DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

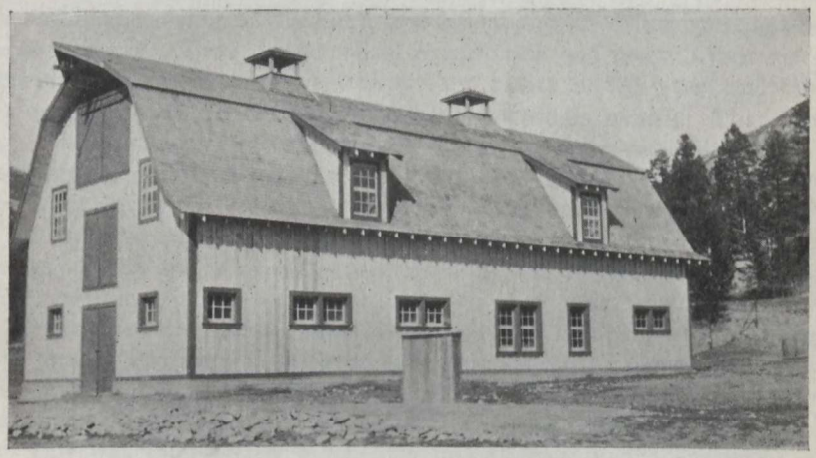
# EXPERIMENTAL STATION

## INVERMERE, B.C.

## REPORT OF THE SUPERINTENDENT

R. G. NEWTON, B.S.A.

## FOR THE YEAR 1926



Horse-barn on the Windermere area.

Printed by Authority of the Hon. W. R. Motherwell, Minister of Agriculture, Ottawa, 1927

# TABLE OF CONTENTS

# DOMINION EXPERIMENTAL STATION, INVERMERE, B.C.

## REPORT OF THE SUPERINTENDENT, R. G. NEWTON, B.S.A.

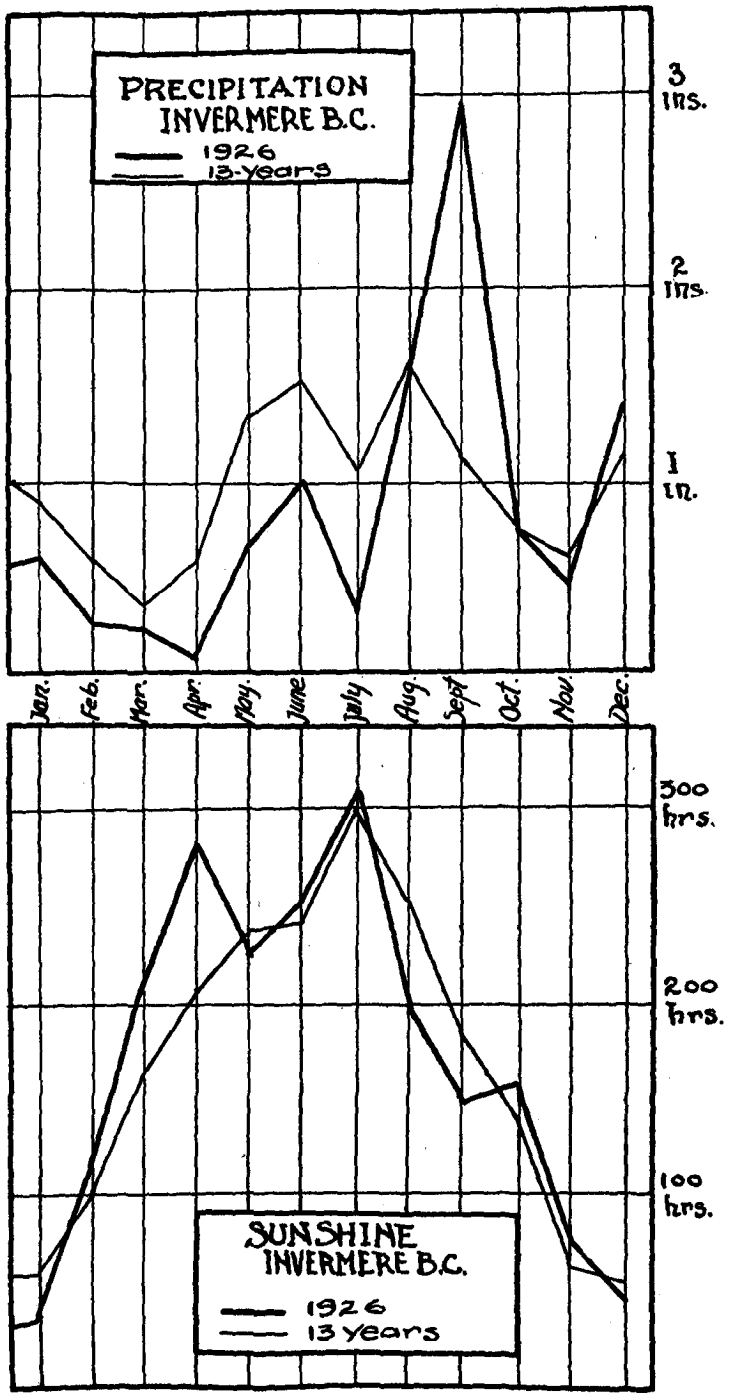
### THE SEASON

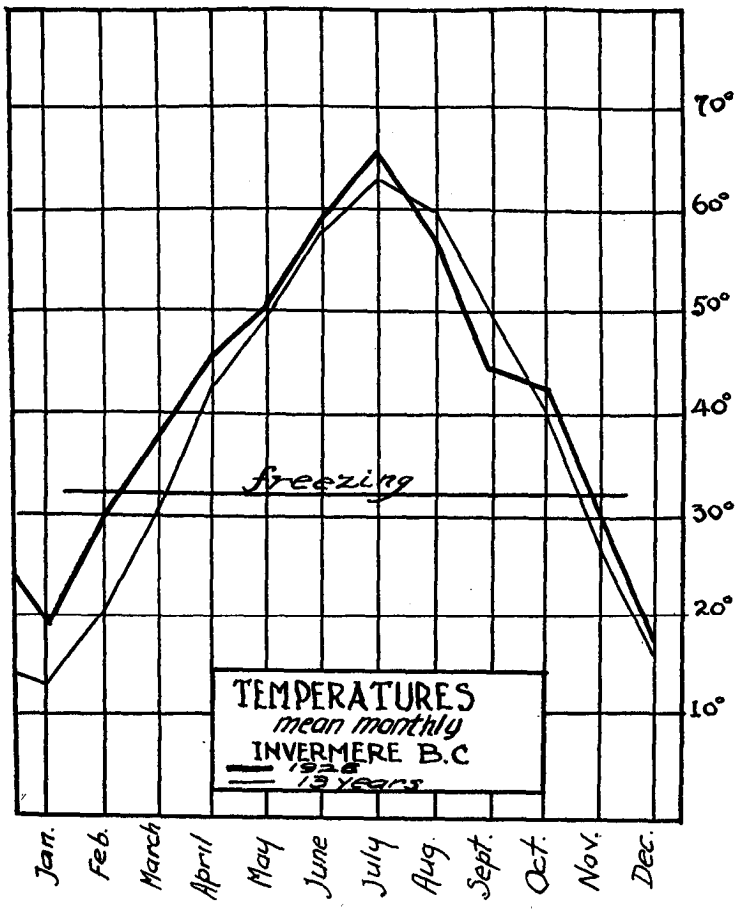
The weather during the year 1926 has been exceptional. This is clearly brought out by a perusal of the following charts, which show that there has been great deviations from the average in all respects.

January and February maintained the very mild weather of December, 1925. Little snow fell, and continued cloudiness resulted in the number of sunshine hours being lower than the average. The next three months were very bright; the temperature continued much above the average; and precipitation considerably lower than the average. All grain was sown by the end of April, and potatoes during the first week of May. June and July were exceptionally dry months, and owing to the light snowfall of the preceding winter, irrigation water was scarce. Towards the end of August rain and heavy winds made harvesting difficult. September was the wettest month of the year, and the three inches received were distributed throughout the whole month. This, however, came too late to be of any value to crops. In fact it proved a detriment. The threshing of peas was delayed considerably, and heavy winds which occurred in the meantime greatly reduced the yield. The potato crop also suffered, in that the rain forced the tubers into sudden growth thereby causing a large percentage of hollow heart. On September 24 the temperature dropped to 15 degrees, resulting in many potatoes being touched with frost. October was a very pleasant month, and the rains of the previous month made ploughing conditions ideal. The temperature gradually dropped during November and several flurries of snow occurred during the latter half of the month. December brought a week of zero weather, the thermometer registering —22 degrees on one occasion. This was followed by a ten-inch fall of snow which gradually melted, until by the end of the year the ground was practically bare.

| | Temperature °F | | | | | | | | Precipitation | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Mean | | Maximum | | | Minimum | | | | | Total Precipitation | | Sunshine | |
| | 1926 | Average 13 yrs. | Highest | Date | Mean max. | Lowest | Date | Mean min. | Rain | Snow | 1926 | Average 13 yrs. | 1926 | Average 13 yrs. |
| | | | | | | | | | in. | in. | in. | in. | hours | hours |
| January | 19·1 | 13·3 | 43 | 17 | 26·2 | 0 | 4, 22 | 12·1 | ..... | 6·0 | 0·60 | 0·88 | 34·3 | 56·8 |
| February | 29·4 | 20·6 | 48 | 28 | 39·4 | 4 | 14 | 19·4 | 0·08 | 1·5 | 0·23 | 0·59 | 104·9 | 103·5 |
| March | 37·0 | 30·8 | 61 | 22 | 50·5 | 15 | 6, 7 | 23·5 | 0·07 | 1·5 | 0·22 | 0·34 | 208·5 | 162·3 |
| April | 45·8 | 42·3 | 84 | 29 | 62·1 | 9 | 2 | 29·5 | 0·11 | ..... | 0·11 | 0·58 | 280·4 | 204·8 |
| May | 50·9 | 50·1 | 78 | 13 | 65·1 | 30 | 7, 31 | 36·7 | 0·66 | ..... | 0·66 | 1·29 | 224·6 | 235·4 |
| June | 59·0 | 57·2 | 96 | 26 | 73·4 | 37 | 3, 9 | 44·7 | 1·03 | ..... | 1·03 | 1·53 | 248·3 | 237·8 |
| July | 65·9 | 63·0 | 95 | 11 | 83·4 | 37 | 28 | 48·5 | 0·27 | ..... | 0·27 | 1·06 | 309·9 | 300·9 |
| August | 58·3 | 60·4 | 89 | 25 | 73·4 | 36 | 2, 22 | 43·3 | 1·49 | ..... | 1·49 | 1·59 | 195·9 | 252·1 |
| September | 44·0 | 50·7 | 75 | 3 | 55·7 | 15 | 24 | 33·5 | 3·01 | ..... | 3·01 | 1·22 | 146·3 | 179·2 |
| October | 43·2 | 41·0 | 65 | 5 | 55·3 | 20 | 31 | 31·2 | 0·72 | ..... | 0·72 | 0·74 | 156·6 | 140·2 |
| November | 30·5 | 27·2 | 51 | 2 | 38·5 | 5 | 20 | 22·5 | 0·04 | 4·0 | 0·44 | 0·59 | 65·9 | 62·3 |
| December | 16·8 | 15·0 | 49 | 2 | 25·6 | −22 | 15 | 8·1 | 0·10 | 12·9 | 1·39 | 1·14 | 51·2 | 52·8 |
| Totals | ..... | ..... | ..... | ..... | ..... | ..... | ..... | ..... | 7·58 | 25·9 | 10·17 | 11·59 | 2,026·8 | 1,988·1 |

Precipitation for the six growing months, April to September, 1926—6·57 inches, of which 3·01 was received in September.
Average precipitation for six growing months for the past 13 years—7·29 inches.
Highest temperature recorded at the Station—98 degrees, on July 2nd, 1924.
Lowest temperature recorded at the Station—−38 degrees, on December 15, 1922 and December 18, 1924.


PRECIPITATION
INVERMERE B.C.
1926
13-years
3 ins.
2 ins.
1 in.
Jan.
Feb.
Mar.
Apr.
May.
June
July
Aug.
Sept
Oct.
Nov.
Dec.
300 hrs.
200 hrs.
100 hrs.
SUNSHINE
INVERMERE B.C.
1926
13 years




## ANIMAL HUSBANDRY

The live stock buildings at Windermere have been completed and were occupied during the past year. A description of these buildings was given in the last report, and anyone particularly interested may obtain plans and specifications from the Central Farm at Ottawa. The dairy stock was transferred to the new dairy barn last July. Practically no experimental feeding has been undertaken as yet, but records of the cost of feeds are kept on all classes of stock.

HORSES.—Eleven horses are kept on the two areas, eight at Windermere and three at Invermere. The stock consists of registered and grade Clydesdales, made up as follows:—three registered Clyde mares, three grade Clyde mares, four geldings and one registered Clyde stallion. This stallion is available for service throughout the district.

CATTLE.—The Ayrshire herd at the end of the year numbered sixteen head, made up of two herd sires, six cows, five two-year-old heifers, one yearling heifer, one heifer calf and one bull calf. During the year a non-breeder was sold for beef, and two bull calves for breeding purposes. During the year the

herd again passed a clean test under the Accredited Herd System. As the animals freshen this year they are being put on a Record of Performance test. The two-year-old heifers are particularly promising, and as five will freshen this coming year some interesting data will be collected. There has been a fair demand for feeding stock, but for some time to come the Station will not be able to make a practice of selling females.

During the year Lady Nancy's Skylark completed her second lactation period, milking 392 days and producing 13,680.6 pounds milk, 629.2 pounds fat. This cow's dam is in the herd, and completed her lactation period of 349 days at ten years of age, producing 10,538.7 pounds of milk.

The following is a list of cows that finished a lactation period during the past year:

| Name of Cow | Age | No. of days | Production |
|---|---|---|---|
| | | | lb |
| Lady Nancy's Skylark | 5 | 392 | 13,680·6 |
| Lady Nancy of Eden 4th | 10 | 349 | 10,538·7 |
| Ottawa Dunlop Blossom | 5 | 321 | 8,482·1 |
| Flavia 2nd E | 6 | 301 | 6,757·8 |
| Ottawa Merry May | 5 | 278 | 6,556·3 |
| Invermere Skylark | 2 | 346 | 4,876·6 |
| Total | ..... | ..... | 50,892·1 |
| Average | ..... | ..... | 8,482·0 |

Piggery on the Windermere area.

SWINE.—Only Yorkshire swine are kept on the Station, and the stock at the close of the year numbered six brood sows and two hogs. There has been a very good demand for young breeding stock, and the Station has been supplying this demand instead of carrying on feeding tests the past two years.

# FIELD HUSBANDRY

## ROTATIONS

That crops should be grown in a definite rotation is no longer conjecture. It is sound practice based on a vast amount of experience and experimentation. Each district, however, has its own peculiarities of climate and economic possibilities, and these are the factors which determine what crops can be produced most profitably. Having discovered what these crops are, it is then necessary to decide on a suitable rotation.

The crops which have been found most profitable in this district so far are potatoes and peas (either for seed or commercial purposes), and alfalfa for hay. There is also every possibility of seed-growing being extended to other crops. Four rotations are being carried on at this Station and in each, at least two of these crops are included.

The following values were used in calculating the profit or loss from the various rotations:

### Cost Values

| | |
|---|---|
| Rent of land and irrigation charges | $ 9 75 per acre |
| Manure spread on land | 2 00 per ton |
| Teamster | 0 35 per hour |
| Manual labour | 0 33 per hour |
| Single horse | 0 15 per hour |
| Machinery | 2 85 per acre |
| Twine | 0 25 per lb. |
| Seed | At cost |
| Threshing wheat and peas | 0 15 per bush. |
| Threshing oats | 0 10 per bush. |

*The work in Field Husbandry, Forage Crops and Cereals is under the direction of H. Chester, Assistant.

### Return Values

| | |
|---|---|
| Hay | $20 00 per ton |
| Wheat | 1 50 per bush. |
| Wheat straw | 2 00 per ton |
| Oats | 0 75 per bush. |
| Oat straw | 4 00 per ton |
| Peas | 2 50 per bush. |
| Pea straw | 4 00 per ton |
| Potatoes—commercial | 26 60 per ton |
| Potatoes—small | 7 00 per ton |
| Sunflower silage | 4 50 per ton |

### Rotation A.—Four-year

| Crop | Yield per acre | | Value of crop, 1926 | Cost of production, 1926 | Profit per acre | |
|---|---|---|---|---|---|---|
| | 1926 | Average four years | | | 1926 | Average four years |
| | | | $ cts. | $ cts. | $ cts. | $ cts. |
| Alfalfa | 3·75 tons | 4·43 tons | 75 00 | 27 30 | 47 70 | 62 06 |
| Oats, grain | 81·0 bush. | | 65 95 | 45 26 | 20 69 | 6 54 |
| straw | 1·3 tons | ..... | | | | |
| Peas, grain | 45·0 bush. | 42·4 bush. | 120 10 | 46 90 | 73 20 | 70·59 |
| straw | 1·9 tons | 2·37 tons | 326 14 | 241 86 | 84 28 | 195 41 |
| Hoed Crop (Potatoes) | 14·0 tons | 16·41 tons | | | | |
| Average per acre | ..... | ..... | 146 80 | 90 33 | 56 47 | 83 65 |

ROTATION B—SIX-YEAR

| Crop | Yield per acre | | Value of crop, 1926 | Cost of production, 1926 | Profit per acre | |
|---|---|---|---|---|---|---|
| | 1926 | Average four years | | | 1926 | Average four years |
| | | | $ cts. | $ cts | $ cts. | $ cts. |
| Peas, grain | 45·0 bush. | 39·8 bush. | | | | |
| straw | 1·6 tons | 2·5 tons | 118 90 | 51 30 | 67 60 | 64 74 |
| Head Crop (Potatoes) | 13·9 tons | 14·19 tons | 305 06 | 230 98 | 74 08 | *84 53 |
| Oats, grain | 61·0 bush. | 67·7 bush. | | | | |
| straw | 1·4 tons | 2·0 tons | 51 35 | 48 06 | 3 29 | 12 62 |
| Wheat, grain | 32·7 bush. | 29·2 bush. | | | | |
| straw | 1·6 tons | 1·63 tons | 52 25 | 45 66 | 6 59 | 7 30 |
| Clover and grasses | 2·5 " | 3·32 " | 50 00 | 33 79 | 16 21 | 33 77 |
| Clover and grasses | 2·5 " | 3·32 " | 50 00 | 30 19 | 19 81 | 35 72 |
| Average per acre | | | 104·59 | 73 33 | 31 26 | 39 79 |

*Swedes grown in 1924 at a loss; hence low average profit as compared with hoed crop returns on other rotations.

ROTATION D—SIX-YEAR

| Crop | Yield per acre | | Value of crop, 1926 | Cost of production, 1926 | Profit per acre | |
|---|---|---|---|---|---|---|
| | 1926 | Average four years | | | 1926 | Average four years |
| | | | $ cts. | $ cts. | $ cts. | $ cts. |
| Sunflowers | 21·5 tons | 23·67 tons | 96 75 | 62 31 | 34 44 | 38 09 |
| Peas, grain | 35·0 bush. | 48·6 bush. | | | | |
| straws | 1·5 tons | 2·6 tons. | 174 00 | 54 71 | 119 29* | 117 36 |
| Hoed Crop (Potatoes) | 17·6 tons | 15·71 tons | 350 56 | 247 68 | 102 88 | 162 14 |
| Oats, grain | 61·7 bush. | 60·4 bush. | | | | |
| straw | 1·7 tons | 1·9 tons | 53·08 | 48·13 | 4·95 | 1·14 |
| Alfalfa | 4·6 " | †3·18 " | 92·00 | 29·17 | 62·83 | 41·80 |
| Alfalfa | 4·6 " | 3·18 " | 92·00 | 29·17 | 62·83 | 41·80 |
| Average per acre | | | 143 07 | 78 53 | 64 54 | 67 06 |

*The *Lincoln*, a garden pea, was grown, and the return value as a seed crop was calculated at 8 cents a pound. †Three years average.

ROTATION J—THREE-YEAR

| Crop | Yield per acre | | Value of crop, 1926 | Cost of production, 1926 | Profit per acre | |
|---|---|---|---|---|---|---|
| | 1926 | Average four years | | | 1926 | Average four years |
| | | | $ cts. | $ cts. | $ cts. | $ cts. |
| Oats, grain | 59·0 bush. | 70·9 bush. | | | | |
| straw | 1·6 tons | 2·1 tons | 50 65 | 45 60 | 5 05 | 4 61 |
| Peas (replacing clover*), grain | 45·0 bush. | 40·9 bush. | | | | |
| straw | 1·9 tons | 2·2 tons | 120 10 | 47 89 | 72 21 | 39 97 |
| Hoed crop (Potatoes) | 13·37 " | 14·8 tons | 278 22 | 224 13 | 54 09 | 157 33 |
| Average per acre | | | 149 66 | 150 87 | 43 78 | 67 30 |

*Clover failed.

It will be noticed that yields in nearly all cases are lower than the average, the yield of straw being particularly low. This was to be expected as the past season has been very unfavourable. From April 1 to August 25, 2.12 inches

of rainfall were received in twenty-one showers, and owing to the light snowfall in the neighbouring hills during the winter, irrigation water was very scarce. During the last week in August and September intermittent showers and high winds made harvesting very difficult.

### RETURNS AND COST OF PRODUCING FIELD CROPS

Several factors must be taken into consideration in deciding which crops are most profitable. Two of the most important of these are, total value of yield, and cost of production per acre. To secure a large total value per acre, large yields of crops which the market demands must be grown. Potatoes, peas and alfalfa are such crops for this district. Climatic conditions are quite suitable for the production of large yields of these crops, and normally good prices can be obtained. The profitableness of a crop is also dependent on economy of production. Every device must be used to keep the cost of production as low as possible. In this connection increased yields is of most importance since nearly all the operations required in the production of a crop are the same whether the crop be large or small. The total cost of production should always be taken into consideration. The following table gives the cost to produce and the profit per acre for 1926:

| — | Cost of production | Profit per acre |
|---|---|---|
| | $ cts. | $ cts. |
| Potatoes Rotation A | 241 86 | 84 28 |
| Peas " | 46 90 | 73 20 |
| Alfalfa " | 27 30 | 47 70 |

In considering the following tables it should be borne in mind that the potato and grain crops were of seed quality. The pototoes were grown under certification. Commercial prices, however, have been used in calculating all returns:

RETURNS AND COST PER ACRE OF PRODUCING POTATOES (RURAL RUSSET)—ROTATION A

| | | |
|---|---|---|
| Yield per acre—Commercial 11·64 tons | | |
| Small 2·36 tons | | |
| Value per acre—Commercial at $26.60 per ton | | $ 309 62 |
| Small at $7.00 per ton | | 16 52 |
| Total value per acre | | $ 326 14 |
| Rent and irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 16 00 | |
| Commercial fertilizer | 24 09 | |
| Seed—2,400 lb. at $45 per ton | 54 00 | |
| Machinery | 2 85 | |
| Manual labour at 33c to 35c per hour | 50 50 | |
| Horse labour at 15c per hour | 13 65 | |
| Digging at $3 per ton | 42 00 | |
| Sacks, at 12·5c. each | 29 00 | |
| Total cost per acre | | $ 241 84 |
| Cost per ton—Commercial, $19.70 | | |
| Profit per acre | | 84 30 |

RETURNS AND COST PER ACRE OF PRODUCING ALFALFA—ROTATION A

| | | |
|---|---|---|
| Yield per acre, 3·75 tons | | |
| Value per acre at $20 per ton | | $ 75 00 |
| Rent and irrigation charges | $ 9 75 | |
| Machinery | 2 85 | |
| Manual labour at 33c to 35c per hour | 11 16 | |
| Horse labour at 15c per hour | 3 54 | |
| Total cost per acre | | $ 27 30 |
| Cost per ton, $7.28 | | |
| Profit per acre | | $ 47 70 |

RETURNS AND COST PER ACRE OF PRODUCING CLOVER AND GRASSES—ROTATION B

| | | |
|---|---|---|
| Yield per acre, 2·5 tons | | |
| Value per acre | | $ 50 00 |
| Rent and Irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 2 40 | |
| Seed | 3 21 | |
| Machinery | 2 85 | |
| Manual labour at 33 to 35 cents per hour | 9 04 | |
| Horse labour at 15 cents per hour | 2 94 | |
| Total cost per acre | | 30 19 |
| Cost per ton.—$12.08 | | |
| Profit per acre | | 19 81 |

RETURNS AND COST PER ACRE OF PRODUCING FIELD PEAS (PRUSSIAN BLUE)—ROTATION A

| | | |
|---|---|---|
| Yield per acre—Grain 45 bush. | | |
| Straw 1·9 tons | | |
| Value per acre—Grain at $2.50 per bush | | $ 112 50 |
| Straw at $4 per ton | | 8 60 |
| Total value per acre | | 121 10 |
| Rent and irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 6 40 | |
| Seed at $3 per bush | 7 50 | |
| Machinery | 2 85 | |
| Manual labour at 33 to 35 cents per hour | 9 30 | |
| Horse labour at 15 cents per hour | 4 35 | |
| Threshing at 15 cents per bush | 6 75 | |
| Total cost per acre | | 46 90 |
| Cost per bushel—$1.56 | | |
| Profit per acre | | 74 20 |

RETURNS AND COST PER ACRE OF PRODUCING OATS (VICTORY)—ROTATION B

| | | |
|---|---|---|
| Yield per acre—Grain 61 bushels | | |
| Straw 1·4 tons. | | |
| Value per acre—Grain at 75 cents per bushel | | $ 45 75 |
| Straw at $4 per ton | | 5 60 |
| Total value per acre | | 51 35 |
| Rent and irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 14 40 | |
| Seed | 1 00 | |
| Machinery | 2 85 | |
| Manual labour at 33 to 35 cents per hour | 8 75 | |
| Horse labour at 15 cents per hour | 3 96 | |
| Threshing at 10 cents per bushel | 6 10 | |
| Twine | 1 25 | |
| Total cost per acre | | 48 06 |
| Cost per bushel 70 cents | | |
| Profit per acre | | 3 29 |

RETURNS AND COST PER ACRE OF PRODUCING WHEAT (MARQUIS)—ROTATION B

| | | |
|---|---|---|
| Yield per acre—Grain 32·7 bushels | | |
| Straw 1·6 tons | | |
| Value per acre—Grain at $1.50 per bushel | | $ 49 05 |
| Straw at $2 per ton | | 3 20 |
| Total value per acre | | 52 25 |
| Rent and irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 8 40 | |
| Seed | 3 00 | |
| Machinery | 2 85 | |
| Manual labour at 33 to 35 cents per hour | 12 05 | |
| Horse labour at 15 cents per hour | 3 96 | |
| Threshing at 15 cents per bushel | 4 90 | |
| Twine | 0 75 | |
| Total cost per acre | | 45 66 |
| Cost per bushel—$1.31 | | |
| Profit per acre | | 6 59 |

RETURNS AND COST PER ACRE OF PRODUCING SUNFLOWERS (MAMMOTH RUSSIAN)—ROTATION D

| | | |
|---|---|---|
| Yield per acre, 21·5 tons | | |
| Value per acre, at $4.50 per ton | | $ 96 75 |
| Rent and irrigation charges | $ 9 75 | |
| Manure at $2 per ton | 9 60 | |
| Seed | 2 25 | |
| Machinery | 2 85 | |
| Manual labour at 33 to 35 cents per hour | 28 45 | |
| Horse labour at 15 cents per hour | 7 41 | |
| Twine | 2 00 | |
| Total cost per acre | | 62 31 |
| Cost per ton—$2.90 | | |
| Profit per acre | | 34 44 |

A change was made this year in the seeding of oats in that they were sown in rows 18 inches apart instead of 6 inches. This method has several advantages. It facilitates weeding, cultivating and roguing, thereby making it possible to produce a seed crop of high quality which would be of considerably higher value than the ordinary crop. It facilitates irrigation, which must be done by the furrow system in this district.

To find out the most desirable distance apart of rows, an experiment has been commenced with rows 6, 12, 18, and 24 inches apart. This will be reported upon in later reports.

## HORTICULTURE

As already mentioned under notes on the season, growing conditions in 1926 were very trying. The difficulties experienced with field crops were even more serious when encountered in horticultural work.

The work in horticulture consists of variety and cultural tests of vegetables, fruits and flowers; also plant-breeding. In the breeding of vegetables special attention is given to peas, potatoes and rhubarb, and in flowers to tuberous begonias, pansies and lilacs.

### VEGETABLES—VARIETY TESTS

#### ASPARAGUS

This early vegetable succeeds admirably in this district and should be much more widely grown. The first cutting this year was made on April 16, and subsequent cuttings till June 15. From this date no grass was gathered, which allows the plants to build up for another year. In the spring a dressing of decayed barnyard manure is worked into the soil, and during the summer weeding and irrigating is done when necessary. Palmetto is the variety grown, and from 1,000 lineal feet 233 pounds were cut this year. Rows are 4 feet apart with plants 2 feet apart in the rows.

#### BEANS

Eighteen varieties and strains were grown this season, including dwarf, runner and broad. The season is too short to bring the seed to maturity. Owing to their abundant green growth, however, they make an excellent green vegetable. All varieties were sown on June 1 to escape possible late frosts. The dwarf varieties were sown in rows 2½ feet apart; the runner in rows 5 feet apart. The following table summarizes the results obtained. Scarlet runner was killed by frost in September when in full bearing, hence the small yield.

BEANS—VARIETY TEST

| Variety | Source | Ready for use | Yield per 30-ft. row |
|---|---|---|---|
| | | | lb. |
| Masterpiece | O–1562 | Aug. 5 | 30¾ |
| Cham: Black Wax Interloper | O–6876 | July 26 | 30 |
| Henderson Bountiful | D. & F. | Aug. 2 | 26¼ |
| Henderson Bountiful | Henderson | " 2 | 26¼ |
| Suttons Masterpiece | Vaughan | " 5 | 25½ |
| Bountiful Carters | A. M. Co. | " 2 | 24¼ |
| Davis White Wax | McDonald | " 2 | 22½ |
| Hodson Long Pod | Rennie | Sept. 2 | 21¼ |
| Plentiful | Suttons | Aug. 2 | 21¾ |
| Stringless Green Pod | Graham | " 2 | 21 |
| Stringless Green Pod | O–5406 | " 2 | 20½ |
| Cham: Dwarf Black Wax | Ferry | July 22 | 20¼ |
| Princess of Artois | O–9388 | " 26 | 19½ |
| Round Pod Kidney Wax | McDonald | Aug. 3 | 19½ |
| Yellow Eye | O–6950 | " 10 | 18 |
| Round Pod Kidney Wax | O–6375 | " 3 | 14½ |
| Scarlet Runner | Rennie | " 18 | 17½ |
| Green Windsor (Broad) | Sharpe | " 5 | 18 |

BEET

Thirteen varieties and strains of beets were grown. For yield all were very good, but very few exhibited a uniformity of good colour and quality. A good strain of Detroit Dark Red is recommended for this district.

CABBAGE

Ten varieties and strains of cabbage were grown this season. They were sown in the open ground on May 12 in rows 2½ feet apart. All germinated well and were thinned to 18 inches apart in the case of large varieties, and 12 to 14 inches for small sorts. Golden Acre and Little Gem are good early varieties for private use, while Copenhagen Market is a reliable early commercial cabbage. Danish Ballhead is the best of the late varieties for winter storage, but the season is not always long enough to allow full development. In this respect Danish Roundhead is a little more reliable in that it matures about ten days earlier. Red Dutch and Blood Red are two good varieties for pickling.

CABBAGE—CHINESE

Wong Bok and Pe Tsai sown on May 13 were ready for use on July 4. They satisfy the need for green vegetables during July when other vegetables are scarce.

CAULIFLOWER

Cauliflower was sown at the same time as cabbage and given similar treatment. Early Snowball and Extra Early Dwarf Erfurt were ready for use on August 20, the trimmed heads averaging about 4 pounds. Two strains of Autumn Giant were grown, but the season was not long enough for it.

CARROTS

Carrots were sown on May 13 in drills 3 inches wide and 2½ feet apart. The usual heavy crop of excellent quality was obtained.

CARROT—VARIETY TEST

| Variety | Source | Yield per 30-ft. row |
|---|---|---|
| | | lb. |
| Chantenay | McDonald | 160 |
| Chantenay | Graham | 143 |
| Half Long Scarlet Nantes | Lethbridge | 124 |
| Chantenay | O-6049 | 101 |

CELERY

Celery was sown in the greenhouse on March 23, pricked off into flats on April 27, and transplanted into the open ground in shallow trenches about seen weeks later. Celery grown here is very attractive and of fine quality.

CELERY—VARIETY TEST

| Variety | Source | Ready for use | Weight per doz. heads trimmed |
|---|---|---|---|
| | | | lb. |
| White Plume | Graham | Sept. 20 | 13 |
| Easy Blanching | McDonald | Oct. 1 | 21 |
| Paris Golden Yellow | D. & F. | " 1 | 14 |
| Golden Self Blanching | McDonald | " 14 | 14 |
| Golden Self Blanching | O-3410 | " 14 | 15 |
| Giant Pascal | Graham | " 14 | 18 |
| Burpee Fordhook | Burpee | " 14 | 21 |

CORN

Five varieties of corn were grown, but of these only two, Banting and Pickaninny, which were bred at the Central Experimental Farm, Ottawa, produced ears fit for use. Ears from these varieties were used on August 20.

ENDIVE

Fine Green Curled from McDonald was sown on May 13. It was ready for use early in August.

LETTUCE

Eighteen varieties and strains were sown on May 13. Grand Rapids is a reliable variety which is still maintaining its constancy. The following is a list of the twelve best varieties and strains:—

LETTUCE VARIETIES

| Variety | Source |
|---|---|
| Grand Rapids | O-8287. |
| Grand Rapids | Burpee. |
| Grand Rapids | McKenzie. |
| Early Curled Simpson | Harris. |
| Curled Simpson Black Seeded | Ewing. |
| Tom Thumb | Burpee. |
| Early Prize Head | " |
| Earliest Wayahead | D. & F. |
| Big Boston | Burpee. |
| Improved New York, or Wonderful | " |
| Giant Crystal Head | Vaughan. |
| Hanson | Ewing. |

### ONION

Onions made a better showing than they have done in past years, but the crop must still be considered a failure. Three strains of Large Red Wethersfield, Yellow Globe Danvers and White Barletta were the varieties tried out.

### PARSLEY

Moss Curled from Ewing sown on May 13 gave a heavy growth of finely curled leaves.

### PARSNIP

Three strains of Hollow Crown and one of Cooper Champion produced roots of very good quality. They were sown on May 13.

PARSNIP—VARIETY TEST

| Variety | Source | Yield per 30-ft. row |
|---|---|---|
| | | lb. |
| Hollow Crown | O-8936 | 46 |
| " " | Graham | 42 |
| " " | McKenzie | 34 |
| Cooper Champion | D. & F. | 32 |

### PEPPER

Harris Earliest and Hamilton Market were sown in the greenhouse on May 15, and planted in the open on June 15. A nice lot of green peppers but very few ripe ones were produced before the plants were killed by frost.

### PEAS

Seed of nearly all varieties of peas listed below was grown at Invermere. By so doing the relative merits of the different varieties can be more fairly compared than when seed is obtained from various sources. Seeding took place on May 10, and a good germination was obtained in all cases.

PEAS—VARIETY TEST

| Variety | Source | Ready for use | Height | Green pods per 30-ft. row |
|---|---|---|---|---|
| | | | in. | lb. |
| Bruce | Invermere | July 23 | 45 | 30 |
| Kootenay (Invermere No. 3) | " | " 21 | 58 | 30 |
| Advancer | " | " 24 | 30 | 29 |
| Invermere No. 6 | " | " 19 | 50 | 28 |
| Lincoln | " | " 19 | 30 | 28 |
| Quite Content | " | " 23 | 70 | 28 |
| English Wonder O-8611 | C.E.F., Ottawa | " 14 | ..... | 24¾ |
| Director | Invermere | " 15 | 36 | 24 |
| Peter Pan | " | " 15 | 25 | 24 |
| Telephone | " | " 23 | 65 | 24 |
| Market Gardener | " | " 24 | 32 | 24 |
| Homesteader | " | " 19 | 32 | 22 |
| English Wonder | " | " 14 | 21 | 21 |
| Little Marvel | " | " 14 | 23 | 20 |
| Eldorado | " | " 15 | 19 | 20 |
| Greg. Surprise X English Wonder | O-6471 C.E.F. Ottawa | " 16 | ..... | 19¼ |
| Gradus X American Wonder | O-3584 " " | " 15 | ..... | 19¼ |
| Thos. Laxton | Invermere | " 12 | 40 | 19 |
| Pioneer | " | " 16 | 26 | 19 |
| British Wonder | " | " 19 | 24 | 19 |
| Sutton Excelsior | " | " 14 | 26 | 18 |
| Stratagem | " | " 26 | 24 | 17 |
| King Edward | " | " 26 | 35 | 17 |
| Manifold | " | " 14 | 24 | 16 |
| Laxtonian | " | " 16 | 23— | 16 |
| First and Best | " | " 10 | 33 | 14 |
| Prosperity | " | " 14 | 48 | 13 |
| Early Morn | " | " 14 | 48 | 13 |
| Gradus | " | " 17 | 42 | 13 |
| Blue Bantam | " | " 15 | 20 | 12 |
| Gregory Surprise | " | " 10 | 36 | 12 |
| Laxton Progress | " | " 15 | 17 | 10 |
| Market Surprise | " | " 10— | 32 | 9 |
| V. C. | " | " 25 | 58 | 8 |

### RADISH

Scarlet White Tip, Sparkler, French Breakfast and Ne Plus Ultra were sown on May 12. The last named gave the best results.

### SPINACH

Bloomsdale and Victoria sown on May 12 were ready for use on June 15. These are the best of four varieties grown.

### SWISS CHARD

Lucullus (Ewing) and Spinach Beet (Rennie) gave an abundance of leaves during the season.

### TURNIPS

These are very satisfactory from early sowing—May 12. If sown late they are attacked by root-maggot and are unfit for storing. Good results were obtained with Early Purple Top Milan, Red Top Strap Leaf, Early Snowball and Golden Ball. Sown on the same date Early White Milan, Early Snowball and Golden Ball give a good succession.

### TOMATOES

Owing to the shortness of the season it is not possible to recommend tomatoes as a commercial crop. For home use and local marketing, however, good results may be obtained if a certain amount of care is exercised. All varieties were sown in the greenhouse on April 1, and were transplanted twice before being finally placed in the open ground. The distance between the plants in the open is one foot with rows 2½ feet apart. The plants are tied to short

stakes, and stopped at the second truss of fruit. All laterals are removed. Irrigation must be applied when needed. By following these methods a crop of ripe fruit is practically assured.

TOMATOES—VARIETY TEST

| Variety | Source | Ready for use | Weight of ripe fruit per 10 plants |
|---|---|---|---|
| | | | lb. |
| Avon | Vaughan | Aug. 21 | 29 |
| Alacrity X Earlibell O-6570 | C.E.F. Ottawa | " 17 | 25½ |
| Sel. Earliana | Moore | " 17 | 23½ |
| Bonny Best | Stokes | " 21 | 22½ |
| Alacrity X Hipper O-6568 | C.E.F., Ottawa | " 17 | 21½ |
| Sparks Earliana | Ewing | " 21 | 21½ |
| Alacrity | Keith | " 17 | 21½ |
| Burbank | Bruce | " 21 | 20 |
| Pink No. 1 O-6569 | C.E.F., Ottawa | " 15 | 20 |
| Alacrity O-6560 | " " | " 21 | 20 |
| Bonner Best | Moore | " 21 | 18½ |
| Bonny Best | Keith | " 21 | 18½ |
| Marglobe | Stokes | " 26 | 18 |
| Chalk Early Jewel | Steele Briggs | " 21 | 18 |
| John Baer | Moore | " 21 | 17½ |
| Pink No. 1 O-6574 | C.E.F., Ottawa | " 26 | 16½ |
| Danish Export | Wibolt | " 17 | 15½ |
| Alacrity O-6559 | C.E.F., Ottawa | " 17 | 15½ |

RHUBARB

This is a successful crop here both as regards yield and quality. Hundreds of seedlings are raised every year, but only those showing promise of desired qualities are retained. Propagation is effected by division of the crowns, thus ensuring trueness to variety. An outstanding variety, Ruby, which was originated at the Central Experimental Farm, Ottawa, has medium-sized stalks of rich colour and good flavour.

RHUBARB—VARIETY TEST

| Variety | Source | Ready for use | Yield per root |
|---|---|---|---|
| | | | lb. |
| Invermere Giant | Invermere | May 5 | 10½ |
| D. 1 | " | " 5 | 8 |
| D. 2 | " | " 5 | 6 |
| Ruby | Ottawa | " 5 | 5 |

In the autumn a quantity of roots is packed in boxes. By placing a box or two in the furnace room every few weeks a constant supply of rhubarb is easily maintained during the winter months.

POTATOES

The district is admirably suited to the production of high-class tubers for either seed or culinary purposes. At the British Columbia Provincial Potato Show the district display has never been placed lower than second, and on two out of the five occasions has won the challenge cup. The Murray Shield, for the best individual seed exhibit, has been won by local exhibitors three out of four times. Special attention is given to variety tests, cultural methods, roguing for disease and breeding work. Seed potatoes distributed from the Station and those sold by local growers to outside points almost invariably show wonderful vigour and cropping qualities. Seed grown from various parts of the Dominion is constantly under test, but it is seldom that we get seed equalling that of our own growing.

| Variety | Source | Yield per acre |
|---|---|---|
| | | tons |
| *Green Mountain Group*— | | |
| Ashcroft | Invermere | 26½ |
| Idaho Rural | " | 22¾ |
| Carman No. 1 | Spokane | 19¾ |
| Bella Coola Nugget | Invermere | 19½ |
| Wee McGregor | " | 17½ |
| Green Mountain | Alberry, N.B., 1925 | 16¾ |
| Carman No. 1 | Invermere | 16½ |
| Green Mountain | " | 15¾ |
| Gold Coin | " | 15¾ |
| Delaware | " | 14¾ |
| Gold Coin | U.B.C., 1926 | 13½ |
| *Late Long*— | | |
| Sutton Reliance | Invermere | 23¾ |
| Cambridge Russet | " | 23 |
| Royal Russet | " | 22 |
| Burbank | " | 21 |
| Netted Gem | " | 20½ |
| Late Puritan | " | 19½ |
| Agassiz Special | " | 18½ |
| Pride of Multonomah | " | 14½ |
| Bishop | " | 14½ |
| *Up-to-Date Group*— | | |
| Bernardottes | Invermere | 23¼ |
| Toogood Tremendous | " | 23 |
| Up-to-Date | " | 22 |
| Eureka | " | 21 |
| Million Dollar | " | 21 |
| Queensboro | " | 19 |
| Jones White | " | 18¼ |
| U. B. C. | " | 17½ |
| Up-to-Date | U. B. C. 1926 | 17¼ |
| Eureka | " | 16¾ |
| *Rural Group*— | | |
| Sir Walter Raleigh | Invermere | 15 |
| Rural Russet | " | 14½ |
| Sir Walter Raleigh | U. B. C. 1926 | 9¾ |
| *Cobbler Group*— | | |
| Irish Cobbler | Invermere | 22¾ |
| *Rose, Hebron and Ohio Groups*— | | |
| Houlton Rose | Invermere | 26¼ |
| Manistee | " | 22¾ |
| Early Norther | " | 22 |
| Beauty of Hebron | " | 18½ |
| Bovee | " | 18 |
| Early Ohio | " | 15½ |
| White Ohio | " | 15¼ |
| Early Rose | " | 14¼ |
| *Blues*— | | |
| Blue Snyder | Invermere | 19¾ |
| Blue Victor | " | 18 |
| Blue S. America | " | 15½ |
| Salad | " | 14 |
| *Various Earlies*— | | |
| Epicure | Invermere | 27½ |
| Earliest-of-all | " | 24¾ |
| Precosity | " | 23¾ |
| Sharpes Express | " | 23¼ |
| Jersey Royal | " | 23 |
| Jersey Royal | U. B. C. 1926 | 22¼ |
| Gold Nugget | Invermere | 21¾ |
| Cowichan Leader | " | 21¾ |
| Carter Early | " | 21 |
| Early White Prize | " | 19¾ |
| Early St. George | " | 18½ |
| Bliss Triumph | " | 12¾ |
| Bermuda Early | " | 12½ |
| *Various Main Crop and Late*— | | |
| Kerr Pink | Invermere | 18½ |
| Pearl | " | 18 |
| Roderic Dhu | " | 17¾ |
| King Edward | " | 16½ |
| Baynes Bonanza | " | 15½ |
| Richardson Seedling | " | 13¾ |

# VEGETABLE CULTURAL EXPERIMENTS

## POTATOES

DATE OF PLANTING FOR SEED.—While nothing definite is arrived at relative to the merits of late planting, it must be remembered that the short season here always produces tubers of ideal seed qualities, no matter what the date of planting (within reason) may be:—

DATE OF PLANTING POTATOES FOR SEED

| Variety | Date of planting for seed | Date of planting 1926 | Yield per acre 1926 |
|---|---|---|---|
| | | | tons |
| Wee Macgregor | 1-V-25 | 21-V-1926 | 19½ |
| " | 15-V-25 | 21-V-1926 | 19 |
| " | 1-VI-25 | 21-V-1926 | 21 |
| " | 15-VI-25 | 21-V-1926 | 23¾ |
| " | 8-VII-25 | 21-V-1926 | 23¼ |
| Early Rose | 1-V-25 | 21-V-1926 | 23¾ |
| " | 15-V-25 | 21-V-1926 | 20¼ |
| " | 1-VI-25 | 21-V-1926 | 22¼ |
| " | 15-VI-25 | 21-V-1926 | 28¼ |
| " | 8-VII-25 | 21-V-1926 | 24¾ |

SIZE OF SETS.—To determine the best size of set, rows 3 feet apart with plants 12 inches apart in the hows, were used. One, two, three and four ounces were the sizes planted. Results show that when seed is cheap, large sets should be used. When seed is dear, however, it is more economical to use two-ounce sets, or even smaller.

DISTANCES OF PLANTING.—Two-ounce sets were planted in rows 3 feet apart, and the following distances apart in the row, namely, 12, 14, 16, 18, 20 and 22 inches. For seed purposes 12-inch spacings gave the best result. For baking potatoes 16- to 18-inch spacings are advisable. Spacings of 20 and 22 inches resulted in potatoes too large for commercial purposes, and therefore they should not be used. These findings are made in land reasonable rich in plant food. Modification might be found necessary to meet varying soil conditions.

SPROUTING EXPERIMENT.—Tests with two varieties,—Early Norther and Wee McGregor,—were made to determine the effect of sprouted and retarded seed on earliness and yield. Sprouting was effected by placing the tubers in a warm building in subdued light three weeks prior to planting. Strong sturdy shoots about half-an-inch long were the result. Two- to three-ounce sets of these were planted in rows 3 feet apart with sets 12 inches apart in the row, on May 21. Dormant tubers of like size were also planted on the same date. It was found that sprouting forwarded the crop about seven days in each case.

YIELDS OF SPROUTED AND NON-SPROUTED SEED

| | | |
|---|---|---|
| Early Norther | sprouted | 23¾ tones per acre. |
| " | retarded | 20¾ " |
| Wee McGregor | sprouted | 26¾ tons per acre. |
| " | retarded | 23¾ " |

DATES OF PLANTING.—This experiment has a double object in view. First, to find the best date of planting for yield; and secondly, for quality of seed produced from various plantings. The second part of the experiment of course is carried out during the following year.

POTATOES—DATES OF PLANTING

| Variety | Source | Date of Planting | Yield per acre |
|---|---|---|---|
| | | | tons |
| Wee Macgregor | Invermere | May 22 | 17½ |
| " | " | June 10 | 10½ |
| " | " | " 24 | 4½ |
| " | " | July 16 | 2½ |
| Early Rose | " | May 22 | 18½ |
| " | " | June 10 | 11½ |
| " | " | " 24 | 7½ |
| " | " | July 16 | 2½ |

BEANS

The results tabulated were obtained by sowing at various distances. Rows in all cases were 2½ feet apart.

SOWING BEANS AT VARYING DISTANCES

| Variety | Source | Distance apart in rows | Date of sowing | Ready for use | Weight of green beans per 30-ft. row |
|---|---|---|---|---|---|
| | | in. | | | lb. |
| Stringless Green Pod | Graham | 2 | June 1 | Aug. 2 | 19½ |
| " " | " | 4 | " 1 | " 4 | 16½ |
| " " | " | 6 | " 1 | " 4 | 16½ |
| Round Pod Kidney Wax | " | 2 | " 1 | " 3 | 14½ |
| " " | " | 4 | " 1 | " 6 | 12 |
| " " | " | 6 | " 1 | " 16 | 6 |

PEAS

A test similar to the preceding one on planting intervals was carried out with peas.

SOWING PEAS AT VARYING DISTANCES

| Variety | Source | Distance apart in rows | Date of sowing | Ready for use | Weight of green pods per 30-ft. row |
|---|---|---|---|---|---|
| | | in. | | | lb. |
| Thos. Laxton | Invermere | 1 | May 10 | July 12 | 14 |
| " | " | 2 | " 10 | " 12 | 10 |
| " | " | 3 | " 10 | " 12 | 7 |
| English Wonder | " | 1 | " 10 | " 14 | 14 |
| " | " | 2 | " 10 | " 14 | 10 |
| " | " | 3 | " 10 | " 14 | 9 |
| Stratagem | " | 1 | " 10 | " 23 | 15 |
| " | " | 2 | " 10 | " 23 | 10 |
| " | " | 3 | " 10 | " 23 | 10 |

### BEETS

Three sowings were made to determine the best date of sowing for winter storage. The dates of seeding were May 22, June 1, 10, 21 and July 2. The first date gave coarse, over-sized roots; June 1 and 10 gave ideal roots of good quality. The last two dates are rather late to give a crop.

Five sowings were also made on the same dates to find how many bunches of green beet could be obtained from various sowings. From 15-feet rows the respective yields were 38, 35, 16, 13 and 13 bunches contining five beets per bunch.

### CARROTS

Five sowings of carrots were made at different dates with the following results:—

DATES OF SOWING CARROTS

| Variety | Source | Date of sowing | Number of bunches (5 per bunch) | Weight of carrots per 15-ft. row |
|---|---|---|---|---|
| | | | | lb. |
| Chantenay | McDonald | May 13 | 155 | 80 |
| " | " | " 22 | 84 | 65 |
| " | " | June 1 | 81 | 22 |
| " | " | " 11 | 100 | 24 |
| " | " | " 21 | 55 | 15 |
| " | " | July 2 | 31 | ..... |

### PARSNIPS

Four sowings of Hollow Crown (Graham) were made on May 13, 22, June 1 and 11. The following respective yields were obtained from 30 foot rows: 42, 34, 23½, and 10½ pounds. This vegetable therefore should be sown as early as possible in this district to get maximum yields.

### CELERY

Five methods of growing celery were practised again this year, namely:—

1.—Planted in a bed 6 feet square with plants standing 6 inches apart each way.
2.—Planted on the level and blanched with paper wrapping.
3.—Planted on the level and blanched with boards.
4.—Planted on the level and blanched by earthing up.
5.—Planted in trenches and blanched by earthing up.

Nos. 1, 2 and 3 were severely injured by frost on September 24 and rendered useless.

No. 4.—Weight of 12 heads 9 pounds; rather loose, and not well blanched at the top.

No. 5.—Weight of 12 heads 13½ pounds. Compact, well blanched, crisp and in every way superior to that grown by other methods.

### CABBAGE

To determine the best date of sowing for storage purposes, Danish Ballhead, a late variety, and Copenhagen Market, an early variety, were used. The dates of sowing were May 12, 25, June 1 and 10. With Danish Ballhead May 12 gave the best results, while with the early variety May 25 and June 1 gave good results. Copenhagen Market sown on May 12 produced heads too early for storing.

### CAULIFLOWER

Snowball was sown on various dates as for the test with cabbage. Sowings on May 12 and 25 produced better heads than subsequent sowings.

### TOMATOES

The following methods of pruning were again followed in an endeavour to find the best way to ripen tomatoes in short-season districts. All were sown in April. The seedlings received two transplantings before being finally planted in the open on June 13. The plants were tied to stakes and irrigated as required. The distance between rows was 30 inches with plants 12 inches apart in the row.

PRUNING TOMATOES

| — | Date ripe | Weight of ripe fruit from 10 plants |
|---|---|---|
| | | lb. |
| *Alacrity*— | | |
| Stopped in hotbed, three shoots taken on and stopped at first truss on each | Aug. 26 | 12½ |
| Stopped at first truss | " 16 | 7½ |
| " second truss | " 16 | 19½ |
| " third truss | " 16 | 28 |
| Unstopped | " 16 | 28¼ |
| *Danish Export*— | | |
| Stopped in hotbed, three shoots taken on and stopped at first truss on each | Setp. 4 | 8¾ |
| Stopped at first truss | Aug. 16 | 8¼ |
| " second truss | " 16 | 14½ |
| " third truss | " 16 | 16¾ |
| Unstopped | " 16 | 16 |
| *Bonny Best*— | | |
| Stopped in hotbed, three shoots taken on and stopped at first truss on each | Sept. 10 | 11 |
| Stopped at first truss | Aug. 21 | 10¾ |
| " second truss | " 21 | 20¾ |
| " third truss | " 21 | 21 |
| Unstopped | " 21 | 27¾ |

## FRUITS

### APPLES

For nearly fourteen years apples have been grown at the Station. Results obtained justify the growing of the hardier varieties for home use and local sale, but strictly commercial orchards are not advisable. Yellow Transparent; Duchess; Okabena; Rupert; Dudley; Charlamoff; Pinto and Wealthy are recommended.

Of crabs, Transcendant and Hyslop yield heavy crops of fruit, the quality of which cannot be excelled.

### CURRANTS—BLACK

These succeed very well here, yielding heavy crops. Of the twelve or more varieties tested for fourteen years, preference is given to Topsy, Collins Prolific, Naples, Climax, Black Eagle and Victoria. Up to the present we have not been troubled with borer.

### CURRANTS—RED AND WHITE

These also succeed admirably, heavy crops being the rule. Fifteen varieties have been tried out, and of these in reds Fay Prolific, Perfection, Wilder and Rankin, and in whites White Grape, Large White and White Cherry are to be preferred.

### GOOSEBERRIES

Due to the ravages of gooseberry mildew Oregon Champion is the only variety with which any success has been attained. Two new varieties are under trial, but it is too early to give any definite information regarding these.

### RASPBERRIES

Several varieties have been experimented with in the past. Cuthbert winter-kills badly in some seasons and is not recommended. King and Herbert are hardier and yield well. St. Regis, an ever-bearing variety, is also recommended, for though it may be top-killed during the winter and any chance of an early crop destroyed, the new crop from the base will produce a yield of fine berries up to the time of frost.

## ORNAMENTAL

For decorative purposes all the local coniferous and deciduous trees are used. Good results are also obtained from the use of Russian poplar, ash, Manitoba maple, and the willow species.

### HEDGES

Various trees and shrubs are used in this work to demonstrate their adaptability for the purpose. The best evergreens are the Douglas fir, spruce and juniper. In the deciduous section laurel-leaved willow, caragana, lilacs and dogwood are very satisfactory.

### FLOWERING SHRUBS

These, though somewhat limited in variety when compared with the number that can be grown in more favoured climes, give highly satisfactory results when plantings are confined to the more hardy kinds. Lilacs of all varieties, Spireas, Philadelphus (Mock Orange), Tartarian honeysuckle, and the hardier of the roses may all be depended on to lend charm and colour in their seasons.

### PERENNIAL FLOWERS

A list of the sorts which we have found to be most satisfactory here is aster, equilegia, Campanula glomerata, Delphinium, Iris germanica, Gypsophila, Iceland poppy, paeony, Phlox decussata, pinks, pansies, Rudbeckia and Shasta daisy.

### ANNUALS, AND FLOWERS TREATED AS SUCH

These play a great part in decorative and cut-flower work. During the last two years asters have deteriorated somewhat, on account of virus disease. In consequence greater attention has been given to antirrhinums. These in the intermediate and Tom Thumb sections give very fine results are always a source of pleasure to our visitors. Clarkia, cosmea, Datura Wrightii, lobelia, marigold,

nasturtium, petunia, Phlox Drummondii, poppy portulaca, salpiglossis, ten-week stock, tagetes and sweet peas may all be depended upon to make the garden gay during the summer and autumn months. These for the most part are raised under glass in the spring and planted out when danger of frost is past.

A collection of geraniums (Zonal Pelargoniums) of varieties originated at the Central Experimental Farm, Ottawa, is grown in the small greenhouse for autumn and winter blooming. These are very fine and are much admired.

In an endeavour to popularize the tuberous-rooted begonias, a collection of singles and doubles is being gradually built up. These never fail to attract attention, supplying, as they do, colours and forms of bloom to satisfy the most critical.

## PLANT BREEDING AND SELECTION

This branch of the work is receiving increased attention, especially as regards garden peas and potatoes.

### PEAS

Three selections of garden peas, Invermere No. 1, Invermere No. 2 and Invermere No. 3 have given highly satisfactory results wherever tried out against standard varieties (see annual reports of the various Dominion Experimental Farms and Stations). Besides their heavy yielding ability these selections possess excellent cooking qualities. At the Station this year Invermere No. 1 again led in yield in competition with over 100 varieties and strains. These seedlings are being increased for distribution, and in the near future more will be heard of them. The three seedlings mentioned above have been recently named and will in future be known as "Bruce" (Invermere No. 1), "Director" (Invermere No. 2) and "Kootenay" (Invermere No. 3).

Another very promising seedling is the result of a cross between Lincoln and Arthur. This seedling has the fasciated character of Arthur with the wrinkled seed of Lincoln. It is very dwarf in habit, growing only 12 to 14 inches high, and is much branched. These characteristics are fixed and as the culinary properties have proved satisfactory it should be a valuable addition to the home garden where a tall pea is not desired.

Attention is also being paid to the breeding of peas for commercial canning. In view of the preference for small peas for this work, high-producing varieties with this character and of good colour are being bred. At present three of these varieties are being increased so that they can be tried out on a large scale by the canning companies.

Neither have field peas been neglected. By crossing Arthur with itself a very fine strain of Arthur has been produced with fasciation retained to the full. Two selections of field peas of early maturing habit have also been produced, and these might find a place in districts with very short growing seasons.

### POTATOES

Several thousand of seeding potatoes have been raised during the last five years from both hand-fertilized and naturally fertilized seed. These are rigorously tested and any not reaching a high standard, especially in disease resistance and yielding ability, are immediately discarded. About fifty seedlings were carried into the variety tests with commercial varieties this year.

### RHUBARB

Two varieties of rhubarb raised here are well worthy of notice. At present these are known as D. 1 and D. 2. They are both highly coloured, often carrying the pigment right through the stalk, and of very fine flavour.

A batch of seedlings is raised from seed supplied by the Central Experimental Farm at Ottawa, and the best of these put under trial. Some very promising seedlings are apparent amongst them.

### FLOWERS

PANSIES.—A strain of fancy pansies is being built up. The pansies are greatly admired by visitors. In order to guard against deterioration no other representatives of the genus Viola tricolor are grown, thus reducing the chances of cross-pollination to a minimum. The flowers of this strain embrace all the colours found in this favourite plant, and are sometimes huge in size, attaining a diameter of 4 inches.

TUBEROUS BEGONIAS.—Attention is also being paid to these, and the small greenhouse filled with them is a source of enjoyment to visitors. The blooms of some of the seedling singles will measure up to 9 inches in diameter, while the doubles will equal a medium-sized paeony in size.

LILACS.—There are about a thousand seedlings of this favourite flowering shrub in their second season of development. These were raised from seed saved from all the best named varieties in our collection, and hopes are entertained of some new and desirable varieties appearing amongst them.

## CEREALS

The yield of cereals was fairly satisfactory. Each year, however, it is repeatedly proved that the small grains are not a profitable crop, particularly if grown as a cash-crop. Their use should be limited, confined chiefly to nurse-crops for alfalfa and clovers. Peas, on the other hand, especially if grown for seed, is a very profitable crop.

Variety tests with wheat, oats, barley and peas were continued this year. For the first three the rod-row method of testing was used. This consists in planting varieties in rod-rows, replicated four times. An equal number of germinable seeds are planted in each rod-row, which ensures that the test will be fair for all varieties. Peas are tested in one-sixtieth acre plots.

WHEAT.—Fourteen varieties were sown on May 7. At present Huron and Marquis are recommended.

OATS.—Fifteen varieties were sown on May 10. Victory, Banner, and Gerlach are standard varieties. Alaska is an early variety and a fair yielder.

BARLEY.—Sixteen varieties were sown on May 13. Owing to the very dry weather some of the later varieties, such as Barks and Bearer, ripened at the same time as earlier sorts. Dependable varieties are O.A.C. No. 21, Himalayan and Gold.

PEAS.—Eleven varieties of peas were tested. For grain Prussian Blue and Bluebell are superior varieties. Mackay is a heavy yielder, but rather late in maturing. For ploughing in, Solo and Maple make a very quick growth.

# FORAGE CROPS

## HAY CROPS

Although not up to the average, still the yield of hay was quite good. Alfalfa yielded about 4 tons per acre. This is the outstanding hay crop and should be grown more extensively than at present. There is also quite a possibility that the growing of alfalfa for seed might be quite a profitable crop. At the local fair this year several sheaves loaded with seed of a high quality were exhibited. It is intended to carry on experiments along this line in the near future.

## ENSILAGE CROPS

Owing to the shortness of the season and the danger from early frosts, corn is a very uncertain crop. Consequently sunflowers are preferable in this district for ensilage. Sunflowers, however, are not as palatable or nutritious as corn. With this in mind sunflowers, peas and oats were sown in several combinations this year. The data so far obtained are very interesting, and in future reports more will be said with respect to this experiment.

The following is a summary of the varieties of sunflowers tested this year. They were sown on May 5, and harvested on September 18.

| Variety | Height | | Green weight per acre | | Dry matter | Dry weight per acre | |
|---|---|---|---|---|---|---|---|
| | ft. | in. | tons | lb. | % | tons | lb. |
| Ottawa..76 | 5 | 6 | 11 | 400 | 18·65 | 2 | 180 |
| Manchurian—McKenzie | 5 | 0 | 11 | 400 | 17·58 | 1 | 1,940 |
| Mammoth Russian—Disco | 6 | 0 | 10 | 1,300 | 17·68 | 1 | 1,760 |
| Mennonite—Rosthern | 4 | 5 | 9 | 0 | 18·94 | 1 | 1410 |
| Mammoth Russian—McDonald | 6 | 0 | 11 | 400 | 14·84 | 1 | 1330 |

## FIELD ROOTS

With the exception of swedes, which made a rapid growth in the cool months of August and September, the yields of all varieties of roots were very low. All roots were sown on May 28, irrigated as required, and harvested on October 9. Rows 29 feet long were used in testing.

SWEDES—VARIETY TEST

| Variety and Source | Green weight per acre | | Dry matter | Dry weight per acre | |
|---|---|---|---|---|---|
| | tons | lb. | % | tons | lb. |
| Ditmars, McNutt | 32 | 1,800 | 9·96 | 3 | 460 |
| Bangholm, Charlottetown | 30 | 600 | 10·40 | 3 | 300 |
| Bangholm Purple Top—Bruce | 33 | 250 | 9·47 | 3 | 275 |
| Olsgaard Bangholm—Hartmann | 32 | 500 | 9·62 | 3 | 200 |
| Hartley's, Bruce | 27 | 1,750 | 10·99 | 3 | 130 |
| Bangholm, Kentville | 32 | 100 | 9·52 | 3 | 100 |
| Canadian Gem, S. Briggs | 29 | 1,700 | 10·01 | 2 | 1,975 |
| Magnum Bonum, Bruce | 30 | 200 | 9·62 | 2 | 1,790 |
| Kangaroo, Bruce | 30 | 1,000 | 9·33 | 2 | 1,690 |
| Elephant or Monarch, Bruce | 30 | 200 | 9·37 | 2 | 1,640 |
| Imp. Yellow, Gen. Swedish | 30 | 200 | 9·13 | 2 | 1,500 |
| Canadian Gem, Bruce | 29 | 1,250 | 9·22 | 2 | 1,460 |
| Bangholm, Gen. Swedish | 29 | 800 | 9·23 | 2 | 1,425 |
| Bangholm, Nappan | 25 | 1,800 | 9·67 | 2 | 1,010 |
| Jumbo, S. Briggs | 28 | 1,500 | 8·45 | 2 | 865 |
| Shepherd's Golden Globe—Hartmann | 29 | 800 | 7·96 | 2 | 680 |
| Good Luck, S. Briggs | 11 | 400 | 9·82 | 1 | 200 |

SUGAR BEET—VARIETY TEST

| Variety and Source | Green weight per acre | | Dry matter | Dry weight per acre | |
|---|---|---|---|---|---|
| | tons | lb. | % | tons | lb. |
| Horning | 12 | 800 | 19·63 | 2 | 870 |
| Schrieber & Son | 9 | 300 | 22·12 | 2 | 50 |
| Dieppe | 8 | 60 | 20·27 | 1 | 12,60 |

CARROTS—VARIETY TEST

| Variety and Source | Green weight per acre | | Dry matter | Dey weight per acre | |
|---|---|---|---|---|---|
| | tons | lb. | % | tons | lb. |
| Long Orange Belgian, Bruce | 15 | 1,610 | 10·74 | 1 | 1,394 |
| Long Orange, Bruce | 13 | 500 | 12·45 | 1 | 1,300 |
| Imp. Inter. White, Ewing | 14 | 1,850 | 10·94 | 1 | 1,270 |
| New Yellow Intermediate, Ewing | 16 | 265 | 9·96 | 1 | 1,201 |
| White Belgian, Hartmann | 15 | 1,330 | 10·06 | 1 | 1,151 |
| White Half Long, Gen. Swedish | 12 | 1,800 | 11·96 | 1 | 1,083 |
| White Belgian, Bruce | 14 | 320 | 10·21 | 1 | 890 |
| White Intermediate Summerland | 15 | 520 | 9·38 | 1 | 860 |
| Long Red Surrey, S. Briggs | 13 | 120 | 10·94 | 1 | 860 |
| Large White Belgian, S. Briggs | 13 | 350 | 10·79 | 1 | 843 |
| Yellow Belgian, Ewing | 14 | 750 | 9·83 | 1 | 825 |
| Imp. Inter. White, D. & F | 13 | 1,000 | 10·21 | 1 | 755 |
| White Belgian, Halifax Seed Co | 13 | 70 | 10·5 | 1 | 740 |
| Yellow Inter., Halifax Seed Co | 10 | 1,950 | 12·32 | 1 | 705 |
| White Belgian, Ewing | 12 | 1,030 | 10·7 | 1 | 680 |
| Imp. Short White, S. Briggs | 15 | 300 | 8·62 | 1 | 620 |
| Champion, Hartmann | 11 | 1,720 | 11·04 | 1 | 620 |
| Danish Champion, C.E.F | 12 | 800 | 8·74 | 1 | 167 |

Carrots were sown in rows 3 feet apart, each row consisting of two drills 6 inches apart. This method has resulted in higher yields than one drill per row.

## POULTRY

White Leghorns exclusively are bred and experimented with on the Windermere area. The principal projects that are at present under way are pedigree breeding, hatching, rearing, experimental feeding, housing and management. Care is being exercised in the laying out of this poultry area in order to have runs at both back and front of the various pens. It will also be possible to raise the young chicks on fresh ground each year, and in this way it is hoped to combat worm infection and disease that make such inroads into the poultry profits.

The work of trap-nesting all the pullets and hens, keeping individual records, and, by a system of marking the eggs, hatching each hen's eggs in a separate compartment, leg- and wing-banding, each bird's identity is preserved, and pedigrees established in time. Records are also kept of the size and weight of the individual hen's eggs, and the best producers are mated with carefully selected males.

There is a fair demand for setting eggs and cockerels, and these are distributed at reasonable prices throughout the territory served by the Station. There has been some demand for day-old chicks, but the Station has not started into this branch of the industry.

## HATCHING

Early hatching is essential if the birds are to be developed and ready for business by October or November. At the Station we plan our main hatch for April 15. Due to the long winters some difficulty may be experienced in getting good fertility and hatchability for hatches in March. In many cases it has been found that the eggs, while fertile, will develop to a certain stage and then die. While this may be partially due to incubation troubles, it is also due to the weakness of the germ and viability of the chick in embryo.

The following tables show the hatching results as a whole, and as hatches incubated the later part March and April. It will be noted that not only is the fertility better, but the hatchability is greatly improved at the later date.

## INCUBATORS

Three makes of incubators were used during the past year, namely Jubilee, Prairie State and Buckeye. The results were in the order named. Difficulty has always been experienced in keeping humidity requirements in the Buckeye machine. The following table gives in detail the results obtained from the various machines:—

SHOWING TOTAL HATCHING RECORDS FOR 1926

| Farm | Total eggs set | No. fertile | Per cent fertile | No. of chicks | Per cent total eggs hatched | Per cent fertile eggs hatched | No. of chicks alive when wing banded | Per cent chicks hatched alive when wing banded | Total eggs required for one chick hatched | Total fertile eggs for one chick hatched | Total eggs required for one chick when wing banded |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Invermere | 2,288 | 1,928 | 84·2 | 782 | 34·1 | 40·5 | 733 | 93·7 | 2·9 | 2·4 | 3·1 |

SHOWING HATCHING RESULTS FOR SETTINGS BY THE MONTH

| Time set | Total eggs set | No. fertile | Per cent fertile | No. of chicks | Per cent total eggs hatched | Per cent fertile eggs hatched | No. of chicks alive when wing banded | Per cent chicks hatched alive when wing banded | Total eggs required for one chick hatched | Total fertile eggs for one chick hatched | Total eggs required for one chick when wing banded |
|---|---|---|---|---|---|---|---|---|---|---|---|
| March 26–30 | 1,320 | 1,045 | 79·1 | 405 | 30·6 | 38·7 | 389 | 96·0 | 3·2 | 2·5 | 3·3 |
| April 24 | 525 | 498 | 94·8 | 262 | 49·9 | 52·6 | 241 | 91·9 | 2·0 | 1·9 | 2·1 |

SHOWING HATCHING RESULTS FROM DIFFERENT MAKES OF INCUBATORS

| Incubator | Total eggs set | No. fertile | Per cent fertile | No. of chicks | Per cent total eggs hatched | Per cent fertile eggs hatched | No. of chicks alive when wing banded | Per cent chicks hatched alive when wing banded | Total eggs required for one chick hatched | Total fertile eggs for on chick hatched | Total eggs required for one chick when wing banded |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jubilee | 1,058 | 958 | 90·5 | 458 | 43·2 | 47·8 | 427 | 93·2 | 2·3 | 2·1 | 2·4 |
| Prairie State | 606 | 492 | 81·1 | 173 | 28·5 | 35·1 | 159 | 91·9 | 3·5 | 2·8 | 3·8 |
| Buckeye | 624 | 478 | 76·6 | 151 | 24·2 | 31·5 | 147 | 97·3 | 4·1 | 3·1 | 4·2 |

## HENS VS. PULLETS FOR INCUBATION

In testing out hen eggs and pullet eggs for hatching, the former have proved more satisfactory, have better fertility and viability. This is clearly shown in the following table:—

SHOWING HATCHING RESULTS FROM HENS AND PULLETS

| — | Total eggs set | No. fertile | Per cent fertile | No. of chicks | Per cent total eggs hatched | Per cent fertile eggs hatched | No. of chicks alive when wing banded | Per cent chicks hatched alive when wing banded | Total eggs required for one chick hatched | Total fertile eggs for one chick hatched | Total eggs required for one chick when wing banded |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hens | 1,374 | 1,209 | 87·9 | 489 | 35·5 | 40·4 | 475 | 97·1 | 2·8 | 2·4 | 2·8 |
| Pullets | 914 | 719 | 78·6 | 293 | 32·0 | 40·7 | 258 | 88·0 | 3·1 | 2·4 | 3·5 |

REARING

The young chicks are transferred from the incubator-room to brooder-room under oil-burning hovers. The oil-burning hovers have proved more satisfactory than coal, as the quality of the coal readily obtainable makes it impossible to keep a uniform heat that will last for any length of time and will not clinker badly.

FEEDING EXPERIMENTS FOR EGG PRODUCTION

During the past year three distinct winter feeding experiments were tried out from December 1 to April 30. These experiments briefly were:—

(I) Pens 1 and 2—Beef meal vs. fish meal.
(II) Pens 4, 5, 6, 7—Roots vs. Alfalfa vs. Sprouted Oats vs. Epsom salts.
(III) Pens 8 and 9—Snow vs. Water.
Pen No. 3 was used as a control pen.

Briefly the pens received the following treatment:—

Pen No. 1.—Standard scratch grain; standard mash with 20 per cent beef meal; green feed; grit; shell, and water to drink (no milk).

Pen No. 2.—Same ration as for pen No. 1, but with 20 per cent fish meal in the mash instead of beef meal.

Pen No. 3.—Standard scratch grain; standard mash; green feed, grit, shell, with milk and water to drink.

Pen No. 4.—Same ration as for pen No. 3, but only roots (mangels, etc.) given as green feed *ad lib.*

Pen No. 5.—Same ration as pen No. 3, but with dried clover leaves or alfalfa leaves given as green feed (fed in the litter in the proportion of about 2 pounds per day for fifteen birds).

Pen No. 6.—Same ration as for pen No. 3, but with sprouted oats for green feed (fed in a small hopper once a day).

Pen No. 7.—Same ration as pen No. 3, but without green feed. 1½ to 2 ounces Epsom salts daily for each 15 birds (the salts dissolved in water and mixed with the wet mash).

Pen No. 8.—Same ration as pen No. 3, but without milk and water, and snow given in their place (water to be given until such time as snow is available).

Pen No. 9.—Same ration as pen No. 8, but with water given instead of snow.

The birds used in this test were very uniform, and were divided into pens of 20 each. Some interesting data were collected, and while it would not do to take these results as final, still they are suggestive and may be of interest to poultrymen. No particular reason can be given why pen No. 1, fed on meat meal, stood so low. The birds to all appearance were on a par with other birds. However, while they consumed the feed they failed to deliver the eggs. The higher total value of eggs in some cases is due to the fact that the price of eggs was not constant but the market price for the various months, while the production of eggs month by month also varied from the different pens. This experiment is being continued over a period of years in order to arrive at some definite conclusions.

FEEDING FOR WINTER FOR EGG PRODUCTION

| Pen No. | Ration | Total eggs | Total value | Total value of feed | Feed cost per doz. eggs | Profit over cost of feed |
|---|---|---|---|---|---|---|
| | | | $ c. | $ c. | cents | $ c. |
| 1 | Meat scrap | 1,182 | 36 65 | 21 94 | 22 | 14 71 |
| 2 | Fish meal | 1,618 | 51 13 | 19 92 | 15 | 31 21 |
| 3 | (Control) | 1,598 | 50 23 | 20 61 | 15½ | 29 62 |
| 4 | Mangels | 1,564 | 50 78 | 19 98 | 15 | 30 80 |
| 5 | Alfalfa | 1,541 | 47 26 | 22 95 | 18 | 24 31 |
| 6 | Sprouted oats | 1,584 | 50 57 | 20 96 | 16 | 29 61 |
| 7 | Epsom salts | 1,605 | 51 15 | 22 40 | 17 | 28 27 |
| 8 | Snow | 1,670 | 52 36 | 20 87 | 15 | 31 49 |
| 9 | Water | 1,634 | 51 80 | 21 06 | 15½ | 30 74 |

## APIARY

On account of drought the past season was particularly poor for the bees. The bees came through the winter in very good condition and while they developed into strong colonies, the nectar was not available for a large honey crop. The yield, while higher than the average yield throughout the province and the East Kootenay district, is the second lowest on record at this Station being 74.6 pounds per hive as compared with last season's crop of 136 pounds per hive. The quality of the honey this year was high, and a ready sale was found for the crop. Another year the apiary will be increased to 25 colonies, and more experimental work will be undertaken. The Station has not made a practice of selling bees, but has referred all enquirers to reputable bee-keepers.

### RETURNS FROM APIARY

From 7 colonies, spring count, 522 pounds of extracted honey was produced, or an average of 74.6 pounds per hive. The highest yield from one colony was 171 pounds. The honey was put up in 4 and 4½-pound containers, and sold at a retail price of 25 cents per pound, netting $130.50. During the year 148 pounds of sugar were fed, valued at $11.63. The net return from the apiary was $130.50, plus $7, the value of an increase of one colony, less $11.63 the value of the sugar fed, giving $125.87, or a profit of $17.98 per colony spring count.

RETURNS FROM APIARY

| Year | Colonies to go into winter the previous fall | Colonies died in winter or united in spring | Colonies—spring count | Increase in colonies during season | Colonies to go into winter | Value increase or decrease compared with previous fall | | Total honey produced | Average weight of honey per hive—Spring count | Highest yeild from one colony | Selling price per pound | Total value of honey | Value of sugar fed during season | Net production value | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Inc. | Dec. | | | | | | | Per Apiary | Per Hive |
| | No. | No. | No. | No. | No. | $ | $ | lb. | lb. | lb. | cts. | $ c. | $ c. | $ c. | $ c. |
| 1917 | 12 | ..... | 12 | 2 | 14 | 10 | ..... | 975 | 81·25 | 120·0 | 17 | 165 75 | 38 25 | 137 50 | 11 45 |
| 1918 | 14 | 4 | 10 | ..... | 10 | ..... | 20 | 1,189 | 118·9 | 192·0 | 28 | 332 92 | 22 00 | 290 92 | 29 09 |
| 1919 | 10 | 3 | 7 | 4 | 11 | 7 | ..... | 885 | 126·4 | 234·0 | 33 | 292 05 | 23 40 | 276 65 | 39 52 |
| 1920 | 11 | 2 | 9 | 1 | 10 | ..... | 7 | 810 | 90·0 | 199·0 | 47 | 380 70 | 46 00 | 327 70 | 36 41 |
| 1921 | 10 | 2 | 8 | 3 | 11 | 7 | ..... | 322 | 40·3 | 79·5 | 35 | 112 70 | 26 50 | 93 20 | 11 65 |
| 1922 | 11 | 6 | 5 | 4 | 9 | ..... | 14 | 465 | 93·0 | 146·0 | 25 | 116 25 | 16 80 | 85 45 | 17 09 |
| 1923 | 9 | 3 | 6 | 6 | 12 | 221 | ..... | 502 | 83·7 | 110·0 | 25 | 125 50 | 19 50 | 127 00 | 21 16 |
| 1924 | 12 | ..... | 12 | ..... | 12 | ..... | ..... | 1,370 | 114·1 | 150·0 | 25 | 342 50 | 32 02 | 310 48 | 25 87 |
| 1925 | 12 | 4 | 8 | ..... | 8 | ..... | 28 | 1,088 | 136·0 | 203·0 | 20 | 217 60 | 6 30 | 183 30 | 22 91 |
| 1926 | 8 | 1 | 7 | 2 | 9 | 7 | ..... | 522 | 74·6 | 171·0 | 25 | 130 50 | 11 63 | 125 87 | 17 98 |

### CONTROL OF SWARMING

The method adopted at the Station is to go through the brood-chambers every week or ten days and remove queen cells if present, and increase the working room of the bees. This can be done by moving or transferring frames of brood from the brood-chamber to the super or supers above. Some advocate the jumbo frame for the brood-chamber, but better results have been obtained by using a shallow super over the ordinary brood-chamber of Langstroth frames, and giving the queen the run of this. If queen-cells are formed they will nearly always be at the bottom of the shallow frames and can be readily detected by raising one end of the super and glancing along the lower side of the frame. It will be found that the addition of the shallow frame will do away to a large extent with the individual examination of the frames in the lower brood-chamber. This last season the colonies were all re-queened, and with careful watching and by practising the above details, swarming was controlled.

### FEEDING

The Miller feeder has been used exclusively in the fall with good results. For spring feeding an ordinary honey-pail with lid punched with holes has been used with satisfactory results. The past season 148 pounds of sugar, valued at $11.63, were fed to nine hives. This is an average of 16.44 pounds per hive, valued at $1.29 per colony. The syrup is made in the proportion of two of sugar to one of water. Good results have been obtained without using tartaric acid. The following table summarizes the results for the past ten years:—

AMOUNT AND COST OF SUGAR FED 1917-1926

| Year | No. of hives fall count | Weight of sugar fed | Average weight of sugar per colony | Total value of sugar | Value of sugar per colony |
|---|---|---|---|---|---|
| | | lb. | lb. | $ c. | $ c. |
| 1917 | 14 | 340 | 24·3 | 38 25 | 2 73 |
| 1918 | 10 | 160 | 16·0 | 22 00 | 2 20 |
| 1919 | 11 | 180 | 16·4 | 23 40 | 2 13 |
| 1920 | 10 | 200 | 20·0 | 46 00 | 4 60 |
| 1921 | 11 | 200 | 18·18 | 26 50 | 2 41 |
| 1922 | 9 | 160 | 17·7 | 16 80 | 1 87 |
| 1923 | 9 | 176 | 19·6 | 19 50 | 2 17 |
| 1924 | 12 | 296 | 24·8 | 32 02 | 2 67 |
| 1925 | 8 | 70 | 8·75 | 6 30 | 0 79 |
| 1926 | 9 | 148 | 16·44 | 11 63 | 1 29 |

### WINTER PROTECTION

Eight colonies were wintered, four in an Ontario wintering-box and four in Kootenay hive-cases. The winter was the mildest on record and all the bees came through in good shape, but one hive was lost subsequently, late in the spring.

## GENERAL NOTES

The Station exhibit was only shown at two fairs the past year, namely Lake Windermere and Cranbrook.

Material from the Station was forwarded to the Experimental Farms exhibit at Vancouver in August.

The Superintendent judged at the Provincial Potato Show and at the Pacific Northwest Potato Show in Spokane.

OTTAWA: Printed by F. A. ACLAND, Printer to the King's Most Excellent Majesty, 1927.