per lb. | 3 69 |
| "D" | Clover hay | | June 30 | 1 ton | 18 74 per ton | —9 74 |

An interesting comparison can be drawn from the returns on fields "C" and "D." Both of these fields were seeded in 1923. From field "C" both a hay and a clover seed-crop was harvested giving a profit from both crops of $2.46 per acre, whereas only a hay crop was taken off field "D" at a loss of $9.74 per acre. This is, undoubtedly, only one of the many instances where a farmer could profitably take up the growing of red clover seed, provided his fields are sufficiently free from weeds to produce a good quality of seed.

## COCHRANE, TIMISKAMING COUNTY

### OPERATOR, E. D. CARRIERE

The area selected for this Station was fall ploughed out of sod. Fields "A," "B" and "C" were in grain in 1924, with the view of establishing a four-year rotation. Fields "B" and "C" were also seeded to grass and clovers at the rate of eight pounds of red clover, two pounds of alsike and ten pounds of timothy per acre. Field "D" was in potatoes and turnips. Due to the lack of certain records, it is impossible to give the cost of producing these two crops.

The yields and costs of growing the cereals were as follows:—

COST AND YIELDS OF CEREALS AT COCHRANE

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost |
|---|---|---|---|---|---|
| | | | | bush. | cts. |
| "A" | Oats, Alaska | May 23 | Sept. 14 | 35 | 52 per bush. |
| "B" | Barley, O.A.C., No. 21 | May 23 | Sept. 20 | 30 | 59 per bush. |
| "C" | Oats, Banner | May 30 | Sept. 27 | 40 | 45 per bush. |

## PORQUIS JUNCTION, TIMISKAMING COUNTY

### OPERATOR, JOHN MACDONALD

Turnips and potatoes were planted on field "A" the hoed crop section of the rotation. Due to unfavourable weather, it was necessary to replant the turnips on July 12; this made the crop late and the yield low. The potato crop was also seriously affected by frost early in August.

The following table gives the yield and cost of the cereal and hay crop:—

HAY AND CEREALS AT PORQUIS JUNCTION

| Field | — | Yield per acre | Cost |
|---|---|---|---|
| | | | $ cts. |
| "B" | Clover hay | 1¼ tons | 6 22 per ton |
| "C" | Clover hay | 1¼ tons | 6 22 per ton |
| "D" | Barley, O.A.C. No. 21 | 29 bush. | 0 38 per bush. |

In a demonstration with Banner and Alaska oats, Banner yielded 39½ bushels and Alaska 43½ bushels per acre. The Alaska ripened considerably the earlier, and was cut on September 9, whereas Banner was not sufficiently ripened to cut until September 29.

## VAL GAGNE, TIMISKAMING COUNTY

OPERATOR, H. LABRECHE

A four-year rotation is in course of preparation on this Station. Field "A" was planted to Irish Cobbler potatoes, Hall's Westbury and Jumbo turnips. The potatoes were quite free from disease and passed field inspection, with the view to certification as seed. As work only started on this Station this year, the lack of certain past records makes it impossible to ascertain the cost of growing the potatoes and turnips.

The yields and cost of growing the cereal crops are as follows:—

CEREALS AT VAL GAGNE

| Field | —— | Yield per acre | Cost per bushel |
|---|---|---|---|
| | | bush. | cts. |
| "B" | Barley, O.A.C. No. 21 | 33½ | 64 |
| "C" | Oats (Registered Banner) | 42 | 50 |
| "D" | Oats, Alaska | 35 | 60 |

It will be noted that the Banner oats on field "C" outyielded the Alaska on field " A." A certain amount of this variation is due to the difference in the condition of the soil. Field "D" was less uniform, containing a number of low, wet spots; thus the seeding of the Alaska was ten days later than the Banner. Even under these unfavourable conditions, the Alaska produced a well-ripened crop of oats.

## MATHESON, TIMISKAMING COUNTY

OPERATOR, WALTER KIRSTINE

This is the first year that Illustration work has been under way in this district. Considerable work of a preparatory nature has been necessary to establish the four-year rotation. Field "B" was in hay and field "D" in potatoes, turnips, and oats, peas and vetches. The season did not prove favourable for potatoes and turnips. Due to the lack of certain records of past work, it was impossible to determine accurately the cost of growing these crops. The yields and cost of growing the cereal were determined and are as follows:—

CEREALS AT MATHESON

| Field | —— | Yield per acre | Cost per bushel |
|---|---|---|---|
| | | bush. | cts. |
| "A" | Oats, Banner (registered) | 55 | 38 |
| "B" | Oats, Alaska | 37½ | 56 |
| "C" | Barley, O.A.C. No. 21 | 27½ | 90 |

## REPORT OF THE ILLUSTRATION STATIONS FOR WESTERN QUEBEC

*W. L. Chauvin, Supervisor*

Seventeen Illustration Stations were in operation in the western part of the province of Quebec in 1924. The late, cold spring delayed seeding considerably. On the heavier type of soil, seeding was not general until from May 21 to 28; on the light soils, operations were under way from a week to ten days earlier. In the district east of Montreal, a dry period followed seeding, which continued until about the middle of July. Considerable wet weather followed, making haying and harvesting difficult. On the whole, it was a hard season in which to get work done at the proper time.

During the season a survey was made of the live stock, poultry and crop conditions on the different Stations to determine the progress that had been made since the last survey in 1921. It was gratifying to find that many operators were keeping daily milk records, pure-bred stock and poultry, growing clover seed and corn, and had silos, all the outcome of four years' Illustration work.

### AUBREY, CHATEAUGUAY COUNTY

OPERATOR, SAMUEL REDDICK

This year's hay crop was the lightest cut on this Station for some time, due to the dry, cold weather during June and early July. The following table gives the results of the season's work:—

OPERATIONS AS AUBREY—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Timothy hay | | July 21 | 2,240 lbs. | 11 85 per ton | —2 07 |
| B | Corn silage | June 4 | Oct. 8 | 16½ tons | 2 45 per ton | 17 33 |
| C | Clover hay | | July 2 | 2,666 lbs. | 12 60 per ton | —4 80 |
| D | Oats, Banner (Reg.) | May 23 | Aug. 28 | 46 bush. 6 lbs. | 0 51 per bush. | 10 65 |

When seeding down field "D" to grasses and clovers, along with a nurse crop of registered Banner oats, an addition of two pounds of alfalfa was made to the regular mixture (eight pounds of red clover, two pounds alsike and ten pounds of timothy) to determine the suitability of alfalfa for these soils. This was an especially opportune time for the conducting of this demonstration, as part of this field received lime in the fall of 1922. It will be possible to note if the growth of alfalfa is promoted by the application of lime to the land. There was no increase in the yield of clover hay this year, on field "C" from the application of one ton of slack lime per acre.

### BASSIN DU LIEVRE, HULL COUNTY

OPERATOR, EDWARD BRADY

In the fall of 1922, ground limestone was applied to part of field "B" at the rate of three tons per acre. This season the limed area gave an increased yield of one-half ton of clover hay per acre (green weight).

The results of the season's work are as follows:—

BASSIN DU LIEVRE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Turnips | June 4 | Oct. 28 | 18 tons | 3 61 per ton | —11 07 |
| A | Corn ensilage | June 9 | Oct. 8 | 16 tons | 3 17 per ton | 5 18 |
| B | Clover hay, 2 cuts | | June 27 | 4,462 lbs. | 7 93 per ton | 2 38 |
| | | | Oct. 21 | | | |
| C | Oats, Banner | May 22 | Aug. 30 | 50 bush. | 0 43 per bush. | 16 00 |
| D | Timothy hay | | July 15 | 3,078 lbs. | 8 60 per ton | 2 10 |

The value of home-grown red clover seed was clearly demonstrated on field "D." When seeding down this field in 1922, a mixture of eight pounds red clover, two pounds of alsike and ten pounds of timothy was used. On one part of the field, commercial red clover was used in the mixture, on another home-grown seed. Although this was the second year for this field to be in hay, it was found in the case of the home-grown seed, that ninety per cent of the crop was red clover; that from the commercial seed contained forty per cent less red clover and yielded a twenty-five per cent lighter crop.

## CAMPBELLS BAY, PONTIAC COUNTY

### OPERATOR, W. J. HAYES & SON

Seeding was earlier on this station than on most others. However, a period of cold, wet weather followed, causing the land to become crusted and hard, with a resulting low germination on the clay portions of the field.

The following table gives the results of the season's work:—

CAMPBELLS BAY—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Timothy hay | | July 27 | 2 tons | 6 22 per ton | 7 56 |
| B | Corn ensilage | June 4 | Sept. 15 | 12 tons | 3 33 per ton | 2 04 |
| C | Oats, Banner | May 9 | Aug. 6 | 56 bush. | 0 36¾ per bush. | 21 63 |
| D | Clover hay | | July 5 | 1¼ tons | 10 60 per ton | — 2 56 |

It has been the practice at this Station in past years to take two crops of clover, the first for hay, the second for seed. This year it was only possible to get the hay crop from field "D." This resulted from buying seed from an outside source with the view of procuring an especially hardy strain of common red. As the crop developed, it was found to be a mammoth red. In this case, as is true of the mammoth red clovers, practically no aftermath formed after the cutting of the hay crop.

During the past year a good start has been made towards the establishment of a pure-bred flock of Barred Rock poultry.

A start has also been made in the improvement of the dairy herd through the keeping of daily milk records, and by using a registered sire with a record.

## JOIETTE, JOLIETTE COUNTY

### OPERATOR, GEORGE E. BAZINET

This is the first year that this Station has been in operation. Fields "A" and "B" were fall ploughed for corn, mixed grain and Banner oats. A four-year rotation is in the course of preparation.

The results of the season's work are as follows:—

OPERATIONS AT JOLIETTE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or loss (—) per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Corn fodder | June 13 | Sept. 4 | 15½ tons | 2 75 per ton | 64 60 |
| A | Mixed grain, hay | June 18 | Aug. 30 | 2⅜ tons | 14 79 per ton | —16 30 |
| B | Oats, Banner | May 28 | Sept. 8 | 18 bush. 13½ lbs. | 0 93⅜ per bush | — 3 31 |
| C | Hay, mixed | | July 19 | 1½ tons | 7 90 per ton | 1 65 |
| D | Hay, mixed | | July 19 | 1½ tons | 7 90 per ton | 1 65 |

## LACHUTE, ARGENTEUIL COUNTY

OPERATOR, S. R. SMITH

The soil at this Station is of a sandy loam nature. Hence it is important to employ such practices as will tend to firm it, making it more retentive of moisture, and to increase its fertility by the seeding of clovers and the application of barnyard manure. In view of these facts, the land for the grain is fall ploughed and well firmed with the roller before seeding. For corn, the land is ploughed shallow in the spring just before planting time, turning under about thirteen tons of manure to the acre. After preparing the seed-bed, the land is rolled and planted. All further cultivation is shallow, to avoid loosening the soil to too great a depth.

The following table gives the results of the season's work:—

OPERATIONS AT LACHUTE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Pasture | | | | | |
| B | Clover hay, 2 cuts | | July 7<br>Sept. 25 | 3½ tons | 6 27 per ton | 8 16 |
| C | Oats, Banner | May 7 | Aug. 20 | 38 bush. | 0 55½ per bush | 7 41 |
| D | Corn ensilage | June 4 | Oct. 1 | 13 tons | 2 66 per ton | 10 85 |

## L'ASSOMPTION, L'ASSOMPTION COUNTY

OPERATOR, HECTOR PAPIN

Prospects were for an early seeding in this district, and land on the Station was prepared and seeding started by May 8, but rain intervened, and it was impossible to resume seeding operations until May 28.

The results of the season's work are as follows:—

OPERATIONS AT L'ASSOMPTION—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Corn ensilage | June 7 | Sept. 18 | 13⅛ tons | 3 66 per ton | — 2 11 |
| A | Turnips | June 7 | Oct. 28 | 36½ tons | 2 97 per ton | 1 09 |
| B | Timothy hay | | July 17 | 2 tons | 7 69 per ton | 4 62 |
| C | Clover hay, 1st cut | | June 28 | 2 1/10 tons | 7 04 per ton | 3 94 |
| C | Clover seed | | Oct. 4 | 39 lbs. | 0 18½ per lb. | 2 53 |
| D | Oats, Banner | May 28 | Sept. 8 | 52 bush. | 0 49 per bush. | 13 52 |

Turnips gave a good yield and proved a profitable crop. The time and method of thinning are important factors, and have a decided effect on the yields obtained. Delayed thinning results in the plants becoming matted in the rows, lowers the yields and increases the cost of growing the crop.

## LAC A LA TORTUE, CHAMPLAIN COUNTY

OPERATOR, S. T. LUPIEN

Corn, turnips and potatoes did very well here this year, considering the sandy nature of the soil. The land was cultivated after harvest in preparation for these crops. Ten tons of manure were applied per acre during the winter. Cutworms gave considerable trouble but were kept under control by the application of poison bran.

The following table gives the results of the season's work:—

OPERATIONS AT LAC A LA TORTUE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Potatoes | May 31 | Oct. 7 | 175 bush. | 0 31 per bush. | 50 75 |
| A | Corn, ensilage | June 4 | Sept. 22 | 10 tons | 2 53 per ton | 9 70 |
| A | Turnips | June 6 | Oct. 31 | 15 tons | 2 30 per ton | 10 50 |
| B | Clover hay | | July 16 | ⅜ tons | 18 38 per ton | — 5 62 |
| C | Timothy hay | | July 17 | 1,400 lbs. | 11 82 per ton | — 1 27 |
| D | Oats, Banner | May 27 | Sept. 15 | 21 bush. | 0 83¾ per bush. | — 1 83 |
| | *Demonstration Test Fields* | | | | | |
| E | Pasture | | | | | |
| F | Oats, Banner | May 29 | Sept. 16 | 22½ bush. | 0 62½ per bush. | 2 86 |
| G | Potatoes | June 14 | Oct. 19 | 83 bush. | 0 49 per bush. | 9 13 |

## PAPINEAUVILLE, LABELLE COUNTY

OPERATOR, OVILA CLEMENT

All crops did exceptionally well here this year and yielded a substantial profit to the operator.

The following table gives the results of the season's work:—

OPERATIONS AT PAPINEAUVILLE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Timothy hay | | July 7 | 4,666 lbs. | 5 94 per ton | 9 46 |
| B | Clover hay, 2 cuts | | June 28 | 3 tons | 6 71 per ton | 6 87 |
| C | Corn (green fodder) | June 12 | Oct. 3 | 15⅜ tons | 3 30 per ton | 56 82 |
| C | Turnips | June 4 | Nov. 4 | 38 tons | 2 21 per ton | 30 02 |
| C | Potatoes | June 5 | Oct. 9 | 322 bush. | 0 28½ per bush. | 102 23 |
| D | Oats, Banner | May 21 | Aug. 14 | 37 bush. | 0 64 per bush. | 4 07 |

In a dairy district such as this, the cost of production data on such crops as corn, turnips and clover should be especially interesting. Two varieties of corn were grown here. Wisconsin No. 7 yielded sixteen tons, and Leaming fourteen and three-eighths tons per acre. Eighteen tons of manure were applied to the fall-ploughed land, and skimmed under in the spring just before planting time. In this way weed growth was checked; the manure was kept close to the surface, and a mellow seed-bed was prepared.

## STE. BRIGIDE, IBERVILLE COUNTY

OPERATOR, ALPHONSE GOINEAU

The results obtained on this Station in corn and turnip growing should encourage their planting by those in the district who are not growing these crops. This Station has been established for four years. During this period corn has given an average yield of thirteen and three-quarter tons per acre, at a cost of $2.17 per ton.

The following table gives the results of the season's work:—

OPERATIONS AT ST. BRIGIDE—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Turnips | May 27 | Oct. 27 | 26½ tons | 1 59½ per ton | 36 88 |
| A | Corn ensilage | May 27 | Sept. 22 | 15⅝ tons | 2 27 per ton | 19 43 |
| B | Clover hay, 2 cuts | | June 26<br>Oct. 8 | 2 7/10 tons | 7 65 per ton | 3 64 |
| C | Timothy hay | | July 21 | 5,333 lbs. | 5 50 per ton | 12 37 |
| C | Timothy seed | | Aug. 5 | 290½ lbs. | 0 03¾ per lb. | 18 15 |
| D | Oats, Banner, Reg. | May 21 | Aug. 25 | 61 bush. | 0 41 per bush. | 20 51 |

Field "D" produced an excellent crop of oats, taking second prize in the Provincial Standing Field Crop Competition. It was sown with registered Banner oats at the rate of 2½ bushels per acre, along with 8 pounds of home-grown red clover seed, 2 pounds of alsike and 10 pounds of timothy.

The clover on field "B" came through the winter in good condition. The first crop was cut on June 26, with the intention of getting a seed crop. However, growth was so rank, due to wet weather, that the clover did not ripen sufficiently to produce a profitable seed crop, hence was cut for hay.

## ST. CASIMIR, PORTNEUF COUNTY

### OPERATOR, ELOI ST. GERMAIN

Corn was not grown to any extent in the district surrounding this Station, three years ago, at the time it was established. Since that time, very satisfactory crops have been obtained on the Station. The yields obtained have demonstrated the possibilities of the crop and have stimulated quite an interest in corn as a crop for the fall and winter feeding of their cattle. The operator erected a stave silo this summer.

The following table gives the results of the season's work:—

OPERATIONS AT ST. CASIMIR—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Oats, Banner | May 24 | Sept. 8 | 49 bush. | 0 40½ per bush. | 16 90 |
| B | Potatoes | May 30 | Oct. 8 | 184 bush. | 0 29½ per bush. | 56 12 |
| B | Corn, ensilage | June 3 | Sept. 23 | 13 tons | 2 89 per ton | 7 93 |
| C | Timothy | | Aug. 5 | 2 tons | 6 58 per ton | 6 84 |
| D | Clover hay | | July 29 | 3 tons | 5 51 per ton | 10 47 |

Care should be taken to select the warmest and best drained soils on the farm when first attempting to grow corn, especially if difficulty has been experienced in getting a satisfactory crop in the district. Failure is sure to result from planting on cold or wet soils. Then again, the timeliness and kind of cultivation carried on are important considerations in successful corn growing. It is found that the roots and rootlets form very close to the surface of the soil and extend outward in a lateral direction, in the early stages of growth of the plant. Thus it can be seen if the cultivation at this time is deep and close to the plant, many of these will be cut off and growth correspondingly delayed.

## ST. CLET, SOULANGES COUNTY

### Operator, Louis Besner

This Station has again functioned successfully as a seed-producing centre. It will be noted that potatoes, Banner oats, red clover and timothy seed have proven profitable lines on this farm.

The following table gives the results of the season's work:—

Operations at St. Clet—Four-Year Rotation

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Clover hay, 1st cut | | June 24 | ½ ton | 16 50 per ton | — 5 25 |
| A | Clover seed | | Sept. 29 | 95 lbs. | 0 14½ per lb. | 10 21 |
| B | Oats, Banner | May 22 | Sept. 16 | 59 bush. | 0 45¾ per bush. | 17 25 |
| C | Corn ensilage | June 7 | Oct. 6 | 13 tons | 3 62 per ton | — 1 56 |
| C | Potatoes | June 12 | Oct. 8 | 125 bush. | 0 54 per bush. | 7 50 |
| D | Timothy hay | | Jul. 15 | 1 ton | 14 95 per ton | — 4 95 |
| D | Timothy seed | | Aug. 10 | 200 lbs. | 0 07 per lb. | 6 25 |

One thousand and twenty-five pounds of common red clover seed was produced this year, grading No. 1. Under general practice it frequently happens that the grade is lowered through the presence of weed seeds. In such a case, it is possible to improve the grade, also the sale price, by proper cleaning. "Seed Branch, Pamphlet No. 1," takes up this subject very fully, suggesting the method of procedure, and the proper sieves to use. This publication is available on application to the Publications Branch, Department of Agriculture, Ottawa.

## ST. CONSTANT, LAPRAIRIE COUNTY

### Operator, Roch Boulé

Crops were very much below the average this year, largely due to the lack of rain during June and early July.

The following table gives the results of the season's work:—

Operations at St. Constant—Four-Year Rotation

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Potatoes | June 5 | Oct. 9 | 150 bush. | 0 72 per bush. | —18 00 |
| A | Turnips | June 5 | Oct. 23 | 11¾ tons | 6 57 per ton | —18 95 |
| A | Corn, dry fodder | June 6 | Sept. 26 | 5½ tons | 6 81 per ton | 1 00 |
| B | Oats, Banner | May 21 | Sept. 8 | 29 bush. | 0 84¾ per bush. | — 2 82 |
| C | Timothy hay | | July 22 | ¾ ton | 15 45 per ton | — 4 08 |
| D | Clover hay | | June 28 | ¾ ton | 21 10 per ton | — 9 07 |

A start has been made in the keeping of pure-bred poultry. A flock of sixteen Barred Rock pullets will form the breeding pen for the coming spring. Daily records are also being kept of the milk produced by each animal in the dairy herd, with the view of carrying on systematic selecting and breeding work.

## ST. ETIENNE DES GRES, ST. MAURICE COUNTY

### Operator, Theodore Bournival

Growth has been satisfactory at this Station, considering the sandy nature of the soil. Timely and carefully performed work, accompanied by good growing conditions, has materially influenced these satisfactory results.

The following table gives the results of the season's work:—

OPERATIONS AT ST. ETIENNE DES GRES—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Potatoes | May 17 | Sept. 29 | 181 bush. | 0 30 per bush. | 54 30 |
| A | Corn, Canadian | May 20 | Oct. 3 | 6 tons | 3 82 per ton | |
| A | Corn, Longfellow | June 4 | Sept. 16 | 8 tons | 3 00 per ton | 22 00 |
| A | Turnips | May 31 | Oct. 22 | 17 tons | 2 83 per ton | 2 89 |
| B | Clover hay | | July 20 | 1 ton | 11 62 per ton | — 2 69 |
| C | Oats, Banner | May 22 | Aug. 25 | 27 bush. | 0 59 per bush. | 4 08 |
| D | Timothy hay | | July 21 | 1¼ tons | 6 53 per ton | 4 33 |

The potatoes on field "A," it will be noted, gave a very profitable return. These were produced from certified Green Mountain or disease-free stock. There are a number of diseases, such as, blight, mosaic, black leg, which attack potatoes causing a considerable reduction in yields. These diseases are transmitted through the seed to succeeding crops. It is, therefore, important to plant only seed from disease-free stock, and to keep them separate from other potatoes which would serve as a means of contamination.

## ST. JEROME, TERREBONNE COUNTY

### OPERATOR, WILFRID GUAY

Seasonal conditions were quite variable in this district. Slight damage to crops resulted from a light frost, on June 30. Crops, however, quickly recovered, and on the whole gave remunerative returns. The cool season affected the corn which yielded considerably below the average.

The following table gives the results of the season's work:—

OPERATIONS AT ST. JEROME—FOUR-YEAR ROTATION

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Clover hay, 2 cuts | | June 30<br>Oct. 15 | 2½ tons | 7 60 per ton | 3 50 |
| B | Timothy hay | | July 21 | 2 tons | 7 19 per ton | 5 62 |
| C | Oats, Banner | June 4 | Sept. 15 | 38 bush. | 0 60½ per bush | 5 51 |
| D | Potatoes, Reg. Green Mountain | June 13 | Oct. 10 | 330 bush. | 0 25½ per bush. | 114 67 |
| D | Potatoes, Eureka | June 19 | Oct. 9 | 230 bush. | 0 39 per bush. | 48 30 |
| D | Corn, Fodder | June 21 | Sept. 30 | 8½ tons | 4 76 per ton | 19 04 |
| D | Turnips | June 18 | Oct. 28 | 25⅔ tons | 2 04 per ton | 24 36 |

The different branches of farming are now becoming very well organized here. A flock of a good laying strain of pure-bred Barred Rock poultry has been established.

A start has been made in the keeping of Ayrshire cattle. Through the use of good sires and by keeping daily milk records, it is possible to weed out the low producers, and effectively improve the herd. At the present time, when feeds are expensive, it is bad business to keep cows that only give thirty-five hundred pounds of milk per year. Many are housing such animals but do not know it. The keeping of daily milk records is, therefore, to be recommended as a highly commendable practice.

## STE. JULIE, VERCHERE COUNTY

### Operator, Henri Delorme

With the exception of mangels, all crops returned a profit over and above labour and overhead charges. Mangels failed to germinate on the first seeding, necessitating reseeding. Thus, the crop was delayed.

The following table gives the results of the season's work:—

Operations at Ste. Julie—Four-Year Rotation

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Clover hay, 2 cuts | | June 30<br>Sept. 24 | 2 tons | 8 30 per ton | 1 40 |
| B | Mangels | May 23<br>June 14 | Oct. 7 | 26½ tons | 3 90 per ton | —23 85 |
| B | Corn, Ensilage | June 6 | Sept. 15 | 12⅝ tons | 2 91 per ton | 7 44 |
| C | Timothy hay | | July 28 | 2½ tons | 5 79 per ton | 9 26 |
| D | Oats, Banner | May 20 | Aug. 26 | 40 bush. | 0 44 per bush. | 12 40 |

Field "D" was sown to Banner oats. Prior to seeding the oats were sprinkled with a formalin solution to control loose smut. This solution was made in the proportion of one pint of formalin to forty gallons of water. When following this method, the grain is piled in a heap on a clean barn floor, sprinkled with the formalin solution, and shovelled about until thoroughly moistened. It is then put in a pile and covered with sacks for two hours, then spread out in a thin layer, to dry.

## ST. SIMON, BAGOT COUNTY

### Operator, Donat Rivard

The work on this Station shows progress. The crops have been produced at a profit, and an effort is being made to feed them to good stock. Ayrshire cattle, Barred Rock poultry, registered Banner oats and red clover seed, are lines receiving special attention.

The following table gives the results of the season's work:—

Operations at St. Simon—Four-Year Rotation

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Timothy hay | | July 21 | 1⅜ tons | 9 92 per ton | 0 11 |
| B | Oats, Reg. Banner | May 23 | Sept. 1 | 47½ bush. | 0 45 per bush. | 14 32 |
| C | Turnips | May 23 | Oct. 23 | 26 tons | 1 85 per ton | 29 90 |
| C | Corn ensilage | June 5 | Sept. 27 | 12 tons | 3 41 per ton | 1 08 |
| D | Clover hay, 1st cut | | June 20 | 1 3/20 tons | 7 12 per ton | 2 16 |
| D | Clover seed | | Oct 7 | 78½ lbs. | 0 09¼ per lb. | 12 36 |

The time of cutting timothy hay is an important consideration in this district, in view of its being quite a hay county. The state at which timothy is cut affects the yield, palatability, ease of curing and amount of next crop. It is claimed that early cutting tends to weaken the roots and to lessen the next year's crop, although the digestibility of hay is greatest in the youngest stages. Everything considered the time recommended for cutting timothy hay is shortly after the anthers have fallen, and not later than when the seed is in the dough stage.

## STANBRIDGE EAST, MISSISQUOI COUNTY

OPERATOR, C. S. MOORE

It will be noted that two four-year rotations are established on this Station, the one tile drained and the other surface drained.

The following table gives the results of the season's work:—

OPERATIONS AT STANBRIDGE EAST—FOUR-YEAR ROTATION ON TILE-DRAINED LAND

| Field | — | Date of seeding | Date of harvesting | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|
| | | | | | $ cts. | $ cts. |
| A | Clover hay, 2 cuts | | July 14<br>Oct. 10 | 2 3/10 tons | 7 91 per ton | 2 50 |
| B | Oats, Banner | May 20 | Aug. 27 | 43 bush. | 0 50 per bush. | 10 75 |
| C | Turnips | May 29 | Oct. 23 | 21⅓ tons | 2 21 per ton | 16 98 |
| C | Corn fodder | June 3 | Sept. 22 | 14½ tons | 2 43½ per ton | 66 19 |
| D | Timothy hay | | July 21 | 2⅞ tons | 6 05 per ton | 9 69 |
| | *Surface-Drained Land* | | | | | |
| E | Timothy hay | | July 18 | 1 13/20 tons | 11 05 per ton | —1 73 |
| F | Corn, fodder | June 5 | Sept. 22 | 13½ tons | 2 52 per ton | 60 48 |
| G | Oats, Banner | May 21 | Aug. 25 | 33 bush. | 0 67 per bush. | 2 64 |
| H | Clover hay, 2 cuts | | July 17<br>Oct. 9 | 2¼ tons | 8 64 per ton | 0 81 |

With all systems of drainage, precautions should be taken to provide good outlets. Water furrows must be carefully cleaned out after ploughing, otherwise water will pack up and remain on the field longer than necessary. Neglect in these details often delays seeding several days. In under-drainage systems, the outlets should be regularly inspected to see that there is no obstruction at the mouth of the tile. If these become blocked, the tile soon fills with sediment.

The following table gives the five-year average yields obtained from the different crops on the under-drained and surface-drained rotation, also the increase in yield from tile-drainage:—

SUB-SURFACE AND SURFACE DRAINS

| Crop | Yields under-drained rotation | Yields surface-drained rotation | Increased yields due to under-drainage |
|---|---|---|---|
| Corn | 11¼ tons | 8¼ tons | 3 tons |
| Oats, Banner | 43 bushels | 31 bushels | 12 bushels |
| Clover hay | 4,433 pounds | 3,653 pounds | 780 pounds |
| Timothy hay | 3,486 pounds | 2,840 pounds | 646 pounds |

## REPORT OF THE ILLUSTRATION STATIONS FOR EASTERN QUEBEC

*J. H. Tremblay, B.S.A., Supervisor*

In this report, a detailed statement will be found of the various crop yields with their cost of production for the eighteen Illustration Stations in Eastern Quebec.

In addition to the work carried out on the eighteen Stations mentioned several new districts were investigated, with the result that three new Stations will be located at the following places:—

Notre Dame de Ham, Wolfe County, on the farm owned by Mr. Pierre Toupin.

St. Apollinaire, Lotbiniere County, on the farm owned by Mr. Jos. Cote.

St. Honore, Temiscouata County, on the farm owned by Mr. Jos. Deschesnes.

These Stations will begin operations in the spring of 1925.

## Seasonal Conditions

The spring of 1924 being cold and late, practically no grain was sown in Eastern Quebec, before the fifteenth of May. Seeding was not general until from May 15 to June 1. The hoed crops were sown during the first ten days of June.

Although seeding was late, favourable weather conditions followed. On the whole satisfactory yields were obtained.

## Increasing Yields Since 1920

In order to illustrate the progress made despite the more or less unfavourable weather conditions, the following table indicates the general and gradual increase of yields on the Illustration Stations in Eastern Quebec, since 1920.

Increase in Yields on Illustration Stations*

| Year | Number of Stations | Potatoes | Turnips | Corn | Oats | Clover | Timothy |
|---|---|---|---|---|---|---|---|
| | | bush. | tons lbs. | tons lbs. | bush. | tons lbs. | tons lbs. |
| 1920 | 6 | 136 | 14 1,600 | 16 1,333 | 43 | 1 1,240 | 1 1,150 |
| 1921 | 8 | 199 | 24 1,860 | 15 400 | 44½ | 1 1,440 | 1 833 |
| 1922 | 10 | 215 | 23 1,260 | 16 532 | 50⅝ | 1 1,711 | 1 1,237 |
| 1923 | 12 | 239 | 23 1,540 | 14 160 | 61 | 1 1,205 | 1 943 |
| 1924 | 13 | 256 | 24 .. | 15 1,460 | 62 | 1 1,900 | 1 1,936 |

*Yields are on acre basis.

It will be noted by the above table that there is a general increase of yields due to the improvement of the soil conditions resulting from the systematic four-year rotation which is followed on these stations, by the use of well-selected seed and good cultural methods. It happens that there is a slight decrease of yield in some cases caused partially by the weather conditions and by including new Stations when computing the figures for the accompanying table.

## Poultry

The improvement work in 1923 was intensified in 1924 on all the Illustration Stations. A number of operators purchased four settings of Barred Plymouth Rock eggs from the Experimental Station, Ste. Anne de la Pocatière, with the result that after the culling was made by the officers of the Poultry Division a total of 268 high-grade bred-to-lay pullets remains on fourteen stations. This constitutes the foundation from which they will establish pure-bred flocks.

The operators of the above Illustration Stations co-operate with the Experimental Farm, Ste. Anne de la Pocatière, and have secured high quality male birds to mate with their own birds reared and selected from bred-to-lay stock. Many will be able to supply hatching eggs and breeding stock, of quality to farmers in their particular districts, at reasonable prices.

### Milk Records

The weighing of each cow's milk is an established practice on every Illustration Station in eastern Quebec. There are too many cows that do not produce sufficient milk to pay for their feed. By weighing the milk in this way, each operator determines the lowest producers in his herd, and realizes more strikingly the importance of disposing of them. It will be interesting to follow up the records of production for several years and find out the increase from year to year.

The average milk production per cow of the thirteen herds reported below is 5,245 pounds. This is much better than the average production of cows in Canada and greater improvements are still expected within a few years.

Realizing that more milk could be produced by more intelligent feeding and breeding, we have induced five of our operators to purchase pure-bred sires, with dairy record qualifications, to head their herd. It is hoped that other operators will follow this procedure as soon as feasible.

The milk production of the herds where dairy records were kept last year is given below. The average milk production per herd is given as well as the record of the lowest and highest cow in each herd.

Milk Production on the Illustration Stations

| Stations | Breed | Average number of days in milk | Number of cows | Total herd production | Average production per cow | Lowest cow production | Highest cow production |
|---|---|---|---|---|---|---|---|
| | | | | lb. | lb. | lb. | lb. |
| Jonquiere | Hol. | 254 | 11 | 87,638 | 7,967 | 5,285 | 11,049 |
| Montmagny | Ayr. | 289 | 9 | 63,645 | 7,071 | 5,390 | 9,259 |
| Plessisville | Gr. Short horn. | 268 | 11 | 70,248 | 6,386 | 5,129 | 10,003 |
| St. Michel | Ayr. | 280 | 4 | 25,045 | 6,261 | 5,619 | 7,875 |
| St. Leonard d'Aston | Ayr. | 277·5 | 11 | 67,496 | 6,136 | 3,639 | 8,374 |
| Bromptonville | Ayr. | 284 | 16 | 85,377 | 5,336 | 3,240 | 7,886 |
| Matane | Grade. | 276 | 4 | 20,723 | 5,180 | 3,633 | 6,080 |
| Little Cascapedia | Grade. | 278 | 8 | 37,741 | 4,717 | 3,428 | 5,192 |
| Weedon | Grade. | 268 | 9 | 41,933 | 4,659 | 3,110 | 6,747 |
| St. Jules | Grade. | 290 | 9 | 38,377 | 4,264 | 2,813 | 5,539 |
| St. Fabien | Grade. | 276 | 14 | 58,940 | 4,210 | 2,777 | 5,580 |
| St. Andre | Grade. | 267 | 11 | 43,757 | 3,978 | 2,813 | 4,697 |
| Isle Verte | Grade. | 284 | 13 | 41,037 | 3,156 | 1,836 | 3,891 |

Studying the above records, the great possibility for herd improvement will be seen. It will be noted that there is a difference of over 4,000 pounds of milk between the best and the poorest herd. Others have their herd averages lessened by the keeping of cows of exceedingly low production. The operators are to be complimented for the keeping of the milk records for the entire year and it is to be hoped that their example will be followed by the neighbouring farmers. The keeping of milk records is, as a rule, an incentive to better feeding and breeding.

## BAIE ST. PAUL, CHARLEVOIX COUNTY

### Operator, Johnny Larouche

Field "A" was seeded with clover and timothy in the spring of 1923. However, all the young plants were dried out during the exceedingly dry summer which followed. Consequently this field had to be reploughed in the spring of 1924 and sown with peas, oats and vetches, to which was added a second seeding of clover and timothy. The crop harvested was very satisfactory, yielding 4 tons of hay per acre.

The turnips show an increased yield of 11 tons per acre over that obtained in 1923.

A commercial fertilizer test was made with the turnips; part of the field received manure alone, part manure at the same rate in addition to the following fertilizers, 300 pounds acid phosphate, 75 pounds muriate of potash, 100 pounds nitrate of soda, per acre.

The soil on which this demonstration was conducted is a heavy loam. An increased yield of 6 tons per acre was obtained, as shown in the following table:—

OPERATIONS AT BAIE ST. PAUL—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats, peas and vetch hay | 4 tons | 9 46 per ton | 2 16 |
| B | Timothy hay | 1 ton | 14 40 per ton | —3 40 |
| C | Turnips, fertilized | 26 tons | 3 53 per ton | —13 78 |
| C | Turnips, non-fertilized | 20 tons | 4 46 per ton | —29 20 |
| D | Oats, Banner | 82 bushels | 0 40 per bush. | 28 70 |

## BROMPTONVILLE, RICHMOND COUNTY

### OPERATOR, VERTUME MESSIER

The soil on this Station is a mixture of sand and clay, moderately fertile. Although it is in only the second year of operation, the four-year rotation is now well under way and satisfactory results have been obtained.

The farmers in the neighbourhood have shown themselves interested in the work of the Illustration Station. A turnip-growing contest was organized in this parish, and three field meetings were held in June in the different sections, to show the farmers the best way to thin and cultivate turnips. As a result of this contest, thirty-one contestants produced approximately 450 tons of turnips.

OPERATIONS AT BROMPTONVILLE—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Corn ensilage | 20 tons | 2 60 per ton | 18 00 |
| A | Turnips | 39 tons | 1 34 per ton | 64 74 |
| B | Clover hay | 1½ tons | 11 99 per ton | —2 40 |
| C | Clover hay | 1½ tons | 11 99 per ton | —2 49 |
| D | Oats, Banner (Reg.) | 76 bushels | 0 37 per bush. | 28 88 |

## ISLE VERTE, TEMISCOUATA COUNTY

### OPERATOR, ALFRED MICHAUD

Considering the very sandy soil on this Station and its lack of plant food, satisfactory results have been obtained during the past year. This is the first year that a good clover crop has been harvested, and although the yield of hay was not heavy, a good aftermath was left on the fields to enrich the soil in humus. The results of the rotation area are as follows:—

OPERATIONS AT ISLE VERTE—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Clover hay | 1 ton | 15 05 per ton | −5 05 |
| B | Clover hay | 1 ton | 15 05 per ton | −5 05 |
| C | Oats, Banner (Reg.) | 25 bush. | 0 78 per bush. | −0 75 |
| D | Potatoes (marketable) | 165 bush. | 0 29 per bush. | 51 15 |
| | Potatoes (small) | 55 bush. | ..... | 13 75 |

## JONQUIERE, CHICOUTIMI COUNTY

### OPERATOR, EMILE BRASSARD

During the year a turnip-growing contest was organized at this place, in which ten farmers competed. As a result, approximately 75 tons of turnips were harvested. The total yield might have been much higher had it not been that this was a first trial in turnip growing. By continuing the contest, a few more years, much better results should be obtained.

OPERATIONS AT JONQUIERE—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Turnips | 20 tons | 3 49 per ton | −9 80 |
| A | Oats, peas, vetch hay | 3 tons | 13 55 per ton | −10 65 |
| B | Timothy hay | 2 tons 1,700 lb. | 6 75 per ton | 12 11 |
| C | Clover hay | 3 tons | 7 43 per ton. | 7 71 |
| D | Wheat, Marquis | 21 bush. | 1 34 per bush. | 5 46 |
| | Wheat, Huron | 24 bush. | 1 19 per bush. | 9 84 |

## LITTLE CASCAPEDIA, BONAVENTURE COUNTY

### OPERATOR, JOHN B. CYR

There was a break in the regular rotation during the present year. The clover and timothy which had been sown on field "C" in the spring of 1923, perished during that summer owing to the extreme dry weather. Consequently, field "C" which should have been in clover hay this year, was sown with oats, peas and vetches, and reseeded with the regular grass and clover seed mixture.

OPERATIONS AT LITTLE CASCAPEDIA—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Potatoes (marketable) | 279 bush. | 0 22½ per bush. | 104 16 |
| A | Potatoes (small) | 93 bush. | ..... | 23 25 |
| A | Turnips | 28 tons | 2 32 per ton. | 19 04 |
| B | Timothy hay | 2 tons | 7 93 per ton | 6 14 |
| C | Oats, peas and vetch hay | 4 tons | 6 23 per ton | 15 08 |
| D | Oats, Banner (Reg.) | 88 bush. | 0 24 per bush. | 44 88 |

GROUND LIMESTONE FOR HAY PRODUCTION

In the fall of 1923, field "D" which had been in hoed crops, was divided into five plots. An application of ground limestone at the rate of 3 tons per acre was made on two of them; the three others were used as check plots. The whole field was fall ploughed. In the spring of 1924, it was sown to Banner oats along with clover and timothy. No difference whatever appeared in the growth of the oats on the various plots, but there was a noticeable difference in favour of the lime in the growth of the young clover plants.

## MATANE, MATANE COUNTY

### OPERATOR, MICHEL PHILIBERT

Although the soil was exceedingly poor at this place when operations started in 1921, there is a steady improvement in the yields from year to year.

An experiment has been conducted this year with commercial fertilizers on turnips. Part of the field received barnyard manure only, the remainder manure and 300 pounds acid phosphate, 75 pounds of muriate of potash per acre. The results are to be found in the table following.

OPERATIONS AT MATANE—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Clover hay | 1¼ tons | 9 72 per ton | 0 50 |
| B | Oats, Banner (Reg.) | 77 bush. | 0 32 per bush. | 33 11 |
| C | Potatoes (marketable) | 200 bush. | 0 33 per bush. | 52 50 |
| | Potatoes (small) | 50 bush. | ..... | 12 50 |
| C | Turnips (fertilized) | 16 tons | 4 22 per ton | —19 52 |
| C | Turnips (non-fertilized) | 13 tons | 4 96 per ton | —25 48 |
| D | Timothy hay | 1½ tons | 9 20 per ton | 2 70 |

## METABETCHOUAN, LAC ST. JEAN COUNTY

### OPERATOR, LOUIS HUDON

The weather conditions were unfavourable for crops in this particular district. The grain and hoed crops suffered from the excessive rains, which kept the soil supersaturated with water and checked all growth.

This Station began operating in the spring of 1923, and it is hoped that with good methods of cultivation, the soil conditions will be greatly improved.

The results of the season's work are as follows:—

OPERATIONS AT METABETCHOUAN—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy hay | 2½ tons | 6 64 per ton | 10 90 |
| B | Clover hay | 2⅜ tons | 8 54 per ton | 3 36 |
| C | Wheat, Huron | 14 bush. | 1 78 per bush. | —2 52 |
| C | Wheat, Marquis | 12 bush. | 2 08 per bush. | —5 76 |
| D | Potatoes (merketable) | 60 bush. | 1 01 per bush. | —24 60 |
| D | Potatoes (small) | 15 bush. | ..... | 3 75 |

## MONTMAGNY, MONTMAGNY COUNTY

OPERATOR, G. F. FOURNIER

In addition to the continuous efforts made to improve the methods of cultivation, attention is given to the herds of dairy cows on the various Illustration Stations. Mr. Fournier entered five of his pure-bred Ayrshire cows in the Record of Performance, Class "B," and at present two of those cows have given the necessary quantities of milk to qualify, which is over 8,500 pounds of milk in 305 days. Their official production will be given in the 1925 report.

It will be noticed in the report of crop production, which follows, that there has been a break in the regular rotation, caused by the exceedingly dry weather, which occurred during the growing season of 1923. The young clover plants on the newly-seeded field were completely dried out. Consequently, field "C" had to be resown with grain, grasses and clovers in 1924. Field "A" had to be sown to turnips twice, as the turnip fly and cut worms destroyed all the young plants as they appeared. After this, Hungarian millet was sown and gave a very satisfactory crop, being used as green feed.

The oats were sown on June 4 and harvested on September 16 and 17, giving a heavy yield. Charlottetown No. 80 barley was sown on June 20 and harvested on October 10.

The results from these areas are given below:—

OPERATIONS AT MONTMAGNY—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Hungarian millet | Fed green. | | |
| B | Timothy hay | 2 tons | 6 27 per ton | 9 46 |
| C | Banner oats, Sel. 44 | 81 bush. | 0 26 per bush. | 39 69 |
| | Charlottetown barley | 32 bush. | 0 75 per bush. | 4 80 |
| D | Banner oats, 44 | 70 bush. | 0 36 per bush. | 27 30 |

## PASPEBIAC WEST, BONAVENTURE COUNTY

OPERATOR, E. M. LEGALLAIS

The results obtained at this Station have been quite satisfactory. The introduction of better methods of cultivation has brought increased yields. This fact can be gathered from the comparative yields tabulated below:—

| Crop | Yield per acre | |
|---|---|---|
| | Year 1917 | Year 1924 |
| | bush. | bush. |
| Potatoes | 110 | 360 |
| Oats, Banner | 31 | 52½ |

The average yields for the three first years that this Station was in operation (1917-18-19) will be found below, in comparison with the average yields of the three last years, (1922-23-24):—

| —— | Three first years | Three last years |
|---|---|---|
| Potatoes | 235 bush. per acre | 346 bush. per acre |
| Oats | 46 bush. per acre | 56 bush. per acre. |

The above statement shows clearly the necessity of a systematic rotation, the importance of after-harvest cultivation and of sowing nothing but well-selected seed. The following table gives the results of the season's work:—

OPERATIONS AT PASPEBIAC—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy hay | 1½ tons | 7 76 per ton | 4 86 |
| B | Clover hay | 1 ton | 14 09 per ton | −4 09 |
| C | Oats, Banner, Reg | 52 bush. | 0 42 per bush. | 17 27 |
| D | Turnips | 14·4 tons | 3 77 per ton | −11 32 |
| D | Potatoes (marketable) | 270 bush. | 0 20 per bush. | 108 00 |
| | Potatoes (small) | 90 bush. | ..... | 22 50 |

GROUND LIMESTONE FOR HAY PRODUCTION

Field "C" was divided in five plots in 1923, at the time it was being prepared for hoed crops. Three were used as check plots. An application of ground limestone at the rate of three tons per acre was made to the two other plots.

In the spring of 1924, this field was sown with Banner oats, clover and timothy. No difference was noticed in the growth of the oats on the various plots, but the clover catch was better on the plots where the limestone had been applied.

## PLESSISVILLE, MEGANTIC COUNTY

OPERATOR, EUDORE JUTRAS

In addition to the work carried out on the rotation area at this Station, an experiment with oats on after-harvest-cultivated land as against oats on fall-ploughed land, was conducted. The oats on the after-harvest-cultivated field yielded 44 bushels per acre, while the fall-ploughed field yielded 36 bushels per acre. In addition to the increase in the oat crop, the clover catch was much better on the summer-fallowed plot. Records will be kept to determine the advantage of after-harvest cultivation for the different crops over a period of years.

Very nice clover seed has been harvested from the second growth of field "D." It is now established, that the second growth is the most profitable to harvest for seed in this section, so long as the first cut is made before June 25. The results of the season's work are as follows:—

OPERATIONS AT PLESSISVILLE—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats, Banner, Reg | 60 bush. | 0 34 per bush. | 24 60 |
| B | Corn, ensilage | 18 tons | 2 12 per ton | 24 84 |
| B | Turnips | 31 tons | 1 33 per ton | 51 77 |
| B | Potatoes (marketable) | 113 bush. | 0 50 per bush. | 11 30 |
| | Potatoes (small) | 37 bush. | ..... | 9 25 |
| C | Timothy hay | 2¼ tons | 4 70 per ton | 14 17 |
| D | Clover hay | 3 tons | 5 88 per ton | 12 36 |
| D | Clover seed | 105 lbs. | 0 16 per lb. | 9 45 |

## ST. ANDRE, KAMOURASKA COUNTY

OPERATOR, ALPHONSE OUELLETTE

The soil on this Station is cold and generally late for seeding. This year, the oats were not sown until June 3. Although the Station is only in the second year of operation, noticeable improvements have been made. Couch grass is a serious menace and infests the soils of this district very badly. Fields "B" and "C" were thoroughly worked, with the result that satisfactory yields were obtained, as shown in the following table of the season's work:—

OPERATIONS AT ST. ANDRE—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Clover hay | 1 ton | 12 60 per ton | —2 60 |
| B | Oats, Banner | 51 bush. | 0 42½ per bush. | 16 58 |
| C | Potatoes (marketable) | 112½ bush. | 0 58 per bush. | 2 25 |
| | Potatoes (small) | 37½ bush. | ..... | 9 38 |
| C | Turnips | 16½ tons | 3 43 per ton | —6 96 |
| D | Oats, peas and vetch hay | 3½ tons | 7 14 per ton | 9 15 |

## ST. FABIEN, RIMOUSKI COUNTY

OPERATOR, JOSEPH ALBERT

The soil on this Station is very variable in texture, the largest proportion being black muck and loam. It is also low and retains a great amount of water. This is detrimental to the hoed crops, especially the turnips, which were almost a failure this year. However, the sunflower and other crops did fairly well. The results of the season's work are as follows:—

OPERATIONS AT ST. FABIEN—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats, Banner, Reg | 67 bush. | 0 37½ per bush. | 25 12 |
| B | Sunflowers (fertilized) | 27 tons | 2 66 per ton | 22 68 |
| | Sunflowers (non-fertilized) | 13½ tons | 4 65 per ton | —15 52 |
| B | Turnips | 9 tons | 7 08 per ton | —36 72 |
| C | Timothy hay | 2 tons | 7 73 per ton | 6 57 |
| D | Clover hay | 1 ton | 17 80 per ton | —7 80 |

The cost of producing turnips and clover hay is particularly high on account of the high cost of labour in this district, combined with comparatively low yields. Field "D" gave a very good second growth of clover, which was used as pasture, though no credit was given for this crop in the table.

### NITRATE OF SODA, MURIATE OF POTASH AND ACID PHOSPHATE FOR SUNFLOWERS

It will be noticed in the table that an experiment with commercial fertilizers has been carried out on sunflowers, with the result that a noticeable increase in the yield was obtained. The fertilizers used were:—Nitrate of soda, 100 pounds; muriate of potash, 60 pounds; acid phosphate, 300 pounds per acre. These applications were made in addition to the ordinary application of barnyard manure, 20 tons per acre on both plots.

## ST. JEAN-CHRYSOSTOME, LEVIS COUNTY

### Operator, Theophile H. Cantin

This Station has been in operation since 1921, and shows a noticeable improvement. A four-year rotation has been followed since starting the work. After-harvest cultivation has now been carried out on each field, resulting in a greatly improved soil condition. Fields "B," "C," and "D," were seeded down at the rate of 8 pounds red clover, 2 pounds aslike, and 10 pounds timothy, per acre.

Illustration Station operators of Eastern Quebec studying the live stock on the Dominion Experimental Station at Ste. Anne de la Pocatière.

A field meeting has been held during the summer and a complete statement of the work carried on was given to the neighbouring farmers who attended.

The following table gives the results of the season's work:—

Operations at St. Jean-Chrysostome—Four-Year Rotation

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Corn, Wisc. No. 7 | 18 tons | 2 86 per ton | 11 52 |
| A | Sunflowers | 17½ tons | 2 89 per ton | 10 67 |
| A | Turnips | 36 tons | 1 70 per ton | 46 80 |
| B | Timothy hay | 3 tons, 720 lbs. | 5 09 per ton | 19 85 |
| C | Oats, Banner, Reg | 52 bush. | 0 49 per bush. | 13 52 |
| D | Clover hay | 3 tons | 7 13 per ton | 8 61 |

## ST. JULES, BEAUCE COUNTY

### Operator, Georges Cliche

When this Station began its operations in 1920, the soil lacked plant food and was badly infested with weeds. Besides the improvements on the Station, the growing of turnips and the practice of after-harvest cultivation has been

introduced in the neighbourhood. Turnip contests have been organized for three years in succession, with the result that this crop, which was unknown before the establishment of the Illustration Station, is now grown by almost every farmer.

Clover seed reported in the table below was obtained from the first growth and it seems very difficult to raise seed from the second crop in this locality.

The following table gives the results of the season's work:—

OPERATIONS AT ST. JULES—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Turnips | 25⅞ tons | 2 60 per ton | 10 16 |
| A | Oats, peas and vetch hay | 2 tons, 700 lb. | 15 65 per ton | —13 27 |
| B | Oats, Banner, Reg. | 40½ bush. | 0 50 per bush | 10 12 |
| C | Clover seed | 130 lb. | 0 18 per lb. | 9 10 |
| D | Timothy hay | 1 ton, 1,375 lb. | 7 80 per ton | 5 40 |

## ST. LEONARD D'ASTON, NICOLET COUNTY

### OPERATOR, HENRY CARTER

In order to extend the work of the Illustration Stations, a turnip-growing contest was organized in this district, which included thirty competitors. The farmers have shown a great deal of interest in this contest and the results have been most encouraging. A total yield of over 440 tons of turnips was obtained. The oats on this Station were sown May 21, and harvested August 29. The yield is somewhat lower than in 1923, due to excessive moisture on part of field "A." The corn field also suffered. All the other crops yielded a great deal over the average production, such as shown in the following table:—

OPERATIONS AT ST. LEONARD d'ASTON—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats, Banner | 38 bush. | 0 53 per bush. | 8 36 |
| B | Clover hay | 2 tons | 8 35 per ton | 3 30 |
| B | Clover seed | 82 lb. | 0 11 per lb. | 10 93 |
| C | Corn, Longfellow | 10½ tons | 3 62 per ton | —1 26 |
| C | Corn, Wisconsin | 10 tons | 3 74 per ton | —2 40 |
| C | Turnips | 21½ tons | 1 71 per ton | 27 41 |
| D | Timothy | 1½ tons | 7 13 per ton | 5 80 |

## ST. MAXIME DE SCOTT, BEAUCE COUNTY

### OPERATOR, ELZEAR LACROIX

This is the first year that this Station has been in operation. The soil is very sandy, lacking in plant food. Crops were grown on only two fields this year; the two others were left in pasture. One was after-harvest cultivated this fall for hoed crops in 1925. Field "D" will be worked in the regular rotation next year when it will be prepared for hoed crops.

The oats were sown late but gave a medium yield. Oats, peas and vetch were sown on field "C," on June 7, and were seriously affected, because of the lack of moisture.

The turnips were carefully looked after and gave quite a fair yield, but suffered considerably from hail.

The results of the season's work are as follows:—

OPERATIONS AT ST. MAXIME DE SCOTT—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats, Banner | 27 bush. | 0 71 per bush. | 1 08 |
| B | Turnips | 21 tons, 240 lb. | 2 94 per ton | 1 27 |
| C | Peas, oats and vetches | 1 ton, 708 lb. | 21 40 per ton | —15 39 |

## ST. MICHEL, BELLECHASSE COUNTY

### OPERATOR, FORTUNAT MORISSETTE

This Station was established in 1923, and has a four-year rotation well under way. The yields for 1924 are comparatively low and the cost of production high.

The following table gives the results of the season's work:—

OPERATIONS AT ST. MICHEL—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Banner oats | 39¾ bush. | 0 58½ per bush. | 6 56 |
| B | Turnips | 11 tons | 5 01 per ton | —22 11 |
| B | Oats, peas and vetch hay | 1½ tons | 16 80 per ton | —10 20 |
| C | Clover hay | 1½ tons | 11 43 per ton | —1 90 |
| D | Clover hay | 1 ton | 14 24 per ton | —4 24 |

## WEEDON, WOLFE COUNTY

### OPERATOR, JOSEPH ALLARD

As it has been mentioned in the report on this Station for 1923, the introducing of corn growing in this district is entirely the result of the work of the Illustration Stations.

To convince the farmers in the neighbourhood of the advantages accruing from growing this crop, a corn contest was again organized this year. Twenty-eight farmers entered this competition. On the whole, the fields were kept much cleaner than the previous year and gave a total estimated yield of 285 tons.

By keeping the contest open again next year, it is hoped that more farmers will learn the value of and attach more importance to the corn crop, and keep growing it in future.

The results of the season's work is illustrated in the following table:—

OPERATIONS AT WEEDON—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Cost | Profit or (—) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Corn ensilage | 14 tons | 4 01 per ton | —7 14 |
| A | Turnips | 20 tons | 3 12 per ton | —2 40 |
| B | Timothy hay | 2 tons | 7 20 per ton | 7 60 |
| C | Clover hay | 1½ tons | 11 48 per ton | —2 22 |
| D | Banner oats | 55 bush. | 0 46 per bush. | 15 95 |

# REPORT OF THE ILLUSTRATION STATIONS FOR NEW BRUNSWICK

*T. G. Hetherington, B.S.A., Supervisor*

## Seasonal Conditions

The province suffered generally from lack of moisture during the 1924 growing season. Germination of grain and small seeds was weak, and, in general, yields were considerably lower than in 1923. The turnip crop was practically a failure. Seasonal conditions were ideal for potatoes and one of the greatest crops in the history of the province was harvested. The dry weather was responsible for considerable damage from cutworms. The oat crop at the Woodstock Station was a complete failure due to cutworms and dry weather. The dry weather extended through the haying and harvesting season, and as a result, crops were stored in ideal condition.

## Economic Conditions

Despite discouraging conditions, including seasonal and economic, the operators have as a whole made considerable progress. The one crop that gave a really good yield, potatoes, sold at from sixty to seventy-five cents per barrel. Live stock improvement work has made steady progress, the poultry holdings of the operators perhaps showing the greatest growth and improvement. Pedigreed cockerels that the operators secured from the Experimental Station in the fall of 1923 were mated with females developed by the operators from eggs previously secured from the Fredericton Experimental Station, and thus a foundation flock of bred-to-lay birds was established. In several instances operators have flocks of from fifty to one hundred birds, and are deriving a good revenue from this branch of their business. Every effort has been made to assist in finding a market for any surplus breeding stock. In this way, sixty high-class cockerels were placed in the hands of farmers at a fair price, as were eighty-nine early pullets and some small lots of baby chicks. Two operators, Messrs. Graham and Manchester, have pens entered in the New Brunswick Egg Laying Contest at Fredericton.

The following tables indicate the relation between high and low acre-yields and profit or loss per acre.

Relation of Yield to Profit or Loss

| Station | Crop | Yield per acre | Cost per bushel | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | bush. | Cents | $ cts. |
| 1 | Oats | 71 | 29½ | 32 30 |
| 2 | " | 67 | 30 | 29 82 |
| 3 | " | 60 | 35 | 23 76 |
| 4 | " | 60 | 39½ | 21 30 |
| 5 | " | 54 | 35 | 21 60 |
| 6 | " | 48 | 30 | 21 21 |
| 7 | " | 50 | 46 | 14 29 |
| 8 | " | 50 | 47½ | 13 76 |
| 9 | " | 33 | 53 | 7 00 |
| 10 | " | 26·6 | 70 | 1 17 |
| 11 | " | 30 | 71 | 1 13 |
| 12 | " | 25 | 89 | −3 50 |

The cost per unit in the production of crops is governed largely by the yield per acre. In the first table it will be noted that at Station No. 1, with a yield of 71 bushels of oats per acre, the production cost was 29 cents per bushel, and

giving the grain a value of 75 cents per bushel the acre profit was $32.30. As the yields decreased the cost per bushel increases, and finally at Station No. 12, with a yield of 25 bushels per acre, the operations resulted in a loss of $3.50 per acre.

RELATION OF YIELD TO PROFIT OR LOSS

| Station | Crop | Yield per acre | *Cost per ton | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| 1 | Clover hay. | 4 | 3 93 | 20 29 |
| 2 | " .. | 3 | 5 88 | 9 36 |
| 3 | " .. | 2 | 8 43 | 1 14 |
| 4 | " .. | 1·5 | 10 33 | −2 00 |
| 5 | " .. | 1 | 14 26 | −5 26 |

* In compiling the production cost per acre the following factors were taken into consideration, (1) Rent of land $2 per acre, (2) use of machinery $2 per acre, (3) seed $1.95 per acre, (4) 20 per cent of the cost of manure or fertilizer applied to the hoed crop two years previously is charged to the clover crop, (5) man labour is charged at 20 cents per hour and single horse labour at 10 cents per hour for the field work. In computing the profit or loss, clover hay is valued at $9 per ton.

A study of the preceding two tables cannot but impress one with the importance of high yields. Good seed, a well-prepared seed-bed, seed treatment in the case of grain for smut, inoculation of clover seed, early planting, a fertile soil, ground limestone in the case of clovers; these and many other factors must be observed if good yields are to be expected.

## ADAMSVILLE, KENT COUNTY

OPERATOR, J. A. ARSENAULT

The problem at this Station, as it is on a great many farms in the district, is to build up farm land that at the present time contains very little plant food. Its fertility, never very marked, has been depleted by poor cultivation and over much cropping. The problem is aggravated by the fact that little barnyard manure is available. Ground limestone has been used extensively at this Station and with signal success. This is one of the Stations where scarcely any difficulty has been experienced in securing a clover catch. With a reasonable rainfall, the new-seeded land at this Station would have produced two tons or more of clover per acre this year. The cultivation that the land received in the rotation process and the ground limestone, are factors that are helping to build up this soil. If manure were available in greater quantity, the process would be much more rapid.

The following table gives the results of the season's work:—

OPERATIONS AT ADAMSVILLE

| Field | Crop | Yield per acre | Actual cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy hay | 1¾ tons | 6 16 per ton | 6 72 |
| B | Clover hay | 1 ton | 14 26 per ton | −5 26 |
| C | Banner oats | 30 bush. | 0 71 per bush. | 1 20 |
| D | Banner oats | 30 bush. | 0 77 per bush. | −0 60 |
| D | Potatoes | 260 bush. | 0 21 per bush. | 23 40 |

## APOHAQUI, KINGS COUNTY

### Operator, Geo. B. Manchester

This Station is partly situated on river bottom land, and on this account after-harvest cultivation is dangerous because the land is subject to over-flow. Sod land is thus ploughed in the fall in preparation for a hoed crop the next year. Under these conditions weed control, especially of couch grass, is more difficult than at the Station where after-harvest cultivation is practised in preparation for a hoed crop the next year.

For the first time in many years this Station produced a crop of turnips. Former efforts resulted in failure because the soil is contaminated with club root. This year Bangholm (club-root-resistant) seed was sown, and a yield of 1,000 bushels per acre was harvested. This experiment amply demonstrates the resistant quality of this seed.

This Station did not suffer to the same extent as many others from dry weather. On the whole, the crops were good. With the exception of mangels, all crops grown on the Station produced a profit. The mangels were sown too late and did not develop sufficiently.

The following table gives the results of the season's work:—

Operations at Apohaqui

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Corn | 15 tons | 2 42 per ton | 16 20 |
| A | Sunflowers | 20 tons | 1 81 per ton | 33 80 |
| A | Turnips | 25 tons | 2 40 per ton | 15 00 |
| A | Mangels | $11\frac{7}{10}$ tons | 4 60 per ton | −18 72 |
| B | Oats | 71 bush. | 0 29½ per bush. | 32 30 |
| C | Clover | 2 tons | 8 43 per ton | 1 14 |
| D | Timothy | 1¾ tons | 7 07 per ton | 5 12 |

## BAKER BROOK, MADAWASKA COUNTY

### Operator, Felix D'Aigle

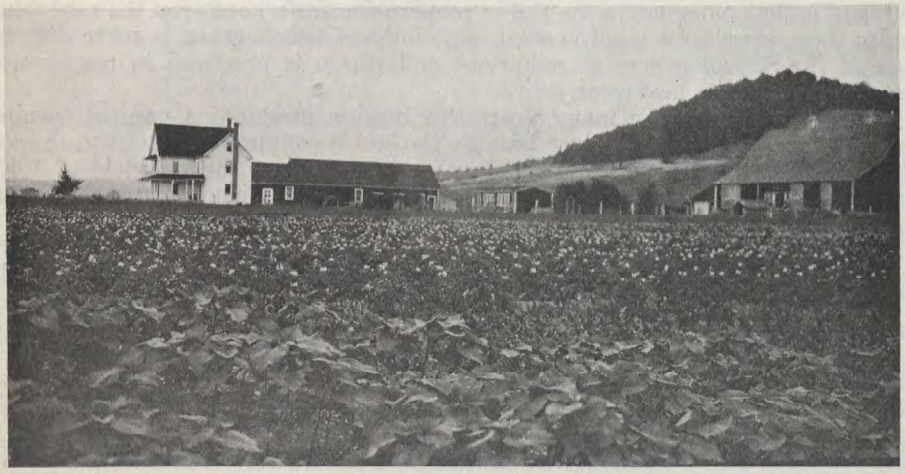
Efforts to secure a catch of clover at this Station in 1923 and 1924 resulted in failure. Several factors may account for this, dry weather and soil acidity no doubt being the principal reasons. The extent to which soil acidity is responsible is problematical. An effort to study this question was begun in the fall of 1924 when fields "A" and "B" were each given a coating of ground limestone with strips ten feet wide left unlimed on each, and extending from the front to the rear of the field. Thus, by comparing the growth of clover and subsequent crops, it will be possible to secure accurate data on the value of lime in this district.

The following table gives the results of the season's work:—

Operations at Baker Brook

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats | 48 bush. | 0 30 per bush. | 21 60 |
| B | Potatoes | 382 bush. | 0 14 per bush. | 61 12 |
| B | Corn | 9·05 tons | 2 52 per ton | 8 87 |
| B | Sunflowers | 16·8 tons | 1 36 per ton | 35 95 |
| C | Oats | 39 bush. | 0 37 per bush. | 14 82 |

The farm revenue at this Station is derived from a variety of sources including (1) The sale of dairy products from a high-class herd of dairy cattle. (2) Wool, lambs and mutton from a flock of forty breeding ewes. (3) Poultry products from a flock of 100 laying hens, including dressed poultry, eggs, and male



Farm buildings and crops at the Baker Brook Station.

and female breeding stock. (4) Pure-bred hogs and pork. (5) A considerable revenue from showing cattle, hogs, sheep and poultry at the County Show. (6) The sale of potatoes, grain and hay.

The crops at this farm are produced with a minimum of expenditure for fertilizer due to the fact that the farm is well stocked with cattle, sheep, hogs and horses. This well-balanced system of farming insures a comfortable revenue throughout the year, amounting in the aggregate to a considerable figure.

## EAST FLORENCEVILLE, CARLETON COUNTY

### Operator, B. F. Smith

A three-year rotation is now definitely established at this Station. The following table gives the results of the season's work:—

Operations at East Florenceville

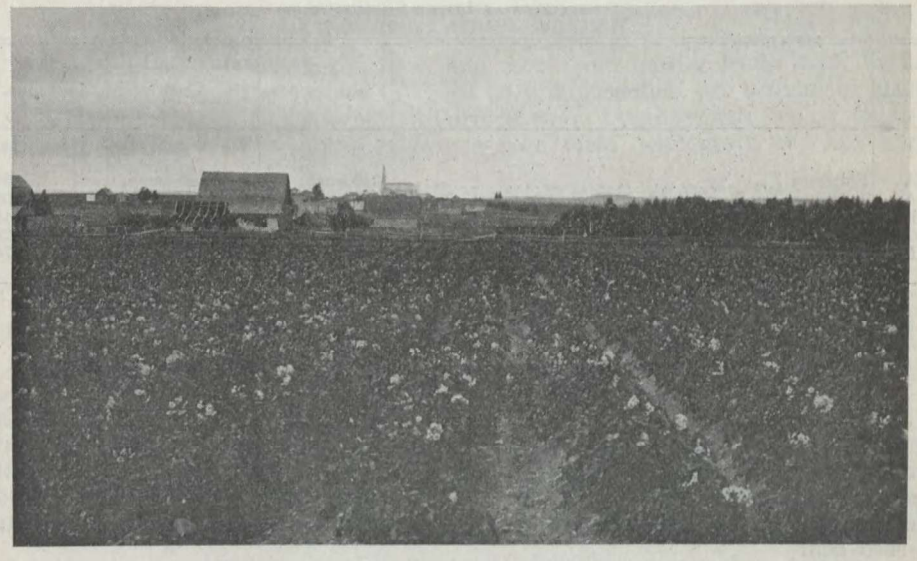
| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats | 50 bush. | 0 46 per bush. | 14 29 |
| B | Potatoes | 340 bush. | 0 16 per bush. | 45 22 |
| C | Clover hay | 1·09 tons | 14 70 per ton | −6 21 |

This Station is in the heart of the best potato-growing section in the province. Live stock here, as it is on any number of farms in the district, is limited to the one or two teams of horses required to do the farm work. This means that practically all fertility is purchased, and in the chemical form. Under these conditions a three-year rotation was deemed the most suitable. Clover sod is ploughed under and this adds a certain amount of humus every third year, partly counteracting the absence of barnyard manure.

## GRAND FALLS, VICTORIA COUNTY

Operator, Gabe Morin

This is the second year that this Station has been in operation. A complete rotation has not yet been established. The 1923 seeding of clover and timothy was not successful and hence all four sections of the Station were in grain or hoed crop in 1924. The dry season was particularly hard on the crops at this Station as it is situated on very high ground. Field "A" was planted to Banner



Certified Green Mountain potatoes at the Grand Falls Illustration Station.

oats and seeded down. Only a fair stand of clover and timothy was secured and this was top-dressed in the fall in the hope of strengthening the stand, and also to protect it during the winter. A comprehensive hoed crop demonstration was carried out on field "B". Bangholm turnips (club-root-resistant), fodder corn, sunflowers, certified Green Mountain and Irish Cobbler potatoes were grown. Fields "C" and "D" were planted to Charlottetown No. 80 barley.

The following table gives the results of the season's work:—

Operations at Grand Falls

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Banner oats | 60 bush. | 0 35 per bush. | 24 00 |
| B | Potatoes | 437 bush. | 0 09 per bush. | 91 77 |
| B | Turnips | 19½ tons | 2 01 per ton | 19 30 |
| C | Barley | 23½ bush. | 0 88 per bush. | 0 47 |
| D | Barley | 23½ bushr. | 0 88 per bush. | 0 47 |

This Station has been particularly useful from the standpoint of distributing good stock seed to local farmers. Registered Banner oats, Charlottetown No. 80 barley, and Green Mountain potatoes were sold in considerable quantities as seed for the 1924 planting.

## LITTLE SHEMOGUE, WESTMORLAND COUNTY

A. T. OULTON, OPERATOR

The soil at this Station is a heavy clay loam. Seasonal conditions were exceptionally favourable for this type of soil, and in the main, crops were good. Alsike clover on field " C " was very rank and thick, giving a yield of 4 tons per acre. Potatoes, timothy hay and Banner oats also gave good yields.

The following table gives the results of the season's work:—

OPERATIONS AT LITTLE SHEMOGUE

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Potatoes | 350 bush. | 0 15 per bush. | 52 50 |
| A | Turnips | 12½ tons | 3 60 per ton | −7 50 |
| B | Timothy | 2½ tons | 4 23 per ton | 14 41 |
| C | Clover | 4 tons | 3 93 per ton | 20 29 |
| D | Banner oats | 50 bush. | 0 47½ per bush. | 13 76 |

## LOWER DERBY, NORTHUMBERLAND COUNTY

OPERATOR, W. R. TAYLOR

This Station has been in operation four years and each of the four fields comprising the rotation has thus passed through each stage of the four-year rotation. In the spring of 1925 the process will begin again. The next series of crops will undoubtedly be produced with the expenditure of less manure and fertilizer, and with less labour required in controlling weeds and in preparing a seed-bed.

The land at this Station is dry upland, and for best results requires considerable moisture. This year grain and hay yields were somewhat lower than last year on account of the very dry weather. Hoed crops gave good yields despite a light rainfall, due largely to frequent cultivation during the growing season which created a surface mulch and retarded the evaporation of soil moisture.

The following table gives the results of the season's work:—

OPERATIONS AT LOWER DERBY

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy | 2 tons | 6 20 per ton | 7 60 |
| B | Potatoes | 307 bush. | 0 29 per bush. | 2 26 |
| B | Turnips | 15 tons | 6 05 per ton | −45 75 |
| B | Corn | 15 tons | 4 36 per ton | −12 90 |
| C | Oats | 54 bush. | 0 35 per bush. | 21 60 |
| D | Clover | 1 66 ton | 11 74 per ton | −4 54 |

It will be noticed that the cost of production in most cases is high. This is particularly noticeable with potatoes, where the cost of production is 29 cents per bushel, while at the Florenceville Station, potatoes were produced at a cost of 15.7 cents per bushel. In the latter case a potato digger was used; in the former case the crop was harvested with hand diggers.

The fine appearance of this Station during the summer months inspired much favourable comment on the part of people passing the Station. The crops were clean and the workmanship beyond criticism, facts that, along with others, enabled this operator to win the Bailey-Hetherington trophy emblematic of the best Illustration Station in the province.

## MILLVILLE, YORK COUNTY

### Operator, Patrick Graham

The soil at this Station is hard and stony and hardly lends itself to fine cultivation, nor can the variety of crops be produced that are ordinarily grown on other Stations in the province. Turnips were a failure here owing to difficulty in getting a catch, potatoes gave a good yield, with grain and hay crops only fair.

The following table gives the results of the season's work:—

Operations at Millville

| Field | Crop | Yield | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Potatoes | 280 bush. | 0 25 per bush. | 14 00 |
| B | Clover | ½ ton | 18 48 per ton | −7 59 |
| C | Oats | 60 bush. | 0 39½ per bush. | 21 30 |
| D | Timothy | 1 ton | 12 29 per ton | −2 29 |

## PETIT ROCHER, GLOUCESTER COUNTY

### Operator, J. M. Comeau

The Station, like the district in which it is situated, is badly infested with wild mustard. The two years the Station has been in operation have largely been given over to the control of mustard. Appreciable success has been met with although the ground is not yet permanently cleaned. Mustard control in the district is particularly difficult because of the general infestation. The products of the hay, grain and root fields are fed to live stock and the fields are reseeded with the manure from the live stock. Thus, in any general scheme of cleaning up, the question of the disposal of the farm manure is an important consideration. It might be possible to adopt the practice of using commercial fertilizer on part of the farm while it was in the process of being cleaned, and apply no stable manure until one was sure that it was free of seed. Each year a new field could be included, and eventually the mustard could be subjected.

The following table gives the results of the season's work:—

Operations at Petit Rocher

| Field | Crop | Yield per acre |
|---|---|---|
| A | Oats, peas, vetch | 57 bush. |
| B | Potatoes | 168 bush. |
| C | Turnips | 312 bush. |
| C | Sunflowers | 6 tons |

## PERTH JUNCTION, VICTORIA COUNTY

OPERATOR, R. J. MCCREA

The turnip crop at this Station was a partial failure. Late seeding, dry weather, cutworms, and perhaps a too loose seed-bed were responsible for the poor success. Good stands of Longfellow corn and sunflowers were secured and fed out of the field to dairy cows. A normal yield of hay was harvested, but the grain crop was much below the average. Field "B," which was seeded down, failed to develop a stand and was ploughed in the fall of 1924 and will be reseeded in 1925.

The following table gives the results of the season's work:—

OPERATIONS AT PERTH JUNCTION

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy | 1½ tons | 8 85 per ton | 1 43 |
| B | Barley | 16 bush. | 1 02 per bush. | −1 92 |
| C | Potatoes | 347 bush. | 0 13½ per bush. | 57 25 |
| D | Clover | 1½ tons | 12 18 per ton. | −3 98 |

## POKESHAW, GLOUCESTER COUNTY

OPERATOR, T. W. RIORDON

This Station has been in operation two years and considerable progress has been made in improving the fields by the removal of stones, stumps, etc. A rotation is partially established and the Station is now in shape to do definite illustration work. Crops at this Station were much better in 1924 than for the previous year. Fields "A" and "B" were both seeded to timothy and clover and fair catches were secured. Field "C" will be seeded in 1925 and field "D" will be in a hoed crop.

The following table gives the results of the season's work:—

OPERATIONS AT POKESHAW

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Oats | 25 bush. | 0 99 per bush. | −6 00 |
| B | Oats | 25 bush. | 0 89 per bush. | −3 50 |
| C | Potatoes | 237 bush. | 0 25 per bush. | 11 85 |
| C | Turnips | 6¼ tons | 9 52 per ton | −40 75 |
| C | *Sunflowers | 21·7 tons | | |

* This crop was cut and fed from the field and harvest costs were not kept, hence no statement of costs, or profit and loss have been given.

## REXTON, KENT COUNTY

OPERATOR, J. G. DICKINSON

Notwithstanding very dry weather, average crops were grown at the Station. To date no commercial fertilizer has been used at this Station. It is possible that the operator could supplement his barnyard manure with commercial fertilizer to good advantage, but to do this intelligently it requires experiments with various fertilizers and combinations of fertilizers. Mussel-mud is available in this district and is used extensively to neutralize acid soils. It is hoped that some of this can be spread on the Station land.

The following table gives the results of the season's work:—

OPERATIONS AT REXTON

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Clover | 1⅛ tons | 11 60 per ton | −3 12 |
| B | Potatoes | 187 bush. | 0 45 per bush. | −28 05 |
| C | Turnips | 4⅛ tons | 11 20 per ton | −37 72 |
| C | Oats, peas, vetches | 2½ tons | 10 92 per ton | −7 30 |
| C | Timothy | 1¼ tons | 5 60 per ton | 7 93 |
| D | Oats | 26⅝ bush. | 0 70 per bush. | 1 33 |
| D | Wheat | 25 bush. | 0 75 per bush. | 12 50 |

## ST. QUENTIN, RESTIGOUCHE COUNTY

### OPERATOR, AUGUSTIN VIOLETTE

This is the first year that Illustration work has been conducted at this Station as it was only selected in the fall of 1923. This Station is located in a new district that was virgin hardwood forest only a very few years ago, and if the original fertility is not depleted by a vicious system of farming, the district should become one of the best agricultural sections in the province. The soil is a clay loam. Clover flourishes, although the season is too short to mature a second crop for seed. Two sections of the Station were sown to Banner oats and seeded down. The remaining two sections were planted to a hoed crop. Excellent crops were harvested in each instance and a good catch of clover was secured.

The following table gives the results of the season's work:—

OPERATIONS AT ST. QUENTIN

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| B | Potatoes | 340 bush. | 0 14½ per bush. | 52 70 |
| C | Oats | 67 bush. | 0 30 per bush. | 29 82 |
| D | Oats | 67 bush. | 0 30 per bush. | 29 82 |

It is imperative, if the farmers in this district wish to maintain the natural fertility of their soil, that they make some drastic changes in their system of farming. The live stock population of the farms is very small and the bulk of the hay, grain and straw grown in the district is sold for use in the lumber camps. A two-crop system, that is, grain and hay, year after year, with little manure will rapidly deplete this soil. The area devoted to root and hoed crops is small and the bulk of this is made up of potatoes for exporting.

The adoption of a four-year rotation in this district, and the feeding of the farm crops to live stock would be advisable, otherwise the virginal fertility will soon give place to unresponsive soil, lacking in humus and incapable of producing crops.

## TRACEY STATION, SUNBURY COUNTY

OPERATOR, FRED PHILLIPS

This Station was selected in the fall of 1922. The work done in 1922 and 1923 was largely of a preparatory nature. In the spring of 1924 the Station was in condition to do definite Illustration work. The four-year crop-rotation principle was demonstrated in full with very creditable sections devoted to


Longfellow corn at the Tracey Station

hoed crops, clover hay, Banner oats and timothy hay. The hoed crop section was especially commendable and comprised the following crops: Longfellow corn, Giant Russian sunflowers, certified Green Mountain potatoes and Bangholm Club-Root-Resistant turnips. Good stands were secured in each instance. The soil at this Station is particularly responsive to good cultivation and light applications of manure.

The operator of this Station was awarded the John Fixter Trophy for best hoed crop section grown in 1924 on New Brunswick Illustration Stations.

The following table gives the results of the season's work:—

OPERATIONS AT TRACEY STATION

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Turnips | 23¾ tons | 3 12 per ton | −2 85 |
| A | Potatoes | 382 bush. | 0 20 per bush. | 38 20 |
| B | Clover hay | 3 tons | 5 88 per ton | 9 36 |
| C | Banner oats | 33 bush. | 0 54 per bush. | 6 93 |
| D | Timothy hay | 2·66 tons | 5 30 per ton | 12 50 |

## WELSFORD, QUEENS COUNTY

OPERATOR, J. L. MACDONALD

All crops gave a fair yield at this Station. Field "C" was seeded down and given a dressing of 1,000 pounds of basic slag at a cost of $7.75 per acre.

The rate of application may be somewhat heavy, and an extremely good yield of clover must be secured in order to warrant the outlay. It is worthy of note, however, that under this treatment one of the best stands of the year was secured. Oats, peas and vetches gave a fair yield on both fields "C" and "D." This crop is favoured as a silage crop in the Welsford district. Early frosts are common in the section, and this makes fodder corn production for silage an uncertain one. Sunflower silage can be grown successfully, but the machinery to handle it efficiently is not available at present.

The following table gives the results of the season's work:—

OPERATIONS AT WELSFORD

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy | 1¼ tons | 7 32 per ton | 4 02 |
| B | Clover | 1½ tons | 10 33 per ton | −2 00 |
| C | Barley | 21 bush. | 1 20 per bush. | −6 30 |
| C | Oats, peas, vetch | 6 tons | 5 03 per ton | −12 19 |
| D | Potatoes | 207 bush. | 0 26 per bush. | 8 28 |
| D | Oats, peas, vetch | 6 tons | 5 03 per ton | −12 19 |
| D | Sunflowers | 15 tons | 2 03 per ton | 14 55 |

## WOODSTOCK, CARLETON COUNTY

OPERATOR, W. A. GIBSON

This year's crops at this Station were the poorest in its history, and with the exception of potatoes, all crops were produced at a loss. Cutworms were responsible for a considerable amount of injury both to grain and potatoes. The oats on field "C" were ruined by rust and were cut for green feed.

The following table gives the results of the season's work:—

OPERATIONS AT WOODSTOCK

| Field | Crop | Yield per acre | Cost | Profit or (−) loss per acre |
|---|---|---|---|---|
| | | | $ cts. | $ cts. |
| A | Timothy | 0·8 tons | 13 36 per ton | −2 69 |
| B | Potatoes | 217 bush. | 0 21 per bush. | 19 54 |
| C | Oats | (Cut green) | | |
| D | Clover | 0·6 tons | 25 13 per ton | −9 68 |

# REPORT ON THE ILLUSTRATION STATIONS FOR NOVA SCOTIA

*E. B. Kinsman, B.S.A., Supervisor*

The season of 1924 was only an average one for the farmers as a whole. This was due to the extremely dry weather in May and July, less than one inch of rain falling during either month, as compared with the heavy rainfall during June and August.

RAINFALL AND TEMPERATURES—KENTVILLE

| | 1924 | | 1923 | |
|---|---|---|---|---|
| | Rainfall | Mean Temperature | Rainfall | Mean Temperature |
| May | 0·67 | 51·0 | 2·34 | 49·35 |
| June | 4·44 | 58·76 | 3·54 | 57·63 |
| July | 0·99 | 67·45 | 2·32 | 63·10 |
| August | 6·36 | 64·9 | 4·03 | 60·65 |
| September | 2·02 | 55·81 | 3·93 | 56·56 |
| October | 3·00 | 47·49 | 3·05 | 48·35 |
| Total | 17·48 | ..... | 19·21 | ..... |

Seeding was possible at the Illustration Stations, depending upon soil conditions, from one week to ten days earlier than in 1923. The average time from seeding to harvesting was 103 days, as compared with 122 days in 1923. The extremely dry weather in July hampered the proper development of a big grain crop, the average grain yield falling 3 bushels per acre below the yield of 1923.

Hoed crops were sown or planted from ten days to two weeks earlier than in 1923. Farmers, particularly with potatoes and turnips, obtained a poor stand. The potatoes did not have a sufficient covering of earth to keep the seed from drying out, and at turnip sowing, the soil was not properly firmed, and with the dry weather the seed could not germinate. Fortunately, however, the Illustration Stations did not suffer from this fault, but rather from potatoes rotting on the heavier types of soils with poor surface drainage.

Clovers were cut ten days to two weeks earlier than in 1923, due to the plants starting to die for want of moisture. This gave a little smaller yield of clover hay than the previous year. The timothy crop, however, more than made up for the clover shortage, by giving an average of nearly one-quarter of a ton more than in 1923.

During the month of August considerable ploughing was done, made possible by a very heavy rain that occurred August 10, and lasted nearly three days. This rain did a great deal of good to many crops, though not to potatoes situated on damp soil. The fall was unusually good for ploughing and more has been done than usual, due to the extremely open weather up to and including the first part of December.

CLOVER AND TIMOTHY HAY YIELD PER ACRE, 1924

| Station | Date harvested | Clover (1st year) | Timothy (2nd year) |
|---|---|---|---|
| | | tons | tons |
| Sydney | July 21 | 2·0 | 3·1 |
| Christmas Island | Aug. 2 | 2·5 | 1·0 |
| Big Baddeck | Aug. 11 | 1·4 | 1·7 |
| Middle River | July 23 | 2·0 | 2·8 |
| Margaree | July 22 | 4·0 | 3·02 |
| Heatherton | July 25 | 1·6 | 2·07 |
| New Glasgow* | July 23 | ..... | 1·1 |
| Tatamagouche | July 28 | 3·0 | 2·7 |
| Musquodoboit | July 25 | 3·8 | 1·7 |
| Kennetcook | July 28 | 1·4 | 1·5 |
| Newport* | July 31 | ..... | 2·2 |
| Bridgetown | July 16 | 2·5 | 2·9 |
| Belliveau Cove | July 21 | 2·3 | 2·01 |
| Yarmouth | July 28 | 1·9 | 3·0 |
| Average yield per acre | ..... | 2·36 | 2·20 |

*NOTES.—
New Glasgow.—Clover sod had to be ploughed under, 1924, on account of poor catch.
Newport.—No clover hay, 1924.

TURNIPS YIELDS PER ACRE, 1924

| Station | Date seeded | Date harvested | Bangholm | Halls Westbury |
|---|---|---|---|---|
| | | | bush. | bush. |
| Sydney | June 2 | Oct. 29 | 638·0 | 677·0 |
| Christmas Island | June 13 | Nov. 7 | 216·0 | 430·0 |
| Big Baddeck | June 2 | Oct. 14 | 226·0 | 270·0 |
| Middle River | June 12 | Nov. 8 | 650·0 | 700·0 |
| Margaree | June 14 | Nov. 6 | 562·5 | 587·0 |
| Heatherton | May 28 | Oct. 29 | 300·0 | 440·0 |
| New Glasgow | June 2 | Oct. 18 | 793·0 | 877·0 |
| Tatamagouche | June 3 | Oct. 27 | 600·0 | 800·0 |
| Musquodoboit | May 31 | Oct. 20 | 605·0 | 867·0 |
| Kennetcook | June 4 | Oct. 27 | 545·0 | 630·0 |
| Brooklyn | June 10 | Oct. 20 | 695·0 | 880·0 |
| Bridgetown | May 26 | Nov. 5 | 567·0 | 601·0 |
| Belliveau Cove | June 13 | Nov. 28 | 534·3 | 731·7 |
| Yarmouth | June 4 | Oct. 31 | 648·0 | 869·0 |
| Average yield per acre | | | 541·4 | 668·5 |

## LIMESTONE ON GRAIN AND SEEDED AREAS

The purpose of the demonstration with limestone on the rotation areas was to determine the practicability of promoting a more uniform and vigorous clover growth during the first, or second season of seeding. Nine Stations in 1923 received two tons of limestone per acre on the grain and seeded areas, leaving an area not limed. These rotations had a hoed crop grown on the land in 1922, each area, excepting at Margaree Station, having received fifteen tons of stable manure per acre. The limestone was applied broadcast and harrowed in, after which the grain and clover and timothy was sown. The results (See table following) show the increased yields from the 1924 hay crop as well as the profit per acre obtained from the application of limestone.

It was found during the late autumn on Stations receiving limestone that the clover plants, although no greater in number per square foot than on the plots that had received no limestone, were more vigorous and had a deeper root-system, the foliage of the plants also being a much deeper green. This work will be followed up in 1925 from these areas, and the results recorded.

HAY YIELDS PER ACRE ON LIMED AND UNLIMED AREAS, 1924

| Station | Limed plots — Hay | Unlimed plots — Hay |
|---|---|---|
| | tons | tons |
| Sydney | 3·13 | 2·46 |
| Christmas Island | 2·48 | 1·65 |
| Baddeck | 2·33 | 1·75 |
| Middle River | 2·0 | 1·35 |
| N. E. Margaree | 1·56 | 0·5 |
| Heatherton | 1·77 | 1·11 |
| Tatamagouche | 2·11 | 1·44 |
| Musquodoboit | 3·05 | 2·60 |
| Bridgetown | 2·55 | 2·22 |
| | 20·98 | 15·08 |

| | | |
|---|---|---|
| Total gain of limed areas over unlimed areas | 5·9 | tons |
| Average gain of limed areas over unlimed areas | 0·655 | " |
| Average increase in value of hay crop at $10 per ton | $6.55 | per acre |
| Cost of limestone (25 per cent of two tons at $4.50 per ton) | 2.25 | " |
| Average profit of limed areas over unlimed areas | $4.30 | " |

The $4.30 profit per acre above cost of limestone practically pays in the first year the cost of the limestone for the four years of the rotation.

PASTURE AREAS

Tests were undertaken at all the Stations to show the value of improving pastures by a surface application of fertilizer, instead of turning the sod under and re-seeding, thus retaining the pasture and avoiding the expense of ploughing.

A uniform area of one-quarter acre was used at each Station. This area was divided into five one-twentieth acre plots, each of which was treated as follows (Calculated on an acre basis):—

Plot 1—limestone, 2 tons;
Plot 2—limestone, 2 tons; slag 1,000 pounds;
Plot 3—limestone, 2 tons acid phosphate, 1,000 pounds;
Plot 4—slag, 1,000 pounds;
Plot 5—not fertilized.

One half of each of the plots received an application of nitrate of soda at the rate of 150 pounds per acre.

All material was put on as soon as vegetation started in the spring. Limestone and slag, both being insoluble, much result could not be expected the first season. However, where nitrate of soda was applied, the plots on all Stations turned very green in two or three weeks' time and remained so for a considerable period.

At the Kennetcook Station where a surface application of acid phosphate was made the grass took on a light yellowish tinge with no apparent lessening of growth.

At the Yarmouth Station, where the pasture areas appear to be in a better state of fertility, and where grass grew more rapidly than perhaps on any other of the Illustration Stations, nitrate of soda turned the grass a much darker shade of green. No noticeable difference could be seen until August in the young clover growth, but during the season the grass was superior on all fertilized plots. The cattle, when turned on this area shortly after the application of the fertilizers, kept the grass on the fertilized plots eaten close to the ground during the remainder of the summer months, while the plots receiving no fertilizer of any kind were practically untouched.

The remaining Stations showed no outstanding difference between the fertilized and unfertilized plots. At all Stations the grass on the plots receiving nitrate of soda turned a much darker green than where no nitrate was applied. On all plots receiving limestone, slag, and acid phosphate or a combination of these, considerable young clover could be seen during the month of August. On the plots receiving nitrate of soda along with the other ingredients, the plants appeared to be more forward than on those receiving no nitrate of soda. From the general appearance of plots in November, it is hoped valuable information will be learned next season as to the improvement of depleted pastures.

NITRATE OF SODA COMPARED WITH SULPHATE OF AMMONIA ON SOD LANDS

Nitrate of soda at the rate of 150 pounds and sulphate ammonia at the rate of 115 pounds per acre were applied to sod lands in 1924 as soon as vegetation had started. An equal area was left unfertilized.

The land used in this work was carefully selected as to uniformity and past treatment. Unfortunately, at Middle River, the operator learned afterward that a section which was left unfertilized had been heavily manured before he became owner. Consequently the yields here show some gain over the fertilized areas.

Duplicate weighings were made on each of the plots concerned and were recorded. These weights were then averaged for each plot. The total yield from all the Stations was 9.5 tons more hay where nitrate of soda was applied, and 8.07 tons more where sulphate of ammonia was applied, than the total yield of the unfertilized areas. Valuing nitrate of soda at $60, sulphate of

ammonia at $70 and hay at $10 per ton, there was a profit of $32 where nitrate of soda was applied, or $2.28 per acre, and $24.35 profit where sulphate of ammonia was applied. or $1.74 per acre, over the unfertilized areas.

As seen by the yields obtained from the unfertilized areas, this land was in a fairly good state of fertility. It is not generally recommended to apply a nitrogenous fertilizer on a highly productive soil which has received plenty of manure, but rather to apply it to a soil which is nearly depleted of its fertility where an extra yield of hay is needed. The nitrogenous fertilizer, however, will generally pay for its application even on a second-year meadow, and give the farmer a profit besides. This may be seen from the yields obtained at Margaree where the soil is in a high state of fertility. The unfertilized area gave 3.56 tons per acre, but an application of nitrogenous fertilizer increased the yield, where nitrate of soda was applied, to 4.21 tons, and where sulphate of ammonia was applied, to 4.37 tons.

HAY YIELDS WHEN NITRATE OF SODA OR SULPHATE OF AMMONIA IS APPLIED TO SOD LANDS

| Station | Nitrate of soda plot — Hay | Sulphate of ammonia plot — Hay | Unfertilized plot — Hay |
|---|---|---|---|
| | lb. | lb. | lb. |
| Sydney | 6,750 | 6,510 | 5,850 |
| Christmas Island | 3,580 | 3,540 | 2,960 |
| Baddeck | 5,800 | 4,000 | 1,800 |
| Middle River | 5,840 | 5,440 | 5,960 |
| Margaree | 8,420 | 8,750 | 7,130 |
| Heatherton | 3,580 | 3,540 | 2,960 |
| New Glasgow | 4,120 | 3,600 | 1,520 |
| Tatamagouche | 3,800 | 3,400 | 1,640 |
| Musquodoboit | 3,660 | 4,300 | 3,100 |
| Kennetcook | 3,000 | 3,160 | 1,800 |
| Brooklyn | 4,720 | 5,080 | 3,541 |
| Bridgetown | 5,670 | 5,030 | 4,190 |
| Belliveau Cove | 4,565 | 4,850 | 4,000 |
| Yarmouth | 6,440 | 5,880 | 4,480 |
| Totals | 69,945 | 67,080 | 50,931 |
| Averages | 2·49 tons | 2·39 tons | 1·81 tons |

## BELLIVEAU COVE, DIGBY COUNTY

### OPERATOR, J. A. BELLIVEAU

Seeding was possible at this Station June 3. The soil is of medium loam texture, but due to cold winds and rain the season does not usually open earlier. The crops were all good and gave large yields, except field C. The hay crop at this Station has increased considerably since this work was started. The turnip crop was good, giving a yield of 843 bushels per acre. This was the first year the operator has applied the manure broadcast to this turnip crop. Previous to this, the practice was to put the manure in the rows which took too much time and usually was not satisfactory. The farmers in this section will hereafter follow the system which the operator followed this year.

The following table gives the result of the season's work on the rotation areas.

OPERATIONS AT BELLIVEAU COVE—FOUR-YEAR ROTATION

| Field | Rotation Areas 1½ Acres each | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 2·66 tons | 5 51 per ton |
| B | Clover hay | 2·33 tons | 7 24 per ton |
| C | Oats and seeded | 38·6 bush. | 0 77 per bush. |
| D | Turnips | 843·0 bush. | 0 08¼ " |

NITROGENOUS FERTILIZERS ON TWO-YEAR-OLD SOD

The area devoted to this demonstration was a medium loam soil in a fair to good state of fertility, as may be seen by the yield from the unfertilized area. This land was in hoed crop in 1921. Three one-half-acre plots were used on which the fertilizers as indicated below were applied broadcast May 17. Deducting the cost of fertilizer there was a loss where nitrate of soda was applied of $1.70 per acre, and a profit of only 18 cents per acre where sulphate of ammonia was used.

NITROGENOUS FERTILIZERS ON TWO-YEAR-OLD SOD

| Plot | Amount of Fertilizer per Acre | Yield per acre | Increase over plot not treated | Value of increase at $10 per ton | Cost of fertilizers | Profit or loss (−) |
|---|---|---|---|---|---|---|
| | lb. | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 nitrate of soda | 2·28 | 0·28 | 2 80 | 4 50 | −1 70 |
| 2 | 115 sulphate of ammonia | 2·42 | 0·42 | 4 20 | 4 02 | 0 18 |
| 3 | Not fertilized | 2·0 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN DIFFERENT WAYS

This demonstration with potatoes was similar to that undertaken at the other Stations. The areas used, four one-eighth-acre plots, were uniform and in a very poor state of fertility. The soil is a sandy loam.

The soil was carefully prepared for this work. The manure was ploughed under, after which the fertilizers were harrowed in. Irish Cobblers of good uniform stock were planted June 4 and the crop dug October 15.

The crop was small. It was planted late, and was not far enough advanced when the continued dry weather during the latter part of July and August prevented a very vigorous growth. The plot receiving manure and fertilizer gave the largest yield. However, all three plots receiving either manure or fertilizer varied but little in yield. These plots in 1925 will be sown to oats and seeded and records kept throughout the rotation.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | Amount of Fertilizer per Acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 116¼ | 46 50 | 40 00 | 6 50 |
| 2 | 10 tons manure; 750 pounds of 4-8-4 fertilizer | 117¼ | 46 90 | 35 00 | 11 90 |
| 3 | 1,500 pounds of 4-8-4 fertilizer | 114 | 45 60 | 30 00 | 15 60 |
| 4 | Not fertilized | 4·32 | 17 28 | ..... | ..... |

## BIG BADDECK, VICTORIA COUNTY

OPERATOR, J. A. KILEY

Seeding was possible at this Station May 21. The month of May being dry, all crops were sown or planted early. The hay crop was good, giving a larger yield than any other fields in the district. A heavy storm occurred in August which practically ruined the grain crop. The operator, however,

saved part of the crop and cured it for hay. The turnip crop was badly infested with club-root, which partly accounts for the low yield obtained. The potato crop was a good one for this district. One area receiving manure and commercial fertilizer gave 220 bushels per acre. The following table gives the result of the season's work on the rotation areas.

OPERATIONS AT BIG BADDECK—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 1·5 tons | 8 65 per ton. |
| B | Clover hay | 2·32 tons | 7 73 per ton |
| C | Turnips | 270 bush. | 0 18¼ per bush |
| D | Oats and seeded | | |

NITROGENOUS FERTILIZERS ON TIMOTHY SOD

The land devoted to this test was a medium loam which had been seeded in 1922 to clover and timothy. The stand of grass in the spring of 1924 was fair, but did not show a vigorous growth.

Three one-half acre plots were used in the test. The fertilizers were sown broadcast May 9 and the hay was cut August 11.

The yield was more than tripled by the use of nitrate of soda and more than doubled by the use of sulphate of ammonia. After paying for the fertilizers, the profit received from these plots was $15.50 per acre for nitrate of soda and $6.98 per acre for sulphate of ammonia.

NITROGENOUS FERTILIZERS ON TIMOTHY SOD

| Plot | Amount of fertilizer per acre | Yield per acre | Increase over area not treated | Value increase at $10 per ton | Cost of fertilizer | Profit per acre |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts |
| 1 | 150 lbs. nitrate of soda | 2·9 | 2·0 | 20 00 | 4 50 | 15 50 |
| 2 | 115 lbs. sulphate of ammonia | 2·0 | 1·1 | 11 00 | 4 02 | 6 98 |
| 3 | Not fertilized | 0·9 | | | | |

POTATOES FERTILIZED IN VARIOUS WAYS

This test with potatoes was conducted on four one-eighth-acre plots of uniform loam land. The stable manure was spread broadcast and ploughed under; the chemical fertilizers were applied broadcast and harrowed in. The variety Irish Cobbler of good, uniform stock was used. Planting was done May 23, and the potatoes were dug September 20.

The table gives the amount of fertilizers used and their cost. It will be seen that plot 2, receiving manure and commercial fertilizers, gave the largest profit. The second largest profit was derived from the plot receiving manure alone. From this test it will be seen that the economical use of fertilizers gives good profits on this land.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | How fertilized per acre | Yield per acre | Value of crop at 40 cents per bush. | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 190 | 76 00 | 40 00 | 36 00 |
| 2 | 10 tons manure; 750 pounds of 4-8-4 fertilizer | 220 | 88 00 | 35 00 | 53 00 |
| 3 | 1,500 pounds of 4-8-4 fertilizer | 160 | 64 00 | 30 00 | 34 00 |
| 4 | Not fertilized | 35 | 14 00 | ..... | ..... |

## CHRISTMAS ISLAND, CAPE BRETON COUNTY

OPERATOR, J. A. MCNEIL

At this Station, seeding is generally late, but in 1924 grain was sown on May 29. The soil is a heavy loam with clay subsoil, which makes it difficult during a moderately wet season to grow satisfactory crops at a profit.

The oat crop as this Station was fair, giving a yield of 40 bushels per acre. The clover hay was good. Two tons of limestone per acre were applied on a section of this land in 1923 before sowing grain and seeding with clover and timothy. An area was left without limestone. The limed area gave an increase of 1,660 pounds of clover hay per acre over the yield from the area receiving no limestone.

The potato crop looked favourable until the first part of August when the sudden change from dry to very wet weather caused a large percentage of the crop to rot badly. It would appear from work done on the operator's farm outside of the regular rotation fields, that the soil throughout this section is very deficient in phosphorus. This fact is demonstrated quite clearly from the grain yields in 1923 and the clover hay yields in 1924 where slag has been compared with limestone. The results of this test over a two years' period show that yields are greater where the crops have access to the phosphoric acid obtained from slag.

OPERATIONS AT CHRISTMAS ISLAND—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Clover hay | 2·5 tons | 6 40 per ton |
| B | Oats and seeded | 40·0 bush. | 0 84 per bush. |
| C | Timothy hay | 1·0 ton | 11 70 per ton |
| D | Turnips | 330·0 bush. | 0 19 per bush. |
| D | Potatoes | 118·0 bush. | 0 83½ per bush |

NITROGENOUS FERTILIZERS ON SECOND-YEAR SOD

The land on which this test was conducted was ploughed and worked up in the summer of 1921. Oats were sown in 1922 and seeded, with no fertilizer. The soil was in a low state of fertility and consequently very little clover grew. A fairly good sod was formed. This area was one and one-half acres in extent and was divided into three half-acre plots and fertilized as indicated in the table. It will be seen that where a valuation of $10 per ton is placed on the hay crop, the application of nitrate of soda and sulphate of ammonia was made at a loss in each case.

NITROGENOUS FERTILIZERS ON SECOND-YEAR SOD

| Plot | Amount of fertilizer per acre | Yield per acre | Gain over plot not treated | Value of gain | Cost of fertilizer | Gain or loss (−) |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 1·79 | 0·31 | 3 10 | 4 50 | −1 40 |
| 2 | 100 pounds sulphate of ammonia | 1·77 | 0·29 | 2 90 | 3 50 | −0·60 |
| 3 | Not fertilized | 1·48 | | | | |

LIME AND SLAG APPLIED WHEN SEEDING DOWN

In the fall of 1922 a field of fair uniformity was ploughed and in the spring was divided into five one-half acre plots which were treated as indicated in the table following. The object was to determine whether limestone or slag could be profitably used in hay production. The limestone and slag were harrowed in the soil, after which sulphate of ammonia was spread broadcast and harrowed in. Oats were sown and the land seeded with clover and timothy. In 1923, slag and sulphate of ammonia gave the greatest yield of oats.

Late in the fall of 1923 the clover catch was gone over carefully and it was found that a good, uniform catch had been obtained on all plots, and that the area that had received slag seemed to be the most vigorous. It was an interesting test to watch through the past summer. The slag-treated area seemed to start rapidly, and grew much faster than did the plot receiving limestone. The clover hay was cut July 25 and each plot weighed. The yields obtained from the clover correspond generally with the oat yields of 1923. The crops from the slag-treated areas have been greater than those from the limestone areas both years.

It would appear from the results that this soil is deficient in phosphorus, the supplying of which by the slag has brought about increased yields. This test will be conducted during the season of 1925.

LIME AND SLAG APPLIED WHEN SEEDING DOWN

| Plot | How fertilized per acre | Yield of oats per acre 1923 | Yield of clover hay, per acre 1924 |
|---|---|---|---|
| | | bush. | tons |
| 1 | 2 tons limestone | 11·7 | 1·30 |
| 2 | 2 tons limestone: 200 pounds sulphate of ammonia | 13·4 | 1·45 |
| 3 | 600 pounds slag, Sydney, 14 per cent | 14·1 | 1·90 |
| 4 | 600 pounds slag, Sydney, 14 per cent; 200 pounds sulphate of ammonia | 15·3 | 2·17 |
| 5 | Not fertilized | 9·3 | 0·96 |

POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration was undertaken to show how potatoes may be more economically produced in this section than they have in the past, when barnyard manure alone has been used as a fertilizer. The season being late at this Station, one does not get the much-desired, early, rapid growth. Wet weather this year caused potatoes to rot quite badly.

Four one-eighth-acre plots were used. The soil is a heavy loam with a clay subsoil, and is very retentive of moisture. Stable manure was spread and ploughed under, after which fertilizer was applied and harrowed in. The seed used was uniform Irish Cobbler stock. Planting was done May 26 and the potatoes were dug October 20.

The results from this demonstration show that where manure was used alone the crop was produced at a loss, but that where manure was used with chemical fertilizers, and where chemical fertilizers were used alone, small profits were obtained. These plots will be sown to oats and grass in 1925.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | —— | Yield per acre | Value of crop at 40 cents per bush. | Cost of fertilizer | Profit or loss (−) above cost of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 64 | 25 60 | 40 00 | −14 40 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer | 96 | 38 40 | 35 00 | 3 40 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 84 | 33 60 | 30 00 | 3 60 |
| 4 | Not fertilized | 48 | 19 20 | ..... | ..... |

## HEATHERTON, ANTIGONISH COUNTY

OPERATOR, D. W. GRANT

Spring work was late at this Station. Seeding was not possible until May 20 on account of cold winds. All crops, however, grew well except turnips, which were attacked by the root-maggot.

It will be seen from the hay yields that the timothy has always produced a larger yield than the clover crop. This is due to the clover plants being thrown out by the frost in spring. This fall the clovers look more vigorous and have a deeper root system, this condition having probably been brought about by an application of limestone.

The results of the season's work on the rotation areas are given in the accompanying table.

OPERATIONS AT HEATHERTON—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Turnips | 515 bush. | 0 11 per bush. |
| B | Oats and seeded | 46 bush. | 0 56½ per bush. |
| C | Clover hay | 1·62 tons | 11 21 per ton |
| D | Timothy hay | 2·07 tons | 8 39 per ton |

### NITROGENOUS FERTILIZERS ON SOD LAND

This demonstration on grass-land was conducted on a second-year sod in a fair state of fertility. Three one-half-acre plots were staked off, and fertilizers applied, as stated in the table, on May 22.

It will be seen from the results that the application of a nitrogenous fertilizer did not pay. This was probably due to the fact that the application was delayed on account of the fertilizers going astray in transit until too late to give profitable results.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How fertilized, per acre | Yield per acre | Increase over area not treated | Value of increase at $10 per ton | Cost of fertilizer | Profit or loss (−) |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 1·79 | 0·31 | 3 10 | 4 50 | −1 40 |
| 2 | 100 pounds sulphate of ammonia | 1·67 | 0·19 | 1 90 | 3 50 | −1 60 |
| 3 | Not fertilized | 1·48 | ..... | ..... | ..... | ..... |

### POTATOES FERTILIZED IN VARIOUS WAYS

This test at the Heatherton Station was conducted with the idea in view of showing that by using less barnyard manure per acre and substituting some chemical fertilizer in place of the unused manure, as good a yield of potatoes might be obtained with less of the rot which is so prevalent on just such types of soil as are on this Station.

Stable manure was applied broadcast and ploughed under. The fertilizer was scattered broadcast and harrowed. Irish Cobbler stock was planted on May 27, and the crop dug September 23.

The table below gives the fertilizers used and their cost. It is quite evident that the commercial fertilizers paid for their application. By applying (plot 2) one-half of the manure and adding 750 pounds of 4-8-4 fertilizer, the total cost for fertilizers being $5 less than the cost of the manure for plot 1, there is obtained a profit over plot 1 of $17.40. Plot 3, receiving commercial fertilizer only, gave a profit of $21.60 over plot 1, and $4.20 over plot 2.

It remains to be seen how the yields and profits will work out over a four-year period.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How fertilized, per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 226 | 90 40 | 40 00 | 50 40 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer. | 257 | 102 80 | 35 00 | 67 80 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 255 | 102 00 | 30 00 | 72 00 |
| 4 | Not fertilized | 143·5 | 57 40 | ..... | ..... |

### SLAG AND MARL APPLIED WHEN SEEDING DOWN

An area consisting of one and one-half acres was seeded to wheat in the spring of 1923 with the object of showing the value of using slag or marl when seeding down. The wheat yields for 1923 are given below, as well as the clover yields for 1924, and the fertilizers used. In 1923 the areas receiving marl were the most profitable. The results obtained in 1924 from the clover hay yield show very little difference between the slag and marl plots, the slag alone giving 0.07 tons per acre more than the marl alone. This test will be carried on for another year to arrive at the profit for the whole period.

SLAG AND MARL APPLIED WHEN SEEDING DOWN

| Plot | How fertilized, per acre | Yield of wheat, per acre, 1923 | Yield of clover hay, per acre, 1924 |
|---|---|---|---|
| | | bush. | tons |
| 1A | 1,200 pounds slag and 200 pounds nitrate of soda | 12·8 | 2·60 |
| 1B | 1,200 pounds slag | 10·7 | 2·58 |
| 2A | 1½ tons marl and 200 pounds nitrate of soda | 15·4 | 2·60 |
| 2A | 1½ tons marl | 13·8 | 2·51 |
| 3A | 200 pounds of nitrate of soda | 14·4 | 1·54 |
| 3B | Not fertilized | 11·7 | 1·51 |

### FERTILIZERS FOR CLOVER AND TIMOTHY ON UNPRODUCTIVE LAND

A uniform area of one and one-half acres was used to determine the most profitable way to fertilize to bring in pasture areas which had been unpro-

ductive. This land is a poor soil of a clay-loam character, apparently devoid of humus. The area was a pasture field previous to 1922, when it was ploughed and seeded to oats. This crop was a complete failure, the land not having enough available fertility to produce a crop. It was fall ploughed in 1922 and in the spring of 1923 was disced and prepared for seeding of oats, vetches, clover and timothy, these to be cut and cured for hay.

This was then divided into five one-half acre areas which were treated with various fertilizers. The application of nitrogenous fertilizers did not increase the crop to any great extent in 1923, and represented a loss except where marl and slag were used with sulphate of ammonia. This combination produced a good profit above the cost of fertilizers. The test showed in 1293 that phosphoric acid was the real factor in promoting a large yield from these plots.

In 1924 the yields of clover hay and timothy were outstanding where phosphoric acid was applied in the form of acid phosphate, but where it was supplied in 14 per cent Sydney slag, the crops did not show any material increase. This test will be carried on during the season of 1925.

SEEDED TO CLOVER AND TIMOTHY, UNDER DIFFERENT METHODS OF FERTILIZATION

| Plot | Not fertilized | Yield green feed per acre, 1923 | Yield clover hay per acre, 1924 |
|---|---|---|---|
| | | tons | tons |
| 1 | Marl, 3 tons— | | |
| | A. 150 pounds nitrate of soda | 2·5 | 0·42 |
| | B. 115 pounds sulphate of ammonia | 2·1 | 0·41 |
| | C. No nitrogenous fertilizer | 1·4 | 0·40 |
| 2 | Marl, 3 tons; slag, 350 pounds— | | |
| | A. 150 pounds nitrate of soda | 3·8 | 0·51 |
| | B. 115 pounds sulphate of ammonia | 6·1 | 0·49 |
| | C. No nitrogenous fertilizer | 2·3 | 0·46 |
| 3 | Marl, 3 tons; acid phosphate, 350 pounds— | | |
| | A. 150 pounds nitrate of soda | 7·2 | 2·22 |
| | B. 115 pounds sulphate of ammonia | 6·5 | 2·16 |
| | C. No nitrogenous fertilizer | 5·4 | 2·08 |
| 4 | Acid phosphate, 300 pounds— | | |
| | A. 150 pounds nitrate of soda | 6·5 | 1·06 |
| | B. 115 pounds sulphate of ammonia | 6·0 | 1·08 |
| | C. No nitrogenous fertilizer | 4·6 | 1·03 |
| 5 | Manure, 10 tons; sweet clover, 1922; alsike, red clover, timothy | 0·92 | 1·08 |
| 6 | Not fertilized | 1·1 | 0·38 |

## KENNETCOOK, HANTS COUNTY

### OPERATOR, WILLARD ETTINGER

Seeding was done at this Station May 21. Field A produced a fair crop of hay, 1.5 tons per acre. Field B gave little prospect of a crop of clover, as the previous year, this area had produced a heavy crop of oats which lodged badly. The young clover plants were sickly in appearance. However, the clover came along exceptionally well the latter part of June. The aftermath grew rapidly, and in sections of the field timothy headed out. A small area was staked off after haying, in a uniform part of this field, and an application of acid phosphate was made on the surface at the rate of 400 pounds per acre. This was done in order to ascertain the deficiency, if any, of phosphoric acid in the soil. Crop weights will be obtained in 1925 from this area, and compared with those from an area adjoining this plot.

The root crop was good. This crop consisted chiefly of turnips, of the Bangholm and Halls Westbury varieties. The Halls Westbury gave the largest yield. Potatoes were a fair crop, but on account of the heavy soil, some rot appeared.

The oats and seeded fields produced only a fair crop. There is a flat area which allows water to seep in, and satisfactory results and a uniform yield are impossible. The operator has made considerable improvements at this Station.

The following table gives the results of the season's work on the rotation areas.

OPERATIONS AT KENNETCOOK—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 1·5 tons | 7 84 per ton. |
| B | Clover hay | 1·4 tons | 7 48 per ton |
| C | Turnips | 587 bush. | 0 10 per bush. |
| D | Oats and seeded | 26·6 bush. | 0 97 per bush. |

NITROGENOUS FERTILIZERS ON SOD LAND

The land devoted to this demonstration was a clay loam. The sod had the appearance of not being too vigorous as three hay crops had been removed. Three one-half-acre plots were fertilized on May 9 as given in the table following. It wll be seen that, after paying for the fertilizer, the nitrate of soda plot gave a profit of $1.50, and the sulphate of ammonia plot a profit of $2.81 over the unfertilized area.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per acre | Yield per acre | Gain over plot not fertilized | Value of gain at $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | ton | ton | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 1·50 | 0·60 | 6 00 | 4 50 | 1 50 |
| 2 | 114 pounds sulphate of ammonia | 1·58 | 0·68 | 6 80 | 3 99 | 2 81 |
| 3 | Not fertilized | 0·9 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN VARIOUS WAYS

A uniform, fairly fertile area which had had one crop of clover hay removed from it was used for this demonstration. The texture of the soil is a heavy loam, similar to that of a large acreage in this district.

Four one-eighth-acre plots were fertilized as outlined in the table, and planted with Irish Cobblers on June 2. The crop was dug September 22.

It will be noticed that the unfertilized plot gave the greatest profit. This is no doubt due to the soil being in a fair state of fertility, and to the clover sod turned under. On the plot where manure alone was used the potatoes contained considerable rot. This was not noticed on the plot receiving fertilizer alone, nor on the plot not fertilized.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | How Fertilized per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizers |
|---|---|---|---|---|---|
| | | bush. | $ | $ | $ |
| 1 | 20 tons manure | 160·0 | 64 | 40 | 24 |
| 2 | 10 tons manure; 750 pounds of 4-8-4 fertilizer | 192·5 | 77 | 35 | 42 |
| 3 | 1,500 pounds of 4-8-4 fertilizer | 200·0 | 80 | 30 | 50 |
| 4 | Not fertilized | 145·0 | 58 | ..... | ..... |

## MIDDLE MUSQUODOBOIT, HALIFAX COUNTY

OPERATOR, R. B. MCCURDY

Seeding at this Station was possible May 20, fifteen days earlier than in 1923. The exceptionally dry weather in May enabled the farmers to get their crops in earlier than is the custom on this wet soil. All crops grew well and did not suffer materially until July and the first part of August, when hoed crops, particularly sunflowers, turnips, and potatoes, were at a standstill.

The hay crop gave a good yield on the clover area. Where two tons of limestone per acre were applied on the grain and seeded area in 1923, there was an increase of 900 pounds of clover hay per acre over the area not limed.

The turnip yield was very good, as was also the potato crop. The Irish Cobbler variety seems better suited to this section than does the Green Mountain.

The clover catch on the 1924 grain and seeded area is good, the season favouring a vigorous growth.

OPERATIONS AT MIDDLE MUSQUODOBOIT—FOUR-YEAR ROTATION

| Field | Yield per acre | Actual cost |
|---|---|---|
| | | $ cts. |
| Clover hay | 3·8 tons | 4 35 |
| Oats and seeded | 32·0 bush. | 0 76¾ |
| Sunflowers | 15·9 tons | 3 54 |
| Turnips | 757·0 bush. | 0 07¾ |
| Timothy hay | 1·7 tons | 7 50 |

### NITROGENOUS FERTILIZERS ON SOD-LAND

The land where this demonstration was carried on had been in sod for four years but had received a light dressing of manure two years ago. The timothy sod was uniform. Three one-half-acre plots were staked off and fertilizers, as shown in the table, applied May 3. It will be seen from the results that sulphate of ammonia gave a profit above cost of $2.01, while the area receiving nitrate of soda gave a loss of $2 per acre. In a similar test conducted at this Station in 1923, sulphate of ammonia gave a profit of $2.18 per acre and nitrate of soda a profit of 70 cents. It would appear that on this soil, sulphate of ammonia is the most economical nitrogenous fertilizer to use.

NITROGENOUS FERTILIZERS ON SOD LAND

| Plot | How Fertilized | Yield per acre | Increase over area not treated | Value of increase at $10 per ton | Cost of fertilizer | Profit per acre or loss (—) |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda..... | 1·80 | 0·25 | 2 50 | 4 50 | —2 00 |
| 2 | 114 pounds sulphate of ammonia | 2·15 | 0·60 | 6 00 | 3 99 | 2 01 |
| 3 | Not fertilized..... | 1·55 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration was undertaken to find out if, by using some commercial fertilizer with a smaller amount of barnyard manure than has been used in this district during the past, a more economical yield and an earlier, more vigorous growth would be obtained than from using manure alone. The area devoted to this work was a gravelly loam, typical of large areas of intervale land in this district where potatoes are grown.

Four one-eighth-acre plots were treated as stated in the table following. The stable manure was scattered broadcast and ploughed under, after which the commercial fertilizer was applied broadcast and harrowed in. Irish Cobblers of good uniform stock were used. Planting was done May 28, and the potatoes were dug October 22.

The results show that the greatest returns were obtained where commercial fertilizers were used alone. The next highest profit was obtained where manure and commercial fertilizer was used, while manure gave the least profit of the fertilized plots. It remains to be seen whether this order will continue for the next three years of the rotation.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How Fertilized per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure..... | 179·5 | 71 80 | 40 00 | 31 80 |
| 2 | 10 tons manure, 750 pounds 4–8–4 fertilizer.. | 233·0 | 93 20 | 35 00 | 58 20 |
| 3 | 1,500 pounds of 4–8–4 fertilizer..... | 261·0 | 104 40 | 30 00 | 74 40 |
| 4 | Not fertilized..... | 89·5 | 35 80 | ..... | ..... |

## MIDDLE RIVER, VICTORIA COUNTY

OPERATOR, FORBES MCDONALD

Seeding was possible at this Station May 22. Lack of rain during May helped along the seeding in these late sections. Seeding in 1923 was not possible at this Station until June 9. The Station crops were all good. The limestone demonstration proved eminently satisfactory, and the area receiving an application of two tons per acre in 1923, when seeding with oats, gave an increased yield of clover hay over the unlimed area of 1,300 pounds. In September the operator cut a second crop of clover on the limed area, while the unlimed area was not worth cutting. It must be borne in mind that all the areas receiving limestone have produced a hoed crop the previous year and have received

15 to 20 tons of stable manure per acre, so that the unlimed area is in a fair state of fertility, and the increased crops are seemingly brought about by the use of limestone producing a heavier stand and growth of clover.

The following table gives the results of the season's work on the rotation areas.

OPERATIONS AT MIDDLE RIVER—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 2·8 tons | 4 39 per ton |
| B | Clover hay | 2·0 tons | 9 03 per ton |
| B | Clover hay, second cutting | 0·75 tons | 9 17 per ton |
| C | Turnips | 675·0 bush. | 0 09½ per bush. |
| C | Potatoes | 200·0 bush. | 0 54 per bush. |
| C | Oats, peas, vetches | 8·0 tons | 4 69 per ton |
| D | Oats and seeded | 56·8 bush. | 0 55 per bush. |

NITROGENOUS FERTILIZERS ON SOD-LAND

The object of this demonstration was to show the gain in the yield of hay from an application of nitrate of soda and sulphate of ammonia applied broadcast in the early spring.

Three uniform one-half-acre areas were chosen for this test, one-half acre being treated with nitrate of soda, one-half acre with sulphate of ammonia, and one-half acre left unfertilized. The amounts of the different fertilizers are given in the table below. It will be seen from the results that these applications were made at a loss. The nitrate of soda gave a larger yield than the sulphate of ammonia area by one-fifth of a ton, and neither plot gave such a large yield as the check plot.

The operator later discovered, after the hay had been carefully weighed from the plots, that a hoed crop had been planted on this particular area the year previous to his occupation; which, no doubt, explains the inconsistency of the results.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per acre | Yield per acre | Gain over plot not fertilized | Value of gain at $10 per ton | Cost of fertilizer | Loss |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 2·92 | −0·05 | −0 50 | 4 50 | 5 00 |
| 2 | 114 pounds sulphate of ammonia | 2·72 | −0 25 | −2 50 | 3 99 | 6 49 |
| 3 | Not fertilized | 2·97 | ..... | ..... | ..... | ..... |

LIMESTONE AND SLAG APPLIED WHEN SEEDING CLOVER AND TIMOTHY

This demonstration was undertaken in 1923 when the land was seeded down to clover and timothy to discover the relative values of limestone and slag on grass-land. One and one-quarter acres of land were treated as stated in the table following. The plots were one-quarter of an acre each. The slag and limestone were applied broadcast and harrowed in before seeding. Sulphate of ammonia was scattered broadcast and harrowed in on plots 2, 4, and 5 after the slag and limestone had been applied. Barley was sown late, on June 21, together with clover and timothy. A frost on September 26 injured the grain,

which was cut and cured for hay. The results from this crop indicate a little benefit from the use of sulphate of ammonia, but no material gain from the slag plot over the limestone, though both gave quite an increase over the plot treated with sulphate of ammonia.

This land was an old pasture area and low in fertility. The clover made a poor growth, but late in the fall of 1923 the clover plants seemed more vigorous on the areas that had received lime and slag. In the spring of 1924, the clover on these plots did not get an early start. In June, however, a difference could be noted in that the crop of clover on the limestone and the slag plots was better. This crop was cut July 24 and each plot weighed. It will be noticed from the tabulated results that the sulphate of ammonia in conjunction with limestone or slag has been instrumental in increasing the yields over the plots where limestone or slag were used alone. This land is evidently not deficient in phosphorus acid as the slag plots have given very little more hay than where limestone has been used.

The production from these plots will be followed up next year to determine, if possible, the more economical use of the lime or slag.

LIMESTONE AND SLAG APPLIED WHEN SEEDING CLOVER AND TIMOTHY

| Plot | Fertilizer per acre | Yield barley hay 1923 | Yield clover hay 1924 |
|---|---|---|---|
| | | tons per acre | tons per acre |
| 1 | 4 tons limestone | 1·8 | 1·40 |
| 2 | 2 tons limestone; 200 pounds sulphate of ammonia | 2·2 | 1·80 |
| 3 | 1,200 pounds slag, Sydney, 14 per cent | 2·2 | 1·48 |
| 4 | 1,200 pounds slag, Sydney, 14 per cent; 200 pounds sulphate of ammonia | 2·8 | 1·88 |
| 5 | 200 pounds sulphate of ammonia | 0·6 | 1·12 |
| 6 | Not fertilized | 0·4 | 1·0 |

POTATOES FERTILIZED IN VARIOUS WAYS

Four one-eighth-acre plots were used for this demonstration and treated as stated in the table following. Stable manure was scattered broadcast and ploughed under, after which the fertilizer was applied and harrowed in. The seed used was good, uniform Irish Cobbler stock. Planting was done May 27 and the potatoes dug October 1.

A general study of the results from these plots shows fairly conclusively, that by using a small amount of commercial fertilizer along with a smaller amount of manure than has been the past custom, we obtain a more economical yield in the potato crop.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | How Fertilized per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 222 | 88 80 | 40 00 | 48 80 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer | 268 | 107 20 | 35 00 | 72 20 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 255 | 102 00 | 30 00 | 72 00 |
| 4 | Not fertilized | 78 | 31 20 | ..... | ..... |

## NEW GLASGOW, PICTOU COUNTY

Operator, GEO. P. FRASER

Seeding at this Station is usually late on account of wet land. Unfortunately, field B which was in oats and seeded, 1923, had to be ploughed this spring and re-seeded. There was a splendid catch of clover in the fall, but the sudden thawing and freezing in the spring of 1924 threw the young clover roots out. This made the operator later than usual in preparing ten extra acres for a grain crop. Late-sown grain does not yield as large a crop as early-sown grain. This may be seen by the yield of field B as compared with field D. The rest of the crops were exceptionally good, except a light crop of timothy hay on field C. The hoed crop was a credit to the operator. The entire field of ten acres had a very uniform stand of turnips and potatoes, without a weed showing. This acreage is unusual in most sections of the eastern part of the province. The operator did most of this work with horse labour.

The young clover plants at this Station are more vigorous and will withstand the winter conditions better than in 1923, judging from observations made in November.

The turnip crop was very uniform. Two varieties, Halls Westbury and Bangholm, were sown. Halls Westbury gave nearly 100 bushels per acre more than the Bangholm variety.

The operator has the greater part of his Irish Cobbler stock potatoes sold for seed. This seed is proving quite satisfactory under the soil conditions of this district.

The following table gives the result of the season's work on the rotation areas.

OPERATIONS AT NEW GLASGOW—FOUR-YEAR ROTATION

| Field | — | Yields per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Potatoes | 303 bush. | 0 25 per bush. |
| A | Turnips | 835 bush. | 0 06 per bush. |
| B | Oats and seeded | 20·3 bush. | 1 05 per bush. |
| C | Timothy hay | 1·13 tons | 9 81 per ton |
| D | Oats and seeded | 40·5 bush. | 0 62½ per bush. |
| D | Barley and seeded | 19 bush. | 1 45 per bush. |

### NITROGENOUS FERTILIZERS ON SOD-LAND

The land on which this test was conducted is in only a fair state of fertility, as the yield from the check plot will show. The timothy sod was uniform. Three one-half-acre areas were staked off, and to these the fertilizers were applied May 10. (See table). It will be seen from the results given below that a surface application of nitrogenous fertilizers on a sod in only a fair state of fertility has not only paid for the fertilizers but given a big profit besides.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per acre | Yield per acre | Increase over area not treated | Value of increase at $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 2·06 | 1·36 | 13 60 | 4 50 | 9 10 |
| 2 | 114 pounds sulphate of ammonia | 1·80 | 1·10 | 11 00 | 3 99 | 7 01 |
| 3 | Not fertilized | 0 70 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN VARIOUS WAYS

This test was undertaken with the idea in view of demonstrating that by using less stable manure than is commonly used, and putting the approximate value of the unused manure into chemical fertilizers, there would be obtained an earlier and more rapid growth of the potato plant during the first growing months. The area used for the work was a gravelly loam of uniform past treatment.

Four one-eighth-acre plots were treated as stated in the table following. The stable manure was scattered broadcast and ploughed under, after which the fertilizer was sown broadcast and harrowed into the soil. Irish Cobblers of good, uniform stock were used. Planting was done June 3 and the crop dug October 3.

The results show that manure with commercial fertilizers gave the greatest profit, and commercial fertilizers used alone the next greatest. Where manure alone was used, there was not as much profit as from the unfertilized area. Extending this test, however, throughout the other years of the rotation may modify these results.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | How fertilized, per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | Bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 236·0 | 94 40 | 40 00 | 54 40 |
| 2 | 10 tons manure; 759 pounds 4–8–4 fertilizer | 309·0 | 123 60 | 35 00 | 88 60 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 284·5 | 113 80 | 30 00 | 83 80 |
| 4 | Not fertilized | 198·0 | 79 20 | ..... | ..... |

## NEWPORT, HANTS COUNTY

OPERATOR, CHARLES ZWICKER

This Station has been in operation for two years, with excellent results. Seed oats and potatoes raised by the operator have been in demand. The oat crop at this Station was an exceptionally good one, giving the large yield of 64.7 bushels per acre. The hoed crop area was in turnips. This crop made very creditable showing, both in the way the cultivation was done and in the yield, this being 881 bushels per acre.

The clover catch at this Station is a good one. The stand is uniform, especially on the area treated with limestone. The plants where limestone was used are in a healthy condition, particularly when compared with those on the area receiving no limestone.

OPERATIONS AT NEWPORT—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Oats and seeded | 47·0 bush. | 0 59 per bush. |
| B | Turnips | 881·0 bush. | 0 07 per bush. |
| C | Oats | 64·7 bush. | 0 32½ per bush. |
| D | Timothy hay | 2·2 tons | 6 76 per ton |

### NITROGENOUS FERTILIZERS ON SOD-LAND

The land where this test was conducted is a clay soil in a fair state of fertility. The sod had been in hay for two years. Three one-half-acre plots were fertilized, as shown in the table, on May 4. There was a striking difference in the appearance of the areas fertilized, as compared with the untreated land, which difference persisted until the time of cutting. The results show that the use of nitrogenous fertilizers paid the cost charges and gave a good profit besides.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How fertilized, per acre | Yield per acre | Gain over plot not fertilized | Value of gain, $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 2·36 | 0·59 | 5 90 | 4 50 | 1 40 |
| 2 | 114 pounds sulphate of ammonia | 2·54 | 0·77 | 7 70 | 3 99 | 3 71 |
| 3 | Not fertilized | 1·77 | | | | |

### POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration with potatoes was similar to that conducted at the other Stations.

Four one-eighth-acre plots of a fairly heavy loam soil were treated as shown in the following table. Good uniform Irish Cobbler stock was planted May 21, and the potatoes dug October 4.

It will be noticed that the plot receiving manure alone gave a crop valued at only $4.70 more than that from the unfertilized plot. Where commercial fertilizer was used alone, there was a profit of $72 above the cost of fertilizer, while the plot receiving manure and commercial fertilizer gave the next greatest return.

POTATOES FERTILIZED IN DIFFERENT WAYS

| Plot | How fertilized, per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ | $ |
| 1 | 20 tons manure | 186·5 | 74 70 | 40 00 | 34 70 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer | 220·0 | 88 00 | 35 00 | 53 00 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 255·0 | 102 00 | 30 00 | 72 00 |
| 4 | Not fertilized | 176·0 | 70 40 | | |

## NORTH EAST MARGAREE, INVERNESS COUNTY

### OPERATOR, THOMAS E. ROSS

Seeding at this Station was possible May 16, this being sixteen days earlier than in 1923. The wheat sown at this date, however, germinated poorly, and did not produce a good uniform stand, due to continued dry weather. Consequently, on June 21 the land was ploughed and seeded to barley and the usual mixture of grass seed. Other crops came along exceptionally well. Clover and timothy hay were the outstanding crops, the clover yielding 4 tons of dry hay per acre, while timothy yielded 3.02 tons. The hoed crops, potatoes and

turnips, produced a good yield. Throughout the season not a weed could be found in any of this hoed-crop area. This is unusual in a district such as this. The turnip crop was very uniform, but the season here was too dry to obtain a bumper crop. Bangholm turnips, yielded 562 bushels, while Halls Westbury yielded 587 bushels per acre.

The operator sold during the spring of 1924, 130 bushels of wheat and oats, and 125 bushels of potatoes for seed. This season he has all his surplus seed spoken for. During the summer a Country Fair was held in this district. The operator took several first prizes in live stock. Several hundred people visit this Station during the summer months to obtain information as to how such good crop yields could be grown on seemingly poor soil.

The following table gives the results of the season's work on the rotation areas.

OPERATIONS AT NORTH EAST MARGAREE—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 3·02 tons | 5 74 per ton |
| B | Barley and seeded | 20·0 bush. | 1 17 per bush. |
| C | Turnips | 688·0 bush. | 0 09¼ per bush. |
| C | Potatoes | 247·0 bush. | 0 32 per bush. |
| C | Oats | 53·0 bush. | 0 58 per bush. |
| D | Clover hay | 4·0 tons | 5 14 per ton |

FERTILIZERS ON PASTURE AREAS

A uniform area of five acres was ploughed in the spring of 1923 after an unsatisfactory growth of sweet clover had failed. This area was divided into five one-acre plots, and fertilized as follows:—

| | |
|---|---|
| Plot 1—Burnt lime | 2 tons |
| Plot 2—Slag | 1,200 pounds |
| Plot 3—Not fertilized. | |
| Plot 4—Manure | 10 tons |
| Plot 5—Manure | 10 tons, and |
| Lime | 2 tons |

Each acre-plot was again divided into three sections, one section of which, (C), received sulphate of ammonia; another (A), nitrate of soda; and the third (B), no fertilizer. This whole area was sown to oats and seeded with 10 pounds of timothy and 5 pounds each of common red and alsike clovers. An average crop of oats was threshed from this area.

When vegetation started in the spring of 1924, the plots receiving different fertilizers, particularly lime or slag, were easily detected. When the hay was removed, duplicate weighings were made from each plot, the results of which are given in the following table. A general survey of the results would indicate that this soil responds readily to lime in some form. There is very little, if any, difference between the results from burnt lime and slag (plots 1 and 2). In plot 3, there is a slight increase in the nitrate of soda and sulphate ammonia sections over the unfertilized section. Where manure and sulphate of ammonia, and manure and nitrate of soda have been used, the results obtained have shown no gain over manure alone. Where limestone has been used in conjunction with manure and sulphate of ammonia and with manure and nitrate of soda, the yields have practically been doubled.

FERTILIZERS ON PASTURE LAND

| Plot | Fertilizers used, 1923 | Yield of grain, per acre, 1923 | Yield of clover hay, per acre 1924 |
|---|---|---|---|
| | | bush. | tons |
| 1 | Burnt lime 2 tons — A—200 pounds nitrate of soda | 58·7 | 1·5 |
| | Burnt lime 2 tons — B—No nitrogenous fertilizers | 47·5 | 1·2 |
| | Burnt lime 2 tons — C—150 pounds sulphate of ammonia | 65·6 | 1·36 |
| 2 | Slag 14 per cent 1,200 pounds — A—200 pounds nitrate of soda | 41·6 | 1·52 |
| | Slag 14 per cent 1,200 pounds — B—No nitrogenous fertilizer | 34·8 | 1·2 |
| | Slag 14 per cent 1,200 pounds — C—150 pounds sulphate of ammonia | 41·5 | 1·3 |
| 3 | No lime, manure or slag — A—200 pounds nitrate of soda | 35·3 | 0·50 |
| | No lime, manure or slag — B—No nitrogenous fertilizer | 30·1 | 0·42 |
| | No lime, manure or slag — C—150 pounds of sulphate ammonia | 44·1 | 0·70 |
| 4 | Manure, 10 tons — A—200 pounds nitrate of soda | 47·5 | 0·60 |
| | Manure, 10 tons — B—No nitrogenous fertilizer | 51·1 | 0·72 |
| | Manure, 10 tons — C—150 pounds sulphate of ammonia | 52·1 | 0·62 |
| 5 | Manure, 10 tons — A—200 pounds nitrate of soda | 58·7 | 1·9 |
| | Manure, 10 tons — B—No nitrogenous fertilizer | 65·1 | 0·87 |
| | Burnt lime, 2 tons — C—150 pounds sulphate of ammonia | 47·5 | 1·30 |

NITROGENOUS FERTILIZERS ON SOD-LAND

This demonstration was for the purpose of showing whether a profitable crop could be obtained from surface applications of nitrate of soda or sulphate of ammonia on hay lands. This field was in grain and seeded two years previously and was in a good state of fertility. Three one-half-acre plots were fertilized as indicated below. The hay was valued at $10 per ton. The results show a good profit obtained from the use of both nitrate of soda and sulphate of ammonia.

NITROGENOUS FERTILIZERS ON HAY-LAND

| Plot | How fertilized | Yield per acre | Gain over plot not treated | Value of gain | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | lb. per acre | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 nitrate of soda | 4·21 | 0·65 | 6 50 | 4 50 | 2 00 |
| 2 | 100 sulphate of ammonia | 4·37 | 0·81 | 8 10 | 3 50 | 4 60 |
| 3 | Not fertilized | 3·56 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration was undertaken to show that with much less stable manure than is generally used, and the value of the unused manure put into chemical fertilizers to give a more rapid growth during the first part of the season, more economical production is likely to be obtained.

Four one-eighth-acre plots, of sandy loam soil, were treated as stated in the table following. The stable manure was scattered broadcast and ploughed under, after which the fertilizer was applied broadcast and harrowed into the soil. The seed used was Irish Cobbler stock. Planting was done May 31, and the crop was dug October 6.

It will be seen that the greatest returns have been obtained where commercial fertilizers were used in conjunction with manure. The manure alone has given the next greatest returns. These four plots will be sown to grain and seeded in 1925, and the rotation continued for three or four years, in order to obtain some information regarding the yields throughout the rotation from different fertilizers applied to the first crop.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How fertilized, per acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 300 | 120 00 | 40 00 | 80 00 |
| 2 | 10 tons manure; 750 pounds of 4-8-4 fertilizer | 316 | 126 40 | 35 00 | 91 40 |
| 3 | 1,500 pounds of 4-8-4 fertilizer | 243 | 97 20 | 30 00 | 67 20 |
| 4 | Not fertilized | 75 | 30 00 | ..... | ..... |

## SYDNEY RIVER, CAPE BRETON COUNTY

### Operator, MELVIN MORESHEAD

All crops at this Station have been good. The nature of the soil enables the operator to begin working his land early. Seeding was possible May 10. The hay crop is an important one in this section of the province as many farmers are in the dairy business. Before this work was started at Sydney River, the operator bought annually from sixteen to twenty tons of hay. Two years after the Station was established the operator grew enough hay to feed thirty head of live stock. He has since increased this number and has a surplus of hay each year. The operator has improved his herd considerably, besides growing registered seed and selling his supplies to the farmers in the district.

In 1924 the operator won twenty-one first, fourteen second and three third prizes on live stock, vegetables, poultry and grains.

The table below gives the results of the season's work on the rotation areas:—

OPERATIONS AT SYDNEY RIVER—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Timothy hay | 3·1 tons | 5 20 per ton |
| B | Clover hay | 2·0 tons | 7 94 per ton |
| C | Oats and Seeded | 36·0 bush. | 0 73 per bush. |
| D | Green feed, oats, peas, vetches | 5·15 tons | 6 13 per ton |

#### NITROGENOUS FERTILIZERS ON SOD-LAND

The object of the test was to determine, if possible, whether a nitrogenous fertilizer applied to sod early would give a sufficient increase of crop to pay for the fertilizer. One-half acre was fertilized with nitrate of soda; one-half acre was fertilized with sulphate of ammonia, and one-half acre was left unfertilized. The fertilizer was applied broadcast on May 12. The results indicate that the soil was in a good state of fertility, as shown from the yield on the unfertilized area. If hay is valued at $10 per ton, the plot receiving nitrate of soda just paid for the fertilizer, while the sulphate of ammonia area failed to do this by 20 cents.

NITROGENOUS FERTILIZERS ON SECOND-YEAR SOD

| Plot | How fertilized, per acre | Yield per acre | Gain over plot not fertilized | Value of gain at $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 3·37 | 0·45 | 4 50 | 4 50 | ..... |
| 2 | 100 pounds sulphate of ammonia | 3·25 | 0·33 | 3 30 | 3 50 | −0 20 |
| 3 | Not fertilized | 2·92 | ..... | ..... | ..... | ..... |

POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration was similar to that conducted at the other Stations. Four one-eighth-acre plots were used. The table following gives the rate of application of fertilizers and the yields. Irish Cobblers of good uniform stock were planted May 18.

It will be seen that the greatest profit was derived from the area treated with chemical fertilizers and manure. The next greatest profit was where manure alone was used. It should be kept in mind that the residue left in the soil where 20 tons of manure were applied should give a larger yield in future crops. These plots will be continued over a period of four years and the yields from each will be recorded.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How fertilized, per acre | Yield per acre | Value of crop at 40 cents psr bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons of manure | 164 | 65 60 | 40 00 | 25 60 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer | 232 | 92 80 | 35 00 | 57 80 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 120 | 48 00 | 30 00 | 18 00 |
| 4 | Not fertilized | 63 | 25 20 | ..... | ..... |

## TATAMAGOUCHE, COLCHESTR COUNTY

Operator, G. B. CLARK

Seeding was possible at this Station May 24, this being a week earlier than in 1923. At this Station the crops did not suffer from the extremely dry weather that many Stations had to contend with. Frequent showers occurred and helped all crops, which gave a good, uniform yield. The crops, seemingly, were sown at the right time, and good cultural methods were practised.

It is evident that the hay crop on this Station has increased greatly since the inception of this Station. The Bangholm turnip does not give the yield on this soil that the Halls Westbury does. The Halls Westbury gave a yield of 800 bushels per acre, as compared with 600 bushels from the Bangholm variety.

The table below gives the result of the season's work on the rotation areas:—

OPERATIONS AT TATAMAGOUCHE—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Oats and seeded | 58·0 bush. | 0 52 per bush. |
| B | Timothy hay | 2·7 tons | 5 13 per ton |
| C | Turnips | 675·0 bush. | 0 09 per bush. |
| D | Clover hay | 3·0 tons | 7 56 per ton |
| F | Oats and seeded | 32·0 bush. | 0 43 per bush. |
| G | Clover hay | 1·8 tons | 6 35 per ton |

LIMESTONE AND SLAG APPLIED WHEN SEEDING CLOVER AND TIMOTHY

This demonstration with limestone and slag was undertaken in 1923 on a uniform area of three acres. In the summer of 1922, after the hay crop was removed, this land was ploughed and worked until fall. In the spring of 1923 this area was ploughed and on one acre two tons of limestone was applied; on another acre 1,200 pounds slag; and one acre was left unfertilized. This material was sown broadcast and harrowed in, after which barley, clover, and timothy were sown. The operator had this crop sown with the land in spendid condition, when a rain lasting three days came, followed by several days of dull weather, which practically ruined the barley. The germination was poor and the stand irregular.

This crop was cut green and used for fodder. In the fall of 1923, the operator applied 7 tons of stable manure per acre over the three acres in order to insure a good catch of clover. The yields of clover and hay are given in the table following.

It will be seen from the results that limestone gave the largest yield and slag nearly as large. The plot receiving no limestone or slag gave a fair yield. The hay on this plot contained little clover, the bulk of the crop being daisies and brown top. The clover showed up on the other two plots, with a more uniform growth on the limestone area.

LIMESTONE AND SLAG APPLIED WHEN SEEDING CLOVER AND TIMOTHY

| Plot | How Fertilized per Acre | Yield of hay per acre | Value of crop at $10 per ton | Share of fertilizer 25 per cent | Net profit over area not fertilized |
|---|---|---|---|---|---|
| | | tons | $ cts. | $ cts. | $ cts. |
| 1 | 2 tons limestone | 2·1 | 21 00 | 2 25 | 4 25 |
| 2 | 1,200 pounds slag | 1·95 | 19 50 | 3 00 | 2 00 |
| 3 | Not fertilized | 1·44 | 14 50 | ..... | ..... |

NITROGENOUS FERTILIZERS ON SOD-LAND

The land on which this demonstration was conducted was in a poor to fair state of fertility. In 1922 it was seeded down with oats and the regular mixture of grass seed, at the time of seeding receiving 200 pounds of acid phosphate per acre. Three one-half acres of uniform sod-land were staked off, and to these the fertilizers noted in the table following were applied on May 16. It will be seen that by an economical use of nitrogenous fertilizers on sod-land in only a fair state of fertility, profitable results are almost certain.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per Acre | Yield per acre | Increase over area not treated | Value of increase at $10 per ton | Cost of fertilizer | Profit per acre |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 1·9 | 1·07 | 10 70 | 4 50 | 6 20 |
| 2 | 114 pounds sulphate of ammonia | 1·7 | 0·87 | 8 70 | 3 99 | 4 71 |
| 3 | Not fertilized | 0·83 | | | | |

POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration was made on one-eighth-acre areas of uniform land, a total of one-half acre being used in the test. The stable manure was applied and ploughed under, and the fertilizer was scattered broadcast and harrowed. Irish Cobbler potatoes of good uniform stock were planted on June 2. The crop was dug September 22.

The table following gives the fertilizers used and their cost. It will be seen that at this Station the chemical fertilizers alone gave the greatest yield, and that the next best return was from the plot receiving manure and fertilizers, while the manured plot gave the same profit as the unfertilized plot. The records of these plots will be kept throughout a four-year period, and the cost of the various crops obtained.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How Fertilized per Acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 200 | 80 00 | 40 00 | 40 00 |
| 2 | 10 tons manure; 750 pounds 4-8-4 fertilizer | 212 | 84 80 | 35 00 | 49 80 |
| 3 | 1,500 pounds 4-8-4 fertilizer | 218 | 87 20 | 30 00 | 57 20 |
| 4 | Not fertilized | 100 | 40 00 | | |

## UPPER GRANVILLE, ANNAPOLIS COUNTY

OPERATOR, J. G. CAMPBELL

Seeding at this Station was possible May 17. The land, principally a sandy loam, is not affected by heavy rains. Good cultural methods have increased crop yields at this Station. The hay crop was good. The soil seemingly had enough moisture from rains in June to produce a good crop. Potatoes, however, suffered for want of rain. Very dry conditions during the summer are the cause of a smaller yield than usual. The success of the Station is quite marked, the operator already having most of his oats and potatoes sold for seed.

The following table gives the result of the season's work on the rotation areas.

OPERATIONS AT UPPER GRANVILLE—FOUR-YEAR ROTATION

| Field | —— | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Clover hay | 2·5 tons | 9 05 per ton |
| B | Oats and seeded | 41·4 bush. | 0 67 per bush. |
| C | Potatoes | 185·0 bush. | 0 41 per bush. |
| D | Timothy hay | 2·09 tons | 8 37 per ton. |

### NITROGENOUS FERTILIZERS ON SOD-LAND

The land devoted to this work was a sandy loam. The sod had the appearance of being in a good state of fertility, four successive crops of hay having been removed from this field. Three one-half-acre plots were used and fertilized May 12 as shown in the table following. It will be seen from the results that nitrate of soda gave more profit than sulphate of ammonia, and that both fertilizers gave a profit over cost of material.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per Acre | Yield per acre | Gain over plot not fertilized | Value of gain at $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 2·84 | 0·75 | 7 50 | 4 50 | 3 00 |
| 2 | 114 pounds sulphate of ammonia | 2·51 | 0·42 | 4 20 | 3 99 | 0 21 |
| 3 | Not fertilized | 2·09 | | | | |

### POTATOES FERTILIZED IN VARIOUS WAYS

This demonstration with potatoes was similar to that conducted at the other Stations.

Four one-eighth acres of light sandy loam were planted with good, uniform Irish Cobbler stock on May 29. The crop was dug October 22.

It will be seen from the results that the plot where manure was used with commercial fertilizer gave the largest returns and that the plot receiving manure only did not give as much profit, after deducting cost of manure, as the unfertilized plot.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How Fertilized per Acre | Yield per acre | Value of crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 266 | 106 40 | 40 00 | 66 40 |
| 2 | 10 tons manure; 750 pounds of 4–8–4 fertilizer | 345 | 138 00 | 35 00 | 103 00 |
| 3 | 1,500 pounds of 4–8–4 fertilizer | 290 | 116 00 | 30 00 | 86 00 |
| 4 | Not fertilized | 180 | 72 00 | | |

## YARMOUTH, YARMOUTH COUNTY

### OPERATOR, DR. I. M. LOVITT

Seeding at this Station was not possible until May 28, this being six days later than in 1923. The cold winds prevented the land from drying. Notwithstanding this, the crops on the whole were good. The hay crops were good, especially the timothy area. In the clover area, the alsike was very much more uniform than the red clover. This was common in many sections of the province the past season. The oats yielded only a fair crop, 38½ bushels per acre. A larger crop no doubt would have been harvested had the seeder sown the number of bushels it was set for. The clover catch was very uniform. The young plants made good growth during the summer, due perhaps to more moisture at this Station than at some others. The turnip crop was uniform, and the yield quite satisfactory. The results from these areas and the costs are shown in the following table.

OPERATIONS AT YARMOUTH—FOUR-YEAR ROTATION

| Field | — | Yield per acre | Actual cost |
|---|---|---|---|
| | | | $ cts. |
| A | Clover hay | 1·95 tons | 9 60 per ton |
| B | Oats and seeded | 38·5 bush. | 0 72 per bush. |
| C | Turnips | 821·5 bush. | 0 08½ per bush. |
| D | Timothy hay | 3·0 tons | 4 96 per ton |

## NITROGENOUS FERTILIZERS ON SOD-LAND

The land used for this demonstration was in a good state of fertility. It was seeded to clover and timothy in 1922. Three one-half-acre areas were fertilized, as shown in the table, on May 9.

It will be noticed that, even though the unfertilized area gave a yield of 2.24 tons of hay per acre, surface applications of nitrate of soda and sulphate of ammonia gave, after the cost of the fertilizers had been deducted, a profit of $5.30 and $3.01, respectively, over the unfertilized plot.

NITROGENOUS FERTILIZERS ON SOD-LAND

| Plot | How Fertilized per Acre | Yield per acre | Increase over area not treated | Value of increase at $10 per ton | Cost of fertilizer | Profit |
|---|---|---|---|---|---|---|
| | | tons | tons | $ cts. | $ cts. | $ cts. |
| 1 | 150 pounds nitrate of soda | 3·22 | 0·98 | 9 80 | 4 50 | 5 30 |
| 2 | 114 pounds sulphate of ammonia | 2 94 | 0·70 | 7 00 | 3 99 | 3 01 |
| 3 | Not fertilized | 2·24 | ..... | ..... | ..... | ..... |

## POTATOES FERTILIZED IN VARIOUS WAYS

This test was similar to that conducted at the other Stations. The area used was a heavy dark loam.

Four one-eighth-acre plots were fertilized as stated in the following table. Irish Cobbler stock was planted June 4 and the crop dug October 6.

It will be seen that the greatest profit for this year was obtained from land receiving 20 tons of manure per acre, while the next greatest profit was obtained where manure and commercial fertilizer were applied. The plot receiving commercial fertilizer alone paid only $8.40 above cost of fertilizer. It would be generally supposed from these results that this soil does not require phosphoric acid and potash, as do most soils throughout the province. This test, however, will be followed up for another three years in order to get data covering a complete rotation.

POTATOES FERTILIZED IN VARIOUS WAYS

| Plot | How Fertilized per Acre | Yield per acre | Value of Crop at 40 cents per bushel | Cost of fertilizer | Increased revenue due to the use of fertilizer |
|---|---|---|---|---|---|
| | | bush. | $ cts. | $ cts. | $ cts. |
| 1 | 20 tons manure | 240 | 96 00 | 40 00 | 56 00 |
| 2 | 10 tons manure; 750 pounds of 4-8-4 fertilizer | 150 | 60 00 | 35 00 | 25 00 |
| 3 | 1,500 pounds of 4-8-4 fertilizer | 96 | 38 40 | 30 00 | 8 40 |
| 4 | Not fertilized | 40 | 16 00 | ..... | ..... |

# REPORT OF THE ILLUSTRATION STATIONS FOR PRINCE EDWARD ISLAND

*J. A. Clark, B.S.A., Superintendent, Dominion Experimental Station, Charlottetown*

Two additional Illustration Stations were established in 1924, making a total of eight in operation in Prince Edward Island.

## SEASONAL NOTES

The autumn of 1923 was mild and open, and fall work was well completed. The rainfall was abundant, and the mean temperatures of the early winter were the highest recorded for Prince Edward Island. The last week of January and most of February were very cold. There was a good covering of snow on the ground from December throughout the rest of the winter, preventing the frost from entering the soil to any depth. The snow gradually melted during March and April, soaking into the ground. The spring was very dry and cold, and many delayed seeding, waiting for the weather to get warmer. The land worked easily, and the early seeding proved best. The grain germinated well, and was earlier than usual. There was a light rainfall during the growing season, and splendid weather for hay-making and early harvesting. Late harvest weather was catchy, and the grain discoloured. Good weather for digging potatoes enabled the farmers to safely harvest the largest crop that Prince Edward Island has produced. Autumn weather was favourable, and most of the fall work was completed before freeze-up occurred on December 11, 1924.

The second season's Illustration Station work in Prince Edward Island showed many very encouraging features. The operators who had one year's experience succeeded in getting their rotations well under way, and the two new Stations made an excellent start in that direction.

The following plan indicates the four-year rotation that has been established on all these Illustration Stations:—

FOUR-YEAR ROTATION

| — | Field A | Field B | Field C | Field D |
|---|---|---|---|---|
| First year | Hoed crop | Timothy hay | Clover hay | Grain seeded to clover and timothy. |
| Second year | Grain seeded to clover and timothy. | Hoed crop | Timothy hay | Clover hay. |
| Third year | Clover hay | Grain seeded to clover and timothy. | Hoed crop | Timothy hay. |
| Fourth year | Timothy hay | Clover hay | Grain seeded to clover and timothy. | Hoed crop. |

The hoed crop usually includes potatoes, turnips, corn and sunflowers. The standard clover and grass mixture was: 8 pounds of early red clover, 2 pounds alsike clover and 10 pounds timothy. On the heavy clays or soils liable to be wet the mixture used is 5 pounds early red clover, 5 pounds alsike and 10 pounds of timothy per acre.

Registered seed grain, certified seed potatoes and seed of club-root-resistant swede turnips was supplied to each Illustration Station when it was first started. Several of the operators have found a ready sale for any surplus seed they had. Formalin for treating seed and nitro-culture for treating the clover seed was also supplied.

The cost of production for the several crops on the Illustration Stations is calculated from actual cost of supplies and wages paid in each district.

FIELD DAY

A field day was held at the Montague Illustration Station August 20, when about fifty farmers from the neighbouring districts gathered and went carefully over the work being carried on at that Station. They were greatly interested in the fertilizer experiments with potatoes, roots, and corn. The effect on the growth of the plants was very noticeable at that time.

OPERATOR'S CONFERENCE

The operators of the Illustration Stations on Prince Edward Island attended a Conference at the Experimental Station, Charlottetown, P.E.I., August 28. Mr. John Moynan of the Division of Illustration Stations, Ottawa, Ont., Mr. C. F. Bailey, Superintendent, Experimental Station, Fredericton, N.B. and Mr. Thomas Heathington, Supervisor of Illustration Stations for New Brunswick, were present and gave the operators much useful information. The programme included an inspection trip around the Experimental Station and a full discussion of many farm problems.

The operators were invited as guests of the Charlottetown Rotary Club in a get-together of men from the country and city, when Mr. C. F. Bailey addressed the club on the work of the Dominion Illustration Stations.

## TIGNISH—NORTHWEST PRINCE COUNTY

OPERATOR, REUBEN E. CADIGAN

The Illustration Station for northwest Prince county is on the Palmer road about six miles from Tignish.

The planting season was very dry and cold; it was the 24th of May before grain was sown, and the 13th of June before the roots and corn were planted. The crops gave fair yields, and the four-year rotation is now well under way.

OPERATIONS AT TIGNISH—FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Wheat seeded..... | May 24 | Aug. 26 | 20 30 | 1 51 | 2 00 | 10 05 |
| | | | | ton lb. | per ton | per ton | |
| B | Turnips..... | June 13 | Nov. 13 | 17 1,719 | 1 49 | 3 00 | 26 96 |
| | | | | ton lb. | per ton | per ton | |
| B | Corn..... | June 14 | Oct. 25 | 13 964 | 1 57 | 3 25 | 22 65 |
| | | | | ton lb. | per ton | per ton | |
| C | Clover hay..... | ..... | July 15 | 2 1,000 | 5 37 | 10 00 | 11 57 |
| D | Hay..... | ..... | July 15 | 1 1,060 | 8 74 | 10 00 | 1 91 |

## WEST DEVON—WEST PRINCE COUNTY

OPERATOR, CEPHAS GREGG

The planting season was quite late on the Illustration Station at West Devon. Potatoes were planted May 21, but it was the last day of May before the land was ready for sowing wheat. The crops germinated well and grew

rapidly; potatoes and roots did particularly well. The clover hay came on very slowly and did not grow tall, but produced clover hay of first quality.

The following table gives the results of the season's work.

OPERATIONS AT WEST DEVON—FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (−) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Wheat..... | May 31 | Sept. 6 | 12 .. | 2 59 | 2 00 | −7 08 |
| | | | | bush. lb. | per bush. | per bush. | |
| B | Potatoes..... | May 21 | Oct. 2 | 395 20 | 0 17 | 0 30 | 51 39 |
| | | | | ton lb. | per ton | per ton | |
| B | Turnips..... | June 13 | Nov. 4 | 20 424 | 2 92 | 3 00 | 1 62 |
| | | | | ton lb. | per ton | per ton | |
| B | Corn..... | June 13 | Sept. 15 | 12 1,773 | 3 69 | 3 25 | −5 67 |
| | | | | ton lb. | per ton | per ton | |
| C | Clover hay..... | ..... | July 14 | 1 1,899 | 6 27 | 10 00 | 7 27 |
| | | | July 14 | ton lb. | per ton | per ton | |
| D | Clover hay..... | ..... | Sept. 16 | 1 1,808 | 6 73 | 10 00 | 6 22 |

FERTILIZER ON FIELD CROPS

A light dressing of fertilizer was applied to the wheat crop as follows: 150 pounds sulphate of ammonia and 88 pounds muriate of potash. The crop of 1924 was light, but the fertilized area was better than the unfertilized.

Fifteen and one-half tons of manure per acre were applied to field B for potatoes, turnips and corn. Fertilizer in addition to this was applied for the potatoes in the following proportions: nitrate of soda 60 pounds, sulphate of ammonia 200 pounds, acid phosphate 540 pounds and muriate of potash 160 pounds. On one-half acre, 1,110 pounds per acre were applied, costing $22.31; on the other half, 810 pounds per acre were applied costing $16.28. The average increased yield from the extra 300 pounds of fertilizer was 110 bushels and 45 pounds. It cost $6.03 and increased the value of the crop, over the extra cost, $27.19.

The turnips and corn received, in addition to the manure, 100 pounds nitrate of soda, 100 pounds sulphate of ammonia, 500 pounds acid phosphate and 100 pounds muriate of potash per acre. This increased the yield of turnips 1 ton, 1,137 pounds per acre. The cost per acre was $15.24, and the return value was only $4.70, showing a loss of $10.54 per acre.

The fields C and D in clover hay, that were very backward owing to the cold spring, received a dressing of fertilizer alone as follows: 25 pounds nitrate of soda, 36 pounds acid phosphate, and 25 pounds muriate of potash per acre at a cost of $1.77 per acre. The increase over the unfertilized plot on field was 995 pounds per acre, worth $4.97, or an increase over cost of fertilizer of $3.20 per acre.

The increase over the unfertilized plot on field D was 904 pounds, valued at $4.52, or an increase over cost of the fertilizer of $2.75 per acre.

These figures show the gain or loss when the total cost of the fertilizer is charged against the crop grown the year of application. Fertilizers increase the crops that will follow, so that only 55 per cent of their cost is usually charged to the first crop grown. Field C was ploughed August 29, and worked during the autumn. Field D gave a second crop of clover in September, which was cut and safely saved during good weather.

## RICHMOND, CENTRAL PRINCE COUNTY

Operator, THOMAS NOONAN

The initial work on the Illustration Station at Richmond was commenced late in the spring of 1924. The area was all in second-year sod. The season was so late that this was not ploughed for grain until May 26, and the land for potatoes and roots was not ploughed until June 2 and 3, 1924. Quite a little blackleg developed among the potatoes, but careful rogueing early in the season cleaned this out, and very fair crops were harvested from all the fields, considering the late date of commencement.

The following table gives the results of the season's work:—

OPERATIONS AT RICHMOND—FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Potatoes | June 17 | Oct. 21 | 125 1 | 0 67 | 0 30 | —46 25 |
| | | | | ton lb. | per ton | per ton | |
| A | Turnips | June 19 | Nov. 2 | 19 1,930 | 2 52 | 3 00 | 9 58 |
| A | Corn | June 19 | Nov. 1 | 8 1,569 | 5 03 | 3 25 | —15 63 |
| B | Hay | ..... | July 29 | .. 1,606 | 17 18 | 10 00 | —5 76 |
| C | Hay | ..... | July 29 | .. 952 | 19 56 | 10 00 | —4 55 |
| | | | | bush. lb. | per bush. | per bush. | |
| D | Oats | May 29 | Sept. 4 | 33 29 | 0 63 | 0 60 | —1 02 |

### FERTILIZERS FOR FIELD CROPS

Fourteen tons of manure per acre were applied to field A for potatoes and roots. Commercial fertilizer was applied for potatoes in addition to the manure as follows: 300 pounds sulphate of ammonia, 550 pounds acid phosphate, and 250 pounds muriate of potash. This cost $22.75 per acre. The increased yield from the use of fertilizer was 53 bushels and 36 pounds per acre, valued at $16.02, showing a loss of $6.73 per acre. Late planting, June 17, and the high percentage of blackleg causing misses, were largely responsible for the loss.

For turnips and corn, the fertilizer applied was as follows: 150 pounds nitrate of soda, 350 pounds acid prosphate and 100 pounds muriate of potash per acre. This cost $11.31. The yield was almost 20 tons per acre. The corn and turnips were sown very late to replace sunflowers that missed. The increase in the yield of corn over the plot not fertilized was 3 tons, 98 pounds, valued at $10.91; the loss was 40 cents per acre.

Field B was left in hay and dressed with the following fertilizer: 80 pounds nitrate of soda, 220 pounds acid phosphate, and 100 pounds muriate of potash, costing $7.41 per acre. The increased yield when the fertilizer was applied was 654 pounds per acre, valued at $3.27, loss $4.14 per acre.

Field D was sod, spring-ploughed for oats. One hundred pounds of nitrate of soda, costing $3.31, were applied to give the oats a start. This increased the yield 13 bushels and 3 pounds, valued at $7.86, showing a profit from the fertilizer of $4.55 per acre.

The fertilizer was all charged to the first crop in working out the returns from fertilizers. It is generally believed that at least 45 per cent of the fertilizer remains for the following crops, and the land built up to that extent.

## ROSE VALLEY, WEST QUEENS COUNTY

Operator, MALCOLM MCKENZIE

Good progress has been made in clearing the Illustration Station at Rose Valley from couch grass. The four-year rotation is well under way, and the results of good work are shown in the crop yields in the following table:—

FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (−) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Wheat | May 21 | Aug. 30 | 15 .. | 1 62 | 2 00 | 5 70 |
| B | Potatoes | May 28 | Oct. 1 | 260 .. | 0 26 | 0 30 | 10 40 |
| | | | | ton lb. | per ton | per ton | |
| B | Turnips | June 13 | Nov. 7 | 19 1,600 | 2 92 | 3 00 | 1 58 |
| B | Corn | June 12 | Oct. 1 | 24 750 | 2 32 | 3 25 | 22 67 |
| C | Hay | ..... | July 28 | 1 400 | 13 01 | 10 00 | −3 61 |
| D | Hay | ..... | July 28 | 1 800 | 11 27 | 10 00 | −1 78 |

Fertilizer on this Station gave similar results to those mentioned already. Twelve hundred pounds were applied per acre for potatoes as follows: 100 pounds nitrate of soda, 350 pounds sulphate of ammonia, 500 pounds acid phosphate and 250 pounds muriate of potash. These fertilizers, costing $26.91, increased the yield 162 bushels and 30 pounds, valued at $48.75, or a gain over cost of fertilizer of $21.84 per acre.

An application of 200 pounds of chemicals on field C practically doubled the yield.

## RUSTICO, NORTH QUEENS COUNTY

Operator, JOHN L. CLARK

The Illustration Station for North Queens county was started in the spring of 1924. It is located on the main highway opposite the Rustico school. The land is a sandy loam and is very similar to the majority of the soils in that district. The first seeding was completed on May 24; the whole area was broken, and a four-year rotation will be started at once.

The following table gives the results of the season's work:—

OPERATIONS AT RUSTICO—FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (−) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Potatoes | May 30 | Sept. 18 | 280 .. | 0 23 | 0 30 | 19 60 |
| | | | | tons lb. | per ton | per ton | |
| A | Turnips | June 6 | Nov. 8 | 23 1,387 | 2 16 | 3 00 | 19 90 |
| A | Corn | June 5 | Sept. 2 | 19 1,450 | 1 66 | 3 25 | 31 36 |
| | | | | bush. lb. | per bush. | per bush. | |
| B & C | Oats | May 24 | Aug. 25 | 50 22 | 0 34 | 0 60 | 13 18 |
| D | Barley | May 24 | Aug. 18 | 37 39 | 0 46 | 1 00 | 20 41 |

Registered seed grain, certified seed potatoes and Bangholm disease-resistant turnip seed were supplied. The season, though dry, was quite favourable, and a very good start has been made at this Illustration Station.

## ST. PETERS, NORTH KINGS COUNTY

Operator, CLIFFORD MCEWEN

The Illustration Station for North Kings county slopes to the north towards the St. Peters bay. This area had once been good land but had not

In 1923, the section of the field to the right grew corn, and the section to the left, sunflowers. Note the better crop following the corn.

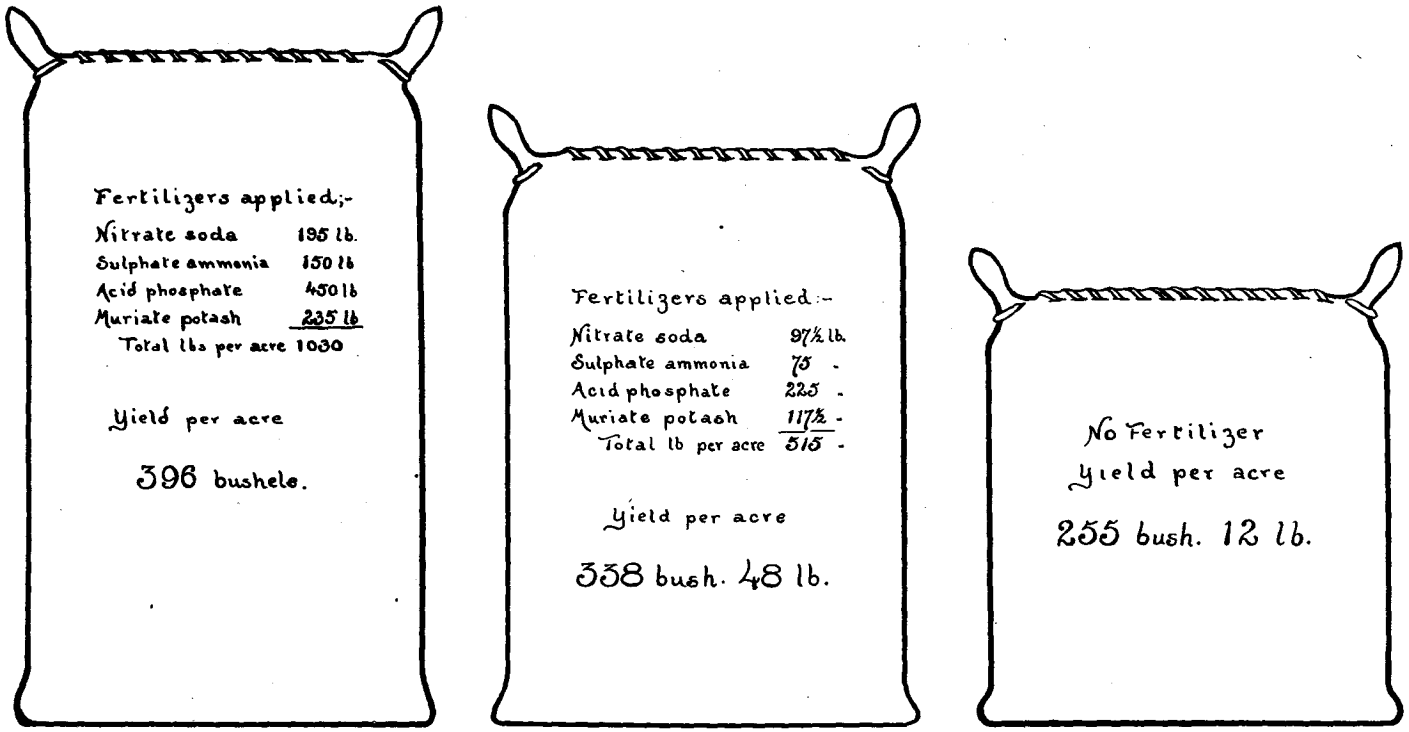
produced a bumper crop for many years. The adoption of a four-year rotation, improved cultural methods and a moderate application of manure and fertilizer produced the results given in the following table:—

OPERATIONS AT ST. PETERS—FOUR-YEAR ROTATION

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (−) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Wheat | May 17 | Aug. 27 | 24 .. | 1 16 | 2 00 | 20 16 |
| B | Potatoes | May 30 | Oct. 6 | 343 12 | 0 24 | 0 30 | 20 58 |
| | | | | tons lb. | per ton | per ton | |
| B | Turnips | June 14 | Nov. 2 | 18 860 | 2 99 | 3 00 | 0 19 |
| B | Corn | June 13 | Oct. 8 | 13 1,390 | 3 20 | 3 25 | 0 68 |
| C | Hay | ..... | July 22 | 1 800 | 10 92 | 10 00 | −1 29 |
| D | Hay | ..... | July 22 | 1 1,600 | 8 44 | 10 00 | 2 81 |

EXPERIMENTS WITH FERTILIZERS ON POTATOES

| Plot | Manure | Fertilizers Applied per Acre | | | | | | Yield of potatoes per acre | Increase in yield over check | Value per acre of increase over cost of fertilizers |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nitrate of soda 15½ p.c. N. | Sulphate of ammonia 20 p.c. N. | Acid phosphate 16 p.c. $P_2O_5$ | Muriate of potash 50 p.c. $K_2O$ | Total Commercial Fertilizers | | | | |
| | | | | | | Amount | Value | | | |
| | tons | lb. | lb. | lb. | lb. | lb. | $ cts. | bush. lb. | bush. lb. | $ cts. |
| Check Plot 1 | 18 | ..... | ..... | ..... | ..... | ..... | ..... | 255 12 | .. .. | ..... |
| Plot 2 | 18 | 195 | 150 | 450 | 235 | 1,030 | 21 51 | 396 .. | 141 48 | 21 00 |
| Plot 3 | 18 | 98 | 75 | 225 | 118 | 515 | 10 76 | 338 48 | 83 36 | 14 31 |




EFFECT OF FERTILIZERS ON POTATOES

Diagram showing the various yields resulting from different applications of fertilizers on the St. Peters Illustration Station, P.E.I.

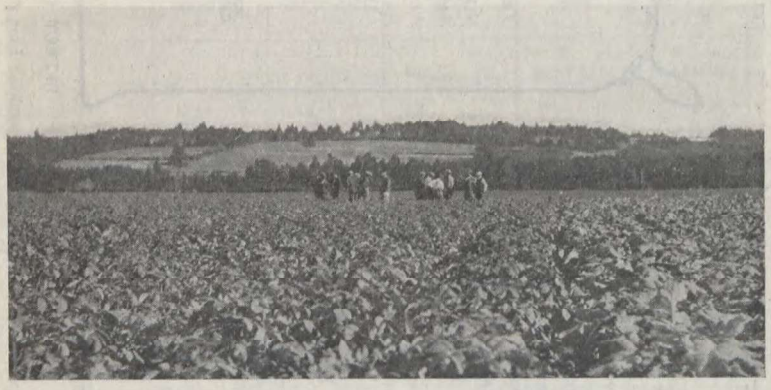
## MONTAGUE—WEST KINGS COUNTY

OPERATOR—FRED MCINTYRE

The Montague Illustration Station received much favourable comment from the public during 1924. A very successful field day was held on August 20, when farmers from the neighbouring districts visited it and learned at first

Turnips at the Montague Illustration Station. Note the distance between plants.

hand the work that has been undertaken. The grass and clover on field D, owing to the cold, late season and poor soil, made very little growth. It was cut late in June, and the field ploughed and reseeded with grass, clover and mixed grain for hay on July 2.



Field day on the Illustration Station at Montague. Discussing the growing of certified potato seed.

The following table gives the results of the season's work:—

OPERATIONS AT MONTAGUE

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (—) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. |
| A | Wheat | May 21 | Sept. 4 | 17 45 | 1 53 | 2 00 | 8 34 |
| B | Potatoes | June 2 | Sept. 20 | 488 24 | 0 16 | 0 30 | 68 37 |
| | | | | tons lb. | per ton | per ton | |
| B | Turnips | June 10 | Nov. 1 | 33 825 | 1 72 | 3 00 | 42 77 |
| B | Corn | June 6 | Sept. 20 | 24 48 | 2 00 | 3 25 | 30 03 |
| B | Sunflowers | June 6 | Sept. 20 | 23 860 | 2 01 | 3 25 | 29 05 |
| | | | | bush. lb. | per bush. | per bush. | |
| C | Oats | May 21 | Aug. 29 | 54 .. | 0 43 | 0 60 | 9 18 |
| C | Barley | May 21 | Aug. 29 | 26 .. | 0 67 | 1 00 | 8 58 |
| | | | | tons lb. | per ton | per ton | |
| D | Mixed grain | July 2 | Sept. 18 | 1 .. | 20 14 | 10 00 | —10 14 |

EXPERIMENTS WITH FERTILIZERS ON POTATOES

| Plot | Manure per acre | Fertilizers Applied per Acre | | | | | | Yield of potatoes per acre | Increase in yield over check | Value per acre of increase over cost of fertilizers |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Nitrate of soda 15½ p.c. N. | Sulphate of ammonia 20 p.c. N. | Acid phosphate 16 p.c. $P_2O_5$ | Muriate of potash 50 p.c. $K_2O$ | Total Commercial Fertilizers | | | | |
| | | | | | | Amount | Value | | | |
| | tons | lb. | lb. | lb. | lb. | lb. | $ cts. | bush. lb. | bush. lb. | $ cts. |
| Check Plot 1 | 18 | ..... | ..... | ..... | ..... | ..... | ..... | 342 40 | .. .. | ..... |
| Plot 2 | 18 | 130 | 100 | 300 | 150 | 680 | 14 43 | 421 48 | 79 8 | 9 31 |
| Plot 3 | 18 | 195 | 150 | 450 | 225 | 1,020 | 21 66 | 492 40 | 150 .. | 23 34 |
| Plot 4 | 18 | 260 | 200 | 600 | 300 | 1,360 | 28 87 | 540 8 | 197 28 | 30 37 |
| Plot 5 | 18 | 390 | 300 | 900 | 450 | 2,040 | 43 31 | 567 44 | 225 4 | 24 21 |
| Plot 6 | 18 | ..... | 150 | 450 | 225 | 825 | 15 28 | 406 33 | 63 53 | 3 88 |

NOTE.—The above table indicates that the soil at the Montague Illustration Station responds to a fairly generous application of commercial fertilizer in addition to a dressing of manure. Plot 2 was given the quantities and the proportions recommended by the Dominion Chemist in Bulletin No. 8, new series, "Fertilizers for Field Crops," a total of 680 pounds of chemicals, equal to 800 pounds of a 5-8-9 mixture. Plot 3 was a 50 per cent increase of these quantities, plot 6 was the same as plot 3, except that the nitrate of soda was omitted. Plot 4 was increased 100 per cent, and plot 5 was increased 50 per cent over plot 2. It is evident that the nitrate of soda was required, and that plot 4 gave the most economical returns.

FERTILIZER EXPERIMENT WITH TURNIPS

| | Crop | Fertilizer Used per Acre, 1924 | | | | Manure per acre | Yield per acre | Increase of yield over check | Value of increase over cost of fertilizer per acre |
|---|---|---|---|---|---|---|---|---|---|
| | | Variety | Sulphate of ammonia 20 p.c. | Acid phosphate 16 p.c. $P_2O_5$ | Muriate of potash 50 p.c. $K_2O$ | | | | |
| | | | lb. | lb. | lb. | tons | tons lb. | tons lb. | $ cts. |
| B | Turnips | Bangholm | 115 | 450 | 50 | 24 | 33 825 | 15 1,515 | 36 87 |
| B | Turnips | Bangholm | ..... | ..... | ..... | 24 | 17 1,310 | | |
| B | Turnips | Millpond | 115 | 450 | 50 | 24 | 43 1,780 | 26 470 | 48 30 |

NOTE.—The Bangholm turnips were club-root-resistant and usually have 14 per cent of dry matter. The Millpond is not club-root-resistant. There was no disease in this field. Millpond usually has 11 per cent of dry matter. Comparing the yield of the two varieties by dry matter content, the Millpond would have 9,655 pounds dry matter per acre; the Bangholm 9,355 pounds, or a total of 300 pounds of dry matter in favour of the Millpond.

## IONA—SOUTHERN QUEENS COUNTY

### Operator—James E. Daly

The dry weather early in the spring, even though the days were cold, enabled the farmers in the Iona district to get on their land quite as early as usual. Spring work started on May 7, and seeding was commenced on May 14, 1924. The grass and clover was badly winter killed. Field D was broken up and reseeded with oats, peas and vetches. Field C had a very fair sprinkling of clover, and if the season had been favourable would have produced a satisfactory crop of hay. The cold weather of May and June killed or stunted the grass and clover so that when cut on July 17, the rake would not gather what little did grow over parts of the field.

Corn may be successfully grown in Prince Edward Island. A crop on the Illustration Station at Iona, P.E.I.

The following table gives the results of the season's work:—

Operations at Iona—Four-Year Rotation

| Field | Crop | Date of seeding | Date of harvesting | Yield per acre | Actual cost | Estimated value of crop on farm | Profit or (−) loss per acre |
|---|---|---|---|---|---|---|---|
| | | | | bush. lb. | $ cts. per bush. | $ cts. per bush. | $ cts. .. |
| A | Wheat | May 14 | Aug. 23 | 9 .. | 2 49 | 2 00 | −4 41 |
| A | Barley | May 14 | Aug. 20 | 8 24 | 2 33 | 1 00 | −11 31 |
| B | Potatoes | May 27 | Oct. 4 | 252 39 | 0 26 | 0 30 | 10 11 |
| | | | | tons lb. | per ton | per ton | |
| B | Turnips | May 30 | Oct. 29 | 24 1,831 | 1 63 | 3 00 | 34 13 |
| B | Corn | June 27 | Sept. 22 | 8 1,772 | 3 44 | 3 25 | −1 69 |
| B | Sunflowers | June 23 | Sept. 22 | 9 1,515 | 3 58 | 3 25 | −3 22 |
| C | Hay | ..... | July 17 | .. 372 | 62 04 | 10 00 | −9 68 |
| | | | | bush. lb. | per bush. | per bush. | |
| D | Mixed feed | May 24 | Aug. 28 | 19 25 | 0 99 | 1 00 | 0 20 |

FERTILIZER EXPERIMENTS WITH HOED CROPS

| Field | Crop | Plot | Fertilizers Applied | | | | Total fertilizer per acre | Cost per acre | Manure tons per acre | Yield per acre | | Increased yield over check plot | | Value of increase over cost of fertilizer |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Nitrate of soda 15½ p.c. N. per acre | Sulphate of ammonia 20 p.c. N. per acre | Acid phosphate 16 p.c. $P_2O_5$ per acre | Muriate of potash 50 p.c. $K_2O$ per acre | | | | | | | | |
| | | | lb. | lb. | lb. | lb. | lb. | $ cts. | | bush. | lb. | bush. | lb. | $ cts. |
| B | Potatoes | Check | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 49 | 22 | .. | .. | ..... |
| B | Potatoes | Fertilizer | 125 | 95 | 275 | 140 | 635 | 13 33 | 6 | 252 | 39 | 203 | 17 | 47 65 |
| B | Potatoes | Fertilizer | 195 | 150 | 525 | 150 | 1,020 | 20 56 | 6 | 296 | 12 | 246 | 50 | 53 49 |
| B | Turnips | Check | ..... | ..... | ..... | ..... | ..... | ..... | 6 | ton 7 | lb. 723 | .. | .. | ..... |
| B | Turnips | Fertilizer | 125 | 95 | 275 | 140 | 635 | 13 33 | 6 | 24 | 1,832 | ton 17 | lb. 109 | 39 33 |
| B | Corn | Check | ..... | ..... | ..... | ..... | ..... | ..... | 6 | 2 | 1,576 | .. | .. | ..... |
| B | Corn | Fertilizer | 125 | 95 | 275 | 140 | 635 | 13 33 | 6 | 8 | 1,772 | 6 | 196 | 6 49 |