DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

CHARLOTTETOWN, P.E.I.

REPORT OF THE SUPERINTENDENT

J. A. CLARK, M.S.A.

FOR THE YEAR 1926

Driveway at the Dominion Experimental Station, Charlottetown, P.E.I.

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DOMINION EXPERIMENTAL STATION
CHARLOTTETOWN, P. E. ISLAND

REPORT OF THE SUPERINTENDENT, J. A. CLARK, M.S.A.

THE SEASON

Unfavourable weather made harvesting difficult in the autumn of 1925. Farm work was delayed so that fall ploughing was not completed at the time of the "freeze up," November 24, 1925. With the exception of the last week of the year the weather was mild until the last week of January. From that date on the winter was cold and stormy with a slight thaw March 22. This was followed by a stormy backward April and a cool May, with spring fully two weeks late. June and July were favourable growing months. Clover and grasses wintered well and gave good yields of hay and splendid pastures throughout the season. Early harvesting conditions were very favourable, but it was difficult to save the late cereals and roots owing to frequent showers. Autumn work was well completed when a heavy fall of snow, that commenced on December 3, stopped the plough with scarcely any frost in the ground.

1926 METEOROLOGICAL RECORDS, EXPERIMENTAL STATION, CHARLOTTETOWN, PRINCE EDWARD ISLAND

	Temperature (°F.)						Precipitation (inches)				Sunshine (hours)	
	Mean		Maximum		Minimum		Rain	Snow	Total Precipitation		1926	Average 16 years, 1911-26
	1926	Average 18 years	Highest	Mean Maximum	Lowest	Mean Minimum			1926	Average 26 years, 1901-26		
January	17·258	16·845	40	25·677	−12	8·839	0·96	51·00	6·06	3·63	70·9	94·33
February	15·660	16·428	40	23·857	−18	7·464	0·28	47·00	4·98	3·01	109·6	116·98
March	22·484	26·575	45	30·258	−11	14·710	1·50	15·50	3·05	3·56	153·0	135·24
April	32·600	36·597	50	39·360	12	25·830	1·11	18·25	2·94	3·05	159·5	149·37
May	46·338	47·850	70	55·354	29	37·322	3·08	4·00	3·48	2·60	166·7	212·92
June	59·400	58·320	78	69·200	40	49·600	2·21	.....	2·21	2·85	244·7	225·48
July	65·210	65·400	85	74·484	49	55·935	2·53	.....	2·53	2·81	254·7	232·31
August	62·564	64·647	81	70·258	44	54·871	3·14	.....	3·14	3·10	202·1	230·64
September	55·683	57·220	73	63·733	37	47·633	1·83	.....	1·83	3·69	173·7	180·68
October	48·387	47·991	73	54·742	30	42·032	3·37	.....	3·37	4·01	128·7	132·44
November	38·550	35·713	60	46·100	18	31·000	2·43	1·9	2·69	3·79	113·1	75·89
December	22·661	24·838	44	28·838	1	16·484	0·83	53·24	6·15	4·77	60·0	59·84
	40·566	41·535	.....	48·488	.....	32·643	23·27	190·89	42·43	40·87	1,836·7	1,846·1

ANIMAL HUSBANDRY

HORSES

There were ten horses at the Station on December 31, 1926, consisting of three Clydesdale mares, three draught geldings, one draught mare, one driving mare, one Clydesdale yearling filly and a yearling Clydesdale gelding.

The nineteen-year-old express horse, having gone lame in the autumn, was exchanged for a young draught mare. One horse was hired for two months during the spring work. The horses were well and in good condition at the end of the year.

A Moline tractor gave satisfactory service during the busy seasons, relieving the horses from the heaviest work in the spring and the autumn.

HORSE LABOUR

The labour performed during the year by the eight horses and the horse that was hired for two months was as follows:

	Hours
Farm work	11,001
Horticulture	261
Roads	269
Hauling manure	2,225
Messenger service and miscellaneous	2,360
Cultural work	131
Total	16,247

This is equal to 1,990 hours labour per horse per year.

SWINE

Three Yorkshire brood sows were kept during the year. One of these failed to breed and was sold for slaughter. The remaining two sows farrowed in May, one giving fifteen pigs and the other seven. Sixteen of these were saved, eleven being registered and sold for breeding stock. The remaining five were sold for feeding.

Two brood sows were on hand December 31, 1926.

DAIRY HERD

The Ayrshire herd at the Charlottetown Station on December 31, 1926, numbered thirty. The herd sire was Ottawa Lord Kyle 8th No. 81916 A.R. No. 60, Class A. A very promising young bull, Ottawa Supreme 14th—94146—A.R. No. 98, Class A, was received from the Central Experimental Farm, February 22, 1926. The herd has been fully accredited since August 9, 1922, under certificate No. 219. The former herd sire Ottawa Ivanhoe—60140—has qualified in the Canadian Record of Performance, No. 191, Vol. 36, with five progeny. This bull is either the sire or the grandsire of seven of the cows in milk and of three of the two-year-old heifers in the herd.

CUMULATIVE RECORDS

Buttercup of Glenholm No. 56491 in a cumulative record extending over eight years has produced 80,000 pounds milk and 3,077 pounds of butter-fat, which would make 3,620 pounds of 85 per cent butter. Daisy of Sunny Slope No. 72581 in four years and two months produced 47,204 pounds of milk and 1,911 pounds of butter fat, which would make 2,248 pounds of 85 per cent butter.

PRODUCTION RECORD OF COWS COMPLETING R.O.P. TESTS IN 1926

Name of Animal	Number of Days in Lactation Period.	Total Pounds of Milk for Period	Daily Average Yield of Milk	Average per cent Fat in Milk	Pounds of Butter Produced in Period—85% fat	Value of Butter at 40 cts. per lb.	Value of Skim-milk at 30 cts. per cwt.	Total Value of Product	Amount of Meal Eaten	Amount of Roots and Silage Eaten at $2 per ton	Amount of Hay Eaten at $10 per ton	Amount of Green Feed at $4 per ton	Amount of Beet Meal Eaten at $2.40 per cwt.	Months on Pasture at $1.50 per month.	Total cost of Feed for Period	Cost to Produce 100 lb. Milk	Cost to Produce 1 lb. Butter, Skim-milk neglected	Profit on 1 lb. Butter, Skim-milk neglected	Value of Calf when born	Profit on Cow during period, labour and calf neglected	Official Record
		lb.	lb.	%	lb.	$	$	$	lb.	lb.	lb.	lb.	lb.	mos.	$	$	c.	c.	$	$	Vol. 36
Daisy of Sunny Slope No. 72581	305	11,484	37·6	3·61	488	195 20	32 99	228 19	3,607 at $2 04	9,760	2,087	.....	210	3·50	104 06	91	21·3	18·7	25 00	124 13	1140A
Ravenwood Helen No. 83094	365	8,973	24·6	4·28	452	180·80	25 56	206 36	4,007 at $2 01	8,690	2,320	100	280	5·75	120 17	1 34	26·6	13·4	20 00	86 19	2962
Rav. Lily No. 77867	365	8,976	24·6	4·22	446	178 40	25 59	203 99	4,312 at $2 00	11,320	3,062	.....	700	3·00	134 17	1 49	30·1	9·9	25 00	69 82	2964
Rav. Daisy No. 82534	365	8,592	23·5	4·26	431	172 40	24 48	196 88	3,583 at $1 94	9,740	2,553	1,960	280	4·75	109 77	1 28	25·5	14·5	20 00	87 11	2963
Total	....	38,025	.....	.....	1,817	726 80	108 62	835 42	15,509	39,510	10,022	2,060	1,470	17·00	468 17	.....	.....	.....	90 00	367 25	
Average	350	9,506	27·16	4·06	454	181 70	27 16	208 86	3,877	9,878	2,506	.....	368	4·25	117 04	1 23	25·76	14·3	22 50	91 81	

BEEF CATTLE

STEER-FEEDING EXPERIMENT

Twenty-four steers were purchased in the autumn of 1925 for experimental feeding purposes. The test began on December 1, 1925, and continued until March 9, 1926, a period of ninety-nine days. The average cost of the steers at the commencement of the test was $6.59 per cwt.

The lot was divided into six pens of four steers each, and started on feed tests which may, for convenience, be summarized as follows:—

OUTLINE STEER-FEEDING EXPERIMENT

Material fed	Pounds of feed per day per 1,000 lb. live weight					
	Pen I	Pen II	Pen III	Pen IV	Pen V	Pen VI
Turnips	50	50	50	50	50	50
Oat straw, chopped	15	15	15	.....	.....	.....
Mixed hay	.....	.....	.....	10	10	10
Oats, crushed	4	.....	.....	4	.....	.....
Barley, crushed	.....	4	.....	.....	4	.....
Mixed grain, crushed	.....	.....	4	.....	.....	4
Bran	1	1	1	1	1	1
Oil cake meal (old process)	1	1	1	1¼	1¼	1¼
Cotton-seed meal (41%)	1	1	1	.....	.....	.....

The rates per day were gradually increased from time to time.

The total amount of feed consumed and the average amount and value of feed per pen is shown in the following table:—

STEER-FEEDING EXPERIMENT—AMOUNT AND VALUE OF FEED CONSUMED

Item	Pen Number												Total	
	1		2		3		4		5		6			
Turnips at $3 per ton	14,150	21·22	14,150	21·22	14,150	21·22	14,150	21·22	14,150	21·22	14,150	21·22	84,900	127·32
Oat straw at $4 per ton	5,247	10·49	5,247	10·49	5,247	10·49	.....	.....	.....	.....	.....	.....	15,741	31·47
Mixed hay at $10 per ton	.....	.....	.....	.....	.....	.....	3,465	17·32	3,465	17·32	3,465	17·32	10,395	51·96
Oats at 50 cents per bushel	2,030	29·85	.....	.....	.....	.....	2,063	30·34	.....	.....	.....	.....	4,093	60·19
Barley at 72 cents per bushel	.....	.....	2,030	30·45	.....	.....	.....	.....	20,63	30·95	.....	.....	4,093	61·40
*Mixed grain at 72 cents per bushel	.....	.....	.....	.....	2,030	30·45	.....	.....	.....	.....	2,063	30·95	4,093	61·40
Bran at $35 per ton	507	8·87	507	8·87	507	8·87	516	9·03	516	9·03	516	9·03	3,069	53·70
Oilcake meal at $56 per ton	507	14·20	507	14·20	507	14·20	516	14·45	516	14·45	516	14·45	3,069	85·95
Cotton seed meal at $60 per ton	507	15·21	507	15·21	507	15·21	.....	.....	.....	.....	.....	.....	1,521	45·63
Total cost		$99 84		100·44		100·44		92·36		92·97		92·97		$579 02
Average cost per steer		$24 96		25 11		25 11		23 09		23 24		23 24		24 13

*The grain mentioned as "mixed grain" was grown in a mixture. On being subjected to a physical analysis, it was found to contain 51 per cent of oats, 44 per cent of barley and 5 per cent of wheat, by weight.

STEER-FEEDING EXPERIMENT—COMPARISON OF SIX DIFFERENT PENS

——		1	2	3	4	5	6	Totals and averages
Number of steers in lot		4	4	4	4	4	4	24
Initial gross weight per pen	lb.	3,300	3,300	3,300	3,290	3,290	3,300	19,780
Initial average weight	"	825	825	825	822	822	825	824
Finished weight per pen	"	4,190	4,310	3,990	4,260	4,205	4,160	25,115
Average finished weight per steer	"	1,047	1,077	997	1,065	1,051	1,040	1,046
Total gain in 99 days	"	890	1,010	690	970	915	860	5,335
Average gain per steer	"	222	252	172	242	229	215	222
Daily gain per steer	"	2·2	2·5	1·7	2·4	2·3	2·2	2·2
Daily gain per pen	"	9	10·2	7	9·8	9·2	8·7	9
Value of cattle at beginning	$	217·47	217·47	217·47	216·81	216·81	217·47	1,303·50
Average value steer at start	$	54·37	54·37	54·37	54·20	54·20	54·37	54·31
Gross cost feed per pen	$	99·84	100·44	100·44	92·36	92·97	92·97	579·02
Average cost feed per steer	$	24·96	25·11	25·11	23·09	23·24	23·24	24·13
Total cost to produce beef	$	317·31	317·91	317·91	309·17	309·78	310·44	1,882·52
Cost of one pound gain	c.	11·2	9·9	14·5	9·5	10·2	10·8	10·8
Average increase in value per steer	$	41·39	40·48	29·88	40·82	35·59	33·11	36·94
Sale price per pen	$	383·03	381·00	336·98	380·08	359·15	349·90	2,190·14
Sale price per steer	$	95·76	95·25	84·25	95·02	89·79	87·48	91·25
Profit per pen	$	65·72	63·09	19·07	70·91	49·37	39·46	307·62
Profit per steer	$	16·43	15·77	4·77	17·73	12·34	9·87	12·81

NOTE.—Total profit on 24 steers, over cost of all feed—$307.62. The manure produced and the cost of labour expended are considered as being about equal in value and are therefore neglected in the computation.

TABLE OF WEIGHTS AND GAINS—STEER-FEEDING EXPERIMENT

Pen No.	Steer No.	Weight December 1, 1925	Weight March 9, 1926	Gain	Value at start	Cost feed	Total cost	Sale price	Profit or loss (−)
		lb.	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
I	79,303	1,010	1,300	290	66 56	24 96	91 52	134 88	43 36
	79,302	770	990	220	50 74	24 96	75 70	89 10	13 40
	21,172	840	980	140	55 36	24 96	80 32	80 85	0 53
	21,186	680	920	240	44 81	24 96	69 77	78 20	8 43
	Total...	3,300	4,190	890	217 47	99 84	317 31	383 03	65 72
	Average	825	1,047	222	54 37	24 96	79 33	95 76	16 43
II	21,183	730	1,000	270	48 11	25 11	73 22	91 25	18 03
	21,184	760	1,060	300	50 08	25 11	75 19	108 65	33 46
	21,168	900	1,180	280	59 31	25 11	84 42	106 20	21 78
	60,574	910	1,070	160	59 97	25 11	85 08	74 90	−10 18
	Total...	3,300	4,310	1,010	217 47	100 44	317 91	381 00	63 09
	Average	825	1,077	252	54 37	25 11	79 48	95 25	15 77
III	21,156	760	860	100	50 08	25 11	75 19	73 10	−2 09
	60,630	1,000	1,150	150	65 90	25 11	91 01	89 13	−1 88
	21,185	650	860	210	42 83	25 11	67 94	79 55	11 61
	21,163	890	1,120	230	58 65	25 11	83 76	95 20	11 44
	Total...	3,300	3,990	690	217 47	100 44	317 91	336 98	19 07
	Average	825	997	172	54 37	25 11	79 48	84 25	4 77
IV	21,166	800	1,050	250	52 72	23 09	75 81	78 75	2 94
	21,167	780	1,020	240	51 40	23 09	74 49	94 35	19 86
	21,180	800	1,000	200	52 72	23 09	75 81	85 00	9 19
	21,182	910	1,190	280	59 97	23 09	83 06	121 98	38 92
	Total...	3,290	4,260	970	216 81	92 36	309 17	380 08	70 91
	Average	822	1,065	242	54 20	23 09	77 29	95 02	17 73
V	21,155	800	1,020	220	52 72	23 24	75 96	91 80	15 84
	79,304	760	960	200	50 08	23 24	73 32	81 60	8 28
	21,152	830	1,025	195	54 70	23 24	77 94	71 75	−6 19
	21,162	900	1,200	300	59 31	23 24	82 55	114 00	31 45
	Total...	3,290	4,205	915	216 81	92 97	309 78	359 15	49 37
	Average	822	1,051	229	54 20	23 24	77 44	89 79	12 34
VI	7	900	1,150	250	59 31	23 24	82 55	77 63	−4 92
	21,164	800	1,000	200	52 72	23 24	75 96	90 00	14 04
	6	890	1,100	210	58 65	23 24	81 89	100 37	18 48
	21,173	710	910	200	46 79	23 24	70 03	81 90	11 87
	Total...	3,300	4,160	860	217 47	92 97	310 44	349 90	39 46
	Average	825	1,040	215	54 37	23 24	77 61	87 48	9 87

DEDUCTIONS.—One year's results do not allow of definite conclusions being drawn, but interesting comparisons may be made. This experiment allows for a calculation of the comparative values of oats, barley and mixed grain for steer-feeding, all being home-grown grains. It also allows for a calculation of the comparative values of straw and mixed hay.

In the first case, by totalling the results from the lots fed oats and comparing these with the results from the lots fed barley it will be found that if oats are worth 50 cents per bushel, barley is worth 81 cents per bushel, with other feeds at prices charged. Similarly, the mixed grain ration proves to have a value of 34.6 cents per bushel. The value obtaining for barley is fairly well in accord with its well known feeding value for beef production, but the value obtaining for the mixed grain ration is hardly in accord, consequently it must be assumed

that some factor such as poor-doing qualities in some of the steers in these lots affected the gains made. It is interesting to note that while the poorest gains were made with the mixed grain ration, yet the steers on the mixed grain and hay made a better showing than those on mixed grain and straw. The good results obtained with barley are particularly to be noted, as it is one of our most economical home-grown grain crops.

In the case of the straw and mixed hay comparison, if the results of the lots on each feed are combined and compared, it will be found that 10,935 pounds of mixed hay proved equal to 16,685 pounds of straw, 2,457 pounds of turnips, 89 pounds each of oats, barley and mixed grain, 64 pounds each of bran and oilcake, and 1,612 pounds of cotton-seed meal, which at prices charged for other feeds, gives straw a minus value of $4.46. Undoubtedly the same factors that influenced the results obtained with mixed grain had an effect on this phase of the experiment also, but the results obtained point to the somewhat limited usefulness of straw in large quantities in the ration for fattening steers.

An endeavour will be made to repeat this work another year and verify these deductions.

FIELD HUSBANDRY

SEASONAL NOTES

The unfavourable autumn weather in 1925 prevented the completion of part of the fall work. The spring of 1926 was very late, in some parts of the province work on the land was started the last day of May. The season was favourable for grass and clovers, and growth was very rapid during the summer months. Early harvesting conditions were satisfactory. The hay and early grain were saved in first-class condition. Showery weather made the late harvest of cereals and potatoes difficult. Autumn ploughing was well completed. A heavy fall of snow commencing December 3 stopped the plough and continued until it had blocked all traffic on December 6.

CROP ROTATIONS

There is an increasing interest in our demonstration rotations, particularly among farmers who are concerned with the growing of cash-crops. These rotations were started in 1912, and since that time accurate records have been kept as to yields and cost of production. In addition to the rotations being demonstrated at Charlottetown, the Experimental Station is operating several Illustration Stations throughout the province, at each of which a four-year rotation is demonstrated. At these Stations, also, accurate records are kept relative to the cost of production.

In connection with this work at the Experimental Station, the following table of fixed charges has been adopted for the year 1926:—

Costs

	$ cts.
Rent of land, per acre	3 00
Manure, per ton (spread)	2 00
Seed oats, per bushel	1 00
Seed barley, per bushel	1 25
Seed wheat, per bushel	2 00
Use of machinery, per acre	2 85
Manual labour, per hour	0 25
Horse labour, per hour	0 10
Tractor labour, including operator, per hour	0 80
Grass seed	At cost
Seed of mangels, turnips, potatoes, etc.	At cost
Twine	At cost
Spray materials	At cost

42365—2½

RETURN VALUES

Oats, per bushel	0 68
Barley, per bushel	0 96
Wheat, per bushel	1 80
Hay, per ton	11 00
Roots, per bushel	0 046
Potatoes, per bushel (field run)	0 80
Oat straw, per ton	4 00
Wheat straw, per ton	2 00
Barley straw, per ton	4 00

The above return values are considered to be fair market prices for the field run of crops produced.

The various charges relative to cost of production at the illustration stations will be found in the Annual Report of Illustration Stations for the Maritime Provinces, a copy of which may be obtained free on application to the Publications Branch, Department of Agriculture, Ottawa.

ROTATION "A"

(Five years' duration, suitable for dairy farming)

FIRST YEAR—HOED CROP.—Twenty-five tons of manure are applied in preparation for this crop, usually about one-half being applied on stubble the previous autumn, the balance being applied in the spring, and worked in with a cutaway disk harrow. Forty per cent of the total cost of manure is charged to this crop.

SECOND YEAR—GRAIN.—This is seeded down with 10 pounds red clover, 2 pounds alsike and 12 pounds timothy per acre. The grain crop is charged with 25 per cent of the cost of manure.

THIRD YEAR—CLOVER HAY.—This crop is charged with 20 per cent of the cost of manure.

FOURTH YEAR—TIMOTHY HAY OR PASTURE.—Ploughed in August or early September, after removing hay crop, and topworked during the balance of the season. This crop is charged with 10 per cent of the cost of manure.

FIFTH YEAR—GRAIN.—Seeded with 8 pounds red clover and 2 pounds alsike per acre to serve as green manure. In the autumn after remvoing the grain crop, the land is ploughed in preparation for roots. The grain crop is charged with the remaining 5 per cent of cost of manure.

ROTATION SUMMARY—ROTATION "A" FIVE YEARS' DURATION

Crop	Yields		Value 1926	Cost production 1926	Profit or (—) loss 1926
	15-year average	1926			
	lb.	lb.	$ cts.	$ cts.	$ cts.
Mangels—Yellow Intermediate	40,445*	29,650	37 21	77 99	—40 78
Oats—Banner	2,385	2,321	46,42	29 02	21 79
Straw	3,028	2,194	4 39	.....	.....
Clover Hay	5,017	3,502	19 26	21 31	—2 05
Timothy Hay	4,675	4,837	26 60	16 41	10 19
Barley—Charlottetown No. 80	2,138	2,392	47 84	23 07	29 20
Straw	2,411	2,213	4 43	.....	.....
Total	.....	.....	186 15	167 80	18 35
Per acre	.....	.....	37 23	33 56	3 67

*Average 14 years.

ROTATION "B"

(Five years' duration, for the control of daisies and other perennial weeds)

FIRST YEAR—HOED CROP.—This receives 15 tons manure per acre in the spring. Crop is charged with 40 per cent of total cost of manure applied.

SECOND YEAR—GRAIN.—This is seeded down with 10 pounds red clover, 2 pounds alsike and 6 pounds timothy per acre. The grain crop is charged with 25 per cent of cost of manure.

THIRD YEAR—CLOVER HAY.—Ploughed in autumn after removal of the clover crop. Clover is charged with 20 per cent of the cost of manure.

FOURTH YEAR—GRAIN.—Seeded down with 10 pounds red clover, 2 pounds alsike and 12 pounds timothy per acre. The grain crop is charged with 10 per cent of the manure.

FIFTH YEAR—CLOVER HAY.—Might also be used for pasture purposes. It is top dressed in early autumn, after the removal of the clover crop, with 10 tons of manure, and ploughed in preparation for hoed crop. The clover crop is charged with 5 per cent of the cost of manure.

SUMMARY ROTATION "B"—FIVE YEARS' DURATION

Crop	Yields		Value 1926	Cost production 1926	Profit or (—) loss 1926
	14-years' average	1926			
	lb.	lb.	$ cts.	$ cts.	$ cts.
*Potatoes	14,381	17,200	229 33	89 07	140 26
†Wheat—Huron	1,609	1,473	44 19	28 42	17 70
Straw	2,590	1,932	1 93		
Clover	4,623	3,261	17 94	23 18	−5 24
Oats—Banner	2,179	2,179	43 58	24 69	22 78
Straw	2,471	1,946	3 89		
Clover	3,117	4,007	22 04	15 87	6 17
Totals			362 90	181 23	181 67
Per acre			72 58	36 25	36 33

*Eight-year average. †Thirteen-year average.

ROTATION "C"

(Four years' duration, suitable for stock farming)

This rotation produces relatively large amounts of hay and roots, making it suitable for live stock operations.

FIRST YEAR—HOED CROP.—Ten tons of manure are applied in the spring. The hoed crop is charged with 40 per cent of total manure applied.

SECOND YEAR—GRAIN.—Seeded down with 10 pounds red clover, two pounds alsike and 12 pounds timothy per acre. The grain crop is charged with 30 per cent of the manure applied.

THIRD YEAR—CLOVER HAY.—This crop is charged with 20 per cent of total manure.

FOURTH YEAR—TIMOTHY HAY OR PASTURE.—Ten tons of manure are applied early in the autumn, after removal of hay crop, and ploughed down in preparation for hoed crop. The hay crop is charged with 10 per cent of the total cost of manure applied.

SUMMARY OF ROTATION "C"—FOUR YEARS' DURATION

Crop	Yields		Value 1926	Cost of production 1926	Profit or loss per acre 1926
	Average	1926			
	lb.	lb.	$ cts.	$ cts.	$ cts.
(1) Potatoes	16,340	15,526	207 02	69 70	137 32
(2) Wheat—E. R. Fife	1,835	1,744	52 32	27 00	28 76
Straw	3,628	3,440	3 44		
(3) Clover hay	5,804	4,779	26 28	20 11	6 17
(4) Timothy hay	6,078	8,498	46 74	15 58	31 16
Totals	.....	.....	335 80	132 39	203 41
Per acre	.....	.....	83 95	33 10	50 85

(1) 9-year average. (2) 12-year average. (3) 14-year average. (4) 13-year average.

ROTATION "F"

(Four years' duration, adapted to the production of seed grain)

Fifty per cent of this rotation is under grain each year, making it well suited to seed grain production. Our test of varieties plots of seed grain as well as our test of varieties plots of root crops are planted each year on this rotation. It is impossible, therefore, to give accurate yields from the different areas, and for that reason the summary sheet has been omitted. The following, however, is an outline of the rotation:—

FIRST YEAR—HOED CROP.—This crop is manured in spring at the rate of 12 tons per acre, and is charged with 36 per cent of the total cost of manure applied.

SECOND YEAR—GRAIN.—Seeded down with 10 pounds red clover, 2 pounds alsike and 6 pounds timothy per acre. The crop is charged with 26 per cent of total manure applied.

THIRD YEAR—CLOVER HAY.—Top dressed in autumn with 8 tons manure per acre before ploughing for grain. The clover crop is charged with 16 per cent of the total cost of manure.

FOURTH YEAR—GRAIN.—Seeded down with 8 pound red clover and 2 pound alsike per acre. The grain crop is charged with 22 per cent of the total manure applied during the rotation.

ROTATION "G"

(Seven years' duration)

Similar to the old Scotch rotation at one time commonly practised in the province.

FIRST YEAR—OATS.—Seeded down with 8 pounds red clover and 2 pounds alsike per acre. This crop is charged with 8.57 per cent of the total manure applied; at $2 per ton this amounts to $6.

SECOND YEAR—HOED CROP.—Manured in spring at the rate of 20 tons per acre. Crop is charged with 27.14 per cent of total manure applied, or $19, valuing manure at $2 per ton spread.

THIRD YEAR—GRAIN.—Seeded down with 10 pounds red clover, 2 pounds alsike and 12 pounds timothy per acre. The grain crop is charged with 16.43 per cent of the total manure, or $11.50.

FOURTH YEAR—CLOVER HAY.—Charged with 11.43 per cent of manure, or a total of $8.

FIFTH YEAR—TIMOTHY HAY.—This crop is topdressed in August with 15 tons manure per acre; and is charged with 5.71 per cent of total manure, or $4.

SIXTH YEAR—TIMOTHY OR PASTURE.—This crop is charged with 20 per cent of total manure, or $14.

SEVENTH YEAR—TIMOTHY OR PASTURE.—Charged with 10.71 per cent of manure, or $7.50.

On account of manure being applied at two different periods during the rotation, the division on a percentage basis appears difficult. The figures given above are sufficiently accurate for field work.

SUMMARY ROTATON "G"—SEVEN YEARS' DURATION

Crop	Yields		Value 1926	Cost of production 1926	Profit or loss 1926
	Average	1926			
			$ c.	$ c.	$ c.
Oats—O. A. C. 72	(a) 1,879	1,625	32 50	23 30	13 13
Straw	2,463	1,963	3 93		
Turnips	(b) 35,514	27,350	32 67	72 55	−39 88
Wheat—Charlottetown No. 123	(c) 1,626	1,273	38 18	32 50	8 16
Straw	3,657	2,478	2 48		
Clover	(d) 5,773	4,510	24 80	19 03	5 77
Timothy	(e) 6,050	5,308	29 20	15 03	14 17
Timothy	(f) 7,360	7,490	41 20	25 03	16 17
Timothy	(g) 6,099	6,298	34 63	18 38	16 25
Totals			239 59	205 82	33 77
Per care			34 23	29 40	4 82

(a) 10-year average. (b) 7-year average. (c) 5-year average. (d) 14-year average. (e), (f) and (g) 13-year average.

If the turnips were sold for table use the value of this crop would be very much higher.

COST OF PRODUCTION OF FIELD CROPS

Accurate records are kept of all field operations, etc., in connection with our rotation work, and from these figures it is possible to compute the cost of production of the various crops.

In studying or applying these figures it must be borne in mind that the cost of production per unit must necessarily vary if we vary the fixed charges, or if working under different soil or climatic conditions. It is well to recognize the limitation thus imposed by such figures, and in our deductions to allow for such limitation.

In the following tabulations the charges and return values employed are those given on a previous page.

CROP YIELDS, SEASON 1926

Crop	Field	Acreage	Preceding Crop	Yield per acre	
				bush.	lb.
Wheat	C—IV	0·57	Potatoes	29	4
Wheat	B—III	1·0	Potatoes	24	33
Wheat	G—III	0·4	Turnips	21	13
Wheat	CC—V	1·	Roots	10	50
Oats	A—III	1·	Mangels	68	9
Oats	B—V	1·	Clover	64	3
Oats	Blake Field	4·	Roots	55	..
Oats	Connolly F	10·	Roots	49	6
Oats	G—I	0·40	Timothy	47	27
Mixed grain	Blake Field	7·	Hay	50	..
Barley	CC—V	4·5	Roots	55	2
Barley	A—I	1·	Timothy	49	40
Potatoes	B—II	1·	Clover	286	40
Potatoes	C—III	0·57	Timothy	258	46
Turnips	G—II	0·40	Oats	547	..
Turnips	CC—II	2·	Pasture	413	..
Turnips	Blake Field	5·	Hay	390	..
Mangels	CC—III	5·	Pasture	645	..
Mangels	A—II	1·	Barley	593	..
					lb.
Corn (for fodder)	Con. Field	4·	Hay		12,607
Clover	FF—I	2·	Grain		6,122
Clover	C—I	0·57	Wheat		4,779
Clover	G—IV	0·4	Wheat		4,510
Clover	B—I	1·	Oats		4,007
Clover	A—IV	1·	Oats		3,502
Clover	B—IV	1·	Wheat		3,261
Clover	Math. Field	6·	Barley		2,736
Clover	CC—VI	5·	Grain		2,425
Clover	Con. Field	10·	Oats		2,423
Timothy	C—II	0·57	Clover		8,498
Timothy	G—VI	0·4	Timothy		7,490
Timothy	G—VII	0·4	Timothy		6,298
Timothy	G—V	0·4	Clover		5,308
Timothy	A—V	1·	Clover		4,837
Timothy	Blake Field	7·5	Clover		3,586

COST OF PRODUCING WHEAT AFTER HOED CROP

(Figures based on one acre of wheat grown on Rotation "B", 1926.)

Rent of land	$ 3 00
Share of manure, 25 per cent of 25 tons at $2	12 50
Use of machinery	2 85
Seed, 1¼ bushels at $2	3 50
Twine, 3½ lb. at 14½cts	0 50
Ribbing (previous autumn) 3 hours 2-horse at 45 cts	1 35
Harrowing, 2 hours 3-horse at 55 cts	1 10
Harrowing, ⅔ hours, 2-horse at 45 cts	0 30
Rolling, ⅓ hour 2-horse at 45 cts	0 15
Seeding, ⅔ hour 2-horse at 45 cts	0 30
Cutting, ⅔ hour 2-horse at 45 cts	0 30
Stooking, 2 hours manual at 25 cts	0 50
Loading and unloading, 2 hours manual at 25 cts	0 50
Hauling, 1 hour 2-horse at 45 cts	0 45
Raking, ½ hour 1-horse at 35 cts	0 12
Threshing, 4 hours manual at 25 cts	1·00
Total cost	$28 42
Yield of grain, 1,473 lb. (24 bush. 33 lb.)	
Yield of straw, 1,932 lb.	
Cost of producing 1 bushel grain	$ 1 11
Cost of producing 1 ton straw	1 23
Average cost of producing 1 bush. grain over 13-year period	1·10

Cost of Producing Oats after Hoed Crop
(Figures based on one acre, Rotation "A", for year 1926)

Rent of land	$ 3 00
Share of manure, 25 per cent of 25 tons at $2	12 50
Use of machinery	2 85
Seed, 2¾ bushels at $1	2 75
Twine, 3⅛ lb. at 14⅜ cts	0 45
Ploughing (previous autumn) 5 hours 2-horse at 45 cts	2 25
Harrowing, 2⅔ hours 2-horse at 45 cts	1 20
Rolling, ⅓ hour 2-horse at 45 cts	0 15
Seeding, ⅔ hour 2-horse at 45 cts	0 30
Cutting, ⅔ hour 2-horse at 45 cts	0 30
Stooking, 2 hours manual at 25 cts	0 50
Loading and unloading, 3 hours manual at 25 cts	0 75
Hauling, 2 hours 2-horse at 45 cts	0 90
Raking, ¼ hour 1-horse at 35 cts	0 12
Threshing, 4 hours manual at 25 cts	1 00
Total cost	$29 02

Yield of grain, 2,321 lb. (68 bushels, 9 lb.)
Yield of straw, 2,194 lb. (1·097 tons)

Cost of producing 1 bushel grain	38·8 cents
Cost of producing 1 ton straw	$ 2 29
Cost of producing 1 bushel grain, average 15-year period	34·6 cents

Cost of Producing Barley after Hay
(Figures based on one acre, Rotation "A" for year 1926)

Rent of land	$ 3 00
Share of manure, 5 per cent of 25 tons at $2	2 50
Machinery	2 85
Seed, 1¾ bushels at $1.25	2 19
Twine, 3¾ lb. at 14¾ cts	0 48
Autumn work (previous year)—	
Ploughing 11½ hours 2-horse at 45 cts	5 18
Rolling, ⅓ hours 2 horse at 45 cts	0 15
Harrowing, 3 hours 3-horse at 55 cts	1 65
Spring work—	
Harrowing, 3⅓ hours 2-horse at 45 cts	1 50
Rolling, ⅓ hour 2-horse at 45 cts	0 15
Seeding, ⅔ hour 2-horse at 45 cts	0 30
Cutting, ⅔ hour 2-horse at 45 cts	0 30
Stooking, 2 hours manual at 25 cts	0 50
Loading and unloading, 3 hours manual at 25 cts	0 75
Raking, ¼ hour 1-horse at 35 cts	0 12
Hauling, 1 hour 2-horse at 45 cts	0 45
Threshing, 4 hours manual at 25 cts	1 00
Total cost	$23 07

Yield of grain, 2,392 lb. (49 bushels, 40 lb.)
Yield of straw, 2,213 lb. (1·1065 tons)

Cost of producing 1 bushel grain	42·4 cents
Cost of producing 1 ton straw	$ 1 77
Average cost of producing 1 bushels grain, over 15-year period	47·3 cents

Cost of Producing Clover Hay after Wheat
(Figures based on one acre, Rotation "C" for year 1926.)

Rent of land	$ 3 00
Share of manure, 20 per cent of 20 tons at $2	8 00
Machinery	2 85
Grass and clover seed (⅓ value at 1926 prices)	2 51
Rolling, ¼ hour 2-horse at 45 cts	0 12
Cutting, 1⅓ hours 2-horse at 45 cts	0 53
Raking, ⅝ hour 1-horse at 35 cts	0 21
Coiling and shaking, 3½ hours manual at 25 cts	0 88
Loading and unloading, 4⅖ hours manual at 25 cts	1 10
Unloading, ⅛ hour 1-horse at 35 cts	0 31
Hauling, 1⅓ hours 2-horse at 45 cts	0 60
Total Cost	$20 11

Yield per acre, 4,779 lb.

Cost of producing one ton	$ 8 42
Average cost of producing one ton over 14-year period	$ 7 01

COST OF PRODUCING MANGELS AFTER BARLEY

(Figures based on one acre, Rotation "A", for year 1926)

Rent of land	$ 3 00
Share of manure, 40 per cent of 25 tons at $2	20 00
Machinery	2 85
Clover seed (sown with preceding crop for green manure)	2 86
Seed, 8 lb. at 75 cts.	6 00
Ploughing (previous autumn): 5 hours 2-horse at 45 cts.	2 25
Spring work:—	
Ploughing, 5 hours 2-horse at 45 cts.	2 25
Harrowing 3½ hours 2-horse at 45 cts.	1 50
Rolling, ⅔ hour 2-horse at 45 cts.	0 30
Sowing, 2 hours manual at 25 cts.	0 50
Hoeing, 81 hours manual at 25 cts.	20 25
Cultivating, 10 hours, 1-horse at 35 cts.	3 50
Cultivating, ½ hour 2-horse at 45 cts.	0 23
Pulling and loading, 36 hours manual at 25 cts.	9 00
Hauling, 10 hours 1-horse at 35 cts.	3 50
Total cost	$77 99
Yield per acre, 29,650 lb. (14 tons, 1,650 lb.)	
Cost of producing one ton	$ 5 26
Cost of producing one bushel	13·2 cents
Average cost of producing one ton over 14-year period	$ 4 01

COST OF PRODUCING TURNIPS AFTER OATS

(Figures based on one acre, Rotation "G" for year 1926.)

Rent of land	$ 3 00
Share of manure, 40 per cent of 20 tons and 10 per cent of 15 tons at $2	19 00
Machinery	2 85
Clover seed (sown with preceding crop for green manure)	2 85
Seed, 3¾ lb. at $1	3 75
Ploughing (previous autumn) 12½ hours 2-horse at 45 cts.	5 63
Spring work:—	
Ploughing, 5 hours 2-horse at 45 cts.	2 25
Harrowing, 9⅜ hours 2-horse at 45 cts.	4 23
Rolling, ⅘ hour 2-horse at 45 cts.	0 37
Sowing, 2½ hours manual at 25 cts.	0 62
Hoeing, 75 hours manual at 25 cts.	18 75
Cultivating, 1⅔ hours 2-horse at 45 cts.	0 75
Cultivating, 2½ hours 1-horse at 35 cts.	0 88
Pulling and loading, 12½ hours manual at 25 cts.	3 12
Hauling, 12⅞ hours 1-horse at 35 cts.	4 50
Total cost	$72 55
Yield per acre, 27,350 lb. (13 tons, 1,350 lb.)	
Cost of producing one ton	$ 5 31
Cost of producing one bushel	13·3 cents
Average cost of producing one ton over 7-year period	$ 4 44

CULTURAL EXPERIMENTS

On the area given over to cultural experiments, plots are devoted to a solution of several of the important agricultural problems of the province. The plots are each 1/40 acre in size, and they are plotted into ranges, each plot being separated from its neighbour by a four-foot path with a sixteen-foot roadway separating the ranges. The soil is a rather fine sandy-clay loam, and the entire area is tile-drained.

The first yields were taken for comparative purposes in 1916, and records have been kept continuously since that date.

RATES OF SEEDING CLOVER AND TIMOTHY

It is becoming increasingly evident year by year that large yields of hay are more certainly realized following fairly liberal seedings of clover with timothy. In the experiment reported in the following table all plots were uniformly seeded with 2½ bushels oats and 10 pounds timothy per acre. The seedings of red clover and alsike varied as indicated in the table.

FOUR-YEAR ROTATION—ROOTS, GRAIN, HAY, HAY

Plot No.	Rates seeding per acre		Yields clover per acre Eleven-year average	Yields timothy per acre Ten-year average
	Red clover	Alsike		
	lb.	lb.	lb.	lb.
1	2	.....	2,393	3,031
2	4	.....	3,197	2,990
3	8	.....	3,595	3,613
4	12	.....	3,773	3,807
5	8	1	3,939	4,096
6	8	2	3,818	3,908
7	.....	4	3,318	2,936
8	.....	6	2,873	2,566
9	.....	8	2,780	2,123

METHODS OF APPLYING BARNYARD MANURE

This is a difficult experiment to interpret correctly. In the annual report for 1925 will be found a summary covering a ten-year period, and the work is there interpreted by assigning a cash selling value to the various crops, and also by the Scandinavian Feed Unit system. It is sufficient for our purpose this year to report the yields for the season.

METHOD OF APPLYING BARNYARD MANURE—FOUR-YEAR ROTATION: POTATOES, OATS, HAY, HAY

Treatment No.	Amount of manure per acre, and crop or crops to which it was applied during rotation				Yields in pounds per acre—1926			
	Potatoes	Oats	Clover	Timothy	Potatoes	Oats	Clover	Timothy
					lb.	lb.	lb.	lb.
1	Check—No manure.	.....	.....	.....	3,360	1,220	1,123	1,545
2	.....	.....	.....	20 tons before ploughing this sod for potatoes.	13,720	1,900	3,797	3,558
3	10 tons for potatoes.	.....	10 tons after harvesting clover.	.....	7,480	1,220	2,133	5,096
4	.....	.....	.....	20 tons before reploughing sod for potatoes.	18,400	1,860	1,277	2,109
5	20 tons in spring for potatoes, on fall ploughing of sod.	.....	.....	.....	17,640	1,580	2,819	2,482
6	.....	.....	20 tons after harvesting clover.	.....	9,600	1,060	2,240	4,122
7	.....	10 tons top dressing after grain is up.	.....	10 tons after reploughing sod for potatoes.	7,520	1,600	4,528	3,415
8	.....	20 tons top dressing after grain is up.	.....	.....	8,160	1,300	4,708	5,010
9	.....	.....	.....	20 tons in piles in fall, spread in spring for potatoes.	20,200	1,300	3,453	1,715

METHODS OF AFTER-HARVEST CULTIVATION OF ROOT LAND FOR GRAIN

(Five-year rotation: Oats, turnips, oats, clover, timothy; experiment is conducted on oats, third year of experiment)

From data collected over several years it would appear that the method of handling the land after a preceding root crop has little effect on the following crop of oats. Land not otherwise treated seems to have given yields equal to those from land that was ploughed. It has been noted, however, that where land is ribbed up in autumn, spring work may usually be started about one week earlier than when not so treated.

YIELD OF OATS

—	After-harvest treatment of root land	Yield of oats—pounds per acre	
		1926	Eleven-year average
		lb.	lb.
1	No autumn treatment	2,480	1,796
2	Ploughed shallow in autumn	2,700	1,761
3	Ribbed in autumn	2,260	1,784
4	Ploughed shallow in spring	2,340	1,801

EFFECT OF VARIETY OF NURSE-CROP ON SUCCEEDING HAY CROPS

All plots are uniformly seeded with 10 pounds timothy and 8 pounds clover seed per acre. The nurse-crop varied from plot to plot as indicated in the following table:—

NURSE-CROPS

	Variety of nurse-crop used	Yield clover per acre		Yield timothy per acre	
		1926	Eleven-year average	1926	Eleven-year average
		lb.	lb.	lb.	lb.
1	2½ bushels oats per acre	3,957	3,354	4,365	3,797
2	1½ bushel barley per acre	3,491	3,322	3,668	3,214
3	1½ bushel wheat per acre	4,733	3,569	3,894	3,291
4	3½ bushels mixed pease and oats for hay	3,501	3,124	4,175	3,139
5	3 bushels mixed pease and oats or grain	.....	2,820	5,122	3,132

The clover plot under treatment No. 5 was completely smothered out in 1926, and as a result there was absolutely no crop to harvest. Pease and oats sown for grain cannot be recommended as a nurse-crop for clover; as when this nurse-crop is heavy it smothers out the young clover and timothy plants.

RATE OF SEEDING NURSE-CROP OF OATS, AND EFFECT ON SUCCEEDING CROP OF HAY

(Four-year rotation: Hoed Crop, Oats, Clover, Timothy)

In the following experiment the rate of seeding the nurse-crop of oats was varied as indicated in the table. All plots were seeded uniformly with 12 pounds timothy and 10 pounds red clover per acre.

RATE OF SEEDING NURSE-CROP OF OATS

Treatment No.	Rate seed Oats	Yield of oats, pounds per acre 1926	Yield of oats, pounds per acre Eleven-year average	Yield of clover, pounds per acre 1926	Yield of clover, pounds per acre Eleven-year average	Yield of timothy, pounds per acre 1926	Yield of timothy, pounds per acre Eleven-year average
	bush.	lb.	lb.	lb.	lb.	lb.	lb.
1	1½	1,060	1,387·4 ± 77·5	3,964	2,776·5 ± 344·4	2,869	2,911·2 ± 278·8
2	2	1,520	1,525·7 ± 67·9	3,801	3,071·7 ± 153·1	3,725	2,733·9 ± 134·6
3	2½	1,380	1,666·9 ± 122·3	3,757	2,731·0 ± 138·9	3,482	2,463·8 ± 157·2
4	3	1,480	1,620·0 ± 54·7	3,141	3,071·2 ± 180·4	3,422	2,218·9 ± 164·3

A statistical study of the data fails to indicate any choice in rate of seeding a nurse-crop of oats, within the limits of seedings employed, except in the case of timothy, where there is indication that higher yields of hay are obtained following the smaller seedings of nurse-crop. It would appear that any rate of seeding a nurse-crop of oats, within the limits outlined, proves satisfactory insofar as the hay crop is concerned.

This experiment is being discontinued, and the plots are to be employed for other purposes.

DEPTH OF PLOUGHING SOD LAND FOR GRAIN

(Five-year rotation: Grain, roots, grain, hay, hay)

Ploughing to depths greater than 5 inches would not appear to be profitable on this type of land, which is a fairly heavy, sandy clay loam, underlaid by gravelly brick clay.

DEPTH OF PLOUGHING SOD FOR GRAIN

Treatment No.	Depth of ploughing sod for grain (oats)	Yield grain per acre 1926	Yield grain per acre Eleven-year average
		lb.	lb.
1	Ploughed 3 inches deep in autumn	1,400	1,329
2	Ploughed 5 inches deep in autumn	800	1,323
3	Ploughed 7 inches deep in autumn	800	1,266
4	Ploughed 9 inches deep in autumn	1,200	*1,385
5	Ploughed 4 inches deep in spring	420	1,135
6	Ploughed 6 inches deep in spring	600	1,194

*10-year average.

A critical examination of the data collected over an eleven-year period would seem to indicate that on this type of soil the depth of ploughing the sod in autumn affects the yield of oats but slightly. At all depths, however, fall ploughing of sod for grain has proven superior to spring ploughing both in point of yield and also in uniformity of stand and date of maturing.

RATE OF SEEDING NURSE-CROP OF BARLEY

(Four-year rotation: Roots, barley, clover, timothy)

Seedings of barley were varied as shown in the table; clover and timothy were seeded on all plots uniformly at 10 pounds and 12 pounds per acre respectively.

SEEDING A BARLEY NURSE-CROP

Treatment No.	Rate of seeding barley per acre	Yield of clover per acre		Yield of timothy per acre	
		1926	Eleven-year average	1926	Eleven-year average
	bush.	lb.	lb.	lb.	lb.
1	1	3,984	2,973	2,989	3,339
2	1½	3,915	3,057	3,243	2,959
3	2	2,685	2,555	2,568	2,441
4	2½	2,683	2,506	2,184	*2,144

*10-year average.

It seems fairly evident that light seedings of barley as a nurse crop tend to increase the yields of clover and timothy following.

METHODS OF TREATING NEGLECTED LAND

Several years yet will be required before it can be stated which treatment is superior. Neglected land can be brought back to fertility fairly rapidly by the use of chemical fertilizers. At one time this method was considered too expensive, but, with potatoes at high prices as they have been recently, the resultant crop will not only pay for the fertilizers used, but will also pay a reasonable profit on the investment.

DEPTHS OF LAYING UNDERDRAINS

This experiment has been running thirteen years, and it is now being discontinued to make way for other work.

Tile drains were placed on sixty-foot centres, at depths of 24 inches, 30 inches, 36 inches, 42 inches and 48 inches. The soil is a heavy sandy clay loam, with gravelly clay subsoil.

Considering the yields from six crops of hay, it would appear that on this type of soil, tile drains placed at a depth not greater than 36 inches prove most satisfactory.

DEPTHS OF SEEDING CEREALS

Cereals were seeded with a disc drill at depths of one, two, three and four inches. The depth was graduated as accurately as possible, although slight inequalities, even in well-worked land, make it impossible to govern this within small fractions of an inch. Results lead to the belief that seedings at a depth of three inches prove the most satisfactory.

COST OF OPERATING TRACTOR

A Moline Universal Tractor Model "D" has been operated at this Station for several years. It is of the forward-wheel-drive type, with a 4-cylinder, 4-cycle engine, practically the entire weight of the machine being borne on the two large front wheels. It has given fairly satisfactory service. When operating under full load it is considered equal to five good horses.

MOLINE TRACTOR—MODEL "D"

	$ cts.
Gasolene, 348 gallons	109 62
Cylinder oil, 16¼ gallons	10 56
Grease, 30 pounds	2 40
Overhauling and incidental repairs	36 69
Total	159 27

Work performed:—	hours
Belt work	61
Ploughing (2-12 inch bottoms)	50½
Springtooth harrow (4 sections)	82½
Double cutaway disc harrow	76½
Incidental drawbar work	5½
	276
	$ cts.
276 hours at 57·71 cents	159 27

DRY-MATTER DETERMINATIONS

The method employed for the past several years in evaluating the various forage crops has been largely on a dry-matter basis. This system is particularly useful in handling hay plots. In certain hay plots in a series, weights might be taken when the crop was damp, while the balance might be weighed later in the day when quite dry. Obviously there would be a difference in yield due entirely to weather conditions on the day of weighing rather than to any previous plot treatment. The dry-matter method eliminates this source of error. Hay yields given in this report are based on a uniform moisture content of twelve per cent.

HORTICULTURE

THE SEASON

The wet weather in the autumn of 1925 left an abundance of moisture in the ground. The heavy snowfall of the winter gave good protection to shrubs, perennials and small fruits. The very late spring kept the fruit buds dormant until danger from frost was past. The cranberries and blueberries were killed back in low areas on June 15, by two degrees of frost. The temperature that night at the Charlottetown Station was 40° F. The growing season was very favourable for small fruits, vegetables and flowers. The large fruits did not set a heavy crop, but matured a fair crop with good colour during the favourable autumn weather which was free from severe storms.

VEGETABLES

BEANS

VARIETY TEST.—Twelve varieties were sown June 8, 1926. Each variety occupied 30 feet of drill, the drill being 2½ feet wide with plants spaced approximately 2 inches apart in the row. In the following table is given the yield of green beans in pounds per acre. Anthracnose in some instances proved rather severe. The column giving "per cent marketable" indicates the freedom of the variety from this disease.

BEANS—TEST OF VARIETIES

Standing	Variety and source of seed	Per cent marketable	Yield in lb. per acre
		%	lb.
1	Plentiful French (Ottawa No. 2755)	89·0	17,134
2	Stringless Green Pod (Ottawa No. 5405)	81·7	15,102
3	Inter-Challenge Black Wax (Ottawa No. 6876)	93·6	13,649
4	Davis White Wax (Ottawa No. 1636)	88·5	12,632
5	Princess Artois (Ottawa No. 9388)	100·0	12,052
6	Wardwell Kidney Wax (Ottawa 1516 and 65)	97·3	10,744
7	Round Pod Kidney Wax (McDonald)	100·0	10,019
8	Keeney Rustless Golden Wax (McDonald)	69·2	9,438
9	Round Pod Kidney Wax (Ottawa 6875)	78·7	8,858
10	Curry Rustless (Graham)	75·4	8,277
11	Davis White Wax (McDonald)	63·6	7,986
12	Stringless Green Pod (Graham)	74·5	7,406

THINNING OF BEANS.—This is the third year for this experiment. Two varieties are used, seeded in rows 30 feet long by 30 inches wide, with plants thinned to distances of 2, 4, and 6 inches apart as noted in the table.

BEANS—THINNING EXPERIMENT

Distance between plants in row	Round Pod Kidney Wax					Stringless Green Pod				
	1926		Three-year average yield			1926		Three-year average yield		
	Green	Ripe	Green	Ripe	Total	Green	Ripe	Green	Ripe	Total
ins.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
2	8,712	871	12,826	1,227	14,053	6,970	2,904	9,823	2,381	12,204
4	12,487	871	12,342	1,573	13,915	3,340	290	9,365	1,597	10,962
6	10,309	581	9,629	1,065	10,649	5,082	436	8,857	1,428	10,285

It will be observed that over a three-year period the thicker plantings have given the greater yields.

BEETS

VARIETY TEST.—Thirteen varieties were sown on May 28, 1926. Yields are recorded in bunches of five beets, marketable size.

BEETS—TEST OF VARIETIES

Standing	Variety and Source of Seed	Date Ready for Use	Yield in Bunches per acre
1	Detroit Dark Red Turnip (Madsen)	August 8	29,942
2	Detroit Blood Red (Madsen)	" 8	24,974
3	Crimson Globe (Madsen)	" 8	24,103
4	Extra Early Egyptian (Madsen)	" 5	21,490
5	Extra Early Flat Egyptian (Moore)	" 8	20,618
6	Crimson Globe (Graham)	" 8	20,618
7	Black Red Ball (Burpee)	" 8	19,747
8	Detroit Dark Red (McDonald)	" 7	18,295
9	Early Wonder (Lethbridge)	" 8	15,972
10	Detroit Dark Red (Graham)	" 8	15,682
11	Black Red Ball No. 1 (Ottawa No. 6894)	" 8	13,068
12	Crosby Egyptian (Madsen)	" 5	13,068
13	Detroit Dark Red (Ottawa No. 8935)	" 8	11,616

Crimson Globe (Graham), Detroit Dark Red (Ott. 8935) and Black Red Ball No. 1 (Ott. 6894) were noted as being good quality; while Detroit Blood Red (Madsen) was recorded as being of extra fine quality.

DATES OF SEEDING.—This experiment has been conducted for a period of three years. Five seedings are made at intervals of ten days. Each variety comprises one drill 30 feet long by 30 inches wide. The variety used is Detroit Dark Red. Yield is recorded in bunches of five marketable beets, as this is the way in which the crop has been marketed.

BEETS—DATES OF SEEDING

Date of Seeding			1926 yield			Three-year average yield			
			Early Harvesting	Late Harvesting		Early Harvesting	Late Harvesting		
1926	1925	1924	Marketable	Marketable	Unmarketable	Marketable	Marketable	Unmarketable	Total
			lb.	lb.	lb.	lb.	lb.	lb.	lb.
May 28	May 7	May 14	16,262	15,101	3,485	17,520	10,067	3,872	13,939
June 7	" 17	" 24	16,843	13,939	2,323	19,747	9,680	2,710	12,390
" 17	" 27	June 3	10,454	12,778	1,742	15,875	8,906	2,903	11,809
" 27	June 6	" 13	8,712	6,970	1,742	11,809	8,906	2,033	10,939
July 7	" 16	" 23	10,454	12,778	1,162	10,648	11,616	2,711	14,327

CABBAGE

TEST OF VARIETIES.—Thirteen varieties were planted in the open on May 27, 1926, and transplanted July 7.

CABBAGE—TEST OF VARIETIES

Standing	Variety and Source of Seed	Yield in lb. per acre
		lb.
1	Extra Amager Danish Ballhead (Ott. No. 8619)	62,726
2	Danish Ballhead (Lethbridge)	52,272
3	Danish Roundhead (Dupuy and Ferguson)	50,530
4	Succession (Ewing)	43,560
5	Chester Savoy (Steele Briggs)	40,075
6	Haco (Red) (Dupuy and Ferguson)	33,106
7	Golden Acre (Keith)	33,106
8	Golden Acre (Dreer)	31,363
9	Copenhagen Market (Graham)	27,443
10	Copenhagen Market (Stokes)	24,394
11	Golden Acre (Stokes)	23,522
12	Golden Acre (Harris)	22,651
13	Early Jersey Wakefield (McDonald)	21,780

Golden Acre is from seven to ten days earlier than other early varieties, and in addition has excellent quality. Danish Ballhead is of good quality and excellent for storage purposes.

DATE OF SEEDING AND EFFECT ON KEEPING QUALITIES.—Two varieties, Extra Amager Danish Ballhead and Copenhagen Market are used for this experiment. Five seedings are made at ten-day intervals. Extra Amager Danish Ballhead has proven better for storage purposes than the Copenhagen Market. Late seedings are not recommended, as apparently the heads do not mature sufficiently to stand storing.

CARROTS

TEST OF VARIETIES.—Seven varieties were sown on June 12, 1926. These were planted in a field removed some distance from the vegetable garden. We have found less injury from rust fly when this practice is followed. Yield is reported in bunches of five carrots.

CARROTS—TEST OF VARIETIES

Standing	Variety and Source of Seed	Marketable	Unmarketable	Total
		Bunches	Bunches	Bunches
1	Improved Danvers (Dupuy and Ferguson)	10,745	2,323	13,068
2	St. Valery (Rennie)	9,293	1,742	11,035
3	Ox Heart (Steele Briggs)	8,131	1,742	9,873
4	Half Long Scarlet Nantes (Lethbridge)	7,550	1,162	8,712
5	Hutchison (Gregory)	6,679	1,742	8,421
6	Chantenay (McDonald)	6,824	.....	6,824
7	*Chantenay (O-6049)	1,452	.....	1,452

*Only 25% germination.

DATES OF SEEDING CARROTS.—Five seedings of Chantenay carrots were made at 10-day intervals. The last seeding did not mature sufficiently to be of value as a table vegetable. Yields are reported in bunches of five roots.

CARROTS—DATES OF SEEDING

Date Seeding	Early Harvesting			Late Harvesting		
	Marketable	Unmarketable	Total	Marketable	Unmarketable	Total
	Bunches	Bunches	Bunches	Bunches	Bunches	Bunches
June 12	5,808	2,323	8,131	11,616	2,323	13,939
June 22	11,035	2,323	13,358	11,616	3,485	15,101
July 2	11,616	4,646	16,262	12,197	4,066	16,263
July 12	8,712	8,131	16,843	3,485	12,778	16,263
July 22	Did not mature			Did not mature		

Apparently a large crop of marketable vegetables can be grown from mid-season sowings.

CELERY

TEST OF VARIETIES.—Ten varieties were sown on April 22, 1926 and transplanted to the open on June 30.

CELERY—TEST OF VARIETIES

	Variety and Source of Seed	Average Weight 12 heads	Yield in Pounds per acre
		lb.	lb.
1	Burpee Fordhook (Burpee)	20	29,040
2	White Queen (Graham)	18	26,136
3	Paris Golden Yellow (Dupuy and Ferguson)	16	23,232
4	Super Standard (Stokes)	16	23,232
5	Golden Self Blanching (McDonald)	15	21,780
6	Rose Ribbed (Bruce)	15	21,780
7	Paris Golden Yellow (Steele Briggs)	15	21,780
8	Easy Blanching (McDonald)	15	21,780
9	Giant Pascal (Graham)	15	21,780
10	Golden Self Blanching (Ottawa—3410)	13	18,876

METHODS OF BLANCHING.—This experiment has been undertaken for several years in an attempt to discover means of blanching celery without a great expenditure of labour. Method No. 1 as described below produces enormous tonnage per acre, but the heads are small and the quality generally poor. Methods Nos. 2 and 4 are standard methods producing celery of excellent

quality, but demanding considerable outlay of time and labour. Method No. 3 produces celery of fair to good quality and flavour. It has also been noted that by this method the plants were blanched and ready for use about ten days earlier than when blanched with clay. This method would seem to have something to recommend it. Method No. 5 gave a crop poorer in flavour and quality than No. 3.

CELERY—METHODS OF BLANCHING

No.	Method of Planting and Blanching	Results
1	Plants grown on level—set 6 inches apart each way.....	Small, poor flavour.
2	Rows 5 feet apart, plants six inches apart in row, grown on level and earthed up.	Flavour and quality good.
3	Plants grown in double row 6 inches apart, plants 6 inches apart in row, double rows spaced 5 feet apart, plants alternated in row. Blanched by placing 4-inch tile drain over each plant.	Plants fair size, quality fair to good.
4	Rows 5 feet apart, plants 6 inches apart in row, plants started in trenches 6 inches deep and earthed up.	Flavour and quality good.
5	Rows 5 feet apart, plants 6 inches apart in row, grown on level and blanched with boards.	Does not blanch so well as No. 2, 3 or 4.

CITRON

Three varieties were planted and did very well this season. "Red Seeded" (Rennie) yielded at the rate of 28,435 pounds per acre, "Colorado Green Seeded" (McDonald) and "Colorado" (Ottawa No. 8197) each gave a yield of 22,990 pounds per acre.

CHARD

Swiss chard has been grown at the Station for several years. It gives a fair yield, but no local market is established for this vegetable.

CORN

SWEET CORN—VARIETY TEST—PLANTED JUNE 8, 1924

Standing	Variety and Source of seed	Ready for use and length of season	Yield in ears per acre	Per cent marketable
			Ears	Per cent
1	Early Malcolm (Ottawa No. 8205).....	Sept. 22—Oct. 8	26,620	86·4
2	Pickaninny (Ottawa No. 6579).....	Sept. 28—Oct. 9	25,168	100·0
3	Golden Bantam (Moore).....	Sept. 22—Oct. 8	22,264	80·4
4	Assiniboine (Will).....	Sept. 17—Oct. 8	19,602	77·8
5	Banting (Ottawa No. 6654).....	Sept. 30—Oct. 17	18,634	100·
6	Malakoff (Vaughan).....	Sept. 17—Oct. 28	16,456	82·4
7	Whipple Early (Harris).....	Sept. 8—Oct. 15	14,278	86·4
8	Golden Bantam (McDonald).....	Oct. 1—Oct. 8	12,826	71·7
9	Extra Early Cory (Graham).....	Oct. 1—Oct. 8	10,648	72·7
10	Whipple New Yellow (Harris).....	Sept. 28—Oct. 15	10,406	81·4
11	Sweet Squaw (Ottawa No. 6623).....	Sept. 17—Oct. 1	8,228	100·
12	Howling Mob (Burpee).....	Sept. 28—Oct. 15	7,744	75·
13	Earliest Catawba (Burpee).....	Oct. 1—Oct. 12	4,356	100·
14	Golden Justice (Bruce).....	Oct. 8—	3,872	37·5
15	Golden Giant (Rennie).....	Oct. 8—	1,210	100·

As the unmarketable ears were largely immature, the "per cent marketable" might be considered indicative of the suitability of a variety to our climatic conditions, in so far as state of maturity is concerned.

SUCKERING EXPERIMENT.—This experiment was continued this season using two varieties, Golden Bantam and Early Malcolm. In one case all suckers were removed on appearance, while in the balance of the plot all suckers were allowed to remain. Yield apparently is affected adversely by removal of suckers, but a larger percentage of ears reach a marketable stage of growth when this form of pruning is adopted.

CUCUMBERS

Seven varieties were planted in hills on June 10. The record of yield was taken in pounds per acre.

CUCUMBER VARIETY TEST

Standing	Variety and Source of seed	Yield in pounds per acre
		lb.
1	Prolific (McKenzie)	7,260
2	XXX Table (Rennie)	5,899
3	Improved Long Green (McDonald)	4,840
4	Snow Pickling (Rennie)	4,084
5	Early Fortune (McDonald)	3,630
6	Davis Perfect (Graham)	756
7	The Vaughan (Vaughan)	453

The yield of cucumbers was very small this season. This was noted generally over the entire province.

LETTUCE

Sixteen varieties were planted this season. Of the "head" varieties, "New York" is noted as a superior variety. We can also recommend Crisp as Ice, All Heart and All Seasons. In the "leaf" lettuce we recommend Grand Rapids.

MUSK MELON

Of three varieties sown, Golden Champlain is reported as best. Musk melon cannot be recommended for this province.

ONIONS

TEST OF VARIETIES.—Seventeen varieties were sown in drills on May 22, 1926. The following table also shows the average annual yield of the several varieties that have been grown continuously during the past five years.

ONIONS—TEST OF VARIETIES

Standing	Variety and Source of seed	Yield per acre, 1926	Average yield per acre, 5-year period 1922-26
		lb.	lb.
1	Mammoth Silver King (Graham)	30,201	.....
2	Extra Early Flat Red (Graham)	29,621	.....
3	Ailsa Craig (Graham)	22,071	27,995
4	Large Red Wethersfield (Ottawa No. 6042)	21,490	.....
5	Yellow Globe Danvers (Steele Briggs)	21,489	24,336
6	Yellow Globe Danvers (Graham)	20,909	26,020
7	Ebenezer or Japanese (Schell)	19,747	.....
8	White Barletta (Graham)	19,747	.....
9	Southport Yellow Globe (McKenzie)	19,747	.....
10	Large Red Wethersfield (McDonald)	19,747	.....
11	Large Red Wethersfield (Graham)	19,747	.....
12	Giant Prize Taker (Steele Briggs)	19,747	24,336
13	Southport White Globe (Steele Briggs)	18,585	22,578
14	Southport Red Globe (Steele Briggs)	18,005	20,735
15	Yellow Globe Danvers (Ottawa No. 6053)	16,843	.....
16	Giant Prize Taker (Graham)	13,939	25,381
17	Australian Brown (McDonald)	13,358	15,217

GARDEN PEAS

VARIETY TEST.—Nineteen varieties were planted May 28, 1926, in rows 30 inches wide with approximately one inch between plants.

GARDEN PEAS—TEST OF VARIETIES

Standing	Variety and Source of seed	Ready for use and length of season 1926	Yield per acre, (unshelled)	
			1926	Average 4-years 1923-26
			lb.	lb.
1	McLean Advancer (Harris)	Aug. 4—Aug. 21	8,470	10,618
2	Market Garden (Gregory)	Aug. 9—Aug. 21	7,865	8,661
3	Gregory Surprise X English Wonder (O-6471)	July 30—Aug. 17	7,744	.....
4	Gradus X American Wonder (Ottawa-3584)	July 28— Aug. 17	7,502	.....
5	Potlatch (Buckbee)	Aug. 9—Aug. 21	7,381	9,287
6	Sutton Excelsior (Harris)	Aug. 1—Aug. 11	6,050	8,107
7	American Wonder (McDonald	July 30—Aug. 17	5,082	.....
8	Little Marvel (Rennie)	July 27—Aug. 17	4,598	.....
9	English Wonder (Ottawa-8622)	July 30—Aug. 17	4,356	.....
10	Laxtonian (Graham)	Aug. 1—Aug. 11	4,356	5,379
11	Gregory Surprise (Gregory)	July 27—Aug. 4	4,356	5,399
12	Gradus or Prosperity (Rennie)	Aug. 1—Aug. 17	3,872	.....
13	British Wonder (Burpee)	Aug. 4—Aug. 17	3,630	.....
14	Thos. Laxton (McDonald)	July 30—Aug. 11	3,146	6,837
15	Daisy (Patmore)	Aug. 4—Aug. 17	2,662	.....
16	Stratagem (Graham)	Aug. 9—Aug. 17	2,178	6,595
17	First and Best (McKenzie)	July 27—Aug. 4	1,573	.....
18	Quite Content (McDonald)	Aug. 11	242	7,714

DISTANCE OF PLANTING.—Three varieties were planted in rows 36 inches apart with plants spaced at 1 inch, 2 inches and 3 inches apart in the row. Spacing apparently had little effect on date when ready for use.

GARDEN PEAS—DISTANCE OF PLANTING

Variety and source of seed	Distance between plants in row		
	1 inch	2 inches	3 inches
	lb. per acre	ln. per acre.	lb. per acre
English Wonder (C.E.F.)	4,598	2,541	3,388
Thomas Laxton (McDonald)	3,146	3,388	2,420
Stratagem (Graham)	3,630	726	968

PEPPERS

Harris Earliest (Harris) gave a fair yield, followed by Hamilton Market (Moore). The growing of peppers cannot be recommended for this province, except for the home garden.

PUMPKIN

Connecticut Field is recommended as a main crop, and the sugar varieties for table use.

PUMPKIN—TEST OF VARIETIES

Standing	Variety and source of seed	Yield per acre
1	Connecticut Field (McDonald)	58,256
2	Sugar or Sweet Pumpkin (Ottawa No. 5548)	45,709
3	Sugar Sweet Pie (Moore)	44,454
4	Small Sugar (Graham)	36,926
5	King of the Mammoths (Graham)	33,161
6	Quaker Pie (McDonald)	4,840
7	Large Cheese	1,793

PARSLEY

Three varieties of parsley were sown, Moss Curled (Ewing), Triple Curled (Ewing), and XXX Vaughan (Vaughan). The variety Triple Curled is recommended for both yield and quality.

PARSNIPS

The following is the yield of parsnips grown this year; the yield per acre is considerably below that of previous years:—

PARSNIPS—TEST OF VARIETIES

Standing	Variety and Source of seed	Yield per acre
		lb.
1	Cooper Champion (Dupuy and Ferguson)	9,583
2	Guernsey XXX Half Long (McKenzie)	7,550
3	Hollow Crown (Graham)	6,970
4	Hollow Crown (C.E.F. O-8936)	6,098
5	Hollow Crown (McKenzie)	4,937

DATE OF SEEDING.—Seedings of the variety Hollow Crown (Graham) were made at ten-day intervals beginning May 28, 1926. Yield is recorded in bunches of five roots.

PARSNIPS—DATE OF SEEDING

Date of seeding	Yield in bunches per acre			Per cent of marketable to total roots
	Marketable	Unmarketable	Total	
	bunches	bunches	bunches	per cent
May 28	5,808	1,452	7,260	80·0
June 7	6,389	1,452	7,841	81·5
June 17	6,970	2,614	9,584	72·7
June 27	6,679	2,614	9,293	71·9
July 7	3,485	3,485	6,970	50·0

RADISH

Radishes were of low quality this year. Extra Early Scarlet White Tip and XXX Scarlet Oval are excellent varieties.

SPINACH

Five varieties were sown. Long Standing Bloomsdale is reported as being of excellent quality.

SQUASH

Hubbard and Delicious are recommended.

SQUASH—TEST OF VARIETIES

Standing	Variety and source of seed	Yield in pounds per acre
		lb.
1	Golden Hubbard (McDonald)	20,613
2	Delicious (Graham)	19,717
3	Hubbard (Graham)	19,180
4	Warted Hubbard (Steele Briggs)	18,821
5	Golden Hubbard (Harris)	15,415
6	Golden Hubbard (Ottawa No. 5546)	11,830
7	Acorn (Buckbee)	10,755
8	Perfect Gem (Moore)	1,434

TOMATOES

TEST OF VARIETIES.—Thirty-seven varieties were planted in hotbeds on April 23, and transplanted to the open on June 21. The following table gives the yield in pounds per acre of green and ripe fruit, and also shows the per centage of ripe to total produced. All varieties were treated similarly, and the fruit was picked as it ripened, the remaining fruit at the end of the season being recorded as "green fruit." Under this system the "percentage of ripe fruit" gives a fairly good indication of the relative earliness of the variety.

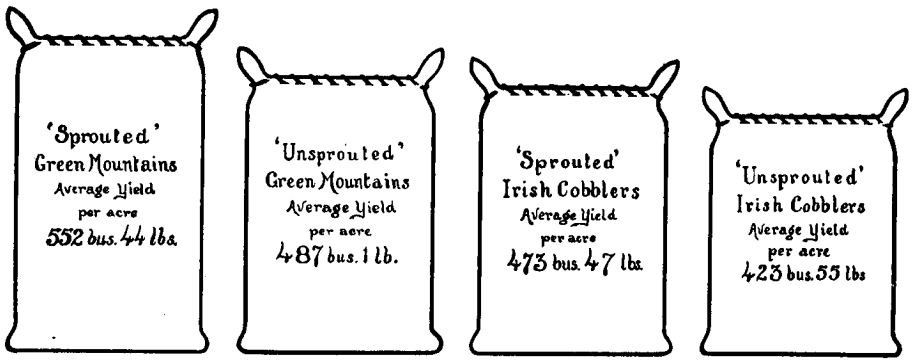
Standing	Variety and source of seed	Yield in pounds per acre			Ripe per cent of total crop
		Green	Ripe	Total	
		lb.	lb.	lb.	per cent
1	Earliest Market (Buckbee)	38,115	13,467	51,591	26·1
2	Sparks Earliana (Ewing)	44,105	5,717	49,822	11·5
3	Earliana Grade 2 (Langdon)	32,670	12,251	44,921	27·3
4	Earliana Grade 3 (Langdon)	32,670	10,890	43,560	25·0
5	Prosperity (Patmore)	31,581	10,890	42,471	25·6
6	Sunnybrook Earliana (Burpee)	33,759	8,440	42,199	20·0
7	Alacrity X Hipper (O-6568)	32,670	9,325	41,995	22·2
8	John Baer (Moore)	28,859	12,796	41,655	30·7
9	Bonny Best (Moore)	27,225	12,796	40,021	31·9
10	Burbank (Bruce)	28,859	9,733	38,592	25·2
11	XXX Round Scarlet Skin (Rennie)	21,780	16,607	38,387	43·3
12	Alacrity X Earlibell (O-6570)	27,225	10,550	37,775	27·9
13	Avon Early (Dreer)	23,958	11,707	35,665	32·8
14	Avon Early (Ferry)	29,403	15,518	34,921	44·4
15	Chalk Early Jewel (Andrews Mountain) (Carter)	24,503	10,141	34,644	29·3
16	Early Detroit (Ferry)	13,068	10,073	33,141	30·4
17	Rosy Morn (Livingston)	22,869	9,529	32,398	29·4
18	Chalk Early Jewel (Steele Briggs)	15,246	16,471	31,717	51·9
19	Greater Baltimore (Stokes)	19,058	10,890	29,948	36·4
20	Alacrity (Ottawa-6560)	21,780	4,628	26,408	17·5
21	Danish Export (Wiboltt)	22,869	3,131	26,000	12·0
22	John Baer (Steele Briggs)	12,524	12,524	25,048	50·0
23	Gulf State Market (Ferry)	15,790	8,440	24,230	34·8
24	Bonny Best (Keith)	14,702	8,031	22,733	35·3
25	Pink No. 1 (Ott. 6574)	16,335	5,717	22,052	25·9
26	Matchless (Burpee)	11,979	8,440	20,419	41·3
27	Norton (Stokes)	9,801	9,257	19,058	48·6
28	Norton (Livingston)	13,068	4,084	17,152	23·8
29	Coreless (Livingston)	7,623	7,079	14,702	48·1
30	New Golden Ponderosa (Buckbee)	21,780	2,450	14,230	17·2
31	New Dwarf Ponderosa (Will)	8,168	3,812	11,980	31·8
32	Marglobe (Stokes)	5,717	6,262	11,979	52·3
33	Pink No. 2 (Ottawa 6569)	5,990	5,513	11,503	47·9
34	Matchless (Livingston)	8,440	2,995	11,435	26·2
35	Stone (Livingston)	6,534	4,900	11,434	42·9
36	Dwarf Stone (Livingston)	5,445	3,267	8,712	37·5
37	Burpee (W. A. Burpee)	6,806	1,361	8,167	16·7

METHODS OF PRUNING.—Two varieties are used in this experiment, Alacrity and Bonny Best. The plants are set one foot apart in the row with rows four feet apart. All plants are pruned to one stem and supported on wire. Further pruning consisted in heading back the plants to one, two or three trusses of fruit, or not heading at all.

Pruned to one stem and	Yield in pounds per acre			
	Bonny Best (Stokes)		Alacrity (C.E.F.)	
	Ripe fruit		Ripe fruit	
	1926	1923-26	1926	1923-1926
	lb.	lb.	lb.	lb.
Not headed back	9,202	18,882	12,959	21,995
Headed back at third truss of fruit	18,513	20,606	22,651	23,058
Headed back at second truss of fruit	21,018	19,832	18,513	20,743
Headed back at first truss of fruit	9,801	12,155	10,454	14,236

This experiment primarily is arranged to increase the amount of ripe fruit produced. A study of the four-year averages as given above indicates that heading back to the third fruit truss does materially increase the production of ripe fruit. More severe pruning than this apparently tends to lessen yield.

SPROUTED VS. DORMANT SEED PIECES.—Two varieties are used, Irish Cobblers representing the early type, and Green Mountains representing the main crop type. These are planted in rows 30 inches apart, with the sets spaced 14 inches apart in



Increase in yields of Green Mountain and Irish Cobbler potatoes, due to sprouting before planting.

the row. The object is to determine effect of sprouting on total yield and date ready for use. All were planted on May 29, 1926.

POTATOES—SPROUTED VS. UNSPROUTED SEED PIECES

Details	Sprouted		Unsprouted	
	Irish Cobblers	Green Mountains	Irish Cobblers	Green Mountains
	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Marketable	358 17	380 55	264 0	460 7
Unmarketable	60 21	30 10	64 7	45 15
Total	418 38	411 5	328 7	505 22
Date ready for use	July 30	Aug. 12	Aug. 4	Aug. 20

This experiment has been conducted since 1923. The following table gives the average yields, 1923 to 1926 inclusive.

POTATOES—SPROUTED VS. UNSPROUTED SEED PIECES

Details	Sprouted		Unsprouted	
	Irish Cobblers	Green Mountains	Irish Cobblers	Green Mountains
	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Marketable (4-year average yield)	406 22	480 45	355 39	411 12
Unmarketable (4-year average yield)	67 25	71 59	68 16	75 49
Total (4-year average yield)	473 47	552 44	423 55	487 1
Mean date ready for use	July 21	July 30	Aug. 2	Aug. 12

Material differences are noted between yields of sprouted and unsprouted seed pieces. It must be borne in mind, however, that the sprouting of potatoes for seed takes time and could only be considered practicable on small areas of land or where very early crops were desirable, as in the home or market garden.

POTATOES—DATES OF PLANTING

Date of seeding	Irish Cobblers				Green Mountains			
	Marketable	Unmarketable	Total	Per cent crop mark	Marketable	Unmarketable	Total	Per cent crop mark
	bush. lb.	bush. lb.	bush. lb.	per cent	bush. lb.	bush. lb.	bush. lb.	per cent
First planting.....	264 00	64 7	328 7	80·5	460 7	45 15	505 22	91·0
Second planting...	346 58	86 45	433 43	79·9	460 7	56 34	516 41	89·0
Third planting....	392 14	56 34	448 48	87·4	392 14	75 26	467 40	83·9
Fourth planting...	392 14	56 34	448 48	87·4	360 55	45 15	406 10	89·4
Fifth planting.....	132 00	79 12	211 12	62·5	169 43	75 26	245 9	69·2

An early crop potato, as represented by the Irish Cobbler variety is apparently not benefited by very early plantings. The main crop, however, as represented by the variety Green Mountain, would appear to require a long growing season to give best yields. These points have been borne out over the 4-year period during which this experiment has been conducted.

RHUBARB

Rhubarb was sown in the open to determine the length of time required to reach a sufficient size for cutting, and also the time required to reach a proper size for forcing.

Plants two years old were found sufficiently large to divide and set out in permanent beds—plants three years old were found of suitable size for forcing.

TREES, SHRUBS, FLOWERS AND LAWNS

Little or no winter injury was noted among the trees or shrubs except in half-hardy shrubs in exposed positions. A heavy snow cover protected the perennials, and little loss occurred.

Herbaceous perennials and particularly the paeonies made a very fine showing.

Sweet peas were good and the dahlias made one of the finest showings in several years. Tulips and narcissi were not up to their usual standard of excellence, they were injured by wire worms in the soil. Roses were not so good as last year, but made a fine showing throughout the season. The annual flowers made a fine display, offering a profusion of bloom, in some cases until destroyed by frost. The water lilies in the pond west of the station buildings began blooming in June and continued their wonderful display until late in September.

TREE FRUITS

APPLES

With the exception of a few trees, growth in the apple orchard this year was satisfactory. There was a small amount of bloom; Duchess, Transparent, Astrachan, Pewaukee, McIntosh and Scarlet Pippin, however, yielded a fair crop of medium quality. In the spring of 1926 a number of new varieties originated at the Central Experimental Farm, Ottawa, were planted in positions formerly occupied by varieties which did not prove suitable for this location and climate. These made good growth during the summer.

PLUMS

Following the outbreak of black knot in 1925, the plum orchard was thoroughly sprayed with lime-sulphur (dormant strength) on April 26, 1926. In May and June the trees were again sprayed, a weak solution of lime-sulphur being used. The few knots which appeared during the growing season were removed and burned as soon as detected. It was thus again proven that black

knot can be easily controlled by thorough spraying and by the removal of knots which constitute the source of further infection. A number of trees which had suffered from winter-killing at times and proved to be somewhat tender for this district, were removed and replaced by other varieties.

SMALL FRUITS

STRAWBERRIES

Owing to the attack of strawberry weevil which damaged the strawberry plantation during the past season, it is considered unwise to attempt to draw conclusions as to the merits of the different varieties of berries. The only effective method known for controlling this insect is the growing of only imperfect varieties, with sufficient plants of perfect varieties to fertilize them. It is planned to devote more time to experiments with methods of control of strawberry weevil before proceeding with further tests of perfect varieties of strawberries.

CEREALS

THE SEASON

The spring season of 1926 was very late; the first work on the land was started on May 14, and the first seeding of cereals was made on May 21. Germination was satisfactory and growth was very rapid during the very favourable months of June and July. The weather was fine during the early harvest of cereals. The showery weather during October made it very difficult to harvest the late grain.

ROTATION FOR VARIETY TESTS

The rotation employed for this purpose is a special grain-growing rotation, permitting half of the area each year to be sown to cereals.

First Year.—Hoed crop, manured 12 tons per acre.

Second Year.—Grain, seeded down with 10 pound red clover, 2 pound alsike and 5 pound timothy per acre.

Third Year.—Clover hay, 8 tons of manure per acre are applied immediately following the harvesting of the clover crop, and the land is then ploughed and top-worked.

Fourth Year.—Grain seeded down with 8 pounds red clover and 2 pounds alsike clover per acre.

SYSTEM OF TESTING VARIETIES AND STRAINS

The system employed in testing varieties and strains of cereals at this Station at the present time is similar to that employed at the Central Experimental Farm, Ottawa, and other institutions where intensive study and accurate testing work is being undertaken. Four different types of plots are employed in this work as follows:—

Head-rows.—These are single rows 36 inches long, planted with 19 kernels taken from a single head or panicle. They are employed when working on intensive study of material.

Small Increase Plots.—These also are 36 inches long and consist of three to ten rows. They are used for purposes of increasing as well as making further comparisons of the progeny surviving discard in the head-rows.

Rod-row Plots.—These are 18½ feet long when planted, but at harvest time or shortly before, one foot is removed from each end to eliminate border effect. This leaves the plots 16½ feet, or one rod, long.

Three or five rows are seeded, the outside row on both sides being discarded at harvest time. Each variety tested appears not less than four times.

ONE-SIXTIETH-ACRE PLOTS.—These are planted in duplicate, and chiefly used, in addition to rod-rows, for testing yield of leading and important varieties. These plots offer an opportunity for studying varieties under conditions approximating those found in the field. Plots of this size also permit fairly liberal multiplication of varieties when larger quantities of seed are required.

In addition to the test plots, large areas are devoted to the production of seed for distribution.

NUMBER OF PLOTS—1926

Kind of Crop	Head-Rows	Small increase Plots	Rod-Row Plots	1-60 acre Plots	Propagation Plots	Total
Wheat	161	44	130	18	4	357
Oats	2	2	555	38	5	602
Barley	152	34	119	27	2	334
Total	315	80	804	83	11	1,293

Previous to and including 1923 the only plots used in our work were those of 1-60 acre and the propagation plots. The total number in 1922 and 1923 was 77 and 82 respectively, so that it is apparent there has been considerable expansion in the cereal investigational work at this Station.

BARLEY—TEST OF VARIETIES

Twelve varieties and strains of barley were seeded in duplicate on one-sixtieth-acre plots, May 29, 1926. This date of seeding is approximately eleven days later than the average for the five preceding years. Wet weather in the autumn caused difficult harvesting conditions.

BARLEY—TEST OF VARIETIES

Name of Variety	Date of ripening	Number of days to Maturity	Average length straw including head	Strength straw on Scale of 10 points	Actual yield per acre
					lb.
Horn	Aug. 26	89	41	10	3,098
Charlottetown No. 80	" 28	91	33	10	2,918
O.A.C. No. 21	" 23	86	52	9	2,835
Chinese	" 18	81	42	10	2,678
Gold (Sweden)	" 28	91	30	10	2,625
Charlottetown No. 80 (Selection)*	" 28	91	34	10	2,442
Gold (Charlottetown Seed)	" 28	91	39	10	2,258
Duckbill	" 28	91	36	10	2,228
Himalayan†	" 21	84	37	10	2,100
Albert	" 15	78	36	10	1,965
Pedigree Beardless	" 23	86	46	9	1,770
Swedish Chevalier	" 27	90	38	10	1,628

*Mean yield of 5 plots.

†Himalayan is a hulless variety.

AVERAGE YIELDS BARLEY AT CHARLOTTETOWN, 1912–1926 INCLUSIVE

Year	Actual yield of Charlottetown No. 80 lb. per acre	Standing of different Varieties Relative to Charlottetown No. 80 (Charlottetown No. 80=100)								
		Charlottetown No. 80	Swedish Chevalier	Gold	O.A.C. No. 21	Duckbill Ottawa No. 57	Pedigree Beardless	Himalayan	Chinese Ottawa 60	Horne C.I. No. 926
1912	3,260	100	98·2	91·8	98·2	.....	.....	.....	.....	.....
1913	3,291	100	84·2	92·1	77·4	.....	.....	.....	.....	.....
1914	3,999	100	88·9	98·8	85·1	.....	.....	.....	.....	.....
1915	3,619	100	94·2	97·5	85·5	.....	.....	.....	.....	.....
1916	4,097	100	72·5	68·0	58·2	.....	.....	.....	.....	.....
1917	2,506	100	46·5	92·3	95·0	.....	.....	.....	.....	.....
1918	2,340	100	102·6	103·8	145·8	58·4	.....	.....	.....	.....
1919	1,852	100	144·4	155·3	164·6	118·0	.....	.....	.....	.....
1920	3,354	100	85·2	82·5	83·3	75·1	63·5	.....	.....	.....
1921	2,492	100	84·5	89·3	93·6	107·9	89·1	84·5	109·4	.....
1922	2,070	100	132·8	100·7	110·1	98·6	97·5	97·1	118·1	.....
1923	2,291	100	110·5	77·3	86·7	92·2	97·9	67·3	81·5	145·1
1924	3,568	100	73·1	81·9	101·1	118·7	90·9	105·3	105·6	114·9
1925	4,035	100	66·5	81·0	77·1	75·1	67·9	73·2	79·0	64·7
1926	2,918	100	55·8	77·4	97·2	76·4	60·7	72·0	91·8	106·2
Average— 1912-1926	3,046	100	89·3	92·7	97·3	.....	.....	.....	.....	.....
1917-1926	2,743	100	90·2	94·2	105·5	.....	.....	.....	.....	.....
1922-1926	2,976	100	87·7	83·7	94·4	92·2	83·0	83·0	95·2	.....

OATS—TEST OF VARIETIES

Nineteen varieties and strains were planted in duplicate May 28, 1926, in one-sixtieth-acre plots, and are reported in the two tables following:—

OATS—TEST OF VARIETIES

Variety	Date of Maturity	Number days to Maturity	Length straw including head	Strength straw on scale of 10 points	Actual yield grain lb. per acre
					lb.
Gold Rain	Sept. 3	98	45	9	3,431
Prolific	" 8	103	41	8	3,061
Columbian	" 8	103	39	7	2,912
Banner Ottawa 49	" 6	101	41	10	2,858
Victory	" 6	101	38	10	2,520
O.A.C. No. 72	" 9	104	40	9½	2,505
Northland	" 7	102	42	7	2,427
Alaska	Aug. 20	84	46	10	2,310
Old Island Black	Sept. 5	100	45	10	2,145
Longfellow	" 3	98	46	10	2,049
Laurel*	" 5	100	40	10	1,817
Daubenay	Aug. 26	90	47	10	1,704
Liberty*	Sept. 3	98	43	9	1,334

*Hulless variety.

AVERAGE YIELDS OATS AT CHARLOTTETOWN, 1910-1926 INCLUSIVE

Year	Actual yield Banner Ottawa No. 49 in lb. per acre	Standing of Different varieties Relative to Banner Ottawa 49 (Banner=100)									
		Banner Ottawa No. 49	Gold Rain	Victory	Old Island Black	Daubeney	O.A.C. No. 72	Liberty	Longfellow	Northland	Prolific
1912	1,644	100	118·5	118·5	99·6	74·2	.....	.....	.....	.....	.....
1913	2,777	100	104·5	97·8	93·3	65·6	.....	.....	.....	.....	.....
1914	1,752	100	223·3	232·4	144·6	159·6	230·5	.....	.....	.....	.....
1915	3,996	100	73·9	75·6	80·8	68·1	87·1	.....	.....	.....	.....
1916	3,075	100	72·3	85·7	81·5	73·0	87·0	.....	.....	.....	.....
1917	2,133	100	103·1	84·7	74·0	80·2	94·8	.....	.....	.....	.....
1918	2,000	100	143·3	159·8	134·5	40·9	147·9	.....	.....	.....	.....
1919	2,752	100	106·1	113·9	.....	115·8	120·2	.....	.....	.....	.....
1920	2,017	100	117·5	127·5	138·5	77·6	96·2	66·9	100·4	.....	.....
1921	2,237	100	100·5	83·7	105·6	79·4	85·3	56·9	59·4	46·3	
1922	3,163	100	70·6	87·7	63·1	69·5	68·2	50·5	69·5	77·1	81·5
1923	2,960	100	83·7	108·4	68·1	75·2	63·6	.....	71·3	77·6	72·7
1924	2,314	100	89·7	135·3	84·9	107·3	131·5	118·1	122·8	125·4	125·3
1925	2,385	100	92·8	96·9	118·6	68·9	89·3	.....	.....	.....	90·6
1926	2,858	100	120·0	88·2	75·0	59·6	87·6	46·7	71·7	84·9	107·1
Average, 1912-1926	2,537	100	108·0	113·1	*97·3	81·0	.....	.....	.....	.....	.....
1917-1926	2,482	100	102·7	108·6	*95·8	77·4	98·5	.....	.....	.....	.....
1922-1926	2,736	100	91·4	103·3	81·9	76·1	88·0	.....	.....	.....	95·4

*1919 missing.

TEST OF STRAINS OF BANNER OATS

Strain or Number	Date of Maturity	Number of days to Maturity	Average length of straw	Strength of straw scale of 10	Yield of grain in lb. per acre	4-year average yield lb.
Saskatchewan No. 99	Sept. 6	101	37	10	3,023	2,813
Ottawa No. 49	" 6	101	41	10	2,858	2,629
Langille	" 3	98	38	10	2,655	2,617
Dow	" 6	101	40	10	2,968	2,356
MacDonald No. 4407	" 6	101	38	10	2,895	2,465
Waugh	" 6	101	37	10	3,000	2,454
Dixon	" 6	101	44	10	2,588	2,209

A statistical study of these data points to the Saskatchewan selection No. 99 as being a high-yielding strain of Banner oats for this province. This is followed closely by Banner Ottawa No. 49 and Banner Langille with the other varieties dropping noticeably below these three.

SPRING WHEAT

Nine varieties or strains of spring wheat were seeded, May 29, 1926, in duplicate, one-sixtieth-acre plots.

SPRING WHEAT—TEST OF VARIETIES

Variety	Date of ripening	Number of days to mature	Average length of straw	Strength of straw on scale of 10	Actual yield of grain per acre
Huron, Ottawa 3	Sept. 14	108	48	10	2,775
†Charlottetown No. 123	" 16	110	51	10	2,652
Marquis Ottawa	" 10	104	42	10	2,550
*Early Russian	" 16	110	45	9½	2,445
Early Red Fife Ottawa 16 (Ottawa Seed)	" 15	109	48	10	2,325
White Fife	" 16	110	41	10	2,093
White Russian	" 11	105	42	9	1,860
Reward, Ottawa 928	Aug. 28	91	38	10	1,815
Early Red Fife, Ottawa 16 (Charlottetown Seed)	Sept. 17	111	48	10	1,733

†Not grown in 1919.
*Not grown in 1916.

AVERAGE YIELD SPRING WHEAT AT CHARLOTTETOWN, 1910-1926 INCLUSIVE

Year	Actual yield Huron Ottawa No. 3 in lb. per acre	Standing of Different Varieties Relative to Huron Ottawa No. 3. (Huron=100)						
		Huron Ottawa No. 3	Marquis Ottawa No. 15	White Russian	White Fife Ottawa No. 11	Early Red Fife Ottawa No. 16	Early Russian Ottawa No. 40	Charlotte town No. 123
1912	1,385	100	109·9	88·2	.....	78·9	.....	.....
1913	2,693	100	105·6	100·0	.....	108·1	.....	.....
1914	2,550	100	77·7	55·3	.....	121·5	.....	.....
1915	3,324	100	100·8	74·4	.....	82·3	.....	.....
1916	2,546	100	67·2	71·7	.....	79·0	.....	.....
1917	1,566	100	86·5	113·3	.....	87·9	110·5	.....
1918	2,306	100	108·5	107·3	.....	65·5	135·9	.....
1919	1,680	100	95·4	121·8	.....	69·9	106·4	.....
1920	1,924	100	122·6	133·8	.....	131·8	130·8	91·8
1921	1,641	100	96·1	90·7	.....	116·6	114·0	110·7
1922	2,621	100	79·5	76·5	64·2	97·6	109·3	99·4
1923	2,177	100	77·9	78·2	65·8	95·5	104·3	81·5
1924	2,732	100	99·8	71·4	58·2	69·5	103·3	93·2
1925	2,145	100	71·3	89·5	94·4	66·4	98·3	101·1
1926	2,775	100	91·9	67·0	75·6	62·4	88·1	95·6
Average—								
1912-1926	2,271	100	92·7	89·3	.....	88·8	.....	.....
1917-1926	2,157	100	93·0	95·0	.....	86·3	110·1	.....
1922-1926	2,490	100	84·1	76·5	71·6	78·3	100·7	94·2

SEEDING GRAIN ACCORDING TO SIZE AND WEIGHT OF KERNEL

This experiment was started in 1924, under the auspices of the Industrial and Scientific Research Council of Canada. The object in view is to determine to what extent, if any, yield is influenced by size of kernel sown, or rate of seeding per acre. Three varieties are sown each year: Daubeney, a small-seeded variety inclined to tiller quite freely; Banner, a medium-sized oat of medium-tillering capacity; and Abundance, a heavy-kernelled oat that tillers but sparingly. Much valuable information has been collected, and results will be published shortly.

AREAS DEVOTED TO SEED PRODUCTION—1926

Crop	Variety	Field	Preceding crop	Acreage	Yield per acre	
Wheat	Early Red Fife	C—IV	Potatoes	0·57	29	4
Wheat	Huron	B—III	Potatoes	1·0	24	33
Wheat	Charlottetown No. 123	G—III	Turnips	0·4	21	13
Oats	Banner	A—III	Mangels	1·0	68	9
Oats	Banner	B—V	Clover	1·0	64	3
Oats	Banner	Blake	Roots	4·0	55	0
Oats	Banner	Connolly	Roots	10·0	49	6
Oats	O.A.C. No. 72	G—I	Timothy	0·4	47	27
Barley	Charlottetown No. 80	CC—V	Roots	4·5	55	2
Barley	Charlottetown No. 80	A—I	Timothy	1·0	49	40

FORAGE CROPS

THE SEASON

The very late spring of 1926, following a winter when there was a heavy snow cover on the ground, gave excellent protection to the grasses and clovers. There was very fair growth of forage plants during the cool, backward weather of April and May. The abundant sunshine of June and July, together with the accumulated moisture of the winter, produced abundant crops of grasses and clovers. The hay was saved during good weather conditions. The cool, showery autumn produced rapid growth in the roots during late September and October. The weather during the harvesting of the roots was catchy, and many were saved during the second week in November.

ENSILAGE CROPS

CORN

While satisfactory for some crops, the cool spring season was unfavourable for the growth of corn, causing low germination. Although such selective action by the weather proves disastrous to many of the varieties and strains, it is beneficial in assisting in the isolation of hardy lines.

INDIAN CORN FOR ENSILAGE—TEST OF VARIETIES

Number	Variety of Strain	Average height	State of Maturity	Green yield per acre	Percentage dry matter	Dry matter per acre
		ins.		tons lb.		tons lb.
1	Twitchells Price X Wisc. No. 7 (Harrow)	78	Water stage	22 1,200	14 55	3 576
2	Twitch. Pride (Fredericton)	60	Dough stage	18 800	16·30	2 1,998
3	Northwestern Dent (Disco)	65	Kernels just forming	16	15·82	2 1,062
4	Northwestern Dent (Brandon)	60	Water stage	15 1,400	15·03	2 720

Eleven other varieties and strains were planted, but apparently were unable to withstand the cold, backward weather immediately following date of seeding. In some cases germination under these conditions was so low that the crop might be considered a total failure.

SUNFLOWERS FOR ENSILAGE PURPOSES

Three varieties were sown, but the very low germination made it impossible to obtain accurate records.

ROOTS

Seedings of roots were made somewhat later than in previous years. Possibly on this account the yields are below average.

MANGELS—TEST OF VARIETIES

Sixteen varieties were seeded, in triplicate, on June 12, 1926. These are listed in the following table, together with gross weight and pounds of dry matter produced per acre.

MANGELS—TEST OF VARIETIES

Standing	Variety and Source	Yield per acre	Per cent dry matter	Dry matter per acre
		tons lb.	%	tons lb.
1	Half Sugar Red Top (Hjalmar Hartmann)	15 1,000	15·86	2 918
2	Red Ecken dorfer (General Swed. Seed Co.)	18 1,000	13·29	2 918
3	Elvetham Mammoth (Hjalmar Hartmann)	14 600	17·10	2 890
4	Giant White Half Sugar (Ewing)	17 1,000	13·51	2 728
5	Stryno Barres (Hjalmar Hartmann)	16 1,600	13·70	2 602
6	Rosted Barres (Hjalmar Hartmann)	17 400	13·27	2 566
7	Yellow Intermediate (C.E. F. Ottawa)	14 1,600	15·11	2 472
8	Giant Yellow Globe (Ewing)	18 1,600	11·82	2 444
9	Long Red Mammoth (Ewing)	13 1,800	15·50	2 310
10	Danish Sludstrup (McDonald)	16 1,800	12·65	2 276
11	Red Globe (Dupuy & Ferguson)	14 200	15·04	2 240
12	Yellow Eckendorfer (Hjalmar Hartmann)	15 1,400	13·16	2 132
13	Giant Yellow Intermediate (Ewing)	15 1,200	12·44	1 1,882
14	Giant Yellow Intermediate (Hal. Seed Co.)	14 600	13·30	1 1,804
15	Red Globe (Ewing)	12 1,600	14·73	1 1,770
16	Red Eckendorfer (Hjalmar Hartmann)	14 400	12·85	1 1,650

SUGAR BEETS—TEST OF VARIETIES

Fifteen varieties and strains of sugar beets were grown. In addition to tests for dry matter, the beets were also subjected to chemical analyses to determine their value for sugar manufacturing purposes. Each variety was sown in duplicate. The results as tabulated are the average for two plots.

SUGAR BEETS—TEST OF VARIETIES

Standing	Variety and Source	Per cent sugar in in juice	Coefficient of purity	Yield per acre	Per cent dry matter	Dry matter per acre
		per cent	per cent	tons lb.	per cent	tons lb.
1	Vladovsk Y.S.	15·93	85·21	15 1,000	25·39	3 1,870
2	Sacharotest I.	17·96	89·49	14 200	25·09	3 1,074
3	Kuhn & Co.	18·22	87·75	13 1,700	24·87	3 890
4	Ivanosk S. (Russian)	17·94	85·75	14 ...	24·55	3 874
5	Kolinki (Russian)	18·42	88·46	12 500	25·76	3 310
6	Sacharotest III.	17·94	86·18	12 1,400	24·28	3 166
7	Kolinki IV.	17·82	86·17	12 700	24·42	3 32
8	Ivanosk R.M. (Russian)	18·10	86·53	12 1,200	23·92	3 28
9	Sacharotest II.	17·94	89·43	11 1,500	25·04	2 1,884
10	Schreiber & Sons.	16·98	87·74	12 1,300	22·94	2 1,804
11	Horning	17·34	86·47	11 1,400	23·89	2 1,590
12	Fredericksen	17·30	86·50	10 1,900	24·84	2 1,440
13	Dieppe (Country test)	18·45	88·87	11 300	24·11	2 1,376
14	Buszezynski	17·03	87·78	9 1,700	25·89	2 1,100
15	Dieppe	18·45	87·91	9 1,600	24·85	2 870

SWEDE TURNIPS—TEST OF VARIETIES

Eighteen varieties were seeded in triplicate on June 12, 1926. These made fairly good growth, but the late seeding and consequent short growing season prevented high yields.

SWEDE TURNIPS—TEST OF VARIETIES

Standing	Variety and Source	Yield per acre	Per cent dry matter	Dry matter per acre
		tons lb.	Per cent	tons lb.
1	Halls Westbury (McDonald)	21 1,400	10·86	2 712
2	Bangholm (Ewing)	19 1,200	11·63	2 560
3	Champion Purple Top (Rennie)	19 800	11·39	2 418
4	Halls Westbury (Ewing)	19 1,200	11·15	2 372
5	*Bangholm (Kentville)	17	12·81	2 356
6	Bangholm Studsgaard (Christensens Sel. clubroot resistant)	17 1,000	12·45	2 356
7	*Bangholm (Charlottetown)	17 600	12·31	2 258
8	Bangholm (Pajberg V Trifolium)	18 1,600	11·21	2 216
9	New Century (Bruce)	19 1,000	10·66	2 158
10	Bangholm (Gen. Swedish Seed Co.)	17 600	11·73	2 60
11	Bangholm (Klank—Trifolium)	17 600	11·69	2 44
12	Shepherd (Trifolium)	18 200	11·00	1 1,980
13	Ditmar (McNutt)	19 1,800	10·02	1 1,980
14	Sutton Champion Purple Top (Ewing)	16 1,600	11·82	1 1,972
15	*Bangholm (Nappan)	15	13·05	1 1,916
16	Bangholm (Studsgaard 5018)	15 600	12·65	1 1,870
17	Kangaroo (Ewing)	16 1,600	11·34	1 1,812
18	Invicta Bronze Top (Ewing)	16 1,400	11·23	1 1,750

*Bangholm (Kentville, Charlottetown and Nappan), grown from Christensen's selection.

FIELD CARROTS—TEST OF VARIETIES

Nine varieties were seeded in duplicate on June 12 and 14, 1926.

FIELD CARROTS—TEST OF VARIETIES

Standing	Variety and Source	Yield per acre	Per cent dry matter	Dry matter per acre
		tons lb.	Per cent	tons lb.
1	Improved White Vosges (McDonald)	14 400	11·03	1 1,132
2	Yellow Belgian (Ewing)	15 1,400	9·96	1 1,128
3	Imp. Intermediate White (Ewing)	12 1,000	11·62	1 904
4	White Belgian (Hartmann)	11 600	11·42	1 580
5	White Belgian (Trifolium)	9 300	11·69	1 140
6	White Belgian (Summerland)	9 900	10·96	1 72
7	White Belgian (Halifax Seed Co.)	9 400	10·87	1 ....
8	White Intermediate (Summerland)	7 1,300	10·59	.. 1,620
9	White Belgian (Ewing)	7 1,500	10·37	.. 1,608

The growing of carrots in large areas is not recommended for this province.

SOILS AND FERTILIZERS

MANURE VS. COMMERCIAL FERTILIZER FOR POTATOES

This experiment was started in 1923 to demonstrate the relative value of stable manure and chemical fertilizers for the growing of potatoes. In conjunction with this an experiment was conducted to compare potatoes grown in rotation with potatoes, similarly fertilized, grown continuously.

MANURE VS. FERTILIZER ON POTATOES IN ROTATION (FOUR YEARS: POTATOES, OATS, HAY, HAY)

Treatment received per acre	Yield 1926			Yield average 4 years 1923-24-25-26			
	Large	Small	Total	Large	Small	Total	Marketable
	lb.	lb.	lb.	lb.	lb.	lb.	%
Manure, 20 tons per acre	11,531	2,840	14,371	9,501	2,078	11,579	82·1
No manure Nit. soda, 130 lb. Sulp. amm., 100 lb. Superph., 500 lb. Mur. pot., 160 lb.	* 8,055	3,434	11,489	7,470	2,347	9,817	76·1
Manure, 10 tons Nit. soda, 65 lb. Sulp. amm., 50 lb. Superph., 250 lb. Mur. pot., 80 lb.	**10,344	2,416	12,760	10,517	2,001	12,518	84·0
No manure—No fertilizer	3,815	1,993	5,808	2,864	1,210	4,074	70·3

*Equivalent to 1,000 lb. per acre of 4-8-8 mixture.
**Equivalent to 500 lb. per acre of 4-8-8 mixture.

YIELD OF OATS IN ROTATION FOLLOWING POTATOES

Fertilizers in pounds per acre applied to potato crop	1924		1925		1926		Average three years	
	Straw	Grain	Straw	Grain	Straw	Grain	Straw	Grain
	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Manure, 20 tons	2,738	2,222	2,400	1,600	3,904	1,920	3,014	1,914
No manure Nit. soda, 130 lb Acid phos., 500 lb. Sulp. amm., 100 lb Mur. pot., 160 lb.	1,167	2,497	1,422	1,296	.....	1,760	.....	1,851
Manure, 10 tons Nit. soda, 65 lb Acid phos., 250 lb. Sulph amm., 50 lb. Mur. potash, 80 lb.	2,331	2,645	1,796	1,584	.....	2,016	.....	2,082
No manure or fertilizer	2,930	1,820	1,108	866	.....	1,408	.....	1,365

MANURE VS. COMMERCIAL FERTILIZER ON POTATOES GROWN CONTINUOUSLY

Treatment received per acre	Yield 1926			Yield average 1923-24-25-26			
	Large	Small	Total	Large	Small	Total	Marketable
	lb.	lb.	lb.	lb.	lb.	lb.	%
Manure, 20 tons	7,165	2,544	9,709	8,023	2,855	10,878	73·8
No manure Nitrate soda, 130 lb. Sulph. amm., 100 lb. Acid phosp., 500 lb. Mur. potash, 160 lb.	5,511	2,247	7,758	6,722	2,068	8,790	76·5
Manure, 10 tons Nitrate soda, 65 lb. Phosp. amm., 50 lb. Acid phosp., 250 lb. Mur. potash, 80 lb.	7,419	2,120	9,539	7,840	2,377	10,217	76·7
No manure—no fertilizer	.....	1,865	1,865	1,166	1,829	2,995	38·9

This year's figures, as shown in the first table, support the findings of previous years, namely, the desirability of the use of stable manure for growing potatoes. This season the potatoes grown with 20 tons manure have outyielded those grown with the other treatments included in this experiment, viz., manure in conjunction with fertilizers and fertilizers alone. Although the yield of the plot receiving 10 tons manure and chemicals equivalent to 500 pounds of a 4-8-8 mixture has dropped back below that of the plot grown with manure alone, this plot leads the others in a four-year average. The plot grown without manure but with an application of chemicals equivalent to 1,000 pounds of a 4-8-8 mixture stands in third place, both for 1926 and over a four-year average.

The result has been the same for potatoes grown continuously, as is shown in the third table. It will be noted in this table that the total yield for 1926 is rapidly dropping below that for potatoes grown in rotation, as seen in the first table.

In the second table the yield of oats and straw on plots following the potatoes in rotation is given. The various yields closely follow the potato yields for the previous season.

FERTILIZER FORMULAE FOR POTATOES

In 1922 seventy-five plots, known as the Permanent Fertilizer Area, received the various fertilizer applications (in duplicate) indicated in the following table, and were then planted to potatoes. In addition to testing the value of the different treatments, it was planned to test a new four-year rotation having two of the four years in potatoes, as follows:—

1st year.—Potatoes fertilized as per plan.
2nd year.—Wheat.
3rd year.—Clover hay.
4th year.—Potatoes—no fertilizer treatment.

The fourth year of this rotation would depend for its crop on residues remaining from the original application, together with the fertilizing value of the clover aftermath ploughed under the previous autumn.

The crop this season (1926) was potatoes, representing the first year of the rotation.

Fertilizer Formulae for Potatoes

Applications in lb. per acre, 1922				Equal to	Yield in pounds per acre				
Nitr. soda	Sulph. amm.	Acid phosph.	Mur. potash		Potatoes 1922	Wheat 1923	Clover 1924	Potatoes 1925	Potatoes 1926
				2,000 lb. of					
390	300	750	240	6-6- 6	21,080	1,400	4,501	7,960	9,540
325	250	750	240	5-6- 6	19,280	1,490	4,664	7,220	14,270
260	200	750	240	4-6- 6	20,100	1,210	4,119	7,140	8,260
195	150	750	240	3-6- 6	18,820	1,130	4,225*	7,460	11,300
325	250	1,000	240	5-8- 6	20,760	1,180	4,336*	8,520	12,540
260	200	1,000	240	4-8- 6	20,360	1,160	4,226	8,560	12,520
195	150	1,000	240	3-8- 6	22,900	960	4,620	7,660	11,700
260	200	1,000	400	4-8-10	26,920	1,170	4,753	9,520	12,420
260	200	1,000	320	4-8- 8	21,680	1,130	4,808	8,060	13,540
260	200	1,000	160	4-8- 4	18,940	1,180	3,655	7,360	10,340
				1,500 lb. of					
290	225	560	180	6-6- 6	18,720	1,160	4,208	5,680	9,520
245	190	560	180	5-6- 6	16,620	1,220	4,072	6,040	10,100
195	150	560	180	4-6- 6	16,600	1,060	4,567	5,640	9,580
145	115	560	180	3-6- 6	19,160	1,020	4,489	4,960	10,300
245	190	750	180	5-8- 6	16,200	1,110	4,208	5,600	10,720
195	150	750	180	4-8- 6	15,600	590	4,450	6,720	11,480
145	115	750	180	3-8- 6	15,720	860	4,835	6,760	11,580
195	150	750	300	4-8-10	18,260	1,180	4,945	6,240	10,580
195	150	750	240	4-8- 8	18,880	1,070	4,459	5,720	12,420
195	150	750	120	4-8- 4	15,360	860	4,250	6,440	9,600
				1,000 lb. of					
195	150	375	120	6-6- 6	16,080	1,070	3,911	5,680	8,520
165	125	375	120	5-6- 6	16,620	1,100	4,190	7,800	8,000
130	100	375	120	4-6- 6	15,400	950	4,195	5,160	6,960
100	75	375	120	3-6- 6	15,620	900	4,064	6,140	8,260
165	125	500	120	5-8- 6	15,260	960	4,118	4,840	7,260
130	100	500	120	4-8- 6	15,120	1,330	4,358	7,540	9,280
100	75	500	120	3-8- 6	18,700	1,120	4,510	7,180	7,940
130	100	500	200	4-8-10	17,740	1,230	4,573	6,820	9,400
130	100	500	160	4-8- 8	17,460	990	4,541	6,240	9,860
130	100	500	80	4-8- 4	14,800	1,170	4,182	5,840	7,240
(1) Permanent check					6,760	120	1,627	4,560	3,200
(2) Check					5,680	320	2,670	6,400	3,160
(3) Checks—(average of 13 plots)					8,926	1,171	3,301	5,572	3,465

*Single plot only.

The crop receiving fertilizer previous to this year was the potato crop of 1922. It will be noted that the 1926 crop on the whole is materially lower in yield than that of 1922. The check plots however, that received no fertilizer, are correspondingly reduced, so that part, at least, of this reduction may be attributed to a poorer potato growing season; although this was not so noticeable in larger field blocks as in this area.

A rotation of this type, if found practicable, would be of great service to the potato-growers of the province, for it would permit the planting of half of their land each year to the potato crop.

SOURCES OF PHOSPHORIC ACID

In 1925 an experiment was started to determine the relative merits of certain sources of phosphoric acid. Acid phosphate (16 per cent), Bessemer slag (16 per cent), Ephos Basic Phosphate (27.5 per cent) and Ammo-Phos (two grades, 13-48 per cent and 20-20 per cent) were used. Ephos is manufactured from an Egyptian phosphatic rock, high in percentage of phosphoric acid, and is distributed by the Egyptian Phosphate Company of London, England. Ammo-Phos is a nitrogenous-phosphatic fertilizer, manufactured in two grades by the

American Cyanamid Company of New York. The 13-48 grade contains 13 per cent ammonia (NH_3) equivalent to 10.7 per cent nitrogen, and 48 per cent phosphoric acid, while the 20-20 contains 20 per cent ammonia equivalent to 16.5 per cent nitrogen, and 20 per cent phosphoric acid.

The crop in 1925 was turnips and the 1926 crop was oats. All treatments were in quadruplicate.

SOURCES OF PHOSPHORIC ACID

No.	Fertilizers applied, kind and rate per acre	Plant food supplied, pounds per acre			Average yields, pounds per acre	
					1925	1926
		N	P_2O_5	K_2O	Turnips	Oats
1	Checks—no treatment (16 plots)	.....	.....	.....	11,660	1,075 (a)
2	292 lb. Ephos	.....	80	.....	20,560	955 (b)
3	500 lb. acid phosphate	.....	80	.....	25,040	880 (c)
4	500 lb. Bessemer slag	.....	80	.....	17,200	993 (c)
	292 lb. Ephos	.....	80	.....	.....	.....
5	150 lb. nitrate soda	24	.....	.....	25,400	990 (d)
	100 lb. muriate potash	.....	.....	50	.....	.....
	500 lb. acid phosphate	.....	80	.....	.....	.....
6	150 lb. nitrate soda	24	.....	.....	40,280	1,173 (c)
	100 lb. muriate potash	.....	.....	50	.....	.....
	500 lb. Bessemer slag	.....	80	.....	.....	.....
7	150 lb. nitrate soda	24	.....	.....	18,020	990 (d)
	100 lb. muriate potash	.....	.....	50	.....	.....
8	150 lb. nitrate soda	24	.....	.....	11,120	.....
	100 lb. muriate potash	.....	.....	50	.....	980 (c)
9	167 lb. ammo-phos. (13-48)	18	80	.....	22,500	1,167 (c)
10	400 lb. Ammo-Phos (20-20)	66	80	.....	19,120	1,070 (a)
	167 lb. Ammo-Phos. (13-48)	18	80	.....	.....	.....
11	39 lb. nitrate soda	6	.....	.....	30,180	1,260 (d)
	100 lb. muriate potash	.....	.....	50	.....	.....
	146 lb. Ammo-Phos. (20-20)	24	29	.....	.....	.....
12	350 lb. acid phosphate*	.....	56	.....	29,600	1,207 (c)
	100 lb. muriate potash	.....	.....	50	.....	.....

*This should have been about 320 pound acid phosphate. Three hundred and fifty pounds brings the total phosphoric acid slightly too high.

(a) 8 plots. (b) 4 plots. (c) 3 plots. (d) 2 plots.

SOURCES OF PHOSPHORIC ACID—YIELD TURNIPS 1926

The preceding experiment, started in 1925, was again undertaken, on fresh land, in 1926. This season, however, that part of the experiment relating to Ammo-Phos was omitted, as work with this material was being undertaken with a potato crop.

SOURCES OF PHOSPHORIC ACID—YIELD OF TURNIPS

Treatment No.	Fertilizers applied kind and rate per Acre	Plant food supplied, lb. per acre			1925		1926	
		N	P_2O_5	K_2O	Average yield lb. per acre	Relative standing	Average yield lb. per acre	Relative standing
1	Check—no treatment	....	....	....	11,660†	100·0	15,452*	100·0
2	292 lb. Ephos	....	80	....	20,560	176·3	15,630	101·2
3	500 lb. acid phosphate	....	80	....	25,040	214·8	24,160	156·4
4	600 lb. Bessemer slag	....	80	....	17,200	147·5	15,280	98·9
5	292 lb. Ephos 150 lb. Nitrate of soda 100 lb. Muriate of pot	.... 24	80	 50	..... 25,540	..... 219·0	..... 21,440	..... 138·8 .....
6	500 lb. Acid Phosphte 150 lb. Nitrate of soda 100 lb. Muriate of pot	.. 24	80	 50	..... 40,280	..... 345·5	..... 21,840	..... 141·3 .....
7	500 lb. Bessemer slag 150 lb. Nitrate of soda 100 lb. Muriate of pot	.... 24	80	 50	..... 18,020	..... 154·6	..... 16,960	..... 109·8 .....
8	150 lb. Nitrate of soda 100 lb. Muriate of pot	24	....	 50	11,120	95·4	14,400	93·9 .....

†16 plots.
* 7 plots.

It is apparent from the figures that phosphoric acid is a limiting factor, on this land, in the production of turnips. Where only nitrogen and potash were supplied, the plots failed to respond, but on the addition of phosphoric acid the yield increased appreciably.

It would also appear from figures contained in the foregoing table that when applied either singly or in combination with other chemicals, acid phosphate is the best source of phosphoric acid for the turnip crop. Bessemer slag would seem to be the slowest-acting agent of the three different materials tested.

EXPERIMENT WITH AMMO-PHOS FOR POTATOES

This season a nexperiment was started to compare, by means of crop yields, the relative efficiency of Ammo-Phos vs. a mixture of nitrate of soda, sulphate of ammonia and acid phosphate, as a source of nitrogen and phosphoric acid for plant growth.

AMMO-PHOS FOR POTATOES

Treatment No.	Rate of Application in pounds per acre						Total weight applied, in pounds per acre	Application in pounds per acre of:			Yield in pounds per acre		
	Material used										Mean of 4 plots		
	Ammo-Phos		Nit. Soda	Sulph. Amm.	Acid Phosp.	Mur. Potash		N	P_2O_5	K_2O	Large	Small	Total
	20-20 grade	13-48 grade											
1	.....	.....	260	190	1,000	240	1,690	80	160	120	9,560	1,360	10,920
2	370	180	.....	.....	.....	240	790	80	160	120	10,240	1,640	11,880
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,560	2,080	8,640
4	.....	.....	130	95	500	120	845	40	80	60	7,880	1,560	9,440
5	185	90	.....	.....	.....	120	395	40	80	60	8,083	1,640	9,723

The materials applied in the case of treatments 1 and 2 as shown above are equivalent to 2,000 pounds per acre of a 4-8-6 mixture, while treatments 4 and 5 equal 1,000 pounds of a similar mixture. Number 3 is a check and received no treatment; all treatments were in quadruplicate.

One of the strong claims for Ammo-Phos made by the company, is the reduction in cost of transportation due to its concentration. This high concentration is clearly seen in the above table, where it will be noted that 550 pounds of Ammo-Phos will supply the nitrogen and phosphoric acid in one ton of a 4-8-6 mixture, while a total of 1,450 pounds of nitrate of soda, sulphate of ammonia and acid phosphate are required to supply an equivalent amount of these elements. This is over two and one half times the weight of Ammo-Phos required.

A study of the last column shows that at either rate the Ammo-Phos has given slightly higher yields than the other materials, but the difference is not great and is easily within the limits of experimental error.

While judgment is reserved until further work with this material is completed, it would appear from the data contained in the above table that Ammo-Phos, as a source of nitrogen and phosphoric acid for the potato crop, compares favourably with a mixture of nitrate of soda, sulphate of ammonia and acid phosphate employed for the same purpose. Further, its concentrated nature and consequent reduced transportation charges would no doubt be worthy of consideration where such materials are to be shipped to any great distance.

SOURCES OF PHOSPHORIC ACID—BASIC SLAG EXPERIMENT

This experiment was started in 1923 with barley as a nurse-crop for clover hay. Six different brands of basic slag were applied at two different rates per acre; ground rock phosphate was applied at three different rates per acre, and acid phosphate was used at two different rates. There were six checks distributed over the area. One set of plots receiving the smallest application of acid phosphate also received an application of ground limestone at the rate of 4,000 pounds per acre.

In 1923 the entire area, including checks, received an application per acre of 100 pounds of nitrate of soda and 50 pounds muriate of potash. The crop in 1923 was barley, followed by clover hay in 1924 and timothy hay in 1925. In 1926 it was thought that the residual effect of the original application of phosphoric acid might be measured by growing a crop of turnips on these plots. In order to stimulate the growth of the crop without disturbing the relative effect of the original applications, a uniform application of 150 pounds of nitrate of soda and 50 pounds muriate of potash per acre was given the entire area, including checks, in 1926. Such an application should remove the possibility

of either nitrogen or potash acting as a limiting factor in plant growth, and permit of measuring the residues of phosphoric acid remaining in the soil. All treatments were made in duplicate.

BASIC SLAG EXPERIMENT

Yields of Turnips in Pounds per acre, 1926

Treatment in 1923. Application in pounds per acre	Per cent. P_2O_5	Amount P_2O_5 supplied	Yield per acre
			lb.
†Check—No treatment (5 plots)	.....	.....	3,415
Acid phosphate 437 lb. plus 4000 lb. ground limestone	16	70	6,621
Acid phosphate 437 lb.	16	70	6,273
Ground rock phosphate, 250 lb.	28	70	7,144
†Victory slag 875 lb.	8	70	7,318
*English slag 437 lb.	16	70	9,641
Open Hearth slag 635 lb.	11	70	9,293
Best of All slag 350 lb.	20	70	6,273
XXX Fortified slag 412 lb.	17	70	10,454
XX Fortified slag 500 lb	14	70	9,467
Acid phosphate 875 lb.	16	140	18,005
Ground rock phosphate 500 lb.	28	140	9,700
Victory slag, 1,750 lb.	8	140	11,152
‡English slag, 875 lb.	16	140	12,197
Open Hearth slag, 1,270 lb.	11	140	14,230
Best of All slag, 700 lb.	20	140	17,773
XXX Fortified slag, 825 lb.	17	140	15,275
XX Fortified slag, 1,000 lb.	14	140	15,740
Ground rock phosphate, 1,000 lb.	28	280	19,283

†Due to an obvious lack of uniformity in soil fertility, the yield from one check plot and one Victory Slag plot (875 lb. rate) was discarded.
*Average 3 plots.
‡One plot only.

It is difficult to determine the difference in value between the various sources of phosphoric acid, noted in the table, but there can be little doubt from a study of these figures that,—

(*a*) The soil in this particular area responds to applications of phosphoric acid.

(*b*) Even in the fourth crop removed from the original application there is a decidedly noticeable effect due to residues of phosphoric acid.

(*c*) The rate of original application of phosphoric acid modified the residual effect to at least the fourth crop following.

(*d*) The residual effect is governed, within limits, by the rate of original application. Possibly the maximum response from phosphoric acid was not reached; the fact that the plot receiving 280 pounds of phosphoric acid gave a large increase over the plots receiving 140 pounds, would seem to warrant this inference.

SOIL SAMPLES

Soil samples were taken during the autumn of 1926 at the following points in Prince Edward Island: Caledonia, Glenwood, Long River, Mount Stewart, Mount Vernon, Palmer Road, Red Point, Richmond, Rustico and from the plots used in connection with an experiment with depths of underdrainage at the Experimental Station, Charlottetown. These were forwarded to Ottawa for analysis, and they, together with other samples forwarded in 1923, should be quite representative of the soils of Prince Edward Island.

POULTRY

During 1926 several new phases of work were conducted at the Station. Selection work continues in an effort to eliminate birds producing small eggs, and valuable data are being collected. This severe culling, however, is reflected in our lowered annual production per bird. Valuable data were collected on the effect of various feeds on fertility, etc., and this has been tabled in this report. There is also included a comprehensive study of the cost of rearing chicks to the age of 5 months. While figures on the cost of rearing chicks have been kept for many years at this Station, this is the first time such figures have been published in tabular form.

The stock on hand November 1, 1926, consisted of 41 males and 387 females as follows:—

Breed	Males	Hens	Pullets	Totals
Barred Plymouth Rocks	20	66	83	169
S.C. White Leghorns	21	84	154	259
Totals	41	150	237	428

HOUSING AND YARDS

No new buildings were added to the plant during the year. All roofs covered with paper or felt roofing material were given a coating of roof paint during the summer, as many were drying out and inclined to crack and leak. The material applied seems to have proven quite effective as a water-proofing agent.

In 1925 many of the yards and runs were ploughed and seeded to clover. The balance, including the larger part of the chicken run, was ploughed this season. The chickens were raised in 1926 on a small plot of ground adjoining the present poultry yards. This gave the chickens the benefit of fresh quarters, on land not previously used for poultry, and permitted the cleaning and purifying of the old runs. After the grain harvesting was completed, the chickens were removed to the stubble land and permitted free range until put into winter quarters.

FEEDS AND FEEDING

The following feeding system is being practised at the Station and has proven satisfactory:

Morning.—Sprouted oats.

Noon.—Green feed, usually raw mangels alternated each second day with boiled mangels mixed with a portion of the regular dry mash. In summer a plentiful supply of grass and clover on the runs makes the feeding of green feed unnecessary.

Late Afternoon.—Birds are fed a grain ration scattered in the floor litter. This ration is composed of equal parts of cracked corn and feed wheat.

Grit, shell and a dry mash composed of 100 pounds cornmeal, 100 pounds oatmeal, 100 pounds bran, 100 pounds shorts, 50 pounds charcoal, and from 10 to 20 per cent (by weight) of beef scrap, are hopper-fed and available at all times. Fresh water also is before the birds at all times.

EGG PRODUCTION

Practically all pullets were laying by the end of 1925. All eggs produced were weighed. At the end of April, pullets whose eggs failed to reach standard weight of 24 ounces per dozen were weeded from the flock. Unfortunately it was found necessary to remove a number of birds that were high producers, but whose eggs were underweight. This adversely affected the average annual production per bird for the flock.

EGG YIELD—HENS VS. PULLETS

Month	Hens			Pullets		
	Number of birds	Total eggs	Average per bird	Number of birds	Total eggs	Average per bird
1925						
November	126	179	1·4	194	1,162	6·0
December	124	275	2·2	193	1,839	9·5
1926						
January	122	395	3·2	188	2,150	11·4
February	121	797	6·6	177	2,093	11·8
March	119	1,950	16·4	176	3,381	19·2
April	107	2,135	19·9	162	3,431	21·2
May	106	1,900	17·9	160	3,066	19·2
June	106	2,448	23·1	111	1,484	13·4
July	75	1,069	14·3	86	1,439	16·7
August	72	808	11·2	83	899	10·8
September	69	437	6·3	83	761	9·2
October	69	134	2·0	82	276	3·4
Totals	.....	12,525	124·5	.....	21,981	151·8
Average per bird per year	.....	.....	124·5	.....	.....	151·8
Average per bird per month	.....	.....	10·4	.....	.....	12·6

Average for all birds per year, 138·1 eggs.
Average for all birds per month, 11·5 eggs.

As previously mentioned, the exceedingly severe culling of our flock during the past several years to eliminate birds producing small eggs, has reduced our egg production per bird. It is to be noted that while this year's average is still low, it is five eggs per bird higher than the average for the preceding year.

INDIVIDUAL RECORDS OF S.C. WHITE LEGHORN PULLETS, BRED AND RAISED AT THE EXPERIMENTAL STATION, CHARLOTTETOWN, P. E. ISLAND

225 eggs and over			200 to 224 eggs			180 to 199 eggs		
Band No.	No. of eggs	Date of 1st egg	Band No.	No. of eggs	Date of 1st egg	Band No.	No. of eggs	Date of 1st egg
H-11	250	Nov. 2.....	H-12	216	Nov. 11.....	H-34	198	Nov. 16
H-71	239	Nov. 20.....	H-14	212	Nov. 25.....	H-18	196	Nov. 22.
J-152	227	Oct. 17.....	H-37	211	Nov. 11.....	J-153	194	Oct. 15.
J-168	225	Nov. 19.....	J-176	211	Nov. 11.....	J-170	194	Nov. 9.
.....	.....	.....	J-207	211	Nov. 20.....	H-77	193	Dec. 10.
.....	.....	.....	J-154	210	Oct. 18.....	H-35	191	Nov. 18.
.....	.....	.....	H-33	208	Nov. 18.....	J-162	190	Nov. 3.
.....	.....	.....	H-49	207	Nov. 11.....	H-40	184	Dec. 1.
.....	.....	.....	J-197	206	Nov. 18.....	J-195	183	Nov. 17.
.....	.....	.....	H-15	205	Nov. 19.....	J-222	183	Dec. 2.
.....	.....	.....	J-191	205	Nov. 16.....	J-234	181	Dec. 20.
.....	.....	.....	H-36	204	Nov. 6.....	J-158	180	Oct. 25.
.....	.....	.....	H-19	203	Nov. 26.....	.....	.....	.....
.....	.....	.....	H-32	203	Nov. 22.....	.....	.....	.....
.....	.....	.....	H-39	203	Nov. 19.....	.....	.....	.....
.....	.....	.....	H-45	203	Nov. 7.....	.....	.....	.....
.....	.....	.....	H-31	202	Nov. 2.....	.....	.....	.....
.....	.....	.....	H-17	201	Nov. 17.....	.....	.....	.....
.....	.....	.....	J-182	201	Nov. 12.....	.....	.....	.....
.....	.....	.....	J-171	200	Nov. 8.....	.....	.....	.....
Total for 4 birds, 941 eggs.			Total for 20 birds, 4,122 eggs.			Total for 12 birds, 2,267 eggs.		
Average per bird, 235·2 eggs.			Average per bird, 206·1 eggs.			Average per bird, 188·9 eggs.		

Total for 36 birds, 7,330 eggs—Average per bird, 203·6 eggs.

INDIVIDUAL RECORDS OF B.P. ROCK PULLETS BRED AND RAISED AT THE EXPERIMENTAL STATION, CHARLOTTETOWN, PRINCE EDWARD ISLAND

225 eggs or over			200 to 224 eggs			180 to 199 eggs		
Band No.	No. of eggs	Date 1st egg	Band No.	No. of eggs	Date 1st egg	Band No.	No. of eggs	Date of 1st egg
H-117	282	Nov. 10.....	H-109	223	Nov. 26.....	H-119	197	Nov. 12.
H-103	257	Nov. 18.....	H-105	220	Nov. 13.....	J-95	196	Dec. 1.
J-61	251	Dec. 17.....	J-16	213	Nov. 16.....	J-3	187	Oct. 17.
H-108	228	Nov. 27.....	.....	.....	.....	J-43	187	Nov. 27.
.....	.....	.....	.....	.....	.....	H-106	186	Jan. 6.
.....	.....	.....	.....	.....	.....	H-115	183	Nov. 12.
.....	.....	.....	.....	.....	.....	J-27	180	Nov. 15.
Total for 4 birds, 1,018 eggs.			Total for 3 birds, 656 eggs.			Total for 7 birds, 1,316 eggs.		
Average per bird, 254·5 eggs.			Average per bird, 218·7 eggs.			Average per bird, 188 eggs.		

Total for 14 birds, 2,990 eggs. Average per bird, 213·6 eggs.

FEEDING EXPERIMENT

An experiment was started last year to determine the relative value of two different grain rations. This experiment was again conducted this year using two pens of S.C. White Leghorn pullets. The experiment was started on November 1, 1925, and carried on for 180 days, to April 30, 1926. One pen was fed a grain mixture composed of equal parts cracked corn and feed wheat. This might be termed a commercial grain ration, as compared to the "farmer's mixture" fed to the second pen. This was made up of 100 pounds wheat, 50

pounds barley and 50 pounds oats. In all other respects the pens received similar treatment. A recapitulation of the data will be found in the two tables following.

COMMERCIAL GRAIN MIXTURE

Month	Number of birds	Number of eggs laid	Value of eggs	Weight grain consumed	Weight other feeds consumed
			$ cts.	lb.	lb.
November, 1925	45	86	2 15	185	260
December, 1925	45	386	12 87	200	274
January, 1926	44	442	12 15	235	291
February, 1926	44	679	14 15	210	286
March, 1926	44	938	18 71	250	318
April, 1926	39	881	14 68	210	301
Totals	.....	3,412	74 71	1,290	1,730

	$ cts.
Cost grain consumed	34 70
Cost other feeds consumed	23 11
Total cost feed	57 81
Value eggs produced	74 71
Value eggs over cost feed	17 90
Value of eggs over cost of feed (per bird), 1926	41 cents
Value of eggs over cost of feed (per bird), 1925	47·5 cents

FARMER'S GRAIN MIXTURE

Month	Number of birds	Number of eggs laid	Value of eggs	Weight grain consumed	Weight other feeds
			$ cts.	lb.	lb.
November, 1925	50	575	14 38	220	308
December, 1925	50	522	17 40	215	312
January, 1926	48	725	19 94	250	321
February, 1926	48	695	14 48	245	305
March, 1926	48	1,113	23 19	235	324
April, 1926	48	1,079	17 98	225	311
Totals	.....	4,709	107 37	1,390	1,881

	$ cts.
Cost of grain consumed	33 08
Cost of other feed consumed	25 18
Total cost of feed	58 26
Value of eggs produced	107 37
Value of eggs over cost of feed	49 11
Value of eggs over cost of feed (per bird) 1926	93·9 cents
Value of eggs over cost of feed (per bird) 1925	71·4 cents

It will be noted in the foregoing tables that profit per bird during the period of 1925 and again in 1926 has been greater when the birds have been fed a mixture of home-grown grains.

EFFECT OF FEED ON FERTILITY, ETC.

During the breeding season this year an experiment was conducted with a view to ascertaining, if possible, the effect of various feeds on the fertility, hatchability and livability of eggs and chicks produced. Eighty S.C. White Leghorn pullets were used in this experiment, divided into five pens of sixteen birds each. Pen number 12 was considered as a check pen and received a basal ration of scratch grain, dry mash, sprouted oats and mangels. The remaining pens were fed the same basal ration, but received in addition the following:—

Pen No. 13.—Four ounces of liver and two teaspoons cod-liver oil per pen, daily.

Pen No. 14.—Eight ounces of liver per pen daily.

Pen No. 15.—Four teaspoons cod-liver oil per pen daily.

Pen No. 16.—Five per cent by weight of steamed ground bone added to the dry mash.

Eggs from these birds were hatched in three different lots. For the first two hatches one male bird was used in each pen. For the third hatch the males were shifted each day from one pen to another in rotation. This would eliminate to a large extent the effect of individual males on fertility, etc.

EFFECT OF FEED ON FERTILITY

Item	Pen 12		Pen 13		Pen 14		Pen 15		Pen 16	
	Basal ration		Basal rat. plus 4 oz. liver and 2 tsps. cod-liver oil daily		Basal rat. plus 8 oz. liver daily		Basal rat. plus 4 tsps. cod-liver oil daily		Basal rat. plus 5% by weight steamed bone meal in dry mash	
	Males		Males		Males		Males		Males	
	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily
Eggs laid	257	119	254	93	233	71	251	99	279	119
Eggs set	214	74	235	89	214	68	236	92	250	108
Number fertile	166	54	213	78	151	51	203	76	197	91
Per cent fertile	77·5	72·9	90	87·6	70·5	75	86	82·6	78·8	82·3
Chicks hatched	92	33	101	33	81	19	127	43	111	51
% total eggs hatched	42·9	44·5	42·9	37	37·8	27·9	53·8	46·7	44·4	47·2
% fertile eggs hatched	55·4	61·1	47·4	42·3	53·6	37·2	62·5	56·5	50·6	56
Chicks alive at three weeks	82	13	84	27	69	16	104	37	68	47
Total eggs required to hatch 1 chick	2·3	2·2	2·3	2·7	2·6	3·5	1·8	2·1	2·2	2·1
Fert. eggs required to hatch 1 chick	1·8	1·7	2·1	2·3	1·9	2·6	1·5	1·7	1·7	1·8
Total eggs required for 1 chick three weeks old	2·6	5·6	2·8	3·3	3·1	4·2	2·2	2·4	3·7	2·3

Where vigorous males are used there would appear to be no benefit derived by changing these daily from pen to pen.

The table embraces the work for one year only, and while there is some small indication that a ration supplemented by cod-liver oil has a favourable effect, it will be necessary to repeat this work a number of times before drawing definite conclusions.

COST OF PRODUCTION OF CHICKS TO FIVE MONTHS OF AGE

Period		Item	Cost	Average cost per chick
			$ cts.	cts.
Incubation		Value eggs set at market prices, 212¾ doz. at 30 cts.	62 80	
		Kerosene oil for incubator, 50 gallons at 25 cts.	12 50	
		Cost 1,100 chicks incubated	75 30	
		Average cost per chick incubated		6·8
Brooding		Coal for brooder stoves, 1,800 lb. at $15 per ton	13 50	
		Scratch grain, 300 lb. at $2.69 per cwt.	8 07	
		Mash, 1,700 lb. at $3.06 per cwt.	52 12	
		Oats, 900 lb. at $1.50 per cwt.	13 50	
		Grit, 100 lb.	1 50	
		Buttermilk, 2,300 lb. at 25 cts. per cwt.	5 88	
		Cod-liver oil, 1½ gallons at $2.25	3 38	
		Cost 750 chicks alive June 30	97 95	
		Average cost per chick		13·1
Growing	July	Scratch grain, 1,100 lb. at $2.25 per cwt.	24 75	
		Mash, 1,700 lb. at $2.58 cwt.	44 03	
		Oats, 1,000 lb. at $1.50 cwt.	15 00	
		Cost 690 chicks alive July 31	83 78	
		Average cost per chick		12·1
	August	Scratch grain, 2,100 lb. at $2.35 per cwt.	49 30	
		Mash, 2,100 lb. at $1.86 per cwt.	39 14	
		Oats, 800 lb. at $1.50 per cwt.	12 00	
		Buttermilk, 800 lb. at 25 cts. per cwt.	2 00	
		Cost 553 chicks alive August 30	102 44	
		Average cost per chick		18·5
	September	Scratch grain, 1,800 lb. at $2.43 per cwt.	43 74	
		Mash, 700 lb. at $2.14 per cwt.	14 92	
		Grit, 200 lb. at $1.05 per cwt.	2 10	
		Oyster shell, 200 lb. at $1.65 per cwt.	3 30	
		Oats, 1,000 lb. at $1.50 per cwt.	15 00	
		Cost 471 chicks alive Sept. 30	79 06	
		Average cost per chick		16·8
		Total cost per chick		67·3

In the decrease in number of chicks shown in the above table, one must allow for 190 that were killed and sold at high prices as broilers.

During the period recorded the chicks were confined to limited quarters, making it necessary to supply everything for their upkeep, including sprouted oats as green feed. If free range were available, chicks could be produced at a much lower cost.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS AND FEED CONSUMED BY BARRED PLYMOUTH ROCKS BRED AND RAISED AT THE DOMINION EXPERIMENTAL STATION, CHARLOTTETOWN, P.E. I., FOR THE PERIOD FROM NOVEMBER 1, 1925, TO OCTOBER 31, 1926

Month	Number of birds	Total eggs Laid	Average per bird	Average price per doz.	Total market value	Cost per dozen	Total cost of feed	Cost to feed one bird	Total monthly profit	Total monthly loss	Feed consumed							
											Grain	Mash	Grit	Shell	Roots	Oats	Meat	Total amount feed
				c.	$	c.	$	c.	$	$	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1925																		
November	99	501	5·1	30	12·52	67·1	28·03	28·3	.....	15·51	675	152	9	8	228	238	4	1,314
December	98	931	9·5	40	31·03	31·5	25·81	26·3	5·22	.....	595	153	4	16	228	238	.....	1,234
1926																		
January	96	983	10·2	33	27·03	29·6	24·23	25·2	2·80	.....	565	111	19	22	228	238	12	1,195
February	83	719	8·7	25	14·98	34·9	20·91	24·2	.....	5·93	480	111	.....	10	228	228	.....	1,057
March	81	1,330	16·4	25	27·71	18·2	20·15	24·9	7·56	.....	438	124	21	34	228	228	.....	1,073
April	74	1,471	19·9	20	24·52	14·8	18·20	24·6	6·32	.....	382	120	8	21	228	228	.....	987
May	73	1,297	17·8	20	21·62	15·4	16·68	22·8	4·94	.....	375	105	9	17	.....	228	.....	734
June	43	716	16·1	25	14·92	20·4	12·18	28·3	2·74	.....	290	72	5	10	.....	150	.....	527
July	43	628	14·6	25	13·08	16·8	8·78	20·4	4·30	.....	193	44	5	7	.....	150	.....	399
August	40	443	11·1	23	8·49	18·4	6·80	17·0	1·69	.....	160	35	.....	4	.....	100	.....	299
September	40	381	9·5	35	11·11	19·8	6·30	15·7	4·81	.....	130	45	3	4	.....	100	.....	282
October	40	157	3·9	45	5·89	49·5	6·48	16·2	.....	0·59	130	50	4	6	.....	100	.....	290
Totals	.....	9,557	.....	.....	212·90	24·4	194·55	.....	40·38	22·03	4,413	1,122	87	159	1,368	2,226	16	9,391

Net gain over cost of feed, $18.35.

Cost—Feed grain $2.69; mash $3.60 for Nov., Dec. and Jan., $3.58 for Feb., $3.05 for March and April, balance of period $2.70; grit $1.05; shell, $1.45; roots 20cts.; oats $1.50; charcoal $3.04; meat, $4. per cwt.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS AND FEED CONSUMED BY BARRED PLYMOUTH ROCKS BRED AND RAISED AT THE DOMINION EXPERIMENTAL STATION CHARLOTTETOWN, P.E.I., FOR THE PERIOD FROM NOVEMBER 1, 1925, TO OCTOBER 31, 1926

Month	Number of birds	Total eggs laid	Average per bird	Average price per dozen	Total market value	Cost per dozen	Total cost of feed	Cost to feed one bird	Total monthly profit	Total monthly loss	Feed consumed								
											Grain	Mash	Grit	Shell	Roots	Oats	Charcoal	Meat	Total amount feed
				c.	$	c.	$	c.	$	$	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1925																			
November	95	661	6·9	30	16·52	32·5	17·89	18·8	.....	1·37	405	118	8	8	204	224	.....	4	971
December	95	908	9·6	40	30·27	24·3	18·37	19·3	11·90	.....	415	127	3	18	204	224	2	8	1,001
1926																			
January	92	1,167	12·7	33	32·09	20·9	20·32	22·1	11·77	.....	485	131	22	25	204	214	2	6	1,089
February	94	1,374	14·6	25	28·62	16·9	19·38	20·6	9·24	.....	455	141	.....	23	204	224	.....	.....	1,047
March	95	2,051	21·6	25	42·73	12·0	20·54	21·6	22·19	.....	485	133	22	43	204	228	.....	.....	1,115
April	88	1,960	22·3	20	32·67	11·4	18·56	21·1	14·11	.....	435	120	10	26	204	228	.....	.....	1,023
May	87	1,769	20·3	20	29·48	11·5	16·95	19·5	12·53	.....	400	90	6	19	.....	228	.....	.....	743
June	68	768	11·3	25	16·00	18·2	11·62	17·1	4·38	.....	280	58	10	12	.....	150	.....	.....	510
July	43	724	16·8	25	15·08	12·5	7·57	17·6	7·51	.....	145	45	7	10	.....	150	.....	.....	357
August	43	456	10·6	23	8·74	14·6	5·55	12·9	3·19	.....	115	33	.....	5	.....	100	.....	.....	253
September	43	380	8·8	35	11·08	19·4	6·13	14·2	4·95	.....	125	40	5	10	.....	100	.....	.....	280
October	42	119	2·8	45	4·46	56·0	5·60	13·3	.....	1·14	110	37	5	6	.....	100	.....	.....	258
Totals	.....	12,337	.....	.....	267·74	16·4	168·48	.....	101·77	2·51	3,855	1,073	98	205	1,224	2,170	4	18	8,647

Net gain over cost of feed, $99.26.

Cost:—Feed grain mixture, Nov., $2.61; Dec., Jan., March, April, $2.53; February, $2.52; balance of period, $2.69; mash, $2.70; grit, $1.05; shell, $1.45; roots, 20 cts.; oats, $1.50; charcoal, $3.04; and meat $4. per cwt.

PRINCE EDWARD ISLAND EGG-LAYING CONTEST

The eighth annual Prince Edward Island Egg-Laying Contest came to a close on October 30, 1926. New regulations governed the scoring for production in this contest. Previously, the placing of a bird or pen depended entirely upon the number of eggs laid. This year, egg weight, in addition to production, received consideration. Regulations governing this were as follows:—

Eggs weighing 24 ounces to the dozen were to receive a value of one point per egg. A bonus of one-tenth of a point per egg was awarded for each ounce per dozen over 24 ounces; no egg, however, was to be valued at more than one and three-tenths points. Eggs below 24 ounces were cut one-tenth of a point per egg in value for each ounce below 24 ounces per dozen. No egg was counted having a value below six-tenths of a point (20 ounces per dozen). Soft-shelled and misshapen eggs also were not included in the score.

Other regulations governing the contest remained substantially the same as in previous years.

Each pen consisted of ten birds uniformly housed and fed. There were entered eight pens of S.C. White Leghorns, one pen of White Wyandottes, and eleven pens of Barred Plymouth Rocks.

The leading pen at the close of the contest was a pen of Barred Plymouth Rocks owned by Mr. Harold Laird, Kelvin, with 2056.5 points (1,985 eggs). Second was a pen of B.P. Rocks owned by Mr. Henry Hyde, Cornwall, with 2021.4 points (1,802 eggs). Third place went to Mrs. Frank Halliday's B.P. Rocks, with 1952.4 points (1,926 eggs), and fourth place went to the B.P. Rocks owned by Mr. Talmage Foster, Marshfield, with a record of 1890.7 points (2,154 eggs). It will be noted that Barred Plymouth Rocks took all the honours in this respect.

Awards for high birds were as follows:—

Experimental Station's B.P. Rock hen No. 7.—279.6 points (282 eggs).
Clifford McEwen's B.P. Rock hen No. 5.—270.9 points (265 eggs).
Harold Laird's Barred Plymouth Rock hen No. 10.—269.4 points (273 eggs).
Harold Laird's Barred Plymouth Rock hen No. 3.—267.3 points (229 eggs).

Out of 200 birds entered, 138 laid 150 eggs or more, 102 laid 175 or more, 61 laid 200 or more, 25 laid 225 or more, and 7 birds laid 250 or more eggs in 52 weeks.

Of the 61 birds laying 200 eggs or more, twenty-eight qualified for registration; the balance being disqualified because their eggs were under weight.

EGG PRODUCTION IN THE CONTESTS

No. of contest	Year	Number of birds entered	Annual average production per bird
1st	1918—1919	200	.....
2nd	1919—1920	220	118·8
3rd	1920—1921	250	119·7
4th	1921—1922	200	125·8
5th	1922—1923	200	160·8
6th	1923—1924	200	170·8
7th	1924—1925	200	173·5
8th	1925—1926	200	169·8

The first contest, which was open to the Maritime Provinces and Quebec, included a number of entries from commercial and professional poultry-raisers; therefore the average yearly production per bird has been omitted. This year's average is down slightly, chiefly because quite a number of eggs, being under weight, had to be discarded. The continued increase is indicative of the general improvement in farm flocks throughout the province for the same period.

APIARY

Weather conditions in the spring of 1926 might be termed unfavourable for bees, as the season was about 18 days later than the average, with snow still covering the ground on May 8. The summer and autumn conditions, however, proved ideal, with fine weather and light winds prevailing.

WINTERING

The bees wintered fairly well during the winter of 1925-26, and came out with plenty of stores. In the autumn of 1925 twenty-four colonies were placed in four-colony wintering cases. In the spring of 1926 it was found that four colonies had died, two colonies possessed drone-laying queens, and one colony was weak. The last three were united with other colonies, making a total of seventeen strong colonies ready for the season's work.

We have found it more satisfactory to winter bees outside than to winter them in a cellar.

INCREASE

During the season seven new nuclei were started with imported queens in eight-frame Langstroth hives. These had formed strong colonies by the time they were ready for winter quarters.

HONEY FLOW

A colony was placed on the scales on June 13, and weights taken each day until September 15. During this 93-day period a total gain of 140 pounds was noted. The first honey flow from clover continued from July 11 to July 30, with an increase in weight of 69 pounds or an average daily gain on 3.6 pounds.

The second clover flow started August 2, and continued until August 6. During this short period there was a total gain of 16 pounds or an average of 4 pounds daily. It was during this period that the largest single day's increase was made. This was on August 5, when the total honey stored by this colony amounted to 10 pounds.

The total honey harvested from 17 colonies amounted to 1,446 pounds, or an average of 85 pounds per colony.

CONTROL AND DETECTION OF SWARMING

An experiment was conducted this season in the control of swarming. This was attempted by what is known as the "dequeening and requeening" method. When indications of swarming are noted in the hive, the old queen is removed, and all queen cells destroyed. Nine days later a further inspection of the hive is made, and after destroying all queen cells present, a young laying queen is introduced. This method has proven satisfactory at this Station, and can be recommended if young laying queens are available at the time required.

A second method to prevent swarming was attempted by what is known as the "separation of queen and brood". The old queen is left in the lower hive chamber, but all frames containing brood are removed to an upper chamber and separated from the queen by a queen-excluder. The theory is that should any young queens hatch in the upper chamber, they are prevented by the queen-excluder from emerging from the hive for the maiden flight. It is thus impossible for them to do harm within the hive. There would seem to be objections to this method. The excluder might not stop the passage of an unfertilized queen, as they differ but little in size from the worker bees; or these queens might easily gain their freedom when the hive cover is removed for inspection purposes.

A method tending to discourage swarming and at the same time make it possible to detect preparation for swarming was given a trial in our apiary this season. Swarming usually takes place immediately the hive becomes crowded either with bees or with stores. If, just before this crowding stage is reached, a shallow super of drawn comb is added to the brood-chamber, swarming is discouraged, as this super gives more room both for bees and stores.

It has also been noted that the bees have a tendency to construct queen cells in the less crowded portions of the hive. With the new super added, the tendency is for the bees to construct all queen-cells in this, and it becomes an easy matter to detect and remove them. This treatment was tried on only one colony this season, and while this colony later swarmed, it was felt that the super should have been provided earlier, as the bees were storing honey very rapidly. The ease of this system recommends it, and further work to measure its effectiveness during the coming season will be watched with interest.

FEEDING

Feeding in preparation for winter storage commenced on September 30, and was completed by October 11.

Twenty-two colonies (see table) went into winter quarters in good shape, part in four-colony wintering cases and part in Kootenay cases. This latter type of case is being used at the Station for the first time.

All colonies were fed on a sugar syrup consisting of two parts of sugar and one part of water.

FEEDING FOR WINTER AND TYPE OF HIVE

Number of colonies	Type of hive	Average weight before feeding	Average weight after feeding
		lb.	lb.
14	10-frame Langstroth	50·7	70·9
2	10-frame Jumbo	65·0	82·0
6	8-frame Langstroth	41·5	61·5

FIBRE PRODUCTION

The spring season was wet and cold, with all seedings from fifteen to twenty days later than the average.

The plots this year were on a well-sheltered, well-drained slope. The soil was quite fertile and fairly deep. A good seed-bed was prepared and the flax made good growth throughout the season.

TEST OF VARIETIES

Three varieties of flax were seeded on June 26. At harvest time the border was removed from the plots, leaving an area of approximately 1-50 acre per plot. The yields were as follows:—

J.W.S.	7,203 lb. per acre
Pure Line No. 6	6,514 lb. per acre.
Riga Blue	3,392 lb. per acre

ILLUSTRATION STATIONS*

The season of 1926 was very late throughout the province. The first work on the Illustration Stations was started at St. Peters on May 19, and on several of the other stations on May 24, but it was not until May 31 that they were able to get on the land at Rose Valley and West Devon. The first grain was sown at Montague and Rustico on May 29, but it was not until June 10 that seeding was commenced at West Devon. The rainfall throughout the season varied greatly, the total for the six growing months ranging from 15.2 inches at Iona to 25.6 inches at West Devon. This accounts for part of the difference between the crop yields at the different stations, West Devon being latest, also had excessive rains that made harvesting very difficult. At this station some of the yields per acre were as follows:

Certified seed potatoes	311 bush., 31 lb.
Turnips	14 tons. 1,969 lb.
Banner oats	39 bush., 7 lb.
Clover hay	1 ton, 1,913 lb.

The increase in yield from the use of fertilizers for the different crops is as follows:—

Crop	Increase per acre
Potatoes	179 bush., 31 lb.
Oats	20 bush., 17 lb.
Turnips	6 tons, 1,900 lb

This indicates that the fertilizers were applied with profit to all crops.

The station at Richmond, though established only three years, is rapidly following the older stations in better crops. This year the crops of clover, wheat and oats were above the average; the corn and sunflowers also gave very heavy yields, but were grown on small areas. The yield of potatoes was 411 bushels and 24 pounds, turnips, 17 tons, 650 pounds, and oats 40 bushels and 14 pounds. Fertilizers used at Richmond greatly increased the yields of farm crops, even when added to heavy applications of manure. The increase in yield per acre of potatoes was 299 bushels and 7 pounds, and of turnips 11 tons, 1,794 pounds.

The Illustration Station at Rose Valley gave very heavy yields of corn and sunflowers. The certified seed potatoes yielded 390 bushels per acre. The clover fields were outstanding in that section of the province. An application of 725 pounds of fertilizer, in addition to 25 tons of manure, gave an increase of 6 tons, 650 pounds of turnips.

The station at Rustico has been established for three years. The crops of hay, grain and roots were especially good for the season. The yields per acre were:—

Turnips	19 tons, 1,400 lb.
Wheat	22 bush., 30 lb.
Clover hay	2½ tons
Mixed hay	2 tons, 517 lb.

The operator at this station grew his corn and sunflowers mixed together. The sunflowers came along rapidly, and were fed as a soiling crop in August, before the corn was more than 3 feet high. In the autumn there seemed to be nearly a full crop of corn on the same land. This was fed as a soiling crop to the farm herd of Holstein cows maintained at the station. A pen of Barred Rock pullets was entered by this station in the Prince Edward Island Egg-Laying Contest.

*For full report on each station, see report on Illustration Stations in P.E.I. for 1926, which may be secured free from The Publications Branch, Department of Agriculture, Ottawa.