DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

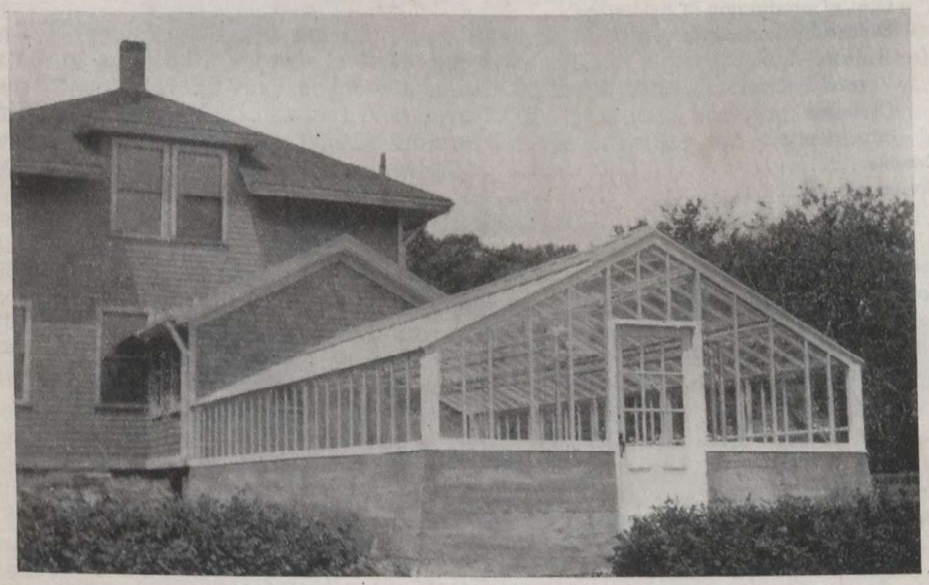
EXPERIMENTAL STATION

CHARLOTTETOWN, P.E.I.

REPORT OF THE SUPERINTENDENT

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

FOR THE YEAR 1927



Greenhouse at the Experimental Station, Charlottetown, P.E.I.

Printed by Authority of the Hon. W. R. Motherwell, Minister of Agriculture, Ottawa, 1928

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DOMINION EXPERIMENTAL STATION, CHARLOTTETOWN, P.E.I.

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

THE SEASON

The autumn of 1926 was open and fall ploughing well completed. Heavy snow early in December left a good blanket of snow that remained until April, 1927. January was mild and average weather conditions prevailed throughout February, March, and April. Growth started early, but received a severe check during the last of April and throughout May from cold winds off heavy ice in the Gulf of St. Lawrence. Trees did not appear green until June 1. Seeding was not general until May 24. June was comparatively dry, but there were beneficial showers in July, so that all the crops germinated well and made vigorous growth. Heavy rain and wind storms in August caused much damage to the cereals by lodging, which was followed by a bad outbreak of rust in some districts. There was splendid harvest weather in September. Roots and corn made strong growth during the very mild weather in the late fall. Autumn work was well completed before the "freeze up" occurred on December 2. Frequent snowstorms kept the ground well covered until the last of the month.

PURCHASE OF LAND

Five and one-tenth acres of land, located at the junction of the Mount Edward and DeBlois roads, and having a frontage of 5 chains and 84 links on the Mount Edward road and 8 chains and 80 links on the DeBlois Road, were purchased from Mr. G Albert Mutch in 1927. This land had been leased from Mr. Mutch by the Experimental Station for the preceding ten years, and is in good condition for experimental work.

BUILDINGS

HORSE BARN

A building 24 feet by 40 feet formerly used as a slaughterhouse on the Blake property was moved to a site in the grove north of the main dairy barn in 1925. This building was opened lengthwise and remodelled into a horse barn 40 feet long and 36 feet wide, by building 12 feet to its width during 1927. There are seven horse-stalls and a passageway on the north side, with a 10-foot driveway through the centre from east to west. On the south there are two horse-stalls, a harness room and two box-stalls 14 feet long and 10 feet wide. A hay door with hay hoisting track was put in the west end, and the loft has sufficient capacity for storage of hay for one year for the horses accommodated. A watering trough was placed in the wall of the harness room about the middle of the stable.

GREENHOUSE

A steel frame greenhouse 16 feet by 34 feet with two side benches and a centre bed for cereal breeding work was built south of the Experimental Station office. A potting room 12 feet by 16 feet was built between the greenhouse and the office. In the basement of the potting room a Lord and Burnham furnace was installed. These additions to the station buildings were much needed and will increase both the amount and the scope of the experimental work being undertaken.

57815—1½

1927 Meteorological Records, Experimental Station, Charlottetown, Prince Edward Island

	Temperature (° F.)						Precipitation (inches)				Sunshine (hours)	
	Mean		Maximum		Minimum		Rain	Snow	Total Precipitation		1927	Average 17 years, 1911-27
	1927	Average 19 years	Highest	Mean Maximum	Lowest	Mean Minimum			1927	Average 27 years, 1901-27		
January	25·000	17·274	44	31·645	−10	18·355	3·36	8·6	4·22	3·65	75·8	93·240
February	15·875	16·399	37	24·928	− 6	6·821	1·17	23·37	3·51	3·03	96·0	115·745
March	26·597	26·576	45	33·613	3	19·581	0·95	15·0	2·45	3·52	153·1	136·290
April	36·000	36·566	63	44·767	12	27·233	1·55	9·0	2·45	3·03	186·1	151·530
May	46·032	47·754	65	54·645	30	37·419	3·10	0·3	3·13	2·62	178·9	210·919
June	57·566	58·280	78	67·833	37	47·300	1·56	.....	1·56	2·80	249·6	226·899
July	68·050	65·539	83	75·839	48	60·258	3·37	.....	3·37	2·83	211·7	231·098
August	64·887	64·660	78	72·935	50	56·839	6·97	.....	6·97	3·24	268·6	232·873
September	57·749	57·248	74	64·966	36	50·533	2·75	.....	2·75	3·65	152·9	179·046
October	51·190	48·159	72	57·355	31	45·032	6·57	.....	6·57	4·10	93·3	130·138
November	40·400	35·960	64	47·300	21	33·500	6·61	1·0	6·71	3·90	68·3	75·443
December	28·113	25·010	62	34·355	8	21·871	2·15	39·75	6·12	4·82	47·2	59·096
	43·121	41·619	.....	50·848	.....	35·395	40·11	97·02	49·81	41·19	1,781·5	1,842·32

Monthly Mean Temperatures—Charlottetown, Prince Edward Island, 1909-1927

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly mean
1909	17·95	17·89	28·40	35·9	46·3	60·3	66·1	66·2	60·1	50·1	39·5	28·1	43·07
1910	24·2	21·2	30·1	42·5	49·5	56·0	66·55	64·29	57·53	46·66	37·88	23·89	43·36
1911	18·16	13·07	22·99	35·90	53·19	58·57	68·97	66·00	55·26	44·47	33·71	28·70	41·58
1912	12·51	17·38	25·88	35·72	50·53	57·82	64·90	61·68	54·02	47·71	37·01	26·60	40·98
1913	24·17	13·46	30·80	40·06	45·07	59·06	64·19	64·42	56·13	55·06	38·82	27·64	43·24
1914	10·31	9·82	28·95	32·60	48·55	54·71	63·20	64·00	59·02	47·82	35·28	22·71	39·75
1915	21·58	22·62	25·77	37·55	44·74	54·76	63·64	63·64	57·23	47·66	38·48	29·71	42·28
1916	18·88	17·10	19·54	36·82	47·36	59·17	64·45	65·55	59·23	48·84	32·93	28·27	41·51
1917	15·05	14·82	26·60	37·20	41·26	60·27	65·56	68·21	56·03	48·76	33·25	19·79	40·57
1918	15·38	13·61	19·95	35·50	50·37	56·82	65·03	62·16	58·74	47·61	35·93	25·02	40·51
1919	21·18	22·86	27·61	37·97	47·90	59·23	64·06	63·92	56·95	44·05	26·68	19·11	40·96

1920	8·12	20·52	29·48	35·72	47·82	57·82	67·28	68·31	57·85	50·95	32·90	26·11	41·91
1921	19·08	15·41	31·73	40·17	49·76	58·05	68·65	62·66	59·45	48·56	33·27	24·05	42·60
1922	16·52	15·02	27·64	36·62	48·44	62·28	63·90	66·19	57·02	47·08	32·95	19·19	41·07
1923	14·53	6·66	19·28	34·38	46·41	56·77	63·06	61·95	56·93	50·55	40·62	32·22	40·28
1924	18·37	13·53	29·26	34·37	49·27	58·63	67·10	65·77	57·71	47·51	39·18	21·20	41·82
1925	9·97	25·07	31·89	37·18	48·57	60·08	65·32	66·15	55·08	42·07	35·90	22·11	41·59
1926	17·26	15·66	22·48	32·60	46·34	59·40	65·21	62·56	55·68	48·39	38·55	22·66	40·57
1927	25·00	15·88	26·60	36·00	46·03	57·57	68·05	64·89	57·75	51·19	40·40	28·11	43·12
Average 19 years...	17·27	16·35	26·58	36·57	47·76	58·28	65·54	64·66	57·25	48·16	35·96	25·01	41·62

HOURS SUNSHINE, 1911-1927 INCLUSIVE

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly total
1911	98·5	135·6	158·7	196·2	264·5	220·7	292·7	253·5	154·8	150·7	66·6	57·7	2,050·2
1912	128·3	118·1	149·6	163·1	233·3	250·1	195·8	181·9	167·9	134·2	51·7	68·7	1,842·7
1913	82·6	117·6	131·0	148·5	195·6	255·5	223·1	251·2	182·3	66·3	101·6	62·5	1,817·8
1914	79·6	138·3	128·5	194·9	190·4	247·7	277·9	247·9	191·0	135·9	96·5	99·9	2,028·5
1915	72·4	94·6	86·4	140·9	160·1	193·2	238·9	203·3	169·9	146·0	58·6	48·1	1,612·4
1916	91·6	117·4	129·8	164·2	209·4	202·7	233·4	251·7	188·6	120·0	88·2	32·7	1,829·7
1917	114·8	128·4	178·2	96·8	121·3	179·9	186·2	227·9	246·5	136·9	73·5	46·2	1,736·6
1918	111·9	104·3	139·9	183·0	234·2	245·7	181·9	254·1	153·1	108·1	62·6	49·7	1,828·5
1919	70·9	99·1	129·2	100·2	215·2	230·5	208·9	209·3	151·2	113·8	52·0	86·1	1,666·4
1920	87·9	73·2	130·4	150·7	312·4	247·5	272·9	226·2	150·7	160·4	83·1	45·8	1,941·2
1921	81·1	113·8	128·4	151·3	255·4	231·0	253·0	261·9	229·0	135·7	45·6	37·0	1,923·2
1922	117·0	113·6	170·7	129·8	218·1	190·6	176·1	213·7	212·4	141·6	38·3	67·7	1,789·6
1923	80·6	165·2	137·3	129·5	181·7	217·7	219·9	255·4	189·6	157·3	73·2	45·8	1,853·2
1924	101·5	156·8	91·6	125·1	233·9	236·5	304·0	215·2	185·6	151·9	107·8	71·7	1,981·6
1925	119·7	86·1	121·3	156·3	214·6	213·7	197·5	234·9	144·6	131·5	101·8	77·8	1,799·8
1926	70·9	109·6	153·0	159·5	166·7	244·7	254·7	202·1	173·7	128·7	113·1	60·0	1,836·7
1927	75·8	96·0	153·1	186·1	178·9	249·6	211·7	268·6	152·9	93·3	68·3	47·2	1,781·5
Average 17 years...	93·2	115·7	136·3	151·5	210·9	226·9	231·1	232·9	179·0	130·1	75·4	59·1	1,842·3

MONTHLY PRECIPITATION (IN INCHES), AT CHARLOTTETOWN, PRINCE EDWARD ISLAND, 1901-1927

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Yearly total
1901	2·82	2·08	1·60	1·15	3·43	1·29	0·81	3·12	2·63	2·91	1·98	8·19	32·0
1902	2·07	1·40	3·18	2·26	1·67	3·78	1·25	3·31	3·45	3·14	3·74	10·12	39·4
1903	2·85	2·39	4·71	4·37	0·83	2·24	3·22	2·22	4·17	3·66	7·90	4·32	42·9
1904	3·05	2·79	3·98	3·77	1·78	1·56	1·90	2·95	4·26	4·11	5·67	1·90	37·7
1905	3·66	4·44	2·67	1·69	3·42	2·88	2·67	2·26	4·82	1·61	6·12	4·48	41·1
1906	2·20	3·05	4·18	6·10	5·85	5·37	1·87	1·47	3·00	4·41	8·00	7·25	52·8
1907	3·33	2·48	2·31	2·36	3·14	1·41	5·18	3·54	3·63	4·54	1·72	4·01	37·7
1908	4·67	3·02	3·95	4·69	4·13	1·93	4·28	5·53	1·81	2·08	1·88	4·43	42·4
1909	3·06	3·65	4·09	4·20	3·10	0·73	3·31	5·54	3·84	7·33	2·42	6·44	47·7
1910	4·76	3·61	2·70	3·28	2·38	4·69	3·14	1·09	2·84	6·78	4·89	3·63	43·8
1911	3·81	1·17	2·07	0·93	0·32	2·91	1·42	3·36	6·26	1·37	6·39	1·84	31·8
1912	3·45	5·58	3·63	3·16	2·64	2·49	6·83	2·68	2·90	3·72	4·24	6·45	47·8
1913	3·58	2·52	4·61	3·86	3·00	1·27	4·01	2·89	3·98	7·71	2·09	3·76	43·3
1914	3·93	3·63	3·42	3·78	2·05	5·32	2·84	2·43	5·02	3·57	2·65	2·02	40·7
1915	5·32	2·34	2·35	2·50	3·97	3·13	1·95	2·22	3·98	3·83	4·51	7·35	43·5
1916	3·61	2·80	6·60	3·28	2·08	2·74	4·14	1·79	2·02	4·22	3·74	4·55	41·6
1917	4·13	3·95	2·59	3·46	3·52	2·54	1·92	4·93	1·71	7·02	4·06	5·65	45·5
1918	3·91	3·73	4·78	0·89	1·84	3·25	4·53	1·37	5·60	5·51	3·52	5·26	44·2
1919	3·10	2·48	3·25	4·09	2·91	2·22	3·29	4·13	4·78	3·71	3·17	2·60	39·7
1920	1·45	4·81	4·75	4·66	0·99	2·49	2·38	3·56	3·76	0·60	2·20	3·72	35·4
1921	3·78	2·55	3·80	3·27	1·68	1·14	0·80	3·61	4·15	2·32	4·18	5·48	36·8
1922	4·43	2·75	1·35	2·21	2·17	4·72	3·73	3·95	2·01	2·48	2·21	4·35	36·4
1923	4·57	0·55	4·93	2·30	2·91	3·63	2·09	2·23	4·61	5·30	3·41	4·36	40·9
1924	3·00	2·65	3·99	2·17	1·35	3·47	1·00	5·38	2·88	2·29	3·31	3·33	34·8
1925	3·80	2·95	4·21	1·44	2·82	4·80	1·87	2·00	5·92	6·49	1·89	1·98	40·2
1926	6·06	4·93	3·05	2·94	3·48	2·21	2·53	3·14	1·83	3·37	2·69	6·15	42·4
1927	4·22	3·51	2·45	2·45	3·13	1·56	3·37	6·97	2·75	6·57	6·71	6·12	49·8
Average 27 years...	3·65	3·03	3·52	3·03	2·62	2·80	2·83	3·24	3·65	4·10	3·90	4·82	41·2

ANIMAL HUSBANDRY

HORSES

There were eleven horses at the close of the year 1927, the addition being one grade foal born in April. The horses are classed as follows: Four pure-bred Clydesdale mares, four draught geldings, one grade draught mare, one driving mare and the grade foal.

The Moline tractor relieved the horses of much of the heavy autumn work.

HORSE LABOUR

The labour performed during the year by the eight horses and the two two-year-olds was as follows:—

	Hours
Farm work	8,304
Horticulture	791
Roads	764
Hauling manure	1,639
Messenger service and miscellaneous	2,261
Cultural work	505
Total	14,264

The average number of hours of labour for the eight horses was 1,694, and for the two colts, 356 hours each.

SWINE

One of the two Yorkshire sows failed to breed in 1927. The other farrowed in August, giving birth to 13, of which she saved 9. These were being fitted for market at the close of the year. The total number of swine on hand December 31, 1927 was 11.

DAIRY HERD

The Ayrshire herd at the Charlottetown station on December 31, 1927, numbered 35, headed by the bull Ottawa Supreme 14th—94146—A.R. No. 98, Class A.

The herd has successfully passed all tuberculin tests, and has been fully accredited since August 9, 1922, under certificate No. 219.

DAIRY HERD RECORDS OF PRODUCTION

In the following table is given a record of the cows having completed a lactation period during the year 1927. In making up the table the following charges were made for feed:—

Pasture, per month, per head	$ 1 50
Meal, per ton	44 00
Hay, per ton	11 00
Roots and ensilage per ton	2 00
Green feed, per ton	4 00
Beet pulp, per ton	48 00

In calculating the value of products, 40 cents per pound has been allowed for butter, and 35 cents per cwt., for skim-milk. Butter production has been figured on the basis of 85 per cent fat content.

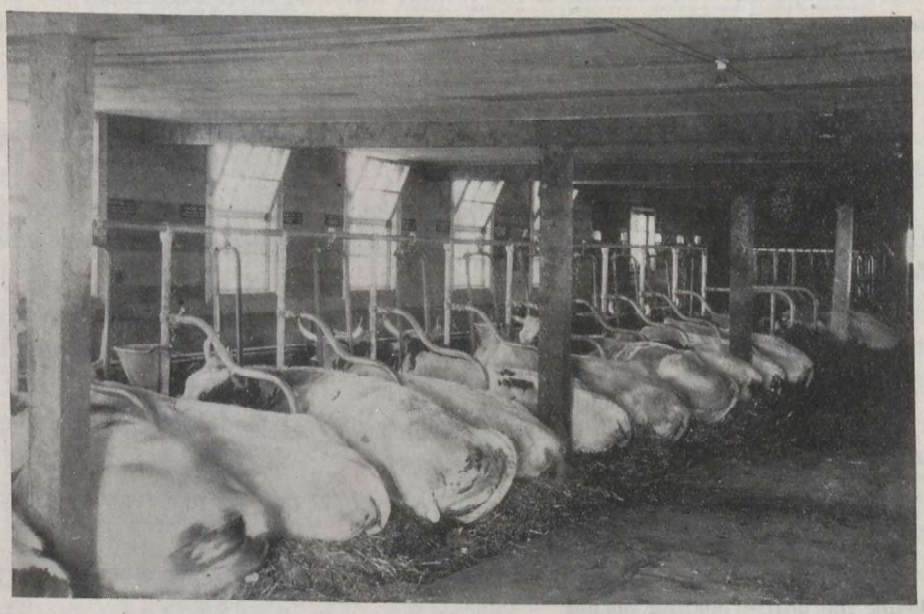
The labour cost of caring for the cattle, handling of milk, etc., has been neglected, as it is considered that the manure made and calves produced offset these items.

INDIVIDUAL MILK RECORDS COMPLETED DURING THE YEAR 1927

Name and number of animal	Age at commencement of lactation period	Date of dropping calf	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	Value of butter at 40c. per pound	Value of skim milk at 35c. per cwt.	Total value of product	Amount of meal eaten at $2.20 per cwt.	Amount of roots and silage eaten at $2 per ton	Amount of hay eaten at $11 per ton	Amount of green feed at $4 per ton	Amount of beet pulp at $2.40 per cwt.	Months on pasture at $1.50 per month	Total cost of feed for period	Cost to produce 100 pounds milk	Cost to produce 1 lb. butter, skim-milk neglected	Profit on 1 lb. butter, skim-milk neglected	Profit on cow during period labour and calf neglected
	yrs.	1926		lb.	lb.	p.c.	lb.	$	$	$	lb.	lb.	lb.	lb.	lb.	mos.	$	$	$	c.	$
Ravenwood Innocent 81998	3 8/12	Nov. 28	368	8,599·2	23·3	4·12	417	166 80	25 67	192 47	3,562	11,540	2,90[illegible]	1,400	.....	3[illegible]	113 9[illegible]	1·33	27·3	12·7	78 53
Belle of Sunny Slope 76590	5 2/12	Dec. 3	333	8,160·6	24·5	3·58	344	137 60	24 63	162 23	3,251	10,165	2,512	1,400	.....	3[illegible]	103 57	1 27	30·1	9·9	58 66
Ravenwood Jess 89724	2 4/12	Dec. 6	339	8,086·2	23·9	4·04	384	153 60	23 90	177 50	3,246	9,795	2,449	1,400	.....	3[illegible]	102 7[illegible]	1 27	26·8	13·2	74 78
Daisy of Sunny Slope 72581	6 1/12	May 11	307	10,524·0	34·3	3·36	416	166 40	32 07	198 47	2,978	8,150	2,268	1,960	.....	4 4/12	95 3[illegible]	0 91	32·0	8·0	102 15
Ravenwood Marion 89489	2 1/12	Nov. 13	353	7,777·5	22·0	4·10	376	150 40	22 92	173 32	3,494	10,840	2,670	1,400	.....	3[illegible]	110 45	1 42	29·4	10·6	62 87
Ravenwood Princess 83514	2 8/12	Jan. 10	365	9,049·0	24·8	4·95	527	210 80	25 64	236 44	3,672	10,400	2,764	1,960	280	4 3/12	123 5[illegible]	1 37	23·4	16·6	112 92
Ravenwood Buttercup 77482	4 1/12	Jan. 14	35[illegible]	9,008·4	25·6	4·21	446	178 40	25 53	203 93	3,614	9,286	2,354	1,960	280	4 3/12	119 51	1 33	26·8	13·2	84 42

OFFICIAL RECORD OF PERFORMANCE, AYRSHIRE COWS, CHARLOTTETOWN EXP. STATION, JANUARY 1 TO DECEMBER 31, 1927

Name and Number of Cow	Age at Commencement of Test		Number of days on test	Pounds of Milk	Pounds of Fat	Pounds 85 % Butter	Official Record
	Years	Days					
Ravenwood Jess No. 89724.....	2	212	305	7,988	321	378	Vol. 37 No. 1817A.
Daisy of Sunny Slope No. 72581.	6	78	305	10,524	354	416	Vol. 37 No. 1528A.
Ravenwood Marion No. 89489..	2	180	351	7,768	319	375	Vol. 37 No. 3275
Ravenwood Princess No. 83514	2	309	365	9,094	448	527	Vol. 37 No. 3108



Dairy herd at rest, Charlottetown, P.E.I.

BEEF CATTLE, 1927

STEER FEEDING EXPERIMENTS

Twenty-eight steers were purchased in the autumn of 1926 for experimental feeding purposes. The test period of feeding began November 19, 1926, and continued until March 21, 1927, a period of 122 days.

The lot was divided into seven pens of four steers each. One steer in pen 3 choked badly with a turnip on December 9, and had to be slaughtered. Pen 3 therefore is carried on with only three instead of four animals. The average cost of the steers at the commencement of the test was $6.16 per cwt.

The work attempted this year was undertaken to determine the value of swede turnips and cull potatoes in the feeding ration of short-keep steers, as well as to measure the efficiency of different amounts and different systems of feeding swedes. The hay and meal ration was similar in all cases and was maintained at a uniform rate during the period of the experiment.

Pen I received swede turnips at the rate of 30 pounds per steer per day during the entire feeding period.

Pen II received swede turnips at the rate of 50 pounds per steer per day at start of test. This was reduced at the rate of 2 pounds per steer per week until the end of the period.

Pen III received swede turnips at the rate of 40 pounds per steer per day, and was reduced at the rate of one pound per steer weekly until the end of the feeding period.

Pen IV received swede turnips at the rate of 15 pounds per steer per day throughout the feeding period.

Pen V received swede turnips at the rate of 20 pounds per steer per day, reduced at the rate of ½ pound per steer per week.

Pen VI received cull potatoes at the rate of 25 pounds per steer per day during the entire feeding period.

Each steer received 10 pounds of hay and 7.5 pounds of grain per day. The grain mixture was composed of 200 pounds barley, 300 pounds crushed oats, 150 pounds oil cake meal and 100 pounds bran. The value of this at market prices was $2.02 per cwt.

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

STEER FEEDING EXPERIMENT—AMOUNT AND VALUE OF FEED

Item	Pen Number 1		2		3		4		5		6		7		Total	
	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$	lb.	$
Turnips at $1.84 per ton	14,640	13 47	16,440	15 12	11,700	10 76	7,320	6 73	7,800	7 18	.....	.....	.....	.....	57,900	53 27
Potatoes at $4 per ton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,200	24 40	.....	.....	12,200	24 40
Mixed hay at $11 per ton	4,880	26 84	4,880	26 84	3,660	20 13	4,880	26 84	4,880	26 84	4,880	26 84	4,880	26 84	32,940	181 17
Meal mixture at $2.02 per cwt	3,660	73 93	3,660	73 93	2,745	55 45	3,660	73 93	3,660	73 93	3,660	73 93	3,660	73 93	24,705	499 04
Total cost per pen		$114 24		$115 89		$86 34		$107 50		$107 95		$125 17		$100 77		$757 88
Average cost per steer		$28 56		$28 97		$28 87		$26 87		$26 99		$31 29		$25 19		$28 07

*3 Steers only.

STEER FEEDING EXPERIMENT—COMPARISON OF SEVEN DIFFERENT PENS

—		Pen No. 1	Pen No. 2	Pen No. 3	Pen No. 4	Pen No. 5	Pen No. 6	Pen No. 7	Pen Totals
Number of steers in lot		4	4	3	4	4	4	4	27
Initial gross weight per pen	lb.	3,350	3,350	2,400	3,355	3,355	3,360	3,350	22,520
Initial average weight	"	837·5	838·5	800	839	839	840	837	834
Finished weight per pen	"	4,370	4,360	3,360	4,280	4,480	4,480	4,030	29,360
Average finished weight per steer	"	1,093	1,090	1,120	1,070	1,120	1,120	1,008	1,087
Total gain in 122 days	"	1,020	1,010	960	925	1,125	1,120	680	6,840
Average gain per steer	"	255	253	320	231	281	280	170	253
Daily gain per steer	"	2·09	2·07	2·62	1·89	2·30	2·30	1·39	2·07
Daily gain per pen	"	8·36	8·28	7·87	7·58	9·22	9·18	5·57	8·01
Value of cattle at beginning	$	206 36	206·36	147 84	206 67	206 67	206 98	206 36	1,387 23
Average value per steer at start	$	51 59	51 59	49 28	51 67	51 67	51 75	51 59	51 38
Gross cost of feed per pen	$	114 24	115 89	86 34	107 50	107 95	125 17	100 77	757 86
Average cost feed per steer	$	28 56	28 97	28 78	26 87	26 99	31 29	25 19	28 07
Total cost	$	320 60	322 25	234 18	314 17	314 62	332 15	307 13	2,145 09
Cost of one pound gain	c.	11·2	11·5	9·0	11·6	9·6	11·2	14·8	11·07
Average increase in value per steer	$	49 60	35 61	47 09	33 93	37 93	49 92	23 97	39 45
Sale price per pen	$	404·75	348 80	289 10	342 40	358·40	406 68	302 25	2,452 38
Sale price per steer	$	101 19	87 20	96 37	85 60	89 60	101 67	75 56	90 83
Profit per pen	$	84 15	26 55	54 92	28 23	43 78	74 53	−4 88	307 29
Profit per steer	$	21 04	6·64	18 31	7 06	10 95	18 63	−1 22	11 38

Total profit on 27 steers, over cost of all feed, is $307.27. Manure and labour are neglected.

TABLE OF WEIGHTS AND GAINS—STEER FEEDING EXPERIMENT

Pen No.	Steer No.	Weight November 19, 1926	Weight March 21, 1927	Gain	Value at start	Cost of feed	Total cost	Sale price	Profit or (—) loss
		lb.	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
I	G 95,881	860	1,120	260	52 98	28 56	81 54	113 40	31 86
	G 56,389	830	1,090	260	51 13	28 56	79 69	87 20	7 51
	H 27,308	620	840	220	38 19	28 56	66 75	67 20	45
	G 59,306	1,040	1,320	280	64 06	28 56	92 62	136 95	44 33
	Total...	3,350	4,370	1,020	206 36	114,24	320 60	404 75	84 15
	Average	837	1,093	255	51 59	28 56	80 15	101 19	21 04
II	G 65,184	780	1,000	220	48 05	28 98	77 03	80 00	2 97
	G 87,651	980	1,190	200	60 98	28 97	89 95	95 20	5 25
	.....	670	930	260	41 27	28 97	70 24	74 40	4 16
	G 94,267	910	1,240	330	56 06	28 97	85 03	99 20	14 17
	Total...	3,350	4,360	1,010	206 36	115 89	322 25	348 80	26 55
	Average	838	1,090	253	51 59	28 97	80 56	87 20	6 64
III	G 56,393	880	1,180	300	54 21	28 78	82 99	94 40	11 41
	G 60,983	700	1,020	320	43 12	28 78	71 90	81 60	9 70
	G 95,879	820	1,160	340	50 51	28 78	79 29	113 10	33 81
	Total...	2,400	3,360	960	147 84	86 34	234 18	289 10	54 92
	Average	800	1,120	320	49 28	28 78	78 06	96 37	18 31
IV	C 19,825	850	1,120	270	52 36	26 87	79 23	89 60	10 37
	.....	890	1,150	260	54 83	26 87	81 70	92 00	10 30
	G 95,595	725	920	195	44 66	26 88	71 54	73 60	2 06
	G 56,324	890	1,090	200	54 82	26 88	81 70	87 20	5 50
	Total...	3,355	4,280	925	206 67	107 50	314 17	342 40	28 23
	Average	839	1,070	231	51 67	26 87	78 54	85 60	7 06
V	G 56,392	935	1,280	345	57 60	26 98	84 58	102 40	17 82
	G 79,699	730	1,000	270	44 97	26 99	71 96	80 00	8 04
	G 59,619	790	1,080	290	48 66	26 99	75 65	86 40	10 75
	G 79,338	900	1,120	220	55 44	26 99	82 43	89 60	7 17
	Total...	3,355	4,480	1,125	206 67	107 95	314 62	358 40	43 78
	Average	839	1 120	281	51 67	26 99	78 65	89 60	10 95
VI	G 51,672	920	1,220	300	56 67	31 29	87 96	123 53	35 57
	G 56,390	850	1,180	330	52 36	31 29	83 65	112 10	28 45
	G 95,589	730	930	200	44 97	31 30	76 27	79 05	2 78
	G 89,360	860	1,150	290	52 98	31 29	84 27	92 00	7 73
	Total...	3,360	4,480	1,120	206 98	125 17	332 15	406 68	74 53
	Average	840	1,120	280	51 75	31 29	83 04	101 67	18 63
VII	G 65,187	730	890	160	44 97	25 20	70 17	66 75	—3 42
	.....	900	1,190	290	55 44	25 19	80 63	89 25	8 62
	G 60,026	780	920	140	48 05	25 19	73 24	69 00	—4 24
	.....	940	1,030	90	57 90	25 19	83 09	77 25	—5 84
	Total...	3,350	4,030	680	206 36	100 77	307 13	302 25	—4 88
	Average	837	1,008	170	51 59	25 19	76 78	75 56	—1 22

CONCLUSIONS

It is difficult to draw conclusions from the above data. Several points, however, are fairly evident:—

(*a*) To make satisfactory gains, steers require roots. Pen VII made the smallest gain and was decidedly inferior in quality.

(*b*) Excessive quantities of roots are not required for satisfactory gains. Pen I, receiving 120 pounds of roots per day made no appreciable increase in gain over pen IV, receiving only half this amount, or 60 pounds per day.

(*c*) Within the limits of the experiment, there seemed to be no difference between feeding a given quantity of roots in equal daily portions throughout the feed period, and feeding roots heavily at first, but in regularly decreasing daily amounts to a minimum quantity at the end of the feed period.

(*d*) Potatoes appear to have considerable value for steer feeding purposes, if available at a low price. Cull potatoes, sometimes available in large quantities, and having little or no market value, should prove very valuable in steer feeding operations.

Further work to supplement these conclusions is being conducted during the winter of 1927-28.

FIELD HUSBANDRY

SEASONAL NOTES

Snow came early in December, 1926, and remained as a blanket throughout the winter. January was mild, and during February, March and April average weather conditions prevailed. Heavy ice north of "The Island" in the gulf of St. Lawrence delayed seeding until May 21, and retarded growth so that the trees did not appear green until June 1. The clover meadows looked fairly good in April, but dwindled during the backward weather of May. Seeding was general by May 24, and the cereals germinated well and made vigorous growth during June and July. Heavy rain and wind storms in August lodged much oats, and rust became prevalent. The growth of roots was slow until after the fine weather in September. The season was more favourable for corn than mean temperatures would indicate; the long, mild autumn gave it a full season, and several varieties left out, matured. The rainfall of October and November was much above average. The "freeze up" occurred December 2. Snow came on December 3, and went on the 8th, but came again the following week to remain.

CROP ROTATIONS

The late spring season militated against the best appearance of the crops on our rotations this year. Partly due to the late wet spring, the mangels on Rotation A missed quite badly and it was found necessary to reseed this area.

As in previous years, record was kept of the various operations performed on these fields, and the data used in the preparation of our "cost of production" tables.

The following is a table of fixed charges adopted at this station for the year 1927:—

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	25
Horse labour, per hour	10
Tractor labour, per hour (including operator)	80
Grass seed	At cost
Seed of mangels, turnips, potatoes, etc	At cost
Twine	At cost
Spray materials	At cost

RETURN VALUES

	$ cts.
Oats, per bushel	68
Barley, per bushel	96
Wheat, per bushel	1 80
Hay, per ton	11 00
Potatoes, per bushel (field run)	60
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.

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 thoroughly with a cutaway harrow. Forty per cent of the total cost of manure is charged to this crop.

Second Year—Grain.—This crop 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 manure applied.

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 removing the grain crop, the land is ploughed in preparation for roots. The grain crop is charged with 5 per cent of cost of manure.

SUMMARY ROTATION "A" FIVE YEARS' DURATION

Crop	Yields		Value 1927	Cost of production 1927	Profit or (—) loss 1927
	16-year average	1927			
	lb.	lb.	$ cts.	$ cts.	$ cts.
Mangels—Yellow Intermediate	40,671*	43,840	.....	73 19	.....
Oats—Banner	2,362	2,010	40 20	28 27	15 87
Straw	2,962	1,970	3 94		
Clover hay	4,891	3,001	16 51	20 23	—3 72
Timothy hay	4,642	4,152	22 84	15 23	7 61
Barley—Charlottetown No. 80	2,264	1,160	23 20	17 95	7 83
Straw	2,341	1,290	2 58		

*Average 15 years.

ROTATION "B"

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

First year—Hoed crop.—Receives 15 tons manure per acre in the spring. The crop is charged with 40 per cent of the 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 the 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. This grain crop is charged with 10 per cent of the cost of manure applied.

Fifth year—Clover hay.—This might also be used for pasture. 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 1927	Cost of production 1927	Profit or (—) loss 1927
	Fifteen year Average	1927			
	lb.	lb.	$ cts.	$ cts.	$ cts.
*Potatoes	15,153	21,330	213 30	89 48	123 82
†Wheat —Huron	1,548	759	22 77	29 70	—5 19
Straw	2,530	1,741	1 74		
Clover	4,571	3,849	21 17	22 80	—1 63
Oats—Banner	2,111	1,160	23 20	23 29	5 63
Straw	2,496	2,860	5 72		
Clover	3,065	2,336	12 85	15 18	—2 33
Totals	.....	.....	300 75	180 45	120 30
Per acre	.....	.....	60 15	36 09	24 06

*Nine-year average. †Fourteen-year average.

ROTATION "C"

(Four years' duration, suitable for stock farming.)

This rotation is suitable for live stock farming, as it produces relatively large amounts of hay and roots.

First year—Hoed crop.—Ten tons of manure are applied in the spring. The hoed crop is charged with 40 per cent of the total manure applied.

Second year—Grain.—Seeded down with 10 pounds red clover, 2 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 the total manure applied.

Fourth year—Timothy hay or pasture.—Ten tons of manure are applied early in the autumn, after the removal of the hay crop, and ploughed down in preparation for hoed crop. The hay crop is charged with 10 per cent of the total cost of the manure applied.

SUMMARY ROTATION "C"—FOUR YEARS' DURATION

Crop	Yields		Value 1927	Cost of production 1927	Profit 1927
	Average	1927			
	lb.	lb.	$ cts.	$ cts.	$ cts.
(1) Potatoes	16,971	22,649	226 49	85 38	141 11
(2) Wheat—E. R. Fife	1,776	1,070	32 10	30 75	4 30
Straw	3,478	1,680	2 95		
(3) Clover hay	5,670	3,800	20 90	18 88	2 02
(4) Timothy hay	5,983	4,747	26 11	14 50	11 61
Totals			308 55	149 51	159 04
Per acre			77 14	37 38	39 76

(1) 10-year average. (2) 13-year average. (3) 15-year average. (4) 14-year average.

ROTATION "F"

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

As fifty per cent of this rotation is under grain each year, it will be found well suited to the production of large quantities of seed grain. This rotation is used for our "test of varieties of cereals" and "test of varieties of roots" plots each year, making it impossible to give a summary of production, etc. The following gives 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.—This is seeded down with 10 pounds of red clover, 2 pounds of alsike and 6 pounds of timothy per acre. The crop is charged with 26 per cent of the total manure.

Third year—Clover hay.—This is top dressed in autumn with 8 tons manure per acre before ploughing for grain. The clover is charged with 16 per cent of the total cost of manure.

Fourth year—Grain.—This is seeded down with 8 pounds red clover and 2 pounds 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, Scotch or old P.E.I. Rotation, similar to the old Scotch rotation at one time very 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. The crop is charged with 27.14 per cent of total manure applied, or $19 with manure valued 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 applied, or $11.50.

Fourth year—Clover hay.—Charged with 11.43 per cent of manure, or $8.

Fifth year—Timothy hay.—This crop is top dressed in August with 15 tons of 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 such a long rotation, the division of the charge for manure, on a percentage basis, appears difficult; the figures given above are sufficiently accurate for field work.

SUMMARY ROTATION "G"—SEVEN YEARS' DURATION

Crop	Yields		Value 1927	Cost production 1927	Profit or (—) loss 1927
	Average	1927			
	lb.	lb.	$ cts.	$ cts.	$ cts.
Oats—O.A.C. No. 72	(a) 1,840	1,450	29 00	31 40	50
Straw	2,371	1,450	2 90	.....	.....
Turnips	(b) 34,745	29,363	.....	76 10	.....
Wheat—Charlottetown No. 123	(c) 1,524	1,015	30 45	33 30	—99
Straw	3,358	1,860	1 86	.....	.....
Clover	(d) 5,555	2,500	13 75	17 85	—4 10
Timothy	(e) 5,919	4,088	22 48	13 95	8 53
Timothy	(f) 7,243	5,605	30 82	23 75	7 07
Timothy	(g) 6,101	6,128	33 70	17 12	16 58

(a) 11-year average. (b) 8-year average. (c) 6-year average. (d) 15-year average. (e), (f) and (g) 14-year average.

COST OF PRODUCTION OF FIELD CROPS

With records kept of all field operations in connection with our rotation work, it becomes possible to compute the cost of production of various crops.

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

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

COST OF PRODUCING WHEAT AFTER HOED CROP
(Figures based on 1 acre of wheat grown on Rotation "B," 1927)

Item		1927	Average 14 years
		$	$
Rent of land		3 00	3 00
Manure		12 50	12 50
Use of machinery		2 85	2 85
Seed, 1¾ bushels at $2		3 50	3 50
Twine at 12½ cents		0 41	0 39
Manual labour at 25 cents		5 04	4 17
Horse labour		2 40	1 91
Total cost per acre		29 70	28 32
Yield per acre, grain	lb.	759	1,548
" " straw	"	1,741	2,529
Value per acre, grain	$	22 77	46 44
" " straw	$	1 74	2 53
Total value	$	24 51	48 97
Profit or loss per acre	$	—5 19	20 65
Cost per bushel (value of straw considered)	$	2 18	1 18

COST OF PRODUCING OATS AFTER HOED CROP
(Figures based on one acre, Rotation "A," for the year 1927)

Item		1927	Average 16 years
		$	$
Rent of land		3 00	3 00
Manure		12 50	12 50
Use of machinery		2 85	2 85
Seed, 2¾ bushels at $1		2 75	2 75
Twine at 12½ cents per pound		0 41	0 41
Manual labour at 25 cents per hour		4 50	4 68
Horse labour at 10 cents per hour		2 26	2 38
Total cost per acre		28 27	28 57
Yield per acre, grain	lb.	2,010	2,362
" " straw	"	1,970	2,962
Value per acre, grain	$	40 20	69 90
" " straw	$	3 94	5 92
Total value	$	44 14	75 82
Profit per acre	$	15 87	47 25
Cost per bushel (value of straw considered)	c.	43·5	35·2

COST OF PRODUCING BARLEY AFTER HAY
(Figures based on one acre, Rotation "A," for the year 1927)

Item		1927	Average 16 years
		$	$
Rent of land		3 00	3 00
Manure		2 50	2 50
Use of machinery		2 85	2 85
Seed, 1¾ bushels at $1.25		2 19	2 19
Twine at 12½ cents		0 34	0 38
Manual labour at 25 cents		4 48	5 68
Horse labour at 10 cents		2 59	3 71
Total cost per acre		17 95	20 31
Yield per acre, grain	lb.	1,160	2,077
" " straw	"	1,290	2,341
Value per acre, grain	$	23 20	41 54
" " straw	$	2 58	4 68
Total value	$	25 78	46 22
Profit per acre	$	7 83	25 91
Cost per bushel (value of straw considered)	c.	66·8	48·5

COST OF PRODUCING CLOVER HAY AFTER WHEAT
(Figures based on one acre , Rotation "C," for year 1927)

Item		1927	Average 15 years
		$	$
Rent of land		3 00	3 00
Manure		8 00	8 00
Use of machinery		2 85	2 85
Grass and clover seed		2 98	2 72
Manual labour at 25 cents		1 45	2 51
Horse labour at 10 cents		0 60	0 60
Total cost per acre		18 88	19 68
Yield per acre	lb.	3,800	5,671
Value per acre	$	20 90	31 19
Profit per acre	$	2 02	11 51
Cost per ton	$	9 94	6 94

COST OF PRODUCING MANGELS AFTER BARLEY

(Figures based on one acre, Rotation "A," for year 1927)

Item	1927	Average 15 years
	$	$
Rent of land	3 00	3 00
Manure	20 00	20 00
Use of machinery	2 85	2 85
Clover seed (sown with preceding crop for green manure)	3 90	3 27
Seed at 55 cents	4 95	4 34
Manual labour at 25 cents	32 50	43 55
Horse labour at 10 cents	5 99	5 81
Total cost per acre	73 19	82 82
Yield per acre lb.	43,480	40,671
Cost of producing 1 ton $	3 41	4 07
Cost of producing 1 bushel c.	8·6	10·2

COST OF PRODUCING TURNIPS AFTER OATS

(Figures based on one acre, Rotation "G," for year 1927)

Item	1927	Average 8 years
	$	$
Rent of land	3 00	3 00
Manure	19 00	19 00
Use of machinery	2 85	2 85
Clover seed (sown with preceding crop for green manure)	3 90	3 48
Seed at $1	3 00	3 20
Manual labour at 25 cents	36 83	35 71
Horse labour at 10 cents	7 52	7 28
Total cost per acre	76 10	74 52
Yield per acre lb.	29,363	34,707
Cost of producing 1 ton $	5 18	4 29
Cost of producing 1 bushel c.	13	10·7

COST OF PRODUCING POTATOES AFTER SOD

(Figures based on one acre, Rotation "C," for year 1927)

Item	1927	Average 9 years
	$	$
Rent of land	3 00	3 00
Manure	16 00	16 00
Use of machinery	2 85	2 85
Seed—at $1.40 per bushel	23 33	20 93
Spray materials at cost	4 96	6 31
Manual labour at 25 cents	25 87	21 78
Horse labour at 10 cents	9 37	8 65
Total cost per acre	85 38	79 52
Yield per acre lb.	22,649	17,500
Cost of producing 1 bushel c.	22·6	27·3

Crop	Field	Acreage	Preceding crop	Yield per acre
				bush. lb.
Wheat	C-III	0·57	Potatoes	17 50
Wheat	G-II	0·40	Turnips	16 55
Wheat	B-II	1·00	Potatoes	12 39
Oats	A-II	1·00	Mangels	59 4
Oats	Connolly Field	8·50	Hoed crop	47 4
Oats	G-VII	0·40	Timothy	42 22
Oats	B-IV	1·00	Clover	34 4
Barley	CC-III	5·50	Mangels	32 8
Barley	A-V	1·00	Timothy	24 8
Potatoes	C-II	0·57	Timothy	377 29
Potatoes	B-I	1·00	Clover	355 30
Turnips	G-I	0·40	Oats	587 13
Turnips	Connolly Field	3·00	Clover	540 6
Turnips	Blake Field	4·00	Grain	370 25
Mangels	A-I	1·00	Barley	876 40
Mangels	CC-I	3·00	Pasture	782 14
Mangels	Blake Field	2·00	Mixed feed	578 41
				lb.
Corn	Connolly Field	4·00	Clover	14,219
Timothy	G-VI	0·40	Timothy	6,128
Timothy	G-V	0·40	Timothy	5,805
Timothy	C-I	0·57	Clover	4,747
Timothy	A-IV	1·00	Clover	4,152
Timothy	G-IV	0·40	Clover	4,088
Timothy	Matheson Field	6·00	Clover	2,795
Timothy	CC-IV	5·00	Timothy	2,792
Timothy	CC-VI	6·00	Clover	2,013
Timothy	Blake Field	7·50	Timothy	2,000
Clover	FF-II	2·00	Grain	4,940
Clover	B-III	1·00	Wheat	4,110
Clover	H. Connolly Field	3·00	Oats	4,017
Clover	C-IV	0·57	Wheat	3,800
Clover	A-III	1·00	Oats	3,001
Clover	CC-V	6·00	Barley	2,709
Clover	G-III	0·40	Wheat	2,500
Clover	B-V	1·00	Oats	2,336
Clover	Connolly Field	10·00	Oats	1,246

CULTURAL EXPERIMENTS

The area given over to cultural experiments is divided into over 400 plots each one-fortieth acre in size. The plots are separated by four-foot pathways and the ranges of plots are divided by sixteen-foot roadways. The soil is a rather fine sandy-clay loam and the entire area is tile-drained as there is a tendency to heaviness in the soil.

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 evident that large yields of hay are obtained consistently only when they follow liberal seedings of clover and timothy. In the experiment following all plots were uniformly seeded with 10 pounds of timothy per acre, with the seedings of red clover and alsike varying as indicated in the table. A uniform seeding of oats at 2½ bushels per acre was used as a nurse crop.

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

Plot Number	Rates of seeding per acre			Yields Clover per acre 12-year average	Yields Timothy per acre 11-year average
	Timothy	Red Clover	Alsike		
	lb.	lb.	lb.	lb.	lb.
1	10	2	.....	2,355	3,089
2	10	4	.....	3,125	3,109
3	10	8	.....	3,499	3,686
4	10	12	.....	3,700	3,915
5	10	8	1	3,853	4,125
6	10	8	2	3,757	3,877
7	10	.....	4	*3,318	2,984
8	10	.....	6	2,821	2,608
9	10	.....	8	2,741	2,062

* 11 years only.

Judged on the above table we may recommend a seeding of at least 10 pounds timothy, 8 pounds red clover and 1 or 2 pounds alsike per acre.

METHODS OF APPLYING BARNYARD MANURE

It is very difficult to interpret this experiment correctly. Any system of manuring that favours an increase in the production of potatoes most certainly is the most profitable when potatoes are high in price as they have been during the past several years. Certain other systems, as in plot 6, plot 7 and plot 8, favour the production of large quantities of hay, and this, where mixed farming is practised, should be of great value. If we employ a method reducing all crops to a common basis, it is possible to determine the number of feed units produced by each system during one cycle of the rotation. The Scandinavian Feed Unit system provides such a standard, and is used in the following table.

By this system 6 pounds of potatoes, 1.1 pounds of oats, 2.5 pounds of clover or 3 pounds of timothy are considered equal to one unit, or in other words are of equal value from a feed standpoint.

METHODS OF APPLYING BARNYARD MANURE—FOUR-YEAR ROTATION: POTATOES, OATS, CLOVER, TIMOTHY

Amount of Manure and Crop or Crops to which it was applied during rotation				Twelve-year average yield in pounds per acre				Average Feed units produced per year per acre	
Potatoes	Oats	Clover	Timothy	Potatoes lb.	Oats lb.	Clover lb.	Timothy lb.	Actual S.F.U.	Relative %
1 Check—No manure	.....	.....	.....	5,979	1,615	1,873	1,814	955	100·0
2	.....	.....	20 tons before ploughing this sod for potatoes.	12,118	1,795	3,076	*2,926	1,464	153·2
3 10 tons for potatoes.	.....	10 tons after removing clover.	.....	8,767	1,934	3,033	3,682	1,415	148·2
4	.....	.....	20 tons for pot. after ploughing this sod.	11,603	1,694	2,853	2,503	1,362	142·6
5 20 tons for potatoes after fall ploughing of sod.	.....	.....	.....	12,502	1,744	2,871	2,383	1,403	146·9
6	.....	20 tons after removing clover.	.....	8,810	1,655	2,364	3,852	1,301	136·2
7	10 tons top dress after grain is up.	.....	10 tons after reploughing this sod for potatoes.	9,999	1,704	3,861	3,042	1,444	151·2
8	20 tons top dress after grain is up.	.....	.....	8,066	1,716	4,396	3,845	1,484	155·4
9	.....	.....	20 tons in piles in fall spread in spring for potatoes.	12,660	1,731	3,023	2,443	1,427	149·4

*11 years only.

It will be noted, that in production of feed units, as measured by the Scandinavian Feed Unit System, there is not a very large difference between any of the systems of manuring practised. Treatment No. 7, where all the manure is put on clover sod in preparation for the next season's hay crop, has given the lowest return.

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)

Frequently we are asked to recommend the proper treatment of root land (in preparation for grain), after the harvesting of the root crop. From a study of data collected over several years at the Station, it seems that land receiving no treatment has given yields equal to those from land ploughed or ribbed in autumn or ploughed in spring. It is to be noted, however, that land ribbed up in the autumn is, on the average, ready for seed bed preparation approximately one week earlier than land not so treated.

YIELD OF OATS

Treatment number	After-harvest Treatment of Root Land	Yield of oats—lb. per acre	
		1927	12-year average
		lb.	lb.
1	No autumn treatment	1,060	1,663
2	Ploughed shallow in autumn	960	1,606
3	Ribbed in autumn	1,100	1,683
4	Ploughed shallow in spring	1,030	1,686

AUTUMN TREATMENT OF SOD LAND IN PREPARATION FOR GRAIN

In this experiment the yields are taken on oats grown after timothy. Nine different methods are employed in preparing this sod land for the grain crop. The following table outlines the various treatments and gives the yields for the present season and for a twelve-year period.

AUTUMN TREATMENT OF SOD LAND IN PREPARATION FOR GRAIN

Treatment Number	Treatment	Yield per acre	
		1927	Twelve year average
		lb.	lb.
1	Plough 5" deep early in August, top work balance of season	880	1,452
2	Plough 5" deep early in Sept., top work balance of season	700	1,426
3	Plough 5" deep early in Oct., topwork balance of season	760	1,335
4	Plough 5" deep early in Oct., not topworked	680	1,384
5	Plough 5" deep early in Nov., not topworked	640	1,346
6	Plough early August, topwork, replough late autumn	620	1,439
7	Plough early August; topwork, rib late autumn	740	1,464
8	Stiff tooth rip in August and September, plough late autumn	600	1,289
9	Plough 5" deep in spring	520	1,058

DRY MATTER DETERMINATIONS

For the past several years dry matter determinations have been made on hay and other forage crops. This eliminates the error accruing from varying weather conditions during harvesting. This applies particularly to the harvesting of hay plots. Hay plots harvested on damp days benefit by the additional moisture content; similar plots harvested on a hot dry day suffer in weight accordingly. The present system requires the determination of the absolute dry matter contained in the sample. The hay is then adjusted to a uniform content of 12 per cent moisture or 88 per cent dry matter.

HORTICULTURE

SEASONAL NOTES

Snow gave good protection to shrubs and flowers during the winter of 1926-27. January was very mild; the mean temperatures during the balance of the winter were about average. Growth started in April, but a cool May delayed vegetation so that the trees appeared green about one week late on June first. Both planting and transplanting were late, but favourable growing weather during June and July brought vegetables and flowers along with wonderful rapidity. There were several severe wind storms in August. September was fine and very favourable for vegetables and flowers; its bright sunshine also gave good colour to all apples. October and November were wet. The "freeze up" occurred on December 2.

VEGETABLES

BEANS

Variety Test.—Fourteen varieties were sown on June 3, 1927, each variety occupying 30 feet of drill 30 inches wide. The plants were spaced approximately 2 inches apart in the row. This year all varieties were practically free from anthracnose or bean rust, until the date of last picking on September 1. Any beans left to mature became badly infected late in the season.

Rhododendrons at Charlottetown, P.E.I., planted in 1924.

In the following table is given the yield of green beans in pounds per acre:—

BEANS—TEST OF VARIETIES

Standing	Variety and Source of Seed	Per cent marketable	Yield per plot	Yield in pounds per acre
		%	lb.	lb.
1	Davis Wax (McDonald)	95 0	35	20,328
2	Plentiful French (Ott. 591)	.....	31¼	18,149
3	Davis White Wax (Ott. 2544)	.....	29¼	16,988
4	Curry Rustless Wax (McDonald)	86·4	27½	15,972
5	Improved Golden Wax (McDonald)	97·3	27½	15,971
6	Round Pod Kidney Wax (General run Ott. 1925)	92·3	26	15,101
7	Wardell Kidney Wax (Ottawa 5268)	99·0	26	15,101
8	Round Pod Kidney Wax (McDonald)	94·1	25½	14,810
9	Inter-Challenge Black Wax (Ott. 6876)	.....	22	12,777
10	Golden King (Webb)	59·8	20½	11,907
11	Stringless Green Pod (Graham)	77·8	20¼	11,762
12	Stringless Green Pod (McDonald)	95·8	18	10,454
13	Stringless Green Pod (Ott. 5405)	.....	16½	9,583
14	Princess Artois (Ott. 9388)	.....	13¼	9,292

Round Pod Kidney Wax is recommended as a suitable variety for the province.

Thinning of Beans.—Two varieties were used, Round Pod Kidney Wax (McDonald) and Stringless Green Pod (Graham). Two rows were seeded, 30 feet long, 30 inches apart, and plants were thinned to distances of 2, 4 and 6 inches apart in the row. One row was picked green and the other allowed to ripen before harvesting.

BEANS—THINNING EXPERIMENT

Distance between plants in row	Round Pod Kidney Wax					Stringless Green Pod				
	1927		Four-year average			1927		Four-year average		
	Green	Ripe	Green	Ripe	Total	Green	Ripe	Green	Ripe	Total
ins.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
2	15,536	2,904	13,671	1,646	15,317	8,711	1,452	9,545	2,149	11,694
4	12,487	1,597	12,378	1,579	13,957	10,744	1,742	9,710	1,633	11,343
6	17,424	2,323	11,578	1,380	12,958	3,776	1,162	7,587	1,362	8,949

Judged on the basis of a four-year average, the thicker plantings have given the higher yields.

BEETS

Variety Tests.—Eleven varieties were sown on June 2, 1927. Yields are reported in bunches of 5 marketable beets harvested from one row 30 feet long and 30 inches wide, and also in bunches per acre.

BEETS—TEST OF VARIETIES

Standing	Variety and Source of Seed	Date Ready for use	Yield per Plot	Yield in Bunches per acre
			Bunches	Bunches
1	Early Wonder (Ewing)	August 1	45	26,136
2	Detroit Dark Red (McDonald)	" 1	42	24,394
3	Detroit Dark Red (Ott. No. 10468)	" 1	37	21,490
4	Early Flat Egyptian (Moore)	" 1	35½	20,618
5	Early Model Crimson Globe (Graham)	" 1	34½	20,038
6	Early Wonder (Burpee)	" 4	34	19,747
7	Detroit Dark Red (Moore)	" 1	31½	18,295
8	Black Red Ball (Ott. No. 8694)	" 1	20	11,616
9	Black Red Ball (Burpee)	" 6	16½	9,583
10	Detroit Turnip (Graham)	" 1	14½	8,422
11	Improved Dark Red (Webb)	" 10	13½	7,841

Many of the varieties contained "off-type" roots, both in colour and form. Detroit Dark Red and Early Wonder are recommended.

BEETS—DATES OF SEEDING

Seedings of the variety Detroit Dark Red were made at ten-day intervals beginning this year on June 2, and continuing until July 22, or six seedings in all. The yield was computed from fifteen feet of drill 30 inches wide, harvested from each seeding whenever ready for use. An additional stretch of 15 feet was allowed to grow until the end of the season, and recorded under "late harvesting."

Yields are reported in the following table in bunches per acre, each bunch containing five beets of saleable size.

BEETS—DATES OF SEEDING

Dates of seeding				1927 yield in bunches per acre					
				Early harvesting			Late harvesting		
1927	1926	1925	1924	Marketable	Unmarketable	Total yield	Marketable	Unmarketable	Total yield
June 2	May 28	May 7	May 14	19,747	*	19,747	11,035	†3,485	14,520
June 12	June 7	May 17	May 24	33,106	3,485	36,591	22,070	†1,162	23,232
June 22	June 17	May 27	June 3	23,813	2,332	26,136	16,262	†1,162	17,424
July 2	June 27	June 6	June 13	20,909	4,646	25,555	18,586	.....	18,586
July 12	July 7	June 16	June 23	20,909	5,808	26,717	16,262	.....	16,262
July 22	.....	.....	.....	6,970	13,939	20,909	9,293	*5,808	15,101

*Too small. †Too large.

CABBAGE—TEST OF VARIETIES

Twenty-two varieties were planted on May 12, and transplanted on July 25, 1927.

Golden Acre is recommended as an early variety and Danish Ballhead as one of the best standard varieties.

CABBAGE—TEST OF VARIETIES

Standing	Variety and source of seed	Yield in pounds per acre
1	Danish Hollander (Strandholm)	80,150
2	Danish Ballhead (Strandholm)	76,666
3	Danish Roundhead (Dupuy and Ferguson)	74,052
4	Extra Amager Danish Ballhead (C.E.F. No. 8930)	73,181
5	Brunswick Short Stem (Madsen)	72,310
6	Danish Roundhead (Strandholm)	65,340
7	Golden Acre (James)	52,260
8	Succession (Ewing)	49,124
9	Copenhagen Market (James)	48,079
10	Haco (Dupuy & Ferguson)	43,898
11	Early Jersey Wakefield (McDonald)	37,627
12	Jersey Wakefield (Stokes)	36,582
13	Copenhagen Market (Madsen)	36,582
14	Winningstadt (Madsen)	33,446
15	Chester Savoy (Steele Briggs)	33,446
16	Copenhagen Market (Strandholm)	31,879
17	Copenhagen Market (Graham)	29,266
18	Golden Acre (Harris)	28,743
19	Kinver Glove Savoy (Webb)	28,220
20	Charleston Wakefield (Stokes)	26,130
21	Golden Acre (Madsen)	25,085
22	Best of All Savoy (Sutton)	25,085

DATE OF SEEDING AND EFFECT ON KEEPING QUALITIES

Two varieties are used for this experiment, Extra Amager Danish Ballhead and Copenhagen Market. Seedings are made at ten-day intervals for a total of five seedings. The Ballhead variety has proven the best for storage purposes. Also it is recommended that late maturing cabbage for storage be planted early in the season so that it may be well matured before harvesting.

BRUSSELS SPROUTS

Three varieties were sown, Dalkeith, Amager Market and Paris Market. The first-mentioned proved fairly satisfactory, some of the others did not form up fit for use.

CARROTS

Test of Varieties.—Seven varieties were seeded on June 11, 1927, each variety occupying a drill 30 feet long by 30 inches wide. Seedings were made in the field rather than in the garden to escape attack by the rust fly. This shifting to a new area somewhat removed from where previous plantings have been made is recommended where rust fly is causing damage. Yields are recorded in "bunches of five" roots of saleable size.

CARROTS—TEST OF VARIETIES

Standing	Variety and source of seed	Yield per plot			Yield per acre		
		Marketable	Unmarketable	Total yield	Marketable	Unmarketable	Total yield
		bunches	bunches	bunches	bunches	bunches	bunches
1	Chantenay (McDonald).....	15½	3	18½	9,002	1,742	10,744
2	Chantenay (Graham).....	16	2	18	9,293	1,162	10,455
3	Hutchinson (Gregory).....	14	2	16	8,131	1,162	9,293
4	Improved Danvers (D. & F..	12½	3	15½	7,260	1,742	9,002
5	St. Valery Red (Rennie)....	11	2	13	6,389	1,162	7,551
6	Chantenay (C.E.F. No. 8934)	9	2	11	5,227	1,162	6,389
7	Oxheart (Steele Briggs).....	8½	1	9½	4,937	581	5,518

Different Dates of Seeding.—Five different seedings were made at 10-day intervals starting on June 11, 1927. Yields are reported in bunches of five roots of saleable size. Chantenay was the variety used.

CARROTS—DATES OF SEEDING

Date of seeding	Early harvesting			Late harvesting		
	Marketable	Unmarketable	Total yield	Marketable	Unmarkable	Total yield
June 11.....	9,293	1,162	10,455	9,293	2,323	11,616
" 22.....	8,131	1,162	9,293	11,616	3,485	15,101
July 2.....	13,939	1,162	15,101	12,778	2,323	15,101
" 12.....	9,293	6,970	16,263	17,424	5,808	23,232
" 22.....	4,646	10,454	15,100	3,485	9,293	12,778

Large crops of excellent carrots can be grown from mid-season and late season plantings. This is in accord with the findings of previous years.

CAULIFLOWER

Four varieties were planted this season; Early Snowball proved superior to other varieties.

CELERY

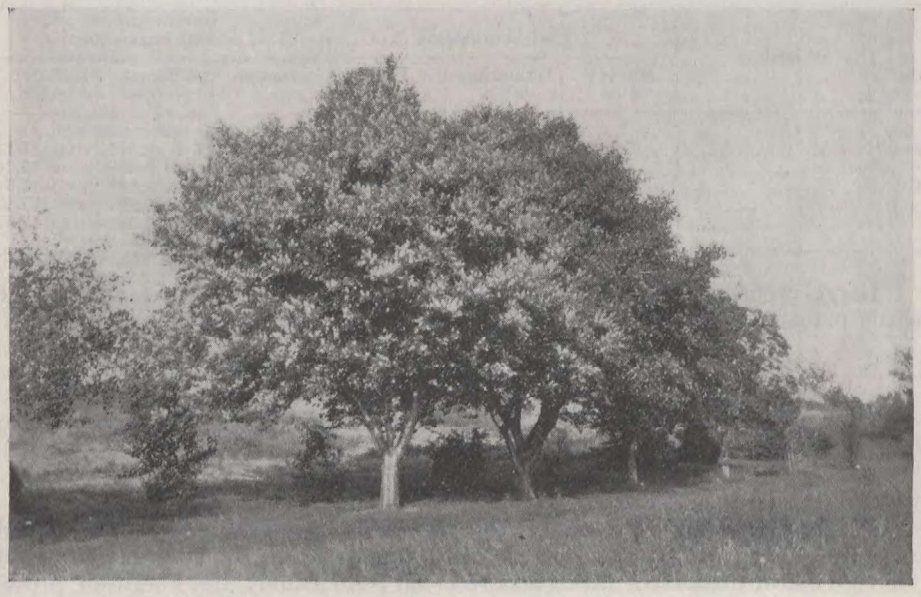
Test of Varieties.—Twelve varieties of celery were planted in the hotbeds on April 25, and set out in the open on July 7, 1927. A new strain of Paris Golden Yellow, the seed of which was received from Dupuy and Ferguson, proved to be of excellent quality.

CELERY—TEST OF VARIETIES

Standing	Variety and source of seed	Average weight of 12 heads	Yield in pounds per acre
		lb.	lb.
1	Giant Pascal (Graham)	22	31,944
2	Paris Golden Yellow (Steele-Briggs)	21	30,492
3	Winter Queen (Graham)	20	29,040
4	Emperor (Schell)	20	29,040
5	Golden Plume (Garrahan)	20	29,040
6	Golden Self Blanching (McDonald)	18	26,136
7	Rose Ribbed Self Blanching (Vaughan)	18	26,136
8	Easy Blanching (McDonald)	18	26,136
9	Paris Golden Yellow (Dupuy & Ferguson)	18	26,136
10	Paris Golden Yellow (New) (Dupuy & Ferguson)	18	26,136
11	Fordhook Emperor (Schell)	18	26,136
12	Golden Self Blanching (C.E.F. No. 3410)	16	23,232

The following varieties are recommended: Emperor, Fordhook Emperor and Rose Ribbed Self Blanching.

Methods of Blanching.—For several years celery has been planted and handled in a number of different ways to determine the best means of blanching for table use. Golden Self Blanching is the variety employed. When planted on the level, with plants 6 inches apart each way in the bed, there was a heavy yield, but plants were small, poorly blanched and consequently of poor quality. When planted on the level, 6 inches apart in rows 5 feet apart, and earthed up, quality was excellent. When planted on the level in a double row, with double rows 5 feet apart and blanched with roofing paper, the quality was fair. Planting in trenches 5 feet apart and earthing up gave the best quality of celery. When planted on the level in rows 5 feet apart and blanched with boards, the quality was good. This method is to be recommended for the production of early celery.



Belt of trees and shrubs planted along C. N. Railways in 1910, Charlottetown, P.E.I.

CITRON

Of two varieties sown this season, the variety "Colorado" proved superior to "Red Seeded". Both varieties, however, gave excellent yields of well matured melons.

SWEET CORN

Test of Varieties.—Seventeen varieties of sweet corn were sown on May 31. Each plot consisted of two rows 30 feet long and 3 feet apart. The following table gives the date ready for use, length of season, the yield of ears per plot and the yield of ears per acre.

SWEET CORN—TEST OF VARIETIES

Standing	Variety and source of seed	Ready for use and length of season	Yield in ears per plot	Yield in ears per acre
1	Golden Bantam (Moore)	Sept. 6-Oct. 3	102	24,684
2	Golden Bantam (McDonald)	Sept. 8-Oct. 3	97	23,474
3	Pickaninny (Ott. No. 6579-1926)	Aug. 20-Sept. 3	88	21,296
4	Sixty Day Golden (Child)	Aug. 29-Sept. 8	87	21,054
5	Mammoth White Cory (Graham)	Sept. 8-Oct. 3	71	17,182
6	Banting (1926 Strain-C.E.F.)	Aug. 20-Sept. 3	71	17,182
7	Whipple Early (Harris)	Sept. 8-Sept. 27	63	15,246
8	Golden Bantam (Graham)	Sept. 8-Sept. 27	62	15,004
9	Sunshine (Will)	Sept. 3-Sept. 21	54	13,068
10	Golden Country Gentleman (Henderson)	Sept. 12-Oct. 3	53	12,826
11	Assiniboine (Will)	Sept. 6-Sept. 21	52	12,584
12	Early Malcolm (C.E.F. No. 8988-9006)	Sept. 8-Sept. 27	51	12,342
13	Howling Mob (Burpee)	Sept. 8-Sept. 27	43	10,406
14	Whipple New Yellow (Harris)	Sept. 8-Sept. 27	42	10,164
15	The Burpee (Burpee)	Aug. 29-Sept. 28	38	9,196
16	Cory Early White (Graham)	Sept. 8-Sept. 21	36	8,712
17	Malakoff (Vaughan)	Sept. 8-Sept. 21	15	3,630

Suckering Experiment.—Two varieties of corn are used for this experiment, Golden Bantam and Early Malcolm. From one plot of each all suckers are removed as they appear during the season. On a duplicate plot the suckers are allowed to remain. Removing the suckers hastened maturity, but a larger total crop was harvested when the suckers were allowed to remain.

CUCUMBERS

Test of Varieties.—Seven varieties were planted but wilted badly. Prolific and Early Fortune are recommended.

EGG PLANT

One variety, Early Dwarf, was sown this season, and made excellent growth, producing large fruits of fine quality.

LETTUCE

Grand Rapids as a leaf lettuce, and New York and Wonderful as head lettuce, are the varieties that can be most strongly recommended for this province.

MUSK MELON

Golden Champlain was the outstanding variety grown this season. Melons cannot be produced economically on a commercial scale in this province, but are an interesting addition to the home garden.

ONIONS

Test of Varieties.—Onion yields were materially reduced this season by the work of the onion maggot. Nineteen varieties were planted on May 10 in rows 30 feet long, rows 15 inches apart.

ONIONS—TEST OF VARIETIES

Standing	Variety and source of seed	Yield 1927		Average yield 4-year period, 1924-27
		Per plot	Per acre	
			lb.	lb.
1	Southport Yellow Globe (McKenzie)	11	12,778	20,110
2	Large Red Wethersfield (Graham)	11	12,778	21,998
3	Southport White Globe (Steele Briggs)	10½	12,197	21,272
4	Ailsa Craig (Graham)	10½	12,197	24,104
5	Yellow Globe Danvers (Burpee)	10	11,616	.....
6	Mammoth Silver King (Graham)	9½	11,035	19,820
7	Large Red Wethersfield (Ott. 8615)	8½	9,874	22,507
8	Giant Prizetaker (Graham)	7	8,131	18,796
9	American Prizetaker (Burpee)	7	8,131	.....
10	Yellow Globe Danvers (Ott. 8693)	6½	7,550	.....
11	Early Flat Red (Graham)	5½	6,389	.....
12	Giant Prizetaker (Steele-Briggs)	5½	6,389	19,457
13	Australian Brown (McDonald)	5½	6,389	10,890
14	Yellow Globe Danvers (Graham)	5	5,808	20,328
15	Yellow Globe Danvers (James)	5	5,808	.....
16	Extra Selected Large Red Wethersfield (McDonald)	5	4,646	20,183
17	White Barletta (Graham)	4	4,646	13,140
18	Southport Red Globe (Steele Briggs)	4	4,646	18,731
19	Yellow Globe Danvers (Steele Briggs)	3½	4,066	19,965

PARSLEY

Of three varieties sown Triple Curled is recommended.

PARSNIPS

Five varieties were sown in the open on May 25, in rows 30 feet long by 30 inches wide. Some injury by rust fly was noted on the Guernsey XXX Half Long. Hollow Crown is the variety recommended for this province.

PEAS

Test of Varieties.—Twenty-three varieties were sown in the open on May 20, 1927. The following table shows date ready for use and length of season, yield in pounds from one row 30 feet long, yield in pounds per acre (unshelled), and average yield per acre, for many of the varieties, over a four-year period, 1924 to 1927 inclusive.

GARDEN PEAS—TEST OF VARIETIES

Standing	Variety and source of seed	Date ready for use and length of season	Yields, 1927		Average yield, 1924-1927 green, unshelled
			Per 30-ft. row	Per acre	
			lb.	lb.	lb.
1	Badger (Exp. St. Wisc.)	Aug. 3—Aug. 27	40½	19,602	
2	Horal (Exp. St. Wisc.)	July 28—Aug. 27	32½	15,730	
3	Market Garden (Gregory)	Aug. 8—Aug. 27	31¼	15,125	10,537
4	Gregory Surprise X Eng. Wonder (C.E.F. 8627)	July 24—Aug. 27	26½	12,826	
5	Potlatch or Stratagem (Buckbee)	Aug. 4—Aug. 27	25½	12,342	9,529
6	Phenomenon (Sutton)	Aug. 8—Aug. 19	23¼	11,253	
7	McLean Advancer (Ferry)	July 28—Aug. 13	22	10,648	
8	Gradus X Amer. Wonder (C.E.F. No. 8624)	July 24—Aug. 19	22	10,648	
9	Stratagem Improved (Graham)	Aug. 4—Aug. 27	21¾	10,527	5,959
10	Market Advancer (Harris)	July 28—Aug. 19	19	9,196	8,984
11	McLeanGarden (Andrews Mountain)	Aug. 8—Aug. 27	16¾	8,107	
12	Thomas Laxton (McDonald)	July 23—Aug. 27	15¾	7,623	6,564
13	Sutton Excelsior (Dreer)	July 25—Aug. 27	15¼	7,381	
14	Gradus or Prosperity (Rennie)	July 24—Aug. 27	14½	7,018	7,593
15	Laxtonian (Graham)	July 23—Aug. 5	14	6,776	6,060
16	Little Marvel (Rennie)	July 24—Aug. 5	13½	6,534	
17	Daisy (Patmore)	Aug. 12—Aug. 27	12½	6,050	7,048
18	British Wonder (Burpee)	July 30—Aug. 19	12½	6,050	7,201
19	English Wonder (C.E.F. No. 8511)	July 24—Aug. 13	12¼	5,929	
20	American Wonder (McDonald)	July 24—Aug. 5	9½	4,598	6,034
21	Pioneer (Sutton)	July 24—Aug. 5	8¾	4,235	
22	Reading Gem (Sutton)	July 27—Aug. 28	8¼	3,993	
23	Gregory Surprise (Gregory)	July 24—Aug. 5	4¾	2,299	4,673

PEAS

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. Distance apart in the row had no effect on date ready for use, but close planting apparently gave a slightly increased yield.

Variety and source of seed	Yield per 30-ft. row Distance between plants in row			Yield per acre Distance between plants in row		
	1 inch	2 inches	3 inches	1 inch	2 inches	3 inches
	Per plot	Per plot	Per plot	Per acre	Per acre	Per acre
	lb.	lb.	lb.	lb.	lb.	lb.
English Wonder (C.E.F. No. 10909).....	15½	10	10¾	7,502	4,840	5,203
Thomas Laxton (McDonald).....	10¼	9	9¾	4,961	4,356	4,719
Stratagem (Graham).....	16¼	16	13	7,865	7,744	6,292

PEAS FOR CANNING

Several varieties of peas were sown this season to test their suitability for canning purposes. Each variety occupied nine drills, 30 inches wide by 100 feet long. The following table notes the variety, the date ready for picking and the amount harvested per plot and per acre.

PEAS FOR CANNING

Variety	Date picking	Yield per plot	Yield per acre
		lb.	lb.
Horsford Market.....	Aug. 10	120	3,688
Alaska.....	July 25	109	3,350
Thomas Laxton.....	July 30	108	3,319
Rice Selected Advancer.....	Aug. 4	100	3,073
Green Admiral.....	Aug. 8	94	2,889

Field notes were also recorded as follows:—

Alaska.—Only fair in quality, but peas very uniform in size. Less damage by pea moth than in later maturing varieties.

Thomas Laxton.—A very large pea, not so uniform in size as Alaska, but of better quality and flavour.

Rice Selected Advancer.—Large pea of fair quality.

Green Admiral.—Of better quality than Alaska.

Horsford Market.—Fair to good in quality.

PEPPERS

Only one variety, Harris Earliest, was planted this season. This gave a really excellent crop.

PUMPKINS

Connecticut Field is recommended as a main crop, and the sugar varieties for table use on account of their high quality.

Standing	Variety and source of seed	Yield from 3 hills, 9 ft. x 9 ft.	Yield per acre
		lb.	lb.
1	Connecticut Field (McDonald)	295	52,864
2	King of Mammoths (Graham)	222	39,782
3	Small Sugar (Graham)	219	39,245
4	Pie (Brand)	166	29,747
5	Quaker Pie (McDonald)	132	23,654
6	Sweet or Sugar (C.E.F. No. 8290)	108	19,354

RADISHES

Scarlet White Tip and XXX Scarlet Oval are recommended varieties.

SPINACH

Bloomsdale is considered one of the best varieties for this province.

SQUASH

Test of Varieties.—Hubbard and Delicious are recommended varieties.

SQUASH—TEST OF VARIETIES

Standing	Variety and source of seed	Yield from three hills 9 ft. x 9 ft.	Yield per acre
		lb.	lb.
1	Warted Hubbard (Steele Briggs)	164	29,389
2	Golden Hubbard (McDonald)	136	24,371
3	Golden Hubbard (Harris)	110	19,712
4	Delicious (Graham)	50	8,960
5	Green Hubbard (Graham)	50	8,960
6	Perfect Gem (Morse)	50	8,960
7	Cream or Perfect Gem (Morse)	30	5,376

Hubbard and Acorn squash, Charlottetown, P.E.I.

TOMATOES

Forty varieties and strains were planted in the hotbeds on April 25, and set out in the open on June 20. Plants were in rows four feet apart and spaced four feet in the row. These plants were not pruned. The following table gives the yield of ripe and green fruit from five plants, the per cent of ripe fruit, which indicates the relative earliness of season, the amount of fruit ripened at various pickings, and the yield in pounds figured on an acre basis.

TOMATOES—TEST OF VARIETIES

Standing	Variety and source of seed	Ripe to Sept. 9	Ripe Sept. 10-18	Ripe Sept. 19-27	Total ripe per plot	Total green per plot	Total crop per plot	Per cent ripe fruit	Yield per acre
		lb.	lb.	lb.	lb.	lb.	lb.	per cent	lb.
1	Alacrity X Hipper (Ott. 9725)	9¾	8	23	40¾	54	94¾	43·0	51,591
2	Early Atlantic (McKenzie)	9	4	21½	34½	43	77½	44·5	42,198
3	Early Prosperity (Buckbee)	7½	1	21½	30	44½	74½	40·3	40,565
4	Alacrity X Earlibell (0·9729)	3¾	6	24½	34¼	39	73¼	46·8	39,884
5	Burbank (Bruce)	¼	2	11½	13¾	58½	72¼	19·0	39,340
6	Alacrity (Ott. No. 9720)	7¼	2¾	14½	24¼	46¾	70¾	34·3	38,523
7	Sunnybrook Earliana (Burpee)	10¼	2½	17½	30¼	31½	62¼	48·6	33,623
8	Bonny Best (Stokes)	4	3	8½	15½	44½	60	25·4	32,670
9	Chalks Early Jewel (Andrews Mt.)	5	4	6½	15½	42½	58	26·7	31,581
10	Cooper Special (Henderson)	5½	.....	9½	15	41½	56½	26·7	30,764
11	Earliana Grade III (Langdon)	11	5	16	32	22½	54½	58·7	29,675
12	Pink No. 1 (Ott. 9731)	2¾	1¾	11	15½	38	53½	28·6	28,995
13	Pen State Earliana (Stokes)	3½	3	9½	16	36	52	30·8	28,314
14	Bloomsdale (Langdon)	¾	½	6	7¼	44¾	51¾	14·0	28,178
15	Earliest Market (Buckbee)	7½	1	11½	20	31½	51½	38·8	28,042
16	Earliana Grade II (Langdon)	8½	5½	10¼	24½	18½	43	57·0	23,413
17	Select Earliana (Moore)*	2½	1½	6½	10½	30½	41	25·6	22,324
18	Jewel (Langdon)	¾	2	9	11¾	29	40¾	28·8	22,188
19	Bonny Best (Keith)	3¾	1	1	5¾	29½	35½	16·3	19,193
20	Matchless (Livingston)	.....	1	1½	2½	32	34½	7·2	18,785
21	L.G.B.B. No. 3 (Ott. 11392)	1½	3½	7	11¾	22	33¾	34·8	18,377
22	Sparks Earliana (Ewing)	1	.....	7½	8½	24½	33	25·8	17,988
23	Coreless (Livingston)	.....	.....	6	6	24½	30½	19·7	16,607
24	Greater Baltimore (Stokes)	.....	½	2½	3	27	30	10·0	16,334
25	Early Detroit (Ferry)	¼	.....	3	3¼	26	29¼	11·1	15,927
26	John Baer (Steele Briggs)	2¼	2	5	9¼	19½	28¾	32·2	15,653
27	Chalks Early Jewel (S.B.)	3¾	3½	5½	12¾	14½	27¼	46·8	14,837
28	Rosy Morn (Livingston)	¼	.....	1½	1¾	23½	25¼	6·9	13,749
29	Pink No. 2 (Ott. 9730)	1	1¾	4	6¾	16	22¾	29·7	12,387
30	Gulf State Market (Ferry)	.....	2¼	5	7¼	15	22¼	32·6	12,115
31	A.B.B. No. 2 (Ott. No. 11390)	1½	3	2	6½	15	21½	30·0	11,706
32	Marglobe (Stokes)	.....	3	3	6	15	21	28·6	11,434
33	XXX Scarlet Skin (Rennie)	¾	3	¼	4	15½	19¾	20·5	10,618
34	Stone (Livingston)	¼	.....	3½	3¾	8½	12¼	30·6	6,670
35	Red Rock (Langdon)	.....	½	1	1½	10	11½	13·0	6,262
36	Norton (Livingston)	.....	1	.....	1	10	11	9·0	5,989
37	Matchless (Burpee)	.....	.....	1	1	8½	9½	10·5	5,172
38	Prosperity (Rennie)	.....	.....	6½	6½	2½	9	72·2	4,900
39	Dwarf Stone (Livingston)	.....	¼	2	2¼	5	7¼	31·0	3,947
40	Dwarf Ponderosa (Buckbee)	.....	¼	1½	1¾	5	6¾	25·9	3,675

*Only variety to ripen fruit in August.

Method of Pruning.—This experiment has been conducted for a period of several years and is outlined to demonstrate possible means of increasing the production of ripe fruit, without materially reducing the total yield. Twenty-five plants were used for each plot, set one foot apart in rows four feet apart. The vines were pruned to a single stem, tied up to stakes and headed back at the first, second, or third truss of fruit, or not headed back at all.

Pruned to one stem, and	Yield in pounds					
	Bonny Best (Stokes)			Alacrity (C.E.F.)		
	Ripe fruit			Ripe fruit		
	Per 25 ft. row	Per acre		Per 25 ft. row	Per acre	
	1927	1927	1924-27	1927	1927	1924-27
Not headed back	96	41,819	28,613	100	43,560	29,117
Headed back above third fruit truss	104½	45,520	30,982	101½	44,213	31,418
Headed back above second fruit truss	72½	31,581	27,129	67	29,185	26,327
Headed back above first fruit truss	30½	13,286	14,810	31¾	13,830	15,600

It may be noted from the above table that stopping the vines above the first fruit truss very materially reduces the yield, but in some years, notably 1925 and 1927, the total crop produced ripened. Stopping the plant above the third fruit truss seems to have stimulated the plant to greater production, and a large part of the fruit ripened nicely.

Fox-tail lily (Eremurus robustus) 8 ft., 8 inches in height, Charlottetown, P.E.I.

Taken over a four-year period, the results of this and other experiments would warrant the following deductions:—

(*a*) If state of maturity is not a factor, the largest total yield is to be obtained from unpruned plants allowed to spread over the ground in the ordinary way.

(*b*) Pruning the plants to one or two stems and training on stakes increases the production of ripe fruit, improves the quality of the crop, and facilitates harvesting.

(*c*) If ripe fruit alone is the desired object, the plants so treated may be further pruned by heading back just above the first fruit truss.

(*d*) If large yield with a reasonably high percentage of ripe fruit is the objective, the plants should be headed back above the third fruit truss after pruning to one or two stems.

POTATOES

Sprouted vs. Dormant Seed Pieces.—Irish Cobblers and Green Mountains representing respectively early and late type are used in this experiment. These are planted fourteen inches apart in rows thirty inches apart. The unsprouted seed is kept as dormant as possible. The sprouted seed is exposed for five or six weeks in subdued light at a temperature between 40° and 50° F., or until the sprout becomes green and is well started in growth, possibly one-half inch long. The object is to determine the effect of sprouting on total yield, and also on date ready for use. All plots were planted May 30, 1927.

POTATOES—SPROUTED VS. UNSPROUTED SEED PIECES

Details	Sprouted				Unsprouted			
	Irish Cobbler		Green Mountain		Irish Cobbler		Green Mountain	
	1927	5-year average	1927	5-year average	1927	5-year average	1927	5-year average
	bush. lb.	bush. lb.	bush. lb.	bush. lb.	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Marketable.....	313 2	387 42	279 5	440 25	230 3	330 32	301 42	389 18
Unmarketable.....	45 15	62 59	33 56	64 22	75 26	69 42	49 2	70 28
Total.....	358 17	450 41	313 1	504 47	305 29	400 14	350 44	459 46
Date ready for use	July 30	July 21	Aug. 16	Aug. 2	Aug. 10	Aug. 1	Aug. 24	Aug. 12

Over a period of five years, sprouting the tubers before planting has increased the yield, for either early or main crop by approximately fifty bushels per acre. There is also an advantage gained of about ten days in date ready for use. Despite these apparent advantages, it must be pointed out that the sprouting of potatoes takes considerable time and space, and could only be considered practicable for small areas of land where very early crops are desired, such as in the home or market garden.

POTATOES—DATES OF PLANTING

Irish Cobblers as an early crop and Green Mountains as a main crop were planted at ten-day intervals, beginning May 30, to note effect on yield.

POTATOES—DATES OF PLANTING

Seeding	Irish Cobblers—1927							Green Mountains—1927						
	Marketable		Unmarketable		Total		% Crop marketable	Marketable		Unmarketable		Total		% Crop marketable
	bush.	lb.	bush.	lb.	bush.	lb.	bush. lb.	bush.	lb.	bush.	lb.	bush.	lb.	%
First seeding.....	230	3	75	20	305	23	75·3	301	42	49	1	350	43	86·0
Second seeding....	290	24	56	34	346	58	83·7	263	59	60	20	324	19	81·4
Third seeding.....	156	24	41	20	197	44	79·2	60	20	26	23	86	43	69·6
Fourth seeding....	109	22	120	41	230	3	47·5	22	37	96	10	118	47	19·0
Fifth seeding.....	18	51	85	4	103	55	17·9	0	0	37	42	37	42	0·0

The above experiment has been conducted over a period of five years. The following table gives the average yields during that time:—

POTATOES—DATES OF PLANTING—5-YEAR AVERAGE

Seeding	Irish Cobblers							Green Mountains						
	Marketable		Unmarketable		Total		% Crop marketable	Marketable		Unmarketable		Total		% Crop marketable
	bush.	lb.	bush.	lb.	bush.	lb.	%	bush.	lb.	bush.	lb.	bush.	lb.	%
First seeding.....	330	32	69	41	400	13	82·6	389	18	70	27	459	45	84·7
Second seeding....	413	10	93	34	506	44	81·5	453	32	73	26	526	58	86·1
Third seeding.....	315	4	80	15	395	19	79·7	315	37	68	19	383	56	82·2
Fourth seeding....	282	6	98	49	380	55	74·1	294	57	97	27	392	24	75·2
Fifth seeding.....	146	11	93	59	240	10	60·9	165	42	75	27	241	9	68·7

A study of the above table covering a five-year period indicates that an early type, as represented by Irish Cobbler, is not benefited, in so far as yield is concerned, by early planting. The main crop, on the other hand, as represented by Green Mountain, yields best when planted comparatively early.

RHUBARB

Rhubarb grown from seed was found sufficiently advanced at the end of two years to set out in perennial beds. Three-year-old plants were found to be large enough for forcing.

TREES, SHRUBS, FLOWERS AND LAWNS

Little or no winter injury was noted among the trees or shrubs at the Station.

Herbaceous perennials and particularly pæonies made a very fine showing. Heavy rains on several occasions caused some damage, but on the whole the perennials made a very fine showing.

Tulips and narcissi were perhaps not up to the usual standard; sweet peas and dahlias, however, were very fine, and the water lilies made a noteworthy display, favourably commented upon by many visitors.

The annual flower borders and the lawns were up to their usual high standard of perfection.

TREE FRUITS

APPLES

The variety orchard is coming into bearing nicely, and many of the newer varieties are now fruiting. Melba and Lobo give promise of being valuable additions to the planting list for this province. Both are seedlings of the McIntosh, and have inherited much of their parent's quality. Melba in this province comes in at about the Duchess season, while Lobo is at about the same season as the McIntosh. In our experience Lobo is a heavier and more reliable bearer than the McIntosh. Both are somewhat subject to scab and can be grown with success only in well sprayed orchards. Other varieties of promise are: Walter, Scarlet Pippin, Shiawassee Beauty, Rome Beauty, Brock, Winton and Neville. Scab was very prevalent and insects very numerous during the season. A co-operative spraying campaign throughout the province would do much toward controlling these.

Variety apple orchard planted in 1910, Charlottetown, P.E.I.

PEARS

The trees wintered well and made very satisfactory growth. There was a fair amount of bloom, but only a few varieties set fruit. As in former years, the varieties Lucrative and Flemish Beauty gave the highest yields. Lucrative is a medium sized pear of fair quality. The variety Flemish Beauty is very subject to scab; in fact, it is nearly impossible to produce a crop of clean fruit.

PLUMS

Black knot did not give much trouble this season. This is undoubtedly the result of the thorough spraying with lime-sulphur which the orchard receives each year. The few knots appearing during the summer were removed. The varieties giving the highest yields this year were: Imperial Gage, Monarch, Saunders, Moore Arctic and German Prune. The latter drops badly, which detracts considerably from its value as a commercial variety.

SMALL FRUITS

RASPBERRIES

Yields were somewhat reduced owing to the prevalence of mosaic in the plantation. All varieties tested here seem to be susceptible to this disease. Baumforth Seedling and Herbert were the two highest yielding varieties this year. Count and Brighton, two varieties originated at the Central Experimental Farm, Ottawa, are very promising.

CURRANTS

Very satisfactory yields were obtained this year from our currant plantation. Topsy, Climax and Victoria were the leading black varieties; while Holland Red, Knight Large and La Conde gave the highest yields of red currants. Only one variety of white currant, White Cherry, is under test here. This variety was considerably below either the red or black varieties in production.

GOOSEBERRIES

The following six varieties of gooseberries are under test here: Mabel, Keepsake, Downing, Pearl, Red Jacket and Smith Improved. During the last five years the Pearl has produced the largest amount of fruit, with Downing second in production. Both these varieties are vigorous and free from mildew.

STRAWBERRIES

Although the strawberry weevil was much in evidence this year and did considerable damage, the yields were fairly satisfactory. Dusting with sulphur lead arsenate, which is commonly recommended for the control of weevil, has not proved so satisfactory as we expected. It was also observed that imperfect varieties grown adjoining perfect varieties were as liable to atack from this insect as were perfect varieties. Further work is to be conducted in the hope of finding a satisfactory control for this pest.

CEREALS*

SEASONAL NOTES

The seeding season of 1927 was late and farm work was greatly delayed during May by cold northeast winds that came off the sea ice in the gulf of St. Lawrence. Work was first commenced on the land on May 10, and seeding became general May 21. The cereals germinated well and grew rapidly during the favourable weather of June and July. There were four periods of heavy rain in August, and heavy grain lodged badly. Most of the grain was well saved during the favourable harvest weather of September and the first week of October. The balance of October was wet, and the late grain was out in a great deal of bad weather.

ROTATION FOR VARIETY TESTS

This is a special grain-growing rotation permitting half of the area each year to be seeded to cereals.

First year.—Hoed crop, manured at the rate of 12 tons per acre.

Second year.—Grain, seeded down with 10 pounds red clover, 2 pounds alsike and 6 pounds timothy per acre.

* Work with cereals is under the supervision of B. Frank Tinney, M.S.A., and he has assisted materially in the preparation of the report coming under this heading.

Third year.—Clover hay. Eight tons of manure per acre are applied immediately following the harvesting of the grain crop. The land is then ploughed and topworked in preparation for the following year's grain crop.

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

SYSTEM OF TESTING VARIETIES AND STRAINS

Four different types of plots are used at this Station in testing varieties and strains of cereals.

Head Rows.—These are single rows 36 inches long, planted with nineteen kernels or seeds taken from a single head or panicle. The head row is employed when making an intensive study of material.

Small Increase Plots.—These also are 36 inches long and consist of from three to ten rows according to the amount of seed available. These plots are used for purposes of increasing as well as making further study of the material 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 plot 16½ feet or one rod long. Three or five rows are seeded, the outside row on either side being discarded at harvest time. Each variety or strain appears in the series not less than four times.

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

In addition to the test plots larger areas are devoted to the production of registered seed.

NUMBER OF PLOTS—1927

Kind of Crop	Head rows	Small increase plots	Rod row plots	1-60 acre plots	Propagation plots	Total
Wheat	97	31	180	16	3	327
Oats	1	3	343	38	4	389
Barley	60	56	350	25	2	493
Total	158	90	873	79	9	1,209

BARLEY—TEST OF VARIETIES

Eleven varieties and strains of barley were seeded in duplicate one-sixtieth acre plots on May 24, 1927. The season was favourable for growth, but wet weather caused difficulty in harvesting.

BARLEY—TEST OF VARIETIES

Name of variety	Date of ripening	No. of days to mature	Average length straw including head	Strength straw scale of 10 points	Comparative yield, Ch. No.80 = 100	Actual yield per acre
			inches			lb.
Chinese (Ott. 60)	Aug. 16	85	39	10	120·8	2,355
Gold (Sweden)	" 24	93	31	10	118·1	2,303
Charlottetown No. 80 (Reselection)	" 27	96	31	10	106·4	*2,074
Charlottetown No. 80	" 27	96	30	10	100·0	†1,950
Horn C.I. No. 926	" 30	99	35	7·5	96·2	1,875
Swedish Chevalier	" 24	93	40	10	94·6	1,845
O.A.C. No. 21	" 16	85	38	10	92·3	1,800
Himalayan (Ott. 59)	" 15	84	30	10	81·9	‡1,598
Gold (Ch'town Seed)	" 23	92	33	10	80·4	1,568
Albert (Ott. 54)	" 12	81	32	10	78·5	1,530
Duckbill (Ott. 57)	" 19	88	45	10	76·2	1,485

*Average 4 plots. †Single plot only. ‡ Hulless variety.

AVERAGE YIELDS BARLEY AT CHARLOTTETOWN, 1912-1927 INCLUSIVE

Year	Actual yield Ch. No. 80 barley in lb. per ac.	Standing of different varieties relative to Charlottetown No. 80 (Charlottetown No. 80=100)								
		Ch'town No. 80	Swedish Chevalier	Gold	O.A.C. 21	Duckbill Ott. 57	Himalayan Ott. 59	Chinese Ott. No. 60	Horn C.I. 926	Ch'town No. 80 selection
	lb.									
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	.....	.....	.....	.....
1921	2,492	100	84·5	89·3	93·6	107·9	84·5	109·4	.....	.....
1922	2,070	100	132·8	100·7	110·1	98·6	97·1	118·1	.....	.....
1923	2,291	100	110·5	77·3	86·7	92·2	67·3	81·5	145·1	.....
1924	3,568	100	73·1	81·9	101·1	118·7	105·3	105·6	114·9	.....
1925	4,035	100	66·5	81·0	77·1	75·1	73·2	79·0	64·7	.....
1926	2,918	100	55·8	77·4	97·2	76·4	72·0	91·8	106·2	83·7
1927	1,950	100	94·6	80·4	92·3	76·2	81·9	120·8	96·2	106·4
Averages—										
1912-27	2,978	100	89·7	91·9	97·0	.....	.....	.....	.....	.....
1916-27	2,789	100	89·1	90·8	100·4	.....	.....	.....	.....	.....
1920-27	2,835	100	87·9	83·8	92·7	90·0	.....	.....	.....	.....
1924-27	3,118	100	72·5	80·2	91·9	86·6	83·1	99·3	95·5	.....

OATS—TEST OF VARIETIES

Nineteen varieties and strains of oats were planted in duplicate one-sixtieth acre plots on May 25, 1927. These are reported in the two tables following:—

OATS—TEST OF VARIETIES

Name of variety	Date of ripening	No. of days to mature	Average length straw including head	Strength straw scale of 10 points	Comparative yield Banner Ott. No. 49=100	Actual yield in lb. per acre
			inches		%	lb.
Banner, Ott. 49	Aug. 25	93	43	10	100·0	2,265
O.A.C. No. 72	" 26	94	48	9	98·0	2,220
Gold Rain	" 25	93	45	10	95·7	2,168
Columbian Ott. 78	" 26	94	43	10	93·4	2,115
Prolific Ott. 77	" 25	93	41	10	89·4	2,025
Victory	" 26	94	42	10	86·4	1,958
Longfellow Ott. 478	" 22	90	41	9	82·5	1,868
Old Island Black	" 26	94	46	10	79·8	1,808
*Laurel Ott. 477	" 24	92	37	9	77·5	1,755
Northland	" 26	94	46	9	75·5	1,710
*Liberty Ott. 480	" 19	87	43	8·5	71·5	1,620
Daubeney	" 17	85	43	9	67·5	1,530
Alaska	" 17	85	40	9	52·3	1,185

*Hulless varieties.

TEST OF STRAINS OF BANNER OATS

Name of variety	Date of ripening	No. of days to mature	Average length straw including head	Strength straw scale of 10 points	Comparative yield Banner Ott. No. 49=100	Actual yield in lb. per acre
			inches		%	lb.
Langille	Aug. 24	92	46	10	119·9	2,715
Waugh	" 26	94	48	10	113·2	2,565
Sask. No. 99	" 26	94	49	10	111·6	2,528
Dow	" 27	95	47	10	101·3	2,295
Ottawa No. 49	" 25	93	43	10	100·0	2,265
M.C. 4407	" 23	91	44	10	93·7	2,123
Dixon	" 26	94	45	10	90·4	2,048

AVERAGE YIELDS OF OATS AT CHARLOTTETOWN, 1912–1927 INCLUSIVE

Year	Actual yield Banner 0·49 in lb. per acre	Standing of different varieties relative to Banner Ottawa No. 49 (Banner No. 49 = 100)															
		Banner Ottawa No. 49	Gold Rain	Victory	Old Island Black	Daubeney	O.A.C. No. 72	Liberty Ottawa No. 486	Longfellow Ottawa No. 478	Northland	Prolific Ottawa No. 77	Banner Sask. No. 99	Banner Langille	Banner Dow	Banner M.C. No.4407	Banner Waugh	Banner Dixon
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	2,996	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	113·8	102·5	72·3	93·3	92·4	83·1
1924	2,314	100	89·7	135·3	84·9	107·3	131·5	118·1	122·8	125·4	125·3	101·5	109·3	82·8	81·5	80·8	66·2
1925	2,385	100	92·8	96·9	118·6	68·9	89·3	.....	.....	.....	90·6	105·4	94·3	100·6	97·2	92·8	94·6
1926	2,858	100	120·0	88·2	75·0	59·6	87·6	46·7	71·7	84·9	107·1	105·8	92·9	103·8	101·3	104·9	90·6
1927	2,265	100	95·7	86·4	79·8	67·5	98·0	71·5	82·5	75·5	89·4	111·6	119·9	101·3	93·7	113·2	90·4
Average—																	
1912–27	2,520	100	107·2	111·4	*96·1	80·2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1916–27	2,513	100	99·6	104·9	*93·1	76·2	97·5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1920–27	2,525	100	96·3	101·8	91·7	75·6	90·0	.....	†82·5	.....	.....	.....	.....	.....	.....	.....	.....
1924–27	2,455	100	99·6	101·7	89·6	75·8	101·6	.....	†92·3	†95·3	103·1	106·1	104·1	97·1	93·4	97·9	85·5

*1919 missing. †1925 missing.

SPRING WHEAT

Eight varieties were seeded in duplicate one-sixtieth acre plots on May 24, 1927.

SPRING WHEAT—TEST OF VARIETIES

Variety	Date of ripening	Number of days to mature	Average length straw including head	Strength straw scale of 10 points	Comparative yield Huron 0·3=100	Actual yield in lb. per acre
			inches		per cent	lb.
White Russian	Sept. 1	101	44	9·5	105·1	1,718
Huron, Ottawa 3	Aug. 30	99	43	10·0	100·0	1,635
Early Russian, Ottawa 41	Aug. 31	100	44	8·5	99·6	1,628
Charlottetown No. 123	Sept. 3	103	42	10·0	85·8	1,403
Early Red Fife, Ottawa No. 16	Sept. 2	102	42	10·0	80·3	1,313
Marquis, Ottawa 15 (for Chemist)	Aug. 31	100	42	10·0	77·1	1,260
Reward, Ottawa 928	Aug. 23	92	35	9·0	67·9	1,110
White Fife, Ottawa No. 11	Sept. 2	102	40	10·0	62·9	1,028

AVERAGE YIELD SPRING WHEAT AT CHARLOTTETOWN, 1912–27 INCLUSIVE

Year	Actual yield Huron, Ottawa No. 3 in lb. per acre	Standing of 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	Charlottetown No. 123	Reward, Ottawa No. 928
	lb.		per cent	per cent	per cent	per cent	per cent	per cent	per cent
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	59·8
1926	2,775	100	91·9	67·0	75·6	62·4	88·1	95·6	65·4
1927	1,635	100	77·1	105·1	62·9	80·3	99·6	85·8	67·9
Average:—									
1912–27	.....	100	91·7	90·3	.....	88·3	.....	.....	.....
1916–27	.....	100	89·5	93·9	.....	85·2	.....	.....	.....
1920–27	.....	100	89·5	89·0	.....	90·0	106·0	94·9	.....
1924–27	.....	100	85·0	83·3	72·8	69·7	97·3	93·9	.....

FALL SOWN WHEAT

For the first time in many years, fall sown or so-called "winter" wheat was grown at the Charlottetown Station. An area consisting of four one-fortieth-acre plots was available for this work and three of these plots were seeded on October 1, 1926 with three different strains of Kharkov. The fourth plot was sown on May 30, 1927, with Early Red Fife.

The winter wheat came through fairly well, and although the crop was light, it compared favourably with the spring sown plot.

FALL SOWN WHEAT

Variety	Yield per acre in lb.	
	Straw	Grain
Kharkov M.C. 112	2,321	546
Kharkov M.C. 2212	2,413	546
Kkarkov M.C. 1312	2,913	728
Early Red Fife (Spring sown)	2,840	960

Further seedings were made in October, 1927 for harvesting in 1928.

AREAS DEVOTED TO SEED PRODUCTION, 1927

Crop	Variety	Field	Preceding crop	Acreage	Yield per acre
				acres	lb.
Wheat	Huron	B–II	Potatoes	1·0	759
Wheat	Charlottetown No. 123	G–II	Turnips	0·4	1,015
Wheat	Early Red Fife	C–III	Potatoes	0·57	1,070
Oats	Banner	A–II	Mangels	1·0	2,010
Oats	Banner	Connolly	Hoed crop	8·5	1,602
Oats	O.A.C. 72	G–VII	Timothy	0·4	1,450
Oats	Banner	B–IV	Clover	1·0	1,160
Barley	Charlottetown No. 80	CC–III	Mangels	5·5	1,562
Barley	Charlottetown No. 80	A–V	Timothy	1·0	1,160

FORAGE CROPS*

THE SEASON

The grass and clover came through the winter in good condition, and made a good start early in the spring of 1927. Cold, north-east winds during April and May with occasional frosts checked it, so that it dwindled and grew very slowly during May and the dry period in June. The seeding of roots and corn was late. The long open autumn was favourable and the yield of corn was heavy. The roots made slow growth until after the bright, fine weather in September, when they grew rapidly until harvested in November.

ENSILAGE CROPS

CORN

The season was late for seeding, but in general was satisfactory for corn. Eleven varieties were planted June 14, 1927, and gave the following yields:—

INDIAN CORN FOR ENSILAGE—TEST OF VARIETIES

No.	Variety or strain	Average height	State of maturity	Green yield per acre	Per cent dry matter	Dry matter per acre
		ins.		lb.	p.c.	lb.
1	Pride Yellow Dent (Disco)	78	Watery	37,462	18·41	6,895
2	Northwest Dent, Crookston Strain (McKenzie)	72	Early dough	31,653	19·10	6,046
3	Twitchell Pride X Wisc. No. 7 (Harrow)	78	Milk stage	34,935	17·03	5,951
4	Northwest Dent (Disco)	75	Milk stage	34,906	16·17	5,644
5	Longfellow (Disco)	78	Soft dough	33,048	16·67	5,510
6	Northwest Dent (Brandon)	64	Firm dough	28,285	18·51	5,236
7	Longfellow (Duke)	86	Soft dough	34,383	15·11	5,196
8	Compton Early (Duke)	86	Watery	30,318	15·98	4,846
9	Quebec No. 28 (M.C.)	60	Firm dough	26,484	18·29	4,844
10	Bailey (Duke)	82	Early milk	27,936	16·51	4,613
11	Golden Glow (Duke)	82	Early milk	27,356	16·53	4,522

*Work with forage crops is under the supervision of D. C. Schurman, M.S.A., and he has assisted materially in the preparation of the report coming under this heading.

All varieties of corn were sown in triplicate plots. The above figures are the mean of three plots.

SUNFLOWERS

Three varieties were sown in duplicate on June 15, 1927.

No.	Variety and source	Yield in pounds per acre	Per cent dry matter	Dry matter in lb. per acre
		lb.	p.c.	lb.
1	Mammoth Russian (McDonald)	39,030	13·13	5,126
2	Giant Russian (Disco)	31,102	13·70	4,260
3	Ottawa No. 76 (C.E.F.)	25,700	14·38	3,696

ROOTS

With the exception of sugar beets, which were in duplicate, all roots were planted in triplicate plots this season. Seedings of mangels were made on June 10, 1927.

MANGELS—TEST OF VARIETIES

No.	Variety and source	Yield in pounds per acre	Per cent dry matter	Dry matter per acre
		lb.	p.c.	lb.
1	Stryno Barres (H. Hartmann)	53,579	10·93	5,857
2	Danish Sludstrup (McDonald)	49,659	11·74	5,831
3	Giant White Half Sugar (Ewing)	41,092	12·52	5,144
4	Long Red Mammoth (Ewing)	41,527	11·94	4,957
5*	Red Globe (Dupuy and Ferguson)	41,382	11·91	4,929
6	Rosted Barres (H. Hartmann)	43,270	11·38	4,923
7	Red Top Half Sugar (H. Hartmann)	36,736	13·33	4,897
8	Giant Yellow Globe (Ewing)	50,675	9·64	4,887
9	Red Globe (Ewing)	36,155	11·54	4,137
10	Elvetham Mammoth (H. Hartmann)	34,412	11·32	3,897

* Two plots only.

Five additional varieties were planted but germinated so poorly that yields had to be discarded.

SUGAR BEETS—TEST OF VARIETIES

Nine varieties were sown in duplicate plots on June 10, 1927 and made satisfactory growth. In addition to green weight per acre and percentage dry matter, determinations also were made on the percentage of sugar and coefficient of purity for each variety.

SUGAR BEETS—TEST OF VARIETIES

Standing	Variety	Per cent sugar in juice	Coefficient of purity	Yield per acre	Per cent dry matter	Dry matter per acre
		p.c.	p.c.	lb.	p.c.	lb.
1	Horning	17·69	88·88	27,225	24·30	6,615
2	Ivanovsk IV (a)	18·13	90·82	27,660	23·90	6,610
3	Ivanovsk IV (b)	17·65	89·35	26,572	24·50	6,511
4	Home Grown	17·82	88·81	26,572	24·13	6,468
5	Uladovsk	17·16	88·55	25,918	24·35	6,310
6	Dippe	18·00	90·65	24,394	24·50	5,976
7	Belotzerkov	17·18	88·46	24,394	23·71	5,783
8	Verchniatchka	17·47	90·48	23,305	24·65	5,745
9	Schreiber & Sons	18·18	89·51	22,216	25·46	5,656

SWEDE TURNIPS—TEST OF VARIETIES

Seventeen varieties of swede turnips were seeded in triplicate plots on June 11, 1927. The following table gives the mean yield of three plots unless otherwise indicated.

SWEDE TURNIPS—TEST OF VARIETIES

Standing	Variety and source	Yield per acre	Per cent dry matter	Dry matter per acre
		lb.	p.c.	lb.
1	Hall Westbury (McDonald)	51,546	10·36	5,339
2	Corning (Yarmouth Fruit Producers)	48,787	10·70	5,218
3	Invicta Bronze Top (Ewing)	42,399	11·62	4,925
4	Ditmars	48,061	10·07	4,839
5	Ditmars (Ditmars)	48,351	9·87	4,771
6	Hall Westbury (Ewing)	48,061	9·88	4,747
7	Hall Westbury (Home Grown)	43,850	10·36	4,545
8	Bangholm (Ewing)	44,867	10·10	4,530
9	Bangholm (Charlottetown)	36,881	12·05	4,443
10	*Sutton Champion Purple Top (Ewing)	37,897	11·20	4,245
11	Bangholm (Charlottetown)	34,267	11·82	4,051
12	Millpond	39,495	9·55	3,773
13	New Century (Bruce)	32,334	11·45	3,702
14	Sutton Champion Purple Top (Rennie)	32,334	11·33	3,665
15	Haszard Improved (Carter & Co.)	35,574	10·19	3,624
16	Kangaroo (Ewing)	33,105	10·70	3,541
17	Bangholm (Gen. Swed. Seed Co.)	27,588	11·53	3,181

* Average two plots only.

SOILS AND FERTILIZERS

MANURE VS. COMMERCIAL FERTILIZERS FOR POTATOES

This experimental work has been in operation continuously since the year 1923. The first plot receives stable manure at the rate of 20 tons per acre; plot two receives a complete fertilizer at a rate equivalent to 1,000 pounds per acre of a 4-8-8 mixture; and a third plot receives stable manure at the rate of 10 tons per acre plus 500 pounds of a 4-8-8 fertilizer. These are compared in yield with a check plot receiving no treatment. This experiment is conducted on a four-year rotation: Potatoes, grain, clover and timothy, and also a series in which potatoes are grown continuously.

MANURE VS. CHEMICAL FERTILIZER ON POTATOES IN ROTATION

Treatment received per acre	Yield in pounds per acre, 1927				Yield in pounds, average 5 years, 1923-1927			
	Large	Small	Total	Marketable	Large	Small	Total	Marketable
	lb.	lb.	lb.	p.c.	lb.	lb.	lb.	p.c.
Manure, 20 tons per acre	10,992	2,608	13,600	80·8	9,799	2,184	11,983	81·8
No manure Nit. soda, 130 lb Sul. amm., 100 lb Superphos., 500 lb Mur. pot., 160 lb	5,504 *	2,208	7,712	71·4	7,077	2,319	9,396	75·3
Manure, 10 tons Nit. soda, 65 lb Sul. amm., 50 lb Super., 250 lb Mur. pot., 80 lb	7,040 †	800	7,840	89·8	9,821	1,761	11,582	84·8
No manure, no fertilizer	1,280	1,360	2,640	48·5	2,547	1,240	3,787	67·3

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

The data of the above table show that the yields of potatoes are being maintained on the plot which received stable manure at the rate of 20 tons per acre; on the plots which received manure in conjunction with fertilizers and fertilizers alone, the yields have dropped much below the average for the five years.

MANURE VS. CHEMICAL FERTILIZER ON POTATOES GROWN CONTINUOUSLY

Treatment received per acre	Yield in pounds per acre, 1927				Yield in pounds, average 5 years 1923-1927			
	Large	Small	Total	Marketable	Large	Small	Total	Marketable
	lb.	lb.	lb.	p.c.	lb.	lb.	lb.	p.c.
Manure, 20 tons per acre	9,200	3,792	12,992	70·8	8,258	3,042	11,300	73·1
No manure, Nit. Soda, 130 lb, Superphos., 500 lb, Sulph. amm., 100 lb, Mur. pot., 160 lb *	2,080	1,552	3,632	57·3	5,794	1,965	7,759	74·7
Manure, 10 tons, Nit. soda, 65 lb, Superphos., 250 lb, Sulph. amm., 50 lb, Mur. pot., 80 lb †	8,000	2,560	10,560	75·8	7,872	2,414	10,286	76·5
No manure, no fertilizer	160	704	864	18·6	925	1,604	2,529	36·6

* Equivalent to 1,000 pounds of a 4-8-8 mixture, per acre.
† Equivalent to 500 pounds of a 4-8-8 mixture, per acre.

From a study of the two preceding tables it is notable that the yields of potatoes grown continuously with stable manure or with manure and fertilizer are being well maintained. This does not hold true for potatoes grown with chemical fertilizer alone. It is obvious also, that the percentage of marketable tubers is lower where potatoes are grown continuously than when grown in rotation.

STABLE MANURE VS. CHEMICAL FERTILIZER FOR POTATOES

A new experiment similar to the preceding one was started this season. As in the preceding experiment, opportunity is given to study the relative merits of stable manure and chemical fertilizer for the production of potatoes when these materials are used singly or in combination. There is also opportunity for studying the effect of these materials on potatoes grown in a three-year rotation as well as on potatoes grown continuously on the same soil. Nitrogen is being supplied to certain plots by application of nitrate of soda, and to others by sulphate of ammonia. Complete chemical and physical analyses of the soil are being made, and in due time an attempt will be made to determine the effect of the various treatments on soil fertility, soil reaction, etc., and also on plant diseases.

The following is an outline of the experiment:—

POTATOES GROWN ON SAME LAND CONTINUOUSLY

Plot 1: Check—no treatment.
Plot 2: Fifteen tons manure per acre per year.
Plot 3: 258 lb. nitrate of soda, 500 lb. superphosphate, 160 lb. muriate of potash } Per acre per year.
Plot 4: 200 lb. sulphate ammonia, 500 lb. superphosphate, 160 lb. muriate potash } Per acre per year.
Plot 5: 7½ tons manure, 129 lb. nitrate soda, 250 lb. superphosphate, 80 lb. muriate potash } Per acre per year.
Plot 6: 7½ tons manure, 100 lb. sulphate ammonia, 250 lb. superphosphate, 80 lb. muriate potash } Per acre per year.

POTATOES GROWN IN ROTATION (3-YEAR)

1st year—Potatoes—to receive treatment as above.
2nd year—Wheat—seeded down.
3rd Year—Clover hay.

The following table gives, in tabular form, the treatment, together with the yield per acre of potatoes for 1927:—

MANURE VS. CHEMICAL FERTILIZERS FOR POTATOES

Treatment No.	Material Applied					Plant food supplied by Chemicals			Yield in Pounds per acre					
									Grown continuously			Grown in Rotation		
	Stable Manure*	Nitrate Soda (15½%)	Sulphate Amm. (20%)	Superphosphate (16%)	Muriate Potash (50%)	N	P_2O_5	K_2O	Marketable	Unmarketable	Total	Marketable	Unmarketable	Total
	ton	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1	.....	.....	.....	.....	.....	....	....	....	3,320	2,320	5,640	6,600	3,080	9,680
2	15	.....	.....	.....	.....	....	....	....	7,600	2,600	10,200	11,800	2,080	13,880
3	.....	258	.....	500	160	40	80	80	5,920	2,880	8,800	8,720	3,200	11,920
4	.....	.....	200	500	160	40	80	80	7,040	1,280	8,320	4,960	1,440	6,400
5	7½	129	.....	250	80	20	40	40	9,560	3,400	12,960	10,400	3,600	14,000
6	7½	.....	100	250	80	20	40	40	9,120	2,440	11,560	6,800	1,960	8,760

*Composition not determined.

Chemicals applied to plots 3 and 4 equivalent to 1,000 pounds per acre of a 4-8-8 mixture.

Chemicals applied to plots 5 and 6 equivalent to 500 pounds per acre of a 4-8-8 mixture.

Some interesting data should accrue from this experiment.

FERTILIZER FORMULÆ 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.
4th year—Potatoes—no fertilizer treatment.

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

The potato crop of 1925 completed the first cycle of the rotation, and in the spring of 1926 fertilizer was again applied as per plan, and a potato crop grown being the first year of the second cycle of the rotation.

The wheat crop reported in the following table represents the second year of the second cycle of the rotation.

With reference to the check plots it may be noted that the "permanent check" has received no treatment whatsoever for a great many years. Apart from this plot the entire area except the second check plot, received an application of oyster shell mud during the autumn or early winter of 1917. The entire area, except the permanent check, received a coating of stable manure the same autumn.

FERTILIZERS FORMULAE FOR POTATOES

Applications in pounds per acre, in 1922 and in 1926				Equal to	Yield in lb. per acre
Nitrate of Soda	Sulphate of Ammonia	Super-phosphate	Muriate of Potash		Wheat 1927
				2000 lb. of:	lb. grain.
390	300	750	240	6-6-6	1,120
325	250	750	240	5-6-6	950
260	200	750	240	4-6-6	1,050
195	150	750	240	3-6-6	990
325	250	1,000	240	5-8-6	970
260	200	1,000	240	4-8-6	1,080
195	150	1,000	240	3-8-6	980
260	200	1,000	400	4-8-10	1,120
260	200	1,000	320	4-8-8	880
260	200	1,000	160	4-8-4	940
				1,500 lb. of	
290	225	560	180	6-6-6	840
245	190	560	180	5-6-6	850
195	150	560	180	4-6-6	850
145	115	560	180	3-6-6	780
245	190	750	180	5-8-6	900
195	150	750	180	4-8-6	780
145	115	750	180	3-8-6	800
195	150	750	300	4-8-10	910
195	150	750	240	4-8-8	890
195	150	750	120	4-8-4	900
				1,000 lb. of	
195	150	375	120	6-6-6	840
165	125	375	120	5-6-6	810
130	100	375	120	4-6-6	700
100	75	375	120	3-6-6	670
165	125	500	120	5-8-6	620
130	100	500	120	4-8-6	850
100	75	500	120	3-8-6	920
130	100	500	200	4-8-10	970
130	100	500	160	4-8-8	830
130	100	500	80	4-8-4	780
Permanent check plot (No chemical fertilizer, no manure, no shell mud).....					320
Check—No chemical fertilizer or shell mud, but received manure (Autumn 1917).....					380
Check—{average of 13 plots} manure and shell mud (Autumn 1917) but no chemical fertilizer...					665

SOURCES OF PHOSPHORIC ACID

An experiment was started in 1925 to determine the relative merits of several sources of phosphoric acid. Bessemer Slag (16 per cent), superphosphate (16 per cent), Ephos Basic Phosphate (27.5 per cent), and Ammo-Phos (two grades, 13-48 and 20-20) supplied the phosphoric acid. Ephos is a ground Egyptian phosphatic rock, containing about 28 per cent of phosphoric acid in the form of tribasic phosphate of lime, and is distributed by the Egyptian Phosphate Company of London, England. Ammo-Phos is 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. The 20-20 grade contains 20 per cent ammonia, or 16.5 per cent nitrogen, and 20 per cent phosphoric acid.

All treatments were in quadruplicate with suitable checks.

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	1927
		N	P_2O_5	K_2O	Turnips	Oats	Clover hay
0	Check—no treatment—(16 plots)	.....	.....	.....	11,660	1,075	1,555
1	292 lb. Ephos	.....	80	.....	20,560	955	1,299
2	500 lb. superphosphate	.....	80	.....	25,040	880	1,247
3	500 lb. Bessemer slag	.....	80	.....	17,200	993	1,361
4	150 lb. nitrate of soda	24	.....	.....	25,540	990	1,398
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....
	292 lb. Ephos	.....	80	.....	.....	.....	.....
5	500 lb. super phosphate	.....	80	.....	.....	.....	.....
	150 lb. nitrate of soda	24	.....	.....	40,280	1,173	1,546
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....
6	500 lb. Bessemer slag	.....	80	.....	.....	.....	.....
	150 lb. nitrate of soda	24	.....	.....	18,020	990	1,884
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....
7	150 lb. nitrate of soda	24	.....	.....	11,120	980	1,218
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....
8	167 lb. ammo-phos. (13-48)	18	80	.....	22,500	1,167	1,631
9	400 lb. ammo-phos. (20-20)	66	80	.....	19,120	1,070	1,694
10	167 lb. ammo-phos. (13-48)	18	80	.....	.....	.....	.....
	39 lb. nitrate of soda	6	.....	.....	30,180	1,260	1,994
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....
11	146 lb. ammo-phos. (20-20)	24	29	.....	.....	.....	.....
	350 lb. superphosphate*	.....	56	.....	29,600	1,207	1,914
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....

* This should have been about 320 pounds of acid phosphate, as 350 pounds gives slightly too much total phosphoric acid for this plot.

SOURCES OF PHOSPHORIC ACID

The experiment outlined in the preceding section was again undertaken in 1926 on a different area. That part of the experiment relating to Ammo-Phos was omitted, as this material was being tested on potatoes.

SOURCES OF PHOSPHORIC ACID

Treatment number	Fertilizers applied, kind and rate per acre	Plant food supplied, pounds per acre			1926 Turnips		1927 Barley	
		N	P_2O_5	K_2O	Average yield, pounds per acre	Relative standing	Average yield, pounds per acre	Relative standing
					lb.	p.c.	lb.	p.c.
1	Check—no treatment (7 plots)	.....	.....	.....	15,452	100·0	632	100·0
2	292 lb. Ephos	.....	80	.....	15,630	101·2	705	111·6
3	500 lb. superphosphate	.....	80	.....	24,160	156·4	658	104·1
4	500 lb. Bessemer slag	.....	80	.....	15,280	98·9	639	101·1
5	292 lb. Ephos	.....	80	.....	.....	.....	.....	.....
	150 lb. nitrate of soda	24	.....	.....	21,440	138·8	672	106·3
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....	.....
6	500 lb. superphosphate	.....	80	.....	.....	.....	.....	.....
	150 lb. nitrate of soda	24	.....	.....	21,840	141·3	769	121·7
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....	.....
7	500 lb. Bessemer slag	.....	80	.....	.....	.....	.....	.....
	150 lb. nitrate of soda	24	.....	.....	16,960	109·8	775	122·6
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....	.....
8	150 lb. nitrate of soda	24	.....	.....	14,400	93·9	674	106·6
	100 lb. muriate of potash	.....	.....	50	.....	.....	.....	.....

For the 1926 crop it is noticeable that phosphoric acid is a limiting factor in the production of turnips. As might be expected this point is not so pronounced for the grain crop of 1927, but should show again in the clover crop for the coming year.

EXPERIMENT WITH AMMO-PHOS

The following experiment was started in 1926, the materials being applied to a potato crop. The fertilizer was applied in the case of treatments 1 and 2 at a rate equivalent to 2,000 pounds per acre of a 4-8-6 mixture, while treatments 4 and 5 are equivalent to half of that amount, or 1,000 pounds per acre. The 1927 crop reported below is barley. Each treatment is in quadruplicate.

AMMO-PHOS AS A SOURCE OF NITROGEN AND PHOSPHORIC ACID

Treatment number	Rate of application in pounds per acre — Material Used						Total weight applied in lb. per acre	Application in pounds per acre of			Yield in pounds per acre			
	Ammo-phos.		Nitrate soda	Sulphate ammonia	Superphosphate	Mur. potash		N	P_2O_5	K_2O	1926 Potatoes			lb. grain 1927 barley
	20-20 gr.	13-48 gr.									Large	Small	Total	
1	.....	.....	260	190	1,000	240	1,690	80	160	120	9,560	1,360	10,920	578
2	370	180	.....	.....	.....	240	790	80	160	120	10,240	1,640	11,880	659
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,560	2,080	8,640	751
4	.....	.....	130	95	500	120	845	40	80	60	7,880	1,560	9,440	618
5	185	90	.....	.....	.....	120	395	40	80	60	8,083	1,640	9,723	684

SOURCES OF PHOSPHORIC ACID—BASIC SLAG EXPERIMENT

The original application of phosphoric acid on these plots was made in 1923. The crop in that year was barley, followed by a clover crop in 1924 and timothy hay in 1925. In 1926 an attempt was made to measure the residual effect of the 1923 application. The crop grown was turnips, and to stimulate growth a uniform application of 150 pounds of nitrate of soda and 50 pounds of muriate of potash per acre was given, including check plots. Such an application removed the possibility of nitrogen or potash acting as a crop-limiting factor, and permitted the measuring of the phosphoric acid still remaining in the soil.

The most outstanding result to be noted from the 1926 figures was the response of this soil to phosphoric acid even as measured in the fourth crop removed from the original application. While it was difficult to determine differences favouring one or the other of the various sources supplying the phosphoric acid, it was noticeable that any increase in application of this element of plant food gave a corresponding increase in crop.

In 1927 the whole area including checks received an application of 130 pounds nitrate of soda, 300 pounds sulphate of ammonia and 300 pounds of muriate of potash per acre, and was then planted to potatoes. Such a treatment as this should also make it possible to study the residual effects from the original application made in 1923, as no further phosphoric acid has been applied since that time.

BASIC SLAG EXPERIMENT

Yield of Potatoes per Acre, 1927

Treatment in 1923—application in pounds per acre	Per cent P_2O_5	Amount P_2O_5 supplied	Yield per acre
	p.c.	lb.	lb.
Check—no treatment (6 plots)	.....	.....	3,200
Superphosphate, 437 lb., plus 4,000 lb. ground limestone	16	70	4,535
Superphosphate, 437 pounds	16	70	3,840
Ground rock phosphate, 250 pounds	28	70	2,492
Victory slag, 875 pounds	8	70	5,692
*English slag, 437 pounds	16	70	4,962
Open hearth slag, 635 pounds	11	70	2,821
Best of all slag, 350 pounds	20	70	4,471
XXX Fortified slag, 412 pounds	17	70	3,301
XX Fortified slag, 500 pounds	14	70	4,210
Superphosphate, 875 pounds	16	140	4,076
Ground rock phosphate, 500 pounds	28	140	2,126
Victory slag, 1,750 pounds	8	140	4,345
†English slag, 875 pounds	16	140	4,041
Open hearth slag, 1,270 pounds	11	140	5,457
Best of all slag, 700 pounds	20	140	4,682
XXX Fortified slag, 825 pounds	17	140	4,480
XX Fortified slag, 1,000 pounds	14	140	3,497
Ground rock phosphate, 1,000 pounds	28	280	3,874

* average 3 plots. † 1 plot only.

While there is indication that the heavier applications are superior, there is no basis for selection between the various sources supplying the phosphoric acid. This is in agreement with the work of the previous season.

POULTRY, 1927

Poultry work this season follows closely along the lines of that followed during the past several seasons. The severe culling during the past two seasons in an effort to improve egg weight by eliminating hens producing small eggs, is making itself felt in the total production per bird, particularly in pullets that have just completed their first laying year.

The stock on hand November 1, 1927, consisted of 55 males and 256 females, as follows:—

Breed	Males	Hens	Pullets	Total
Barred Plymouth Rocks	19	49	47	115
S.C. White Leghorns	36	87	73	196
	55	136	120	311

HOUSING AND YARDS

No new buildings were added to the plant during the year. Such minor repairs were made as were necessary to place the present buildings in good condition.

FLOORING FOR HOUSES

The two 16 feet by 32 feet laying houses used at the Station are floored with cement, and for several years have been giving trouble winter and spring on account of these floors being damp. Each house is divided by a centre partition, making two sections each sixteen feet square. In the autumn of 1926 the floor of one section of one house was given a liberal coating of roofing paint, tar-like in appearance. This material is used for the treatment of felt paper roofs, and proves water resistant when so used. When used for a floor covering, however, it proved of little value, the litter becoming damp and unfit for use almost as quickly as where no treatment had been given.

In the second house one section was fitted with a floor built in sections of matched boards and raised two inches above the level of the cement. This treatment was found very effective, the section remaining dry and requiring cleaning only about half as many times as the other section of the same house receiving no treatment.

FEEDS AND FEEDING

The following is the system of feeding that has been used at this Station. This system is proving satisfactory.

Morning: Sprouted oats.

Noon: Green feed—usually raw mangels. In summer a plentiful supply of grass and clover on the runs makes the feeding of green feeds unnecessary.

Late afternoon: The 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 dry mash are hopper-fed and available to the birds at all times. The dry mash used is 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. Fresh water is also before the birds at all times.

EGG PRODUCTION

As previously mentioned, the severe culling that is being done in an effort to improve egg weight is reflecting very noticeably on the production per bird. Many of the highest producers in previous years have been destroyed because their eggs were below the 24-ounce-per-dozen standard that is now required for registration. Mating and selection work is being done to build up the production of the birds remaining, but it will be several years before the flock overcomes the set-back received.

EGG YIELDS—HENS VS. PULLETS

Month	Hens			Pullets		
	Number of birds	Total eggs	Average per bird	Number of birds	Total eggs	Average per bird
1926						
November	173	156	9	195	1,341	6·8
December	140	178	1·3	189	1,353	7·2
1927						
January	141	637	4·5	180	1,865	10·4
February	139	934	6·7	178	2,105	11·8
March	136	1,937	14·2	177	3,028	17·1
April	131	2,290	17·5	163	2,993	18·4
May	125	1,958	15·7	138	2,648	19·2
June	114	1,705	15·0	131	1,801	13·8
July	105	1,534	14·6	110	1,451	13·2
August	96	1,030	10·7	93	997	10·7
September	65	407	6·3	70	618	8·8
October	65	97	1·5	70	294	4·2
Totals	.....	12,863	108·9	.....	20,494	141·6

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 first egg	Band No.	No. of eggs	Date of first egg	Band No.	No. of Eggs	Date of first egg
I-35	230	Nov. 2.....	I-32	206	Nov. 2.....	I-31	191	Nov. 8
KI-73	231	Nov. 3.....	I-36	200	Nov. 5.....	K-190	197	Nov. 9.
.....	.....	.....	I-40	209	Nov. 26.....	K-197	199	Nov. 9.
.....	.....	.....	K-177	202	Oct. 26.....	K-201	192	Nov. 5.
.....	.....	.....	K-213	211	Nov. 5.....	K-202	194	Nov. 1.
.....	.....	.....	K-125	201	Oct. 16.....	K-228	198	Oct. 24.
.....	.....	.....	K-129	213	Oct. 18.....	K-133	188	Oct. 20.
.....	.....	.....	K-137	203	Nov. 1.....	K-225	184	Nov. 5.
.....	.....	.....	K-141	205	Nov. 26.....	K-136	198	Nov. 3.
.....	.....	.....	K-152	202	Oct. 24.....	K-138	181	Nov. 7.
.....	.....	.....	.....	.....	.....	K-155	187	Jan. 13 1927.
.....	.....	.....	.....	.....	.....	K-165	181	Oct. 29.
.....	.....	.....	.....	.....	.....	K-184	185	Nov. 3.
.....	.....	.....	.....	.....	.....	K-159	184	Dec. 10.
2	461	.....	10	2,052	.....	14	2,649	.....
Total 2 birds 461 eggs.			Total 10 birds 2,052 eggs.			Total 14 birds 2,649 eggs.		
Average per bird 230·5 eggs.			Average per bird 205·2 eggs			Average per bird 189·2 eggs.		

Total for 26 birds 5,162 eggs—Average per bird 198·5 eggs.

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

200 to 225 eggs			180 to 199 eggs			165 to 179 eggs		
Band No.	No. of eggs	Date first egg	Band No.	No. of eggs	Date of first egg	Band No.	No. of eggs	Date of first egg
J-47	215	Oct. 21.....	J-6	188	Nov. 11.....	J-57	167	Oct. 23.
J-48	201	Oct. 21.....	J-17	182	Nov. 13.....	J-56	174	Nov. 6.
J-52	216	Oct. 20.....	J-18	197	Nov. 13.....	J-3	174	Nov. 22.
.....	.....	.....	J-21	182	Dec. 1.....	.....	.....	.....
.....	.....	.....	J-35	198	Dec. 7.....	.....	.....	.....
.....	.....	.....	J-42	180	Dec. 6.....	.....	.....	.....
.....	.....	.....	I-41	189	Nov. 1.....	.....	.....	.....
3	632	.....	7	1,316	.....	3	515	.....
Total 3 birds, 632 eggs.			Total 7 birds, 1,316 eggs.			Total 3 birds, 515 eggs.		
Average per bird, 210·7 eggs.			Average per bird, 188 eggs.			Average per bird, 171·7 eggs.		

Total for 13 birds—2,463 eggs; average per bird 185·2 eggs.

FEEDING EXPERIMENT

Several experiments in feeding were started at the first of the year and continued for periods varying from four to six months.

BEEF SCRAP VS. SKIM-MILK

For this experiment White Leghorns were used. Two pens, consisting of 53 birds each, were fed and housed similarly, with the exception that the dry mash fed to Pen No. 8 contained 20 per cent by weight of beef scrap, while that fed to Pen No. 9 contained none. Pen No. 9, however, instead of beef scrap, received all the skim-milk that the birds would use. This experiment was continued for a period of six months, or from January 1 until June 30.

BEEF SCRAP VS. SKIM-MILK

	Value of Feeds Consumed							Total cost of feed	Value of eggs	Value of eggs over cost of feed
	Scratch grain at $2.43 per cwt.	Dry mash at $2.65 per cwt.	Skim-milk at 50c. per cwt.	Green feed at 20c. per cwt.	Grit at $1.10 per cwt.	Shell at $1.45 per cwt.	Oats at $2.00 per cwt.			
	$	$	$	$	$	$	$	$	$	$
8	29·89	10·89	.....	1·69	·36	·70	15·12	58·65	98·62	39·97
9	31·59	at $2.45 8·80	10·86	1·71	·42	1·12	13·38	67·88	111·65	43·77

From the above table it would appear that there is a slight advantage in favour of feeding skim-milk. It was noted also that birds fed on milk maintained their body weight better than did those fed on beef scraps.

REGULAR SCRATCH GRAIN VS. REGULAR SCRATCH GRAIN PLUS COD LIVER OIL

For this experiment two pens of Barred Plymouth Rock pullets, consisting of ten birds each, were used. Pen No. 20 received the regular scratch grain made up of half and half cracked corn and whole wheat. Pen No. 21 received the same scratch grain to which was added cod liver oil at the rate of one-tenth ounce per bird per day, or one ounce per day for the pen of ten birds.

REGULAR SCRATCH GRAIN VS. REGULAR SCRATCH GRAIN PLUS COD LIVER OIL

Number of pen	Value of feeds consumed							Total cost of feed	Value of eggs	Value of eggs over cost of feed
	Scratch grain at $2.43 cwt.	Dry mash at $2.65 cwt.	Green feed at 20c. cwt.	Grit at $1.10 per cwt.	Shell at $1.45 per cwt.	Cod liver oil $3.25 gal.	Oats at $2.00 per cwt.			
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
20	6 05	1 67	0 32	0 08	0 15	.....	2 28	10 55	11 83	1 28
21	5 47	1 46	0 34	0 10	0 12	3 66	2 30	13 45	14 11	0 66

While the above table indicates a lower profit with the use of cod liver oil, it must be remembered that the oil used was bought in small quantities and therefore at a high price. The birds receiving the oil laid a total of 580 eggs, while the pen not receiving oil laid only 489, or 91 eggs less.

EFFECT OF FEED ON FERTILITY

This experiment is similar to the one conducted last season, and is an attempt to determine the effect, if any, of various feeds on the fertility and hatchability of the eggs, and livability of the chicks produced.

Pen No. 14 was considered the check pen, and received a basal ration consisting of scratch grain, dry mash, sprouted oats and mangels. The remaining pens, in addition to the basal ration, received the following supplementaries:—

Pen No. 12.—Four ounces of liver and two teaspoonsful of cod liver oil per pen per day.

Pen No. 13.—Eight ounces of liver per pen per day.

Pen No. 15.—Four teaspoonsful of cod liver oil per pen per day.

Pen No. 16.—Five per cent (by weight) of steamed bone meal added to dry mash.

In addition different hatches were recorded. For some of these hatches the male birds were left with the same pens continuously. For others the males were changed daily to each pen in rotation, thereby eliminating the effect on fertility of the individual males. The experiment was started on April 1, and continued until May 5, sixteen White Leghorns being used in each pen.

EFFECT OF FEED ON FERTILITY

Item	Pen 14		Pen 12		Pen 13		Pen 15		Pen 16	
	Basal ration		Basal ration plus 4 oz. liver and 2 tsps. cod liver oil daily		Basal ration plus 8 oz. liver daily		Basal ration plus 4 tsps. cod liver oil daily		Basal ration plus 5% by weight steamed bone meal fed in dry mash	
	Males		Males		Males		Males		Males	
	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily	Continuous	Changed daily
Number of eggs laid	125	110	142	89	129	94	122	85	165	89
Number of eggs set	102	95	119	74	112	76	100	63	145	74
Number fertile	57	30	50	63	89	53	21	49	112	54
Per cent fertile	55·8	31·5	42	85·1	79·4	69·7	21	77·7	77·2	72·9
Chicks hatched	12	7	19	23	41	7	.....	15	27	18
Per cent total eggs hatched	11·7	7·8	15·9	31	36·6	9·2	.....	23·8	18·6	24·3
Per cent fertile eggs hatched	21	23·3	38	36·5	46	13·2	.....	30·6	24·1	34
Chicks alive at 3 weeks	9	4	14	12	32	5	.....	11	24	13
Total eggs to hatch 1 chick	8·5	13·5	6·2	3·2	2·7	10·8	.....	4·2	5·3	4·1
Fertile eggs required to hatch 1 chick	4·7	4·2	2·6	2·7	2·1	7·5	.....	3·2	4·1	3·0
Total eggs required to hatch 1 chick 3 weeks old	11·3	23·7	8·5	5·3	3·5	15·2	.....	5·7	6·0	5·7

There would appear to be some basis for the conclusion that a supplement of cod liver oil, liver or steamed bone meal to the ration has increased fertility of the eggs and livability of the chicks.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS, AND FEED CONSUMED BY BARRED PLYMOUTH ROCKS BRED AND RAISED AT THE EXPERIMENTAL STATION CHARLOTTETOWN, PRINCE EDWARD ISLAND, NOVEMBER 1, 1926 TO OCTOBER 30, 1927

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—in pounds							
											Scratch grain	Mash	Grit	Shell	Roots	Oats	Skim-milk	Total amount feed
				c.	$	c.	$	c.	$	$	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1926																		
November	55	250	4·5	30	6·25	54·5	11·36	20·6	.....	5·11	275	73	3	4	230	110	.....	695
December	51	451	8·8	40	15·03	27·1	10·19	19·9	4·84	.....	240	56	9	11	230	110	.....	656
1927																		
January	34	274	8·0	35	7·99	37·0	8·46	24·8	.....	0·47	150	80	3	6	230	93	.....	562
February	34	352	10·3	35	10·27	24·2	7·12	20·9	3·15	.....	160	28	7	8	170	85	70	528
March	34	537	15·8	25	11·19	14·3	6·41	18·9	4·78	.....	140	30	.....	9	190	85	70	524
April	32	599	18·7	25	12·48	13·1	6·54	20·0	5·94	.....	160	31	6	10	165	64	.....	436
May	28	579	20·6	22	10·62	13·4	6·47	23·1	4·15	.....	175	37	.....	3	.....	60	.....	275
June	49	679	13·8	22	12·45	12·1	6·85	14·0	5·60	.....	180	15	5	5	.....	98	.....	303
July	42	478	11·3	22	8·76	17·4	6·92	16·4	1·84	.....	175	33	5	5	.....	84	.....	302
August	32	343	10·7	22	6·29	21·4	6·12	19·1	0·17	.....	160	25	4	8	.....	70	.....	267
September	27	255	9·4	30	6·37	24·3	5·16	19·1	1·21	.....	95	22	½	2	.....	104	.....	223½
October	27	198	9·0	30	4·95	41·9	6·91	31·4	.....	1·96	120	20	3	4	.....	160	.....	207
Totals	.....	4,995	.....	.....	112·65	21·3	88·51	$2·48	31·68	7·54	2,030	450	45½	75	1,215	1,123	.....	5,078½

Cost feed per cwt.: Nov. to Aug. Grain, $2.43; mash, $2.65; grit, $1.10; shell, $1.45; roots, 20 cents; oats, $2.00; milk 50 cents. Sept. and Oct.: Grain, $2.54 mash, $2.87; grit, 90 cents; shell, $1.40; roots, 20 cents; oats, $2.60; milk, 50 cents.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS, AND FEED CONSUMED BY S.C. WHITE LEGHORNS BRED AND RAISED AT THE EXPERIMENTAL STATION, CHARLOTTETOWN, PRINCE EDWARD ISLAND, NOVEMBER 1, 1926 TO OCTOBER 30, 1927

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	Pounds feed consumed							
											Scratch grain	Mash	Grit	Shell	Roots	Oats	Skim-milk	Total amount feed
				c.	$	c.	$	c.	$	$	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
1926																		
November	112	986	8·8	30	24·65	24·9	20·43	18·2	4·22	.....	410	196	10	10	270	224	.....	1,120
December	111	721	6·5	40	24·03	33·1	19·88	17·9	4·15	.....	405	191	.....	.....	270	222	.....	1,088
1927																		
January	53	662	12·5	35	19·31	20·7	11·42	21·5	7·89	.....	205	116	5	10	200	138	.....	674
February	52	743	14·3	35	21·67	18·8	11·66	22·4	10·01	.....	220	98	8	10	208	130	90	764
March	52	990	19·0	25	20·63	14·9	12·26	23·5	8·37	.....	220	89	6	12	245	130	240	942
April	48	995	20·7	25	20·73	12·8	10·61	22·1	10·12	.....	240	80	11	15	200	96	.....	642
May	44	907	20·6	22	16·63	11·5	8·66	19·6	7·97	.....	215	60	.....	5	.....	89	.....	369
June	43	692	16·0	22	12·68	12·7	7·34	17·0	5·34	.....	200	22	5	8	.....	86	.....	321
July	37	543	14·6	22	9·95	19·0	8·59	23·2	1·36	.....	240	42	3	8	.....	74	.....	367
August	31	369	11·9	22	6·76	29·4	9·03	29·1	.....	2·27	270	35	2	8	.....	70	.....	385
September	25	210	8·4	30	5·25	45·2	7·91	31·6	.....	2·66	230	25	.....	3	.....	65	.....	323
October	25	110	4·4	30	2·75	64·6	5·92	23·6	.....	3·17	170	20	.....	2	.....	50	.....	242
Totals	.....	7,928	.....	.....	185·04	20·2	133·71	$2·70	59·43	8·10	3,025	974	50	91	1,393	1,374	330	7,237

Cost feed per cwt., Nov. to Aug.: Grain, $2.43; mash, $2.65; grit, $1.10; shell, $1.45; roots, 20 cents; oats, $2.00; milk, 50 cents. Sept. and Oct.: Grain, $2.54; mash, $2.87; grit, 90 cents; shell, $1.40; roots, 20 cents; oats, $2.60; milk, 50 cents.

PRINCE EDWARD ISLAND EGG LAYING CONTEST

The ninth annual Prince Edward Island Egg Laying Contest was completed on October 30, 1927. The rules and regulations governing this contest were practically the same as those governing the 1925-26 contest, points being scored on the number and weight of eggs produced. Each egg weighing 24 ounces per dozen is given a score of one point. Eggs over 24 ounces per dozen receive a bonus of one-tenth point per egg up to and including those averaging 27 ounces per dozen or one and three-tenths points per egg. Eggs below 24 ounces to the dozen are docked one-tenth point per egg, down to 20 ounces per dozen, or four-tenths of a point per egg. No egg of a value below six-tenths of a point may be counted. Soft shelled or misshapen eggs also do not score.

Each pen consists of ten contesting birds with two spares supplied to maintain the pen at its full strength in case of loss of a bird from the pen.

This year the contest comprised three pens of S.C. White Leghorns and seventeen pens of Barred Plymouth Rocks.

The leading pen this year was that of Mr. H. C. Muttart, Marshfield, P.E.I. These B.P. Rocks laid a total of 2,107 eggs, scoring 2,324.8 points, or in other words the eggs averaged slightly better than 25 ounces per dozen.

Second was a pen of White Leghorns owned by Mrs. J. F. Easton, New Wiltshire, with 1,965 eggs (1,959.1 points).

Third place went to Clifford McEwen's Barred Plymouth Rocks, with 1,930 eggs (1,939.5 points) and fourth place went to Mrs. Alex. Hamilton's B.P. Rocks with 1,605 eggs, (1,850 points). This pen also produced eggs averaging well over 25 ounces per dozen.

Awards for highest birds were as follows:—H. C. Muttart's B.P. Rock hen No. 67—293.3 points (285 eggs). H. C. Muttart's B.P. Rock hen No. 65—286.3 points (226 eggs). Clifford McEwen's B.P. Rock hen No. 126—274.6 points (236 eggs). H. C. Muttart's B.P. Rock hen No. 69—260.9 points (204 eggs).

Of 200 birds entered, 127 laid 150 or more eggs, 90 laid 175 or more, 49 laid 200 or more, 18 laid 225 or more, and 3 laid 250 or more.

Of the forty-nine birds laying the 200 or more eggs which are required for registration, only sixteen qualified, the others being disqualified because of small eggs.

EGG PRODUCTION IN THE CONTESTS

Number of contest	Year	Number of birds entered	Annual average production per bird
First	1918—1919	200	.....
Second	1919—1920	220	118·8
Third	1920—1921	250	119·7
Fourth	1921—1922	200	125·8
Fifth	1922—1923	200	160·8
Sixth	1923—1924	200	170·8
Seventh	1924—1925	200	173·5
Eighth	1925—1926	200	169·8
Ninth	1926—1927	200	163·6

APIARY

Weather conditions during the winter of 1926-27 were favourable for the bees at this station. At no time during the winter were the bees banked with snow, and bees were flying at different times through the winter. The spring, however, was cold and backward, and was considered about 10 days later than some years. The first dandelions appeared on May 18, and the pussy willows did not show pollen until May 19.

WINTERING

The bees wintered well and came out in good condition in the spring of 1927. Of the twenty-two colonies packed in the autumn of 1926, only one died. This hive was given clover honey instead of syrup for winter feed, and died early in the winter with dysentery. In the spring of 1927 one hive was found to be queenless and was united with another colony.

INCREASE

Only two nuclei were started this season, with queens obtained from Kapuskasing. These were of pure line and will be used as queen-mothers for rearing our own queens in 1928.

HONEY FLOW

Owing to the late, cold spring, none of the colonies were up to full strength for the main honey flow, although one colony (Number 23), which was on the scales, produced 160 pounds extracted honey. Some of the colonies produced more honey in the fall than they did during the clover season. The first honey flow continued from July 9 to July 13, inclusive. During this period, 41 pounds of honey were produced, being an average of 8.2 pounds per day. Another flow occurred from July 17 to 19 inclusive, in which 19 pounds were produced, being an average of 6.3 pounds per day, and another flow from July 22 to 24 inclusive, in which 5.6 pounds per day were gathered. In all 116½ pounds were gathered in the month of July, 73 pounds in the month of August, and 8 pounds during the first ten days of September. This colony was the best in the apiary. The second best colony produced 98 pounds, and another colony 80 pounds, while the average for the whole apiary was 51.3 pounds per colony.

QUEEN BREEDING

After having imported queens for a number of years, a start was made this year in raising our own. Of the 20 colonies carried through the winter, 2 are supplied with queens from Kapuskasing, 12 have queens raised at Charlottetown, and one has a queen obtained from Ottawa in 1926. The remaining colonies are headed with queens two years old.

One of our greatest difficulties has been in obtaining queens with which to start our nuclei. New colonies must be started about the first week in July in order to be strong enough to go into winter quarters. While most of the commercial apiaries offer queens for sale, the difficulty is to obtain the queens just at the time they are required. By raising our own queens it is hoped that much of the difficulty in this respect will be eliminated. Twelve queens were raised this year. The queen mother used was a queen received from Ottawa in 1926. These queens were introduced and by fall had the colonies in good condition for wintering.

KOOTENAY CASE

Experiments are being conducted at this station in the use of Kootenay cases. In use the hive is placed within the case, the space between being packed with planer shavings or similar material. In other words it is a means of insulating the hive from extremes in climatic changes, and the hive is left encased permanently. This practice has been found very satisfactory at this station, and is recommended when only one or two hives are kept.

EXPERIMENTAL WORK

Weather conditions interfered in no small way with the experimental work this season. The intention was to undertake work in the control and prevention of swarming, but owing to backward weather, the colonies did not build up strong until late in the summer, and the bees in only two hives gave evidence of swarming.

Control by dequeening and requeening has been tried for several seasons here, and is recommended if young queens are available when required.

Control by the separation of queen and brood has also been tried, but has not proven very satisfactory. Details of these experiments are available in our 1926 report.

A method tending to discourage swarming was also described in the 1926 report, and consists in adding a shallow super of drawn comb immediately there is evidence of swarming. Being given increased room the bees usually settle down, and start building queen cells in this new and less crowded area of the hive. At inspection time it is only necessary to watch for and destroy any new queen cells that may be found. This method has proven very satisfactory over several seasons.

FEEDING

Preparation for winter storage commenced on September 26, and was completed on October 10. A mixture of 2 parts of sugar and 10 parts of water was given in 10-pound honey pails. Twenty colonies were thus prepared for winter, part stored in Kootenay cases and part in 4-colony wintering cases.

GENERAL NOTES

Perhaps the finest exhibit yet shown by this station was that shown at the Provincial Exhibition at Charlottetown late in September. Notable among other sections of the exhibit was a display of 37 varieties and selections of apples grown at the Charlottetown Station. These received a great deal of favourable comment and consideration, as did also the very fine display of vegetables, etc., shown. Part of the exhibit was devoted to a display prepared by the Laboratory of Plant Pathology, and a section was devoted to the work of the Illustration Stations in the province.

An excellent though small exhibit was shown at the King's County Exhibition at Georgetown, and proved of great interest to many.

The superintendent or assistants judged at the Provincial Exhibition at Charlottetown, the Kings County Exhibition at Georgetown, the Souris Exhibition, the Egmont Bay and Mount Carmel Fair and the Alberton Fair, in addition to judging at a number of school fairs.

Many reports, press articles and articles for "Seasonable Hints" were prepared during the year by the superintendent or assistants. These received wide distribution.

Work has been conducted for several seasons in an effort to determine the relative merits of dust vs. wet spray for the control of potato blight. The work

has not yet progressed sufficiently far to warrant the drawing of conclusions. Information is available, however, for any who may apply to the superintendent at this station.

ILLUSTRATION STATIONS*

The Illustration Stations on Prince Edward Island serve as a connecting link between the Charlottetown Experimental Station and the farmer. Only the most thoroughly tested crops and methods are demonstrated here. Experiments aiming to solve some local problems are also tried.

There are at present eleven stations in Prince Edward Island, situated at the following places: Palmer Road, Glenwood, West Devon, Richmond, Rose Valley, Rustico, St. Peters, Red Point, Montague, Wood Islands and Iona.

During the past year certain seasonal conditions interfered with the obtaining of maximum yields from several crops. Late spring frosts injured the clover somewhat and heavy rains in August caused considerable lodging in the grain, which was followed by severe attacks of stem rust in some districts. However, the fall was favourable for harvesting the crops and fall ploughing was well completed.

Yields of all hoed crops were above the average in 1927, while yields of grain and hay were somewhat lower.

The following table gives the average yields obtained at the ten stations during 1927:—

AVERAGE YIELDS, 1927

Crop	Number of stations growing crop	Yield per acre
Potatoes	9	381 bushels
Turnips	9	18·7 tons
Corn	9	15·1 tons
Sunflowers	9	22·6 tons
Clover hay	7	1·5 tons
Timothy hay	6	1·7 tons
Huron wheat	4	15·0 bushels
Charlottetown No. 80, barley	1	18·7 bushels
Banner oats	4	34·2 bushels
Alaska oats	3	29·2 bushels

For full report on each station, see report on Eastern Illustration Stations, for 1927, which may be secured free from the Publications Branch, Department of Agriculture, Ottawa.

On the root crops and timothy hay the effect of chemical fertilizers was quite marked, as is shown in the following table:—

FERTILIZER EXPERIMENTS, 1927

Crop	Number of stations growing crop	Cost of fertilizer	Yield per acre		Increase per acre due to fertilizer
			with fertilizer	without fertilizer	
		per acre			
Potatoes	9	$11 11	381 bush.	255 bush.	126 bush
Turnips	9	8 70	18·7 tons	11·7 tons	7·0 tons
Corn	9	8 85	15·1 tons	9·5 tons	5·1 tons
Sunflowers	9	8 85	22·6 tons	13·0 tons	9·6 tons
Timothy hay	6	3 23	1·7 tons	0·8 tons	0·9 tons

*Robert C. Parent, M.S.A., supervisor of Illustration Stations for Prince Edward Island prepared this summary of the work coming under this heading.

In every case the extra crop obtained by the use of the chemical fertilizer was more than enough to pay for the fertilizer and cost of applying same.

These stations also serve as distributing centres for high-quality seed of the recognized varieties. During 1927 seven operators sold for seed 505 bushels of oats, 24 bushels of wheat, 56 bushels of barley, 7,304 bushels of certified potatoes, also 146 settings of eggs for hatching.

Two operators, Clifford McEwen and John L. Clark, had hens entered in the 1926-27 Prince Edward Island Egg Laying Contest. The pen owned by Mr. McEwen was the third highest in the contest. Six hens from the pen of ten birds laid over 200 eggs each.

Meetings for the purpose of discussing the work conducted by the Illustration Stations were held during the winter at Rose Valley, Rustico, Iona, Richmond, West Devon, Mount Carmel, Elmsdale, O'Leary, Palmer Road, St. Peters, Red Point, Montague and Wood Islands. During the summer similar meetings were held at Glenwood, De Sable and Long River.

Field days, during the growing season, were held at West Devon, Richmond, Rose Valley, Rustico, St. Peters, Red Point, Montague and Iona. These were for the most part well attended.

The work carried on by the Illustration Station Division was also featured at the Experimental Farm booth at the Charlottetown Exhibition.

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