DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

CHARLOTTETOWN, P.E.I.

REPORT OF THE SUPERINTENDENT

J. A. CLARK, B.S.A.

FOR THE YEAR 1925

Potatoes for certified seed. Dominion Experimental Station, Charlottetown, P.E.I.

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

THE SEASON

The autumn of 1924 was quite mild and favourable for the harvesting of roots, etc. The autumn farm work was well completed and cattle went into the stables in good condition. Roads were good during the latter part of December, but during January and February the roads generally were poor.

The mean temperature for January was 7 degrees below the average mean for the previous sixteen years. During the latter part of February the weather turned very mild, and during the remainder of the season there was little snow on the ground. The frost came out of the ground early in April, but no seeding was done until May. Seeding started somewhat earlier than the average, but owing to bad weather, finished later than usual.

Grasses and clovers came through the winter in fair condition. The weather was favourable for the growing crops, but harvesting, for both hay and grain crops was difficult. The rainfall for June, July, August, September and October totalled 21.08 inches, compared with an average for the 24 preceding years of 16.41 inches. Harvesting conditions continued poor throughout the entire autumn, and it was with extreme difficulty that potato and root crops were saved. Ploughing was pretty well completed before the "freeze-up" which occurred on November 24, 1925.

Month	Temperature Fahrenheit					Precipitation					Hours Sunshine		
	Highest	Date	Lowest	Date	Mean	Rainfall		Snowfall		Total	Actual	Possible	Per cent of Possible
	°		°		°	days	inches	days	inches	inches	hours	hours	p.c.
January	40	14	−19	19	9·967	3	0·53	10	32·75	3·80	119·7	280·1	42·73
February	45	12and26	−12	4	25·071	9	2·03	3	9·25	2·95	86·1	*288·0	29·90
March	48	22	9	2	31·886	8	2·59	6	16·20	4·21	121·3	368·4	32·93
April	60	10	22	6	37·183	11	1·34	2	1·0	1·44	156·3	405·8	38·52
May	70	29	32	24	48·565	15	2·82	.....	.....	2·82	214·6	462·8	46·37
June	85	4	38	8	60·083	18	4·80	.....	.....	4·80	213·7	469·4	45·53
July	81	26	45	4	65·323	12	1·87	.....	.....	1·87	197·5	474·4	41·63
August	85	5 and 6	42	28	66·145	12	2·00	.....	.....	2·00	234·9	436·5	53·81
September	73	12	37	23and30	55·083	20	5·92	.....	.....	5·92	144·6	374·9	38·57
October	62	4	27	25and30	42·065	15	6·49	.....	.....	6·49	131·5	336·5	39·08
November	55	17	7	30	35·900	11	1·89	.....	.....	1·89	101·8	281·7	36·14
December	46	7	−3	28	22·112	3	0·18	11	18·0	1·98	77·8	267·1	29·13
	.....	.....	.....	.....	41·615	137	32·46	32	77·20	40·17	1,799·8	4,445·6	40·49
Average	.....	.....	.....	.....	41·592	.....	.....	.....	.....	40·80	1,846·8	.....	41·54
Number of years	.....	.....	.....	.....	17 yrs.					25 yrs.	15 yrs.	.....	15 yrs.

*For leap year add 11·1 hours.

Hours Sunshine 1911–1925 Inclusive

Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total Hours	Per cent of Possible
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	46·11
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	41·45
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	40·89
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	45·63
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	36·27
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	41·16
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	39·06
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	41·13
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	37·48
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	43·67
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	43·26
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	40·26
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	41·69
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	44·57
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	40·49
Average	95·89	117·47	134·06	148·70	219·94	224·20	230·81	232·54	181·15	132·69	73·4	59·8	1,846·8	41·54
Possible Number hours	280·1	*288·0	368·4	405·8	462·8	469·4	474·4	436·5	374·9	336·5	281·7	267·1	4,445·6	100
Per cent of possible	34·23	40·79	36·39	36·64	47·52	47·76	48·65	53·27	48·31	39·43	26·05	22·39	41·54	41·54

ANIMAL HUSBANDRY

The number of horses at the Station on December 31, 1925, was ten, made up as follows: three Clydesdale mares, three draught geldings, one express horse, one driving mare and two pure-bred Clydesdale foals.

During the year two work-horses were purchased, and one Clydesdale mare, being old and having passed her days of usefulness, was disposed of.

The tractor in operation at the Station to a large extent relieves the horse labour during the busy seasons of spring seeding and autumn ploughing.

DAIRY HERD

The Ayrshire herd at this Station at the end of the calendar year, December 31, 1925, numbered twenty-five, headed by "Ottawa Lord Kyle 8th," 81916.

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

During the year steps were taken toward declaring and maintaining the entire province as a restricted area in so far as bovine tuberculosis was concerned. Federal veterinary inspectors commenced the test on August 13, 1925, and completed the work on November 4, 1925, having made, in the meantime, a total of 98,307 tests. While it was thought that very little tuberculosis would be found in the cattle of the province, the result of the test was beyond the hopes of even the most sanguine; for only 0.59 of 1 per cent reacted. In the re-test only three cattle were slaughtered as reactors.

This is a condition of health in cattle of which the breeders of the province should be justly proud. It but remains for the breeder to produce suitable high class stock to meet the increased demand.

Two individuals of the herd were sent to the "Royal" with the composite car made up by the Ayrshire Breeders' Club. The herd sire, Ottawa Lord Kyle 8th, 81916, in strong competition obtained second place; and the county herd, entered by the Ayrshire Breeders' Club of this province, and headed by the same bull, took first place.

The following list of cows completing Records of Performance during 1925, gives detailed figures on production.

Production Records of Cows Completing R.O.P. Tests

Name of Animal	Number of days in lactation period	Total pounds of milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds of butter produced in period, 85 p.c. fat	Value of butter at 40 cents per lb.	Value of skim-milk at ¼ cent per lb.	Total value of product	Amount of meal eaten	Amount of roots and silage eaten at $2 per ton	Amount of hay eaten at $10 per ton	Amount of green feed at $4 per ton	Amount of beet pulp eaten at $2.40 per cwt.	Months on pasture at $1.50 per month	Total cost of feed for period	Cost to produce 100 lbs. milk	Cost to produce 1 lb. butter, skim-milk neglected	Profit on 1 lb. butter, skim-milk neglected	Value of calf when born	Profit on cow during period, labour and calf neglected
			lb.			$ cts.	$ cts.	$ cts.	lb.	lb.	lb.	lb.	lb.		$ cts.	$ cts.	cts.	cts.	$ cts.	$ cts.
Belle of Sunny Slope No. 76590	305	11,017	36·1	3·69	479	191 60	48 30	239 90	3,845 at $2.21	11,658	1,885	.....	210	3·5	116 34	1 06	24·3	15·7	20 00	123 56
Ravenwood Lily No. 77867	346	9,589	27·7	4·22	476	190 40	41 20	231 60	4,150 at $2.03	12,530	2,497	2,700	.....	4·25	121 03	1 26	25·4	14·6	30 00	110 57
Daily of Sunny Slope No. 72581	327	11,383	34·8	3·43	460	184 00	50 40	234 40	3,792 at $2.01	10,270	2,169	3,000	170	4·0	113 43	0 96	24·7	15·3	25 00	120 97
Ravenwood Buttercup No. 77482	280	8,171	29·2	4·55	438	175 20	34 66	209 86	3,527 at $2.28	9,152	2,005	.....	546	3·0	117 21	1 43	26·8	15·2	45 00	92 65
Ravenwood Lady No. 79547	365	8,053	22·1	4·23	401	160 40	34 59	194 99	4,526 at $2.13	15,540	2,570	535	210	3·8	136 61	1 70	34·1	5·9	20 00	58 38
Total	.....	48,213	.....	.....	2,254	901 60	209 15	1,110 75	19,840	59,150	11,126	6,235	1,136	18·55	604 62	.....	.....	.....	140 00	506 13
Average	325	9,642·6	29·98	4·02	451	180 32	41 83	222 15	3,968	11,830	2,225	1,247	227	3·71	120 92	1 28	26·8	13·2	28 00	101 23

BEEF CATTLE

STEER-FEEDING EXPERIMENT

Twenty-four steers were purchased in late autumn, 1924, for experimental feeding purposes. All animals successfully passed the tuberculin test and were stabled on November 1, 1924. Two animals were naturally polled, and two carried short stubs or scurs. Sixteen others were dehorned on November 22, and came through the operation in good order. The preliminary feed period extended to December 18, and the test period commenced December 19, extending to and including March 17, a period of eighty-nine days. The cost of steers on December 19, including cost of preliminary feeding was $6.35 per cwt.

The lot was divided into six pens of four steers each, and put on the following rations:—

FEED PER DAY, PER 1,000 POUNDS LIVE WEIGHT

Pen No.	Description	Hay	Oat straw	Potatoes	Turnips	Crushed oats	Oil meal	Cotton seed meal
		lb.	lb.	lb.	lb.	lb.	lb.	lb.
1	Horned, tied in stalls	10	.....	.....	50	4	2	.....
2	Polled, tied in stalls	10	.....	.....	50	4	2	.....
3	Dehorned, fed loose	10	.....	.....	50	4	2	.....
4	Dehorned, tied	10	.....	25	.....	3½	.....	2½
5	Dehorned, tied	10*	.....	25	.....	3½	.....	2½
6	Dehorned, tied	.....	15*	25	.....	2½	.....	3

*Hay and straw for 5 and 6 were chopped.

STEER-FEEDING—TOTAL AMOUNT OF FEED CONSUMED AND VALUE

Item	Pen Number											
	1		2		3		4		5		6	
	lb.	$ c.	lb.	$ c.	lb.	$ c.	lb.	$ c.	lb.	$ c.	lb.	$ c.
Hay at $10 ton	3,560	17 80	3,560	17 80	3,560	17 80	3,560	17 80	3,560	17 80	.....	.....
Oat straw at $4 ton	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,340	10 68
Cull potatoes at 20c. cwt	.....	.....	.....	.....	.....	.....	8,900	17 80	8,900	17 80	8,900	17 80
Turnips at $2 ton	17,800	17 80	17,800	17 80	17,800	17 80	.....	.....	.....	.....	.....	.....
Oats at 70c. bushel	1,880	38 71	1,880	38 71	1,880	38 71	1,908	39 28	1,908	39 28	1,487	30 61
Oil meal at $58 ton	940	27 26	940	27 26	940	27 26	.....	.....	.....	.....	.....	.....
Cotton seed meal at $70 ton	.....	.....	.....	.....	.....	.....	1,363	47 71	1,363	47 71	1,784	62 44
Total cost per pen	$101.57		$101.57		$101.57		$122.59		$122.59		$121.53	
Average cost feed per steer	25.39		25.39		25.39		30.65		30.65		30.38	

STEER-FEEDING EXPERIMENT—COMPARISON OF SIX DIFFERENT PENS

——		Pen 1	Pen 2	Pen 3	Pen 4	Pen 5	Pen 6
Number of steers in lot		4	4	4	4	4	4
Initial gross weight per pen	lb.	4,090	4,070	3,830	3,930	3,940	4,020
Initial average weight	"	1,023	1,018	958	983	985	1,005
Finished weight per pen	"	4,730	4,630	4,440	4,440	4,600	4,710
Finished average weight	"	1,183	1,158	1,110	1,110	1,150	1,178
Total gain in 89 days	"	640	560	610	510	660	690
Average gain per steer	"	160	140	153	128	165	173
Daily gain per steer	"	1·80	1·57	1·72	1·44	1·85	1·94
Daily gain per pen	"	7·19	6·29	6·85	5·73	7·42	7·75
Gross cost feed per pen	$	101 57	101 57	101 57	122 59	122 59	121 53
Cost of one pound gain	c.	15·9	18·1	16·7	24·0	18·6	17·6
Value of cattle at beginning	$	259 72	258 45	243 21	249 56	250 19	255 27
Total cost to produce beef	$	361 29	360 02	344 78	372 15	372 78	376 80
Sale price per pen	$	406 68	403 08	380 92	387 25	412 48	441 33
Profit per pen	$	45 39	43 06	36 14	15 10	39 70	64 53
Profit per steer	$	11 35	10 77	9 04	3 77	9 92	16 13
Average value per steer at start	$	64 93	64 61	60 80	62 39	62 55	63 82
Average sale price per steer at finish	$	101 67	100 77	95 23	96 81	103 12	110 33
Average increase in value	$	36 74	36 16	34 43	34 42	40 57	46 51
Average cost feed per steer	$	25 39	25 39	25 39	30 65	30 65	30 38

TABLE OF WEIGHTS AND GAINS—STEER-FEEDING EXPERIMENT

Number	Weight Dec. 19, 1924	Weight Mar. 17, 1925	Gain in 89 days	Value at start	Average cost of feed per steer	Total cost	Sale price	Profit or loss (−)
	lb.	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
197	1,010	1,160	150	64 14	25 39	89 53	108 75	19 22
198	1,160	1,360	200	73 66	25 39	99 05	115 60	16 55
268	1,000	1,100	100	63 50	25 39	88 89	90 75	1 86
273	920	1,110	190	58 42	25 39	83 81	91 58	7 77
Total	4,090	4,730	640	259 72	101 57	361 29	406 68	45 39
Average	1,023	1,183	160	64 93	25 39	90 32	101 67	11 35
269	910	1,020	110	57 79	25 39	83 18	89 25	6 07
6417	1,000	1,140	140	63 50	25 39	88 89	94 05	5 16
6416	1,100	1,280	180	69 85	25 39	95 24	121 60	26 36
188	1,060	1,190	130	67 31	25 39	92 70	98 18	5 48
Total	4,070	4,630	560	258 45	101 57	360 02	403 08	43 06
Average	1,018	1,158	140	64 61	25 39	90 00	100 77	10 77
192	850	1,000	150	53 98	25 39	79 37	92 50	13 13
193	1,080	1,230	150	68 58	25 39	93 97	106 09	12 12
11	910	1,050	140	57 78	25 39	83 17	86 63	3 46
270	990	1,160	170	62 87	25 39	88 26	95 70	7 44
Total	3,830	4,440	610	243 21	101 57	344 78	380 92	36 14
Average	958	1,110	153	60 80	25 39	86 19	95 23	9 04
194	1,040	1,220	180	66 04	30 65	96 69	112 85	16 16
271	950	1,030	80	60 33	30 65	90 98	82 40	−8 58
272	970	1,120	150	61 59	30 65	92 24	106 40	14 16
196	970	1,070	100	61 60	30 65	92 25	85 60	−6 65
Total	3,930	4,440	510	249 56	122 59	372 15	387 25	15 09
Average	983	1,110	128	62 39	30 65	93 04	96 81	3 77
195	1,010	1,180	170	64 13	30 65	94 78	100 30	5 52
275	960	1,150	190	60 96	30 65	91 61	100 63	9 02
220	970	1,160	190	61 60	30 65	92 25	111 65	19 40
266	1,000	1,110	110	63 50	30 65	94 15	99 90	5 75
Total	3,940	4,600	660	250 19	122 59	372 78	412 48	39 70
Average	985	1,150	165	62 55	30 65	93 20	103 12	9 92
218	1,020	1,190	170	64 77	30 38	95 15	120 49	25 34
267	980	1,160	180	62 23	30 38	92 61	101 50	8 89
274	1,140	1,310	170	72 39	30 38	102 77	126 09	23 32
13	880	1,050	170	55 88	30 38	86 26	89 25	2 99
Total	4,020	4,710	690	255 27	121 53	376 80	437 33	60 53
Average	1,005	1,178	173	63 82	30 38	94 20	109 33	15 13

COMPARISON OF METHODS.—While conclusions are not warranted on the result of one year's work, comparisons may be made of the different methods of feeding and handling.

Pens 1 and 2, as will be noted, were fed exactly alike, the only difference between these two lots being that pen 1 was horned while pen 2 was polled, both pens being tied in stalls during the feed period. Consideration of the pre-

vious tables will show that little or no difference existed between the pens at any time either in the matter of gain in weight or value. Apparently where cattle are tied during the feed period it makes little difference whether these cattle are horned or polled.

Pen 3, dehorned and fed loose in a box-stall, apparently has not done quite so well as either pen 1 or pen 2, although the difference in matter of pounds gain is very small, certainly not sufficient to warrant definite conclusions being drawn.

Pens 4 and 5 received culled potatoes to replace the turnips of the previous pens. Pen 4 received mixed hay uncut, while pen 5 received mixed hay that had been run through the cutting-box. A difference of 150 pounds in gross gain will be noted in favour of pen 5, while the profit per animal averaged about $6 greater for this pen. It is possible that the use of the cutting-box may be recommended in steer feeding.

Pen 5 received mixed hay (cut) and cull potatoes, while pen 6 received oat straw (cut) and cull potatoes. A study of the foregoing tables will show pen 6 to have made not only the greatest gain in weight during the feed period, but also the greatest gross profit.

Further work is to be conducted along this line, but for the present it would seem that where cull or small potatoes are available in large quantities, they might prove of high value when used for steer-feeding.

SWINE

Little or no experimental work was attempted with swine this year.

At the beginning of the year thirteen head of swine were on hand. Eight of these were sold for slaughter, leaving a balance of five brood sows. Of these only three had litters, totalling twenty-six pigs, of which twenty-one were successfully reared. Later three were sold for feeding, and a number sold for breeding purposes. One died, and the balance, with the exception of three animals, were fed and slaughtered, leaving at the close of the year, three pure-bred Yorkshire brood sows on hand.

FIELD HUSBANDRY

The open fall of 1924 permitted the completion of the greater part of the autumn work. Spring work started somewhat earlier than usual, but the weather turned cold and wet later in the season, with the result that seeding finished late. Good growing conditions characterized the early part of the season, but late hay-making and the entire grain harvesting, as well as the harvesting of potatoes and field roots, were rendered exceptionally difficult owing to rainy weather. A considerable amount of hay was saved in a weathered condition, and a large part of the grain was badly discoloured in the stook. Plenty of rain made ploughing easy, and the fall work was well completed by November 24, 1925, when the " freeze-up " occurred.

CROP ROTATIONS

Greater than ever, perhaps, is the interest being shown in our demonstration rotations. These rotations, started in 1912, are showing clearly the benefits derived from such systematic treatment. Publicity, through the press and otherwise, is awakening a wider interest each year. Also the operation of several Illustration Stations throughout the province is creating considerable interest in the systematic rotation of crops. Our rotations not only act as demonstration areas but also supply us with the data necessary in the compilation of the cost

of production of various farm crops. In connection with this phase of the work a table of fixed charges has been adopted, as follows:—

COSTS

Rent of land per acre	$ 3 00
Manure per ton (spread)	2 00
Seed oats, per bushel	1 00
Seed barley, per bushel	1 50
Seed wheat, per bushel	2 00
Use of machinery, per acre	3 00
Manual labour, per hour	0 25
Horse labour, per hour	0 10
Grass seed	At cost
Twine	At cost
Seed of mangels, turnips, potatoes, etc	At cost
Spray materials	At cost

RETURN VALUES

Oats, per bushel	0 50
Barley, per bushel	0 75
Wheat, per bushel	2 00
Hay, per ton	10 00
Roots, per bushel	0 07½
Potatoes, per bushel (field-run)	1 00
Oat straw, per ton	4 00
Wheat straw, per ton	2 00
Barley straw, per ton	2 00

It will be noted that the return value for potatoes is very high. The actual price in many cases ran considerably higher than even this figure. However, this is exceptional, and the fact must be borne in mind in interpreting the results of the rotation experiments which follow.

ROTATION "A"

(Five years' duration, suitable for dairy farming.)

FIRST YEAR, HOED CROP.—Twenty-five tons of manure are used in preparation for this crop, usually about one-half being applied on stubble the previous autumn, the balance in the spring, and worked in with a cutaway disk harrow. Charge 40 per cent of total cost of manure to this crop.

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

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

FOURTH YEAR, TIMOTHY OR PASTURE.—Plough in August or early September after removing hay crop, and top-work 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 of alsike per acre. The land is ploughed in autumn for roots after removing the grain crop. The grain crop is charged with 5 per cent of cost of manure.

ROTATION SUMMARY—ROTATION "A" FIVE YEARS' DURATION

Crop	Yields		Value, 1925	Cost of production, 1925	Profit or (—) loss, 1925
	Average for 14 years	1925			
	tons lb.	tons lb.	$ cts.	$ cts.	$ cts.
Mangels, Yellow Intermediate	20 1,275*	14 1,205	43 81	79 61	—35 80
	bush.	bush.			
Oats, Banner	70 10	56 3	30 68	30 79	—0 11
	ton	ton			
Straw	1 1,088	.. 1,313			
	tons	tons			
Clover hay	2 1,125	1 1,480	17 40	21 66	— 4 26
Timothy hay	2 663	3 85	30 47	17 03	13 44
	bush.	bush.			
Barley, Charlottetown No. 80	44 8	49 32	38 93	21 75	17 18
	ton				
Straw	1 425	.. 1,676			
Totals	.....	.....	161 29	170 84	—9 55
Per acre	.....	.....	32 26	34 17	—1 91

*Average for 13 years.

ROTATION "B"

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

FIRST YEAR, HOED CROP, to receive 15 tons manure per acre in the spring. Crop is charged with 40 per cent of total cost of manure applied.

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

THIRD YEAR, CLOVER HAY, ploughed in autumn, charged with 20 per cent of cost of manure.

FOURTH YEAR, GRAIN, seeded down with 10 pounds red clover, 2 pounds alsike and 12 pounds timothy per acre. Crop is charged with 10 per cent of cost of manure.

FIFTH YEAR, CLOVER HAY, or pasture, top dressed in early autumn, with 10 tons manure, and ploughed in preparation for hoed crop. The clover hay crop is charged with 5 per cent of cost of manure.

ROTATION SUMMARY "B"—FIVE YEARS' DURATION

Crop	Yields		Value, 1925	Cost of production, 1925	Profit or (—) loss, 1925
	Average for 13 years	1925			
	tons lb.	tons lb.	$ cts.	$ cts.	$ cts.
*Potatoes (7-year average)	6 1,978	8 1,850	297 50	74 56	222 94
	bush.	bush.			
†Wheat, Huron (12-year average)	27	32 54	68 13	28 96	39 17
	ton	ton			
Straw	1 645	1 326			
	tons	tons			
Clover	2 728	2 1,720	28 60	24 94	3 66
	bush.	bush.			
Oats "Banner"	64 3	57 23	31 62	24 01	7 61
	ton	ton			
Straw	1 511	.. 1,389			
Clover	1 1,048	1 1,770	18 85	16 85	2 00
Totals	.....	.....	444 70	169 32	275 38
Per acre	.....	.....	88 94	33 84	55 10

*Seven-year average. †Twelve-year average.

ROTATION "C"

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

This rotation produces relatively more hay and roots and less grain than those already described. This is desirable where the farmer is interested in live stock and wishes to produce only sufficient grain for his own feed purposes.

FIRST YEAR, HOED CROP, ten tons of manure are applied in spring; the roots are charged with 40 per cent of the cost of manure.

SECOND YEAR, GRAIN, seeded down with 10 pounds of red clover, 2 pounds of alsike and 12 pounds of timothy per acre. The grain crop is charged with 30 per cent of the manure applied.

THIRD YEAR, CLOVER HAY, charged with 20 per cent of manure.

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

SUMMARY, ROTATION "C"—FOUR YEARS' DURATION

Crop	Yields		Value, 1925	Cost of production, 1925	Profit or (−) loss per acre, 1925
	Average	1925			
	tons lb.	tons lb.	$ cts.	$ cts.	$ cts.
[1]Potatoes	8 442	8 1,365	289 42	70 96	218 46
	bush.	bush.			
[2]Wheat, E. R. Fife	30 43	21 3			
	ton	ton	46 68	28 45	18 23
Straw	1 1,645	2 579			
[3]Clover hay	2 1,883	3 1,211	36 06	20 26	15 80
[4]Timothy hay	2 1,876	3 60	33 40	16 30	17 10
Totals			405 56	135 97	269 59
Per acre			101 39	33 99	67 40

[1]8-year average. [2]11-year average. [3]13-year average. [4]12-year average.

ROTATION "F"

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

This rotation is well suited to seed grain production, as 50 per cent of the cultivated area each year is under grain. It is on this rotation that our test of varieties plots of seed grain are seeded, and also our test of varieties plots of root crops. It is impossible, therefore, to give accurate yields from the different areas, and the summary sheet, for that reason, has been omitted. The following, however, is an outline of the rotation:—

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

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

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

FOURTH YEAR, GRAIN, seeded down with 8 pounds red clover and 2 pounds of 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)

At one time this rotation was commonly practised in the province.

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

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

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

FOURTH YEAR, CLOVER HAY, charged with 11.43 per cent of manure or $8 if valuing manure at $2 per ton.

FIFTH YEAR, TIMOTHY HAY, top dressed in August with 15 tons manure per acre. This year's crop is charged with 5.71 per cent of total manure, or $4.

SIXTH YEAR, TIMOTHY OR PASTURE, charged with 20 per cent of manure. This amounts to $14 per acre.

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

On account of manure being applied at two different periods during the rotation, the division into percentage appears difficult. However the figures given are sufficiently accurate for any field work.

SUMMARY OF ROTATION "G"—SEVEN YEARS' DURATION

Crop	Yields		Value, 1925	Cost of production, 1925	Profit or (−) loss, 1925
	Average	1925			
	bush. lb.	bush. lb.	$ cts.	$ cts.	$ cts.
Oats—Grain	53 23	37 14	24 27	29 48	−5 21
Oats—Straw	ton 1 498	ton 1 778			
Turnips	18 609	20 225	60 34	77 47	−17 13
Wheat—Grain	bush. 25 14	bush. 25 40			
Wheat—Straw	ton 1 1,029	ton 1 1,835	55 18	30 64	24 54
Clover	3 24	2 1,755	28 78	19 55	9 23
Timothy	2 1,952	3 1,113	35 50	15 24	20 26
Timothy	3 1,098	4 325	41 63	25 57	16 06
Timothy	2 1,941	3 788	33 94	18 77	15 17
Totals	.....	.....	279 64	216 72	62 92
Per acre	.....	.....	39 95	30 96	8 99

Potatoes in 1925 gave a very good yield, and the market value was exceptionally high. For this reason Rotations B and C show excessively high profits as compared with Rotations A and G. This point should be kept in mind when comparing the figures.

COST OF PRODUCTION OF FIELD CROPS

In the course of our work on various rotations of farm crops, accurate records are kept of all field operations. These data furnish a basis from which, by setting arbitarary prices on each operation, we may figure out costs of production of various crops. In studying these figures it must be borne in mind that cost of production per unit must necessarily vary if we vary the different fixed charges, or if crops were grown under different soil or climatic conditions. For the present one would do well to recognize the limitations of such figures.

The fixed charges employed are those agreed upon for use on the eastern farms and stations of the Experimental Farms system.

Cost of Producing Wheat After Hoed Crop
(Figures based on one acre of wheat grown on Rotation "B", 1925)

Rent	$ 3 00
Share manure, 25 per cent of 25 tons at $2	12 50
Use of machinery	3 00
Seed, 1¾ bushels at $2	3 50
Twine, 3¼ lb. at 14⅜ cents	0 47
Ribbing (previous autumn), 2 hours 2-horse at 45 cents	0 90
Harrowing, 3⅓ hours 2-horse at 45 cents	1 50
Rolling, ⅓ hour 2-horse at 45 cents	0 15
Seeding, 7/12 hours 2-horse at 45 cents	0 26
Cutting, ⅔ hour 3-horse at 55 cents	0 37
Stooking, 2 hours manual at 25 cents	0 50
Loading and unloading, 4½ hours manual at 25 cents	1 13
Hauling, 1½ hours 2-horse at 45 cents	0 68
Threshing, 4 hours manual at 25 cents	1 00
Total cost	$28 96

Yield of grain, 1,974 pounds (32 bushels, 54 pounds)
Yield of straw, 2,326 pounds

Cost of producing 1 bushel grain	85 cents
Cost of producing 1 ton straw	85 "
Average cost of producing 1 bushel grain over 11-year period	46·1 "

Cost of Producing Oats After Hoed Crop
(Figures based on 1 acre, Rotation "A", for year 1925)

Rent	$3 00
Share manure, 25 per cent of 25 tons at $2	12 50
Use of machinery	3 00
Seed, 2¾ bushels at $1	2 75
Twine, 3 pounds at 14⅜ cents	0 43
Ploughing (previous autumn), 7 hours 2-horse at 45 cents	3 15
Ribbing (previous autumn), 2½ hours 2-horse at 45 cents	1 13
Harrowing, 3 hours 2-horse at 45 cents	1 35
Rolling, ⅓ hour 2-horse at 45 cents	0 15
Seeding, 7/12 hour 2-horse at 45 cents	0 26
Cutting, ⅔ hour 3-horse at 55 cents	0 37
Stooking, 2 hours manual at 25 cents	0 50
Loading and unloading, 3 hours manual at 25 cents	0 75
Hauling, 1 hour 2-horse at 45 cents	0 45
Threshing, 4 hours manual at 25 cents	1 00
Total cost	$30 79

Yield of grain, 1,907 pounds (56 bushels 3 pounds)
Yield of straw, 1,313 pounds

Cost of producing 1 bushel, grain	50·2 cents
Cost of producing 1 ton straw	$ 4 01
Cost of producing 1 bushel grain 12-year period	17·7 cent

Cost of Producing Barley After Hay
(Figures based on 1 acre, Rotation "A", for year 1925)

Rent	$ 3 00
Share of manure, 5 per cent of 25 tons at $2	2 50
Machinery	3 00
Seed, 1¾ bushels at $1.50	2 63
Twine, 3¼ pounds at 14⅜ cents	0 47
Autumn work (previous year):—	
Ploughing, 5 hours 2-horse at 45 cents	2 25
Rolling, ⅓ hour 2-horse at 45 cents	0 15
Harrowing, 4½ hours 2-horse at 45 cents	2 03
Ribbing, 2 hours 2-horse at 45 cents	0 90
Spring work:—	
Harrowing, 3⅓ hours 2-horse at 45 cents	1 50
Rolling, ⅓ hour 2-horse at 45 cents	0 15
Seeding, 7/12 hour 2-horse at 45 cents	0 26
Cutting, ⅔ hour 3-horse at 55 cents	0 37
Stooking, 2 hours manual labour at 25 cents	0 50
Loading and unloading, 3 hours manual at 25 cents	0 75
Hauling, ⅔ hour 2-horse at 45 cents	0 30
Threshing, 4 hours manual labour at 25 cents	1 00
Total cost	$21 75

Yield of grain, 2,384 pounds (49 bushels 32 pounds)	
Yield of straw, 1,676 pounds	
Cost of producing 1 bushel grain	41·9 cents
Cost of producing 1 ton straw	$ 1 12
Average cost of producing 1 bushel grain over 12-year period	32·5 cents

Cost of Producing Hay After Wheat

(Figures based on 1 acre—Rotation "C", for year 1925)

Rent	$ 3 00
Share of manure, 20 per cent of 20 tons at $2	8 00
Machinery	3 00
Grass and clover seed (⅓ value at 1925 prices)	2 91
Cutting, ¾ hour 2-horse at 45 cents	0 34
Raking, ½ hour 1-horse at 35 cents	0 18
Coiling and shaking, 2⅔ hours manual labour at 25 cents	0 67
Loading and unloading, 4⅓ hours manual labour at 25 cents	1 08
Loading and unloading, 5/6 hour 1-horse at 35 cents	0 29
Hauling, 1¾ hours 2-horse at 45 cents	0 79
Total cost	$20 26
Yield per acre, 7,211 pounds	
Cost of producing 1 ton	$ 5 62
Average cost of producing one ton over 12-year period	5 02

Cost of Producing Mangels After Barley

(Figures based on one acre, Rotation "A", for year 1925)

Rent	$ 3 00
Share of manure, 40 per cent of 25 tons at $2	20 00
Machinery	3 00
Clover seed (sown with barley for green manure)	3 58
Seed, 8 pounds at 75 cents	6 00
Autumn work (previous year):—	
Ploughing, 5 hours 2-horse at 45 cents	2 25
Harrowing, 2 hours 2-horse at 45 cents	0 90
Ribbing, 2½ hours 2-horse at 45 cents	1 13
Spring work:—	
Ploughing, 7 hours 2-horse at 45 cents	3 15
Harrowing, 3 hours 2-horse at 45 cents	1 35
Rolling, ⅔ hours 2-horse at 45 cents	0 30
Sowing, 3 hours manual labour at 25 cents	0 75
Hoeing, 68 hours manual labour at 25 cents	17 00
Cultivating, 2 hours 2-horse at 45 cents	0 90
Cultivating, 3 hours 1-horse at 35 cents	1 05
Pulling and loading, 47 hours manual labour at 25 cents	11 75
Hauling, 10 hours 1-horse at 35 cents	3 50
Total cost	$79 61
Yield per acre, 29,205 pounds or 584 bushels 5 pounds	
Cost of producing 1 ton	$ 5 45
Cost of producing 1 bushel	13·5 cents
Average cost of producing 1 ton over 12-year period	$ 3 06
Average cost of producing 1 bushel over 12-year period	7·6 cents

Cost of Producing Turnips After Oats

(Figures based on 1 acre, Rotation "G", for year 1925)

Rent	$ 3 00
Share manure, 40 per cent on 20 tons and 10 per cent on 15 tons at $2	19 00
Machinery	3 00
Clover seed (sown with oats for green manure)	2 10
Seed, 2½ pounds at $1	2 50
Autumn work (previous year):—	
Ploughing, 4½ hours 2-horse at 45 cents	2 03
Harrowing, 3¾ hours 2-horse at 45 cents	1 69
Ribbing, 3¾ hours 2-horse at 45 cents	1 69
Spring work:—	
Ploughing, 10 hours 2-horse at 45 cents	4 50
Harrowing, 7½ hours 2-horse at 45 cents	3 38
Rolling, 5/6 hour 2-horse at 45 cents	0 37
Sowing, 2½ hours manual labour at 25 cents	0 63
Hoeing, 62½ hours manual labour at 25 cents	15 62
Cultivating, 4 1/6 hours 1-horse at 35 cents	1 46
Pulling and loading, 45 hours manual labour at 25 cents	11 25
Hauling, 15 hours 1-horse at 35 cents	5 25
Total cost	$77 47

Yield per acre, 40,225 pounds or 804 bushels, 25 pounds	
Cost of producing one ton	$ 3 85
Cost of producing one bushel	9·6 cents
Average cost of producing one ton over 6-year period	$ 3 38
Average cost of producing one bushel over 6-year period	8·45 cents

CULTURAL EXPERIMENTS

RATES OF SEEDING CLOVER AND TIMOTHY

Ten-year averages for clover or timothy crops taken separately, or averages of the two taken together are strongly in favour of using 8 pound red clover and 1 or 2 pounds alsike with 10 pounds timothy when seeding down for hay.

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

Plot No.	Rates of Seeding per acre		Yield of Clover per acre		Yield of Timothy per acre		Ten-year average yield clover and timothy combined
	Red Clover	Alsike	1925	Ten-year average	1925	Ten-year average	
1	2		1,614	2,272	4,352	3,031	2,652
2	4		1,850	3,178	2,736	2,990	3,084
3	8		1,900	3,516	3,599	3,613	3,564
4	12		1,298	3,643	3,800	3,807	3,728
5	8	1	2,472	3,873	3,625	4,096	3,984
6	8	2	2,534	3,782	3,423	3,908	3,845
7		4	2,008	3,273	3,290	2,936	3,105
8		6	2,094	2,871	2,898	2,566	2,719
9		8	1,882	2,768	2,694	2,123	2,446

NOTE.—All plots were seeded uniformly with 2½ bushels oats and 10 pounds timothy per acre.

METHODS OF APPLYING BARNYARD MANURE

This experiment is an attempt to demonstrate the best system or time in the rotation at which to apply a given quantity of manure. The first section or plot has been used as a check; to our certain knowledge no manure has been applied to this for about fifteen years, nor, so far as we are able to learn, for a great many years previous to that. On the other eight sections 20 tons of manure per acre have been applied at some time during the course of a four-year rotation.

Obviously it is difficult to determine the best time to apply the manure. With potatoes at high prices, as they have been this autumn, any system of manuring that favours large crops of marketable tubers will naturally lead, from a cash standpoint. On the other hand, a method of manuring that favours the hay crop is of value in mixed or live stock systems of farming.

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

Plot	Amount of Manure and Crop or Crops to which it was Applied during Rotation				Ten-year Average Yield in Pounds per Acre				Average feed units produced per cycle of Rotation per acre	
	Potatoes	Oats	Clover	Timothy	Potatoes	Oats	Clover	Timothy	Actual	Relative
1	Check—no manure				6,270	1,714	2,027	2,103	4,115	100·0
2				20 tons before ploughing this sod for potatoes.	11,441	1,824	3,115	2,863	5,765	140·1
3	10 tons for potatoes.		10 tons after removing clover.		8,468	2,068	3,299	3,578	5,804	141·0
4				20 tons for potatoes after ploughing this sod.	10,860	1,707	3,069	2,674	5,481	133·2
5	20 tons for potatoes after fall ploughing of sod.				11,526	1,795	2,964	2,318	5,512	133·9
6			20 tons after removing clover.		8,284	1,780	2,512	3,755	5,256	127·7
7		10 tons top dress after grain is up		10 tons after reploughing this sod for potatoes.	10,110	1,785	3,926	2,954	5,863	142·5
8		20 tons top dress after grain is up			8,031	1,834	4,487	3,715	6,040	146·8
9				20 tons in piles in fall spread in spring for potatoes.	11,504	1,833	3,105	2,409	5,628	136·8

The table outlines the experiment, and also gives the average yield for each crop, over a ten-year period. In plots 2, 4, 5 and 9 the potato crop has been given first call on the entire amount of manure, and the yields are correspondingly high. Where manure has been applied at other times during the rotation, the potato crop has suffered a decrease in yield, but other crops have benefited. For example, when grain is top-dressed, as in plots 7 and 8, the clover has been greatly benefited.

In the second last column the different crops have been reduced to a common basis by means of the Scandinavian Feed Unit System. By this system 6 pounds of potatoes are considered to equal 1 unit; with oats, 1.1 pounds equal 1 unit; with clover, 2.5 pounds, and with timothy, 3 pounds equal one unit. This system is the only one at present in use whereby different feeds can be brought to a comparable basis. The figure given in the second last column is the average sum of all feed units produced during the four-year rotation.

In the last column, using the check plot as a basis, the remaining plots have been given a relative rating, considering the check as having a value of 100. In this way the highest relative standing is obtained when all the manure is applied as a top dressing on the oat crop. This system gives a heavy crop of straw, inclined to lodge and ripen late. The grain frequently is rather light in weight per measured bushel. The hay crops following are usually heavy.

A further method of studying the experiment would be on a cash basis, that is, value each crop, each year, at current market prices to learn which system ultimately gave the greatest return.

The market prices employed in the following table for the various farm crops were supplied by the Dominion Department of Trade and Commerce:—

AVERAGE SALE PRICE OF VARIOUS FARM PRODUCTS, 1916–1925

Year	Potatoes per bushel	Oats per bushel	Hay per ton
	$ cts.	$ cts.	$ cts.
1916	0 52	0 61	11 56
1917	0 75	0 80	12 67
1918	0 63	0 77	14 17
1919	0 85	0 85	20 00
1920	0 65	0 70	26 00
1921	0 45	0 50	30 00
1922	0 30	0 41	12 00
1923	0 39	0 44	12 00
1924	0 26	0 59	11 00
1925	1 05	0 45	10 26

Omitting the rather extensive tabulation necessary to obtain these figures, we find the returns from the different systems to be as follows:—

Plot. No.	Amount of manure, and crop or crops to which it was applied during rotation				Value of crops per acre per cycle of rotation ten-year average	Relative standing
	Potatoes	Oats	Clover	Timothy		
					$ cts.	
1		Check— no manure			130 35	100·0
2				20 tons before ploughing this sod for potatoes.	197 55	151·6
3	10 tons for potatoes		10 tons after removing clover crop.		174 57	133·9
4				20 tons for potatoes after ploughing this sod.	188 13	144·3
5	20 tons for potatoes after fall ploughing of sod.				190 77	146·4
6			20 tons after removing clover crop.		162 79	124·9
7		10 tons top-dress after grain is up.		10 tons after re-ploughing this sod for potatoes.	186 50	143·1
8		20 tons top-dress after grain.			184 74	141·7
9				20 tons in piles in fall spread in spring for potatoes.	185 86	142·6

This soil is a heavy sandy loam, and might almost class as clay loam. On this type of soil it is quite evident that the system employed on Plot 6 is not satisfactory. High yields of timothy are obtained, but not sufficiently heavy

to give this plot a good ranking when judged from a cash standpoint or by the Scandinavian Feed Unit System. This is also true to a certain extent with Plot 3. Purely from a cash-crop standpoint, the application of all the manure to the potato crop must be commended. From a mixed farming standpoint, however, a division of the manure somewhat similar to the system employed on Plot 7 seems to have considerable merit.

METHODS OF AFTER-HARVEST CULTIVATION OF ROOT LAND FOR GRAIN

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

From the data it would appear that the method of handling the land after a preceding root crop has little effect on the following crop of oats. Land not ploughed or otherwise treated seems to have given yields equal to those from the ploughed land. There is this to be noted, however, that land ribbed up in the autumn may be worked usually about one week earlier in the spring than land not so treated.

YIELD OF OATS

No.	After-harvest treatment of root land	Yield of oats per acre			
		1925		Ten-year average	
		bush.	lb.	bush.	lb.
1	No autumn treatment	57	29	50	28
2	Ploughed shallow in autumn	53	8	49	1
3	Ribbed in autumn	48	28	51	2
4	Ploughed shallow in spring	51	26	51	13

EFFECT OF VARIETY OF NURSE-CROP ON SUCCEEDING HAY CROPS

In this experiment all plots were seeded down at the rate of 10 pounds timothy and 8 pounds clover seed per acre. They received similar treatment throughout, with the exception of the nurse-crop, which varies with each plot as noted in the table following:—

No.	Variety of nurse-crop used	Yield clover per acre		Yield timothy per acre	
		1925	Ten-year average	1925	Ten-year average
1	2½ bushels oats per acre	2,272	3,294	4,267	3,740
2	1½ bushels barley per acre	1,803	3,305	2,685	3,169
3	1½ bushels wheat per acre	2,093	3,453	3,240	3,231
4	3½ bushels mixed pease and oats for hay	1,959	3,086	2,250	3,035
5	3 bushels mixed pease and oats for grain	2,767	3,102	1,308	2,933

From the foreging table it would appear that oats, if not too thickly seeded, form a satisfactory nurse-crop.

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

(Four-year rotation: Hoed crop, oats, clover, timothy)

On the average, a seeding of 2½ bushels of oats per acre seems to give the best return of grain. Adding the clover and timothy years together, the greatest return of hay is from the plot seeded with 2 bushels of oats. Somewhere between these two figures would perhaps give the maximum yield of grain and hay.

RATE OF SEEDING NURSE-CROP OF OATS

Plot	Rate seeding per acre	Yield of oats per acre		Yield of clover per acre		Yield of timothy per acre	
	Oats	1925	Ten-year average	1925	Ten-year average	1925	Ten-year average
	bush.	lb.	lb.	lb.	lb.	lb.	lb.
1	1½	1,400	1,420	1,419	2,658	3,073	2,915
2	2	1,700	1,526	2,973	2,999	3,781	2,635
3	2½	1,560	1,696	2,062	2,628	3,269	2,362
4	3	1,440	1,334	3,160	3,064	2,594	2,099

NOTE.—All plots seeded uniformly with 12 pounds timothy and 10 pounds red clover per acre.

DEPTH OF PLOUGHING SOD LAND FOR GRAIN

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

Ploughing to a depth of 5 to 7 inches on this type of soil, which is a heavy sandy loam with clay subsoil, would appear to give the best results. Spring ploughing of sod land for oats is to be avoided. Not only is the crop light, but it usually ripens very unevenly and is not uniform in height.

Plot No.	Depth of ploughing sod for grain (oats)	Yield per acre	
		1925 crop	Ten-year average
		lb.	lb.
1	Ploughed 3 inches deep in autumn	800	1,222
2	Ploughed 5 inches deep in autumn	1,200	1,375
3	Ploughed 7 inches deep in autumn	1,000	1,313
4	Ploughed 9 inches deep in autumn	1,000	1,265
5	Ploughed 4 inches deep in spring	800	1,207
6	Ploughed 6 inches deep in spring	880	1,255

RATE OF SEEDING NURSE-CROP OF BARLEY

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

All plots seeded uniformly with 12 pounds timothy and 10 pounds red clover per acre.

Plot Number	Rate of seeding barley per acre	Yield of clover per acre		Yield of timothy per acre	
		1925	Ten-year average	1925	Ten-year average
	bush.	lb.	lb.	lb.	lb.
1	1	2,934	2,871	4,625	3,374
2	1½	2,711	2,971	3,378	2,931
3	2	2,275	2,532	2,374	2,428
4	2½	2,199	2,489	3,634	*2,088

*9-year average.

Thinner seedings of barley as a nurse-crop seem to give the highest yields of hay the following year. When the grain is taken into consideration, a seeding of about 1½ bushels per acre gives uniformly high yields of both grain and hay.

METHODS OF TREATING NEGLECTED LAND

From the data available it is difficult to say what method should be recommended. There seems to be little difficulty, however, in reclaiming neglected land. Plough in early August, or even earlier, and top-work during the balance of the season. In the spring following, apply 1,000 to 1,400 pounds per acre of a home-mixed fertilizer and plant to potatoes. If these are cultivated, sprayed, and otherwise handled in a careful way, the crop should not only pay the cost of fertilizing, but should return a fair profit over investment. The land is very materially improved and is left in good tilth for producing grain and hay crops.

DEPTHS OF LAYING UNDERDRAIN

This experiment is running on a four-year rotation: potatoes, oats, clover and timothy.

Drains are set at depths of 24, 30, 36, 42 and 48 inches. The soil is a heavy sandy loam underlaid by a gravelly clay. Under these conditions it seems unnecessary to set drains at a greater depth than 36 inches.

DEPTHS OF SEEDING CEREALS

Data collected up to the present indicate a depth of three inches to be the most satisfactory for seeding oats. With barley, seedings at one inch seemed to be about as satisfactory as deeper seedings, although deep seeding had no detrimental effect. When danger from drought is considered, however, we would hesitate in recommending the seeding of cereals in this province at depths of less than 3 inches.

COST OF OPERATION OF TRACTOR

The tractor operated at this station at present is a Moline Universal Model "D." It is of the forward-wheel-drive type, with a 4-cylinder, 4-cycle engine, practically the entire weight being supported by the two large drive wheels. It has given fairly satisfactory service with little delay for repairs during the busy season.

This machine has been in operation for four seasons, and when working under full load we consider it equal to five good horses.

MOLINE TRACTOR—MODEL "D"

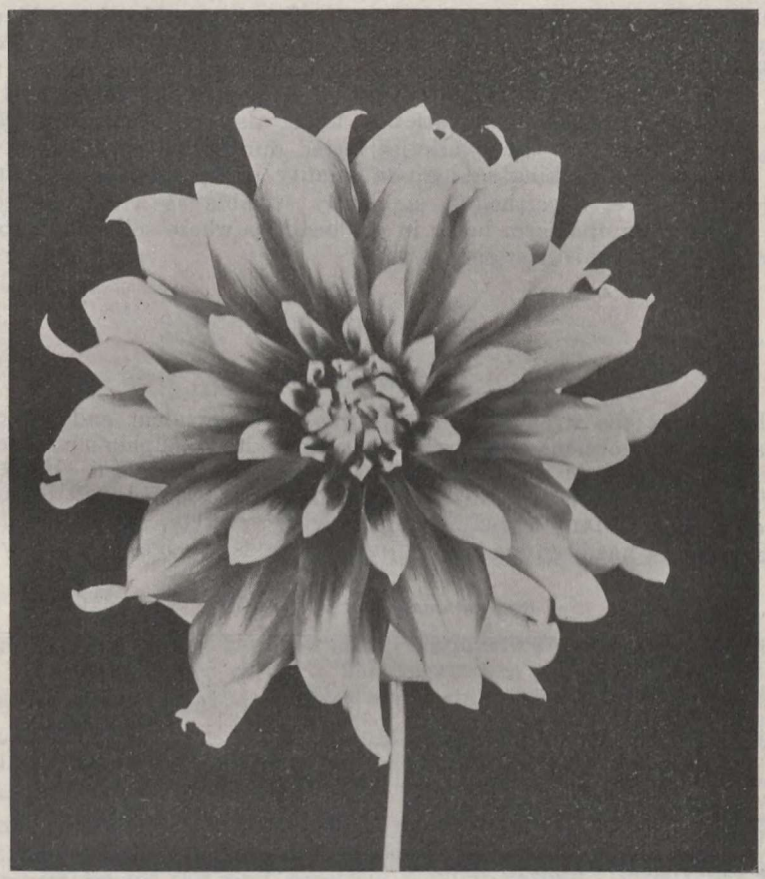
Gasoline, 371 gallons		$ 96 46
Cylinder oil, 20 gallons		17 60
Overhauling and incidental repairs		85 25
Total		$199 31
Work performed:—		
Belt work	180 hours	
Ploughing (2-12 in. bottoms)	35 "	
Spring-tooth harrow (4 sections)	103 "	
Double cutaway disk harrow	100 "	
Total	418 hours at 47 68/100c.	$199 31

We have found the tractor of value in the relief of horse labour during spring seeding and fall ploughing operations.

HORTICULTURE

The autumn of 1924 was mild and favourable for maturing the wood of trees and shrubs. It also afforded an opportunity of providing ample winter covering for herbaceous perennials and bulbs. Though the weather in December and January of 1925 was severe and the snow fall light, that of February and March was unusually mild. Practically all trees, shrubs and plants escaped winter injury. The frost was almost all out of the ground by April 1, and there was every prospect of a very early spring. Cold winds, rain, snow-flurries

and light frosts during the month of April, however, checked early growth and retarded bloom. As a result, no injury from late spring frosts occurred. The growing season was very favourable for the production of small fruits, vegetables and flowers; but in autumn the occurrence of heavy rains accompanied by high winds seriously interfered with the harvesting of many crops.



Attraction. A fancy, decorative dahlia, crimson and white in colour.

TREE FRUITS

APPLES

The trees wintered well, and, with a few exceptions, have continued to make good growth. One dozen McIntosh trees set out in the spring of 1923 have done exceptionally well. There was a large amount of bloom and a heavy setting of fruit on many varieties. The moist season, however, was especially favourable for apple scab, which damaged much of the fruit. Still greater loss occurred from strong gales and rain in October. A great many of the apples were undersized, and yields of good fruit were low. Melba and Lobo, two varieties originated at Ottawa, give promise of being valuable additions to the list of varieties suitable to this climate. Both are seedlings of the McIntosh, and have proven to be perfectly hardy. The former may be classed as a late

autumn variety, the latter as early winter. The fruit of both is of medium size, attractive in appearance, and possesses in a great measure the flavour and quality of the McIntosh. The performance as producers of these two trees will be watched with interest.

PLUMS

During the past season many trees suffered severely from black knot. Some varieties, however, such as Saunders, Imperial Gage, Monarch, Fellenberg and German Prune appear to be much more resistant to this disease than are others. Considered from the standpoint of longevity, hardiness and productivity, the above mentioned varieties have also proven to be the most satisfactory of the forty-five varieties tested during the period from 1910 to 1925. Though not ranking so high in quality or appearance as many other varieties, they are, nevertheless, eminently suitable as a reliable source of supply of fruit for the farm home in all localities where soil and exposure are similar to those at this Station.

SMALL FRUITS

STRAWBERRIES

This season the strawberry weevil was very prevalent and did considerable damage. Treatment was given by dusting with a sulphur-arsenate of lead mixture, 85 per cent of the former to 15 per cent of the latter. Evidence was that this dust would prove fairly effective if applied sufficiently often and at the proper time. Many varieties suffered very severely, and in the following table no attempt has been made to adjust the yields to cover this injury.

STRAWBERRIES—TEST OF VARIETIES

No.	Name of variety	Type of flower	Size of fruit	Date of first and last pickings	Yield in boxes per acre*
1	Superb	Perfect	Large	July 11–30	8,891
2	Portia	mperfect	"	" 11–24	8,815
3	Glen Mary	Perfect	"	" 11–30	8,192
4	Desdemona	"	"	" 7–21	7,052
5	Lavinia	"	Medium	" 8–24	6,753
6	Parker Earle	"	Large	" 10–30	6,597
7	Cassandra	"	Medium	" 7–21	5,911
8	Warfield	Imperfect	"	" 8–20	5,704
9	Senator Dunlap	Perfect	"	" 4–18	5,392
10	Bubach	Imperfect	"	" 7–24	5,365
11	Pocomoke	Perfect	Large	" 11–20	5,341
12	Francis	"	Medium	" 7–20	5,289
13	Beder Wood	"	"	" 7–20	5,237
14	Kellogg Prize	Imperfect	"	" 11–22	4,621
15	Stevens Late Champion	Perfect	Large	" 13–24	4,476
16	McAlpine	"	"	" 11–22	4,304
17	Premier	"	Medium	" 4–30	4,017
18	Dr. Burrill	"	Large	" 4–17	3,914
19	Valeria	"	Medium	" 11–22	3,785
20	Parson Beauty	"	Large	" 7–21	3,559
21	Sample	Imperfect	"	" 7–20	3,503
22	Hermia	Perfect	Medium	" 8–22	3,455
23	Nettie	Imperfect	"	" 3–17	2,972
24	Early Jersey Giant	Perfect	"	" 6–17	2,514
25	Charles I	Perfect	"	" 7–15	2,281
26	Americus	Imperfect	"	" 11–17	440

*Reported in "standard" boxes per acre. These boxes are approximately one quart capacity.

Having carried a number of these varieties for several years, we append herewith a table of average yields. The 1925 crop, being injured by weevil, as previously mentioned, is not included in these averages:

STRAWBERRIES—TEST OF VARIETIES—AVERAGE YIELDS

No.	Name of variety	Type of flower	Size of fruit	Quality of fruit	Average yield five-year, 1920-24	Average yield ten-year, 1915-24
1	Glen Mary	Perfect	Large	Medium subacid firm	6,259	5,380
2	Portia	Imperfect	"	Good acid firm	6,027	5,065
3	Beder Wood	Perfect	Medium	Medium acid soft	5,740	*4,086
4	Warfield	Imperfect	"	Medium subacid firm	5,705	*5,751
5	Francis	Perfect	"	" "	5,694	.....
6	Senator Dunlap	"	"	Good subacid firm	5,063	4,597
7	Parker Earle	"	Large	.....	5,021	6,187
8	Valeria	"	Medium	.....	4,795†	*6,346
9	Early Jersey Giant	"	"	Good subacid firm	4,754	.....
10	Dr. Burrill	"	Large	" "	4,258	.....
11	Pocomoke	"	"	Good acid very firm	4,234†	*3,401
12	Sample	Imperfect	"	Medium subacid firm	4,210	.....
13	Charles I	Perfect	Medium	.....	4,111†	.....
14	Superb	"	Large	Medium subacid firm	3,903	.....
15	Stevens Late Champion	"	"	Medium acid firm	3,529	.....
16	Bubach	Imperfect	"	Medium subacid firm	3,502	3,444
17	Americus	"	Medium	Good subacid firm	3,495	.....
18	Kellogg Prize	"	"	Medium acid firm	3,411	.....
19	Premier	Perfect	"	Medium subacid firm	3,283	.....
20	Desdemona	"	Large	" "	3,205	2,941
21	Parson Beauty	"	"	" "	3,115	*3,612
22	Nettie	Imperfect	Medium	Medium acid firm	2,623†	*1,781
23	McAlpine	Perfect	Large	Good subacid firm	2,259	.....
24	Splendid	"	Small	Good acid firm	2,168	*2,444

†Four-year average. *Nine-year average.

From the table it will be noted that Valeria stands first in the list in point of yield over a nine-year period. This berry was originated at the Central Experimental Farm, Ottawa, and has given good satisfaction at this Station.

Warfield, another variety standing well up on the list, is one of the old standard berries. It usually proves a good cropper, but requires plenty of moisture.

Dunlap or Senator Dunlap, as it is more commonly called, while not one of the highest-yielding berries, is of good quality, briskly subacid, and taken all around is perhaps the most generally popular variety. It is fairly firm in flesh and stands shipping well.

RASPBERRIES

The raspberry crop in our plantations this year was a total failure due to attack by mosaic. This disease is closely related to mosaic found in potato. It is decidedly difficult to control, and it will be necessary for us to set out new plantations at an early date.

CURRANTS

Currants were a fair crop this season. As in past years a ready market at fair prices can be found for black currants. We cannot recommend the growing of white and red currants except for home use, as there apparently is no market whatever for these.

BLACK CURRANTS

Name of variety	Yield per acre 1925	Average yield per acre	
		Years	Quarts per acre
	quarts		
Topsy	5,445	10	1,646
Victoria	3,933	5	1,839
Climax	3,388	5	2,089
Eclipse	3,388	5	1,658
Champion	2,783	5	1,382
Kerry	2,420	6	842
Buddenborg	2,057	5	1,416
Boskoop Giant	1,392	5	622
Beauty	871	3	653

NOTE.—We recommend Topsy, Victoria and Climax.

RED CURRANTS

Name of variety	Yield per acre, 1925	Average yield	
		Number years	Quarts per acre
	quarts		
Red Grape	6,776	9	2,385
Knight Large	6,534	5	1,924
La Conde	6,050	10	2,807
Holland Red	5,324	3	2,239
New Red Dutch	4,114	7	1,625
Long Bunch Holland	3,630	10	1,742
Perfection	2,662	4	1,089

NOTE.—La Conde, Red Grape and Long Bunch Holland have been fairly consistent in fair to good yield over a period of years.

Only one variety of white currant, White Cherry, is grown; the yield this year was at the rate of 2,033 quarts per acre. As previously mentioned, no market is found for white or red varieties of currants.

GOOSEBERRES

The local market will absorb a considerable quantity of gooseberries at fairly good prices. Preference is shown for the red-skinned varieties.

GOOSEBERRIES—TEST OF VARIETIES

Name of Variety	Yield per acre, 1925	Average yield	
		Number years	Quarts per acre
	quarts		
Pearl (green)	6,970	10	2,622
Mabel (green)	6,970	5	3,306
Downing (green)	6,050	10	2,317
Keepsake (green)	4,356	8	2,682
Red Jacket (red)	3,146	4	1,362
Smith Improved (green)	944	7	723

VEGETABLES

ASPARAGUS

By reason of the havoc wrought in the asparagus plantation during the storm of October 1, 1923, no cutting was done in 1924. In 1925 the plants were again given an opportunity to recuperate, and very little crop was harvested. Conover Colossal has made good growth, and should yield well next season. Mammoth and Giant Argenteuil have not done so well.

BEANS

Sixteen varieties or strains were planted for test purposes this year. These were sown on May 15. Each lot occupied 30 feet of drill, the drill being 2½ feet wide and the plants approximately 2 inches apart in the row. The following table gives date when first ready for use, length of season, and yield in pounds per acre of green beans.

BEANS—TEST OF VARIETIES

Variety and source of seed	Ready for use and length of season	Yield in pounds per acre
Hodson Long Pod (Ott. 6904)	Aug. 7–Sept. 18	16,843
No. 1 Pole Bean (Ott. 3209)	" 18– " 18	15,246
Giant Stringless Green Pod (Burpee)	" 7– " 28	12,181
Refugee or 1,000 to 1 (Burpee)	" 20– " 28	11,616
Davis White Wax (Ott. 6903)	" 7– " 24	10,500
Davis Wax (McDonald)	" 7– " 24	10,164
Wardwell Kidney Wax (Ott. 6897)	" 7– " 24	9,943
Refugee or 1,000 to 1 (Steele Briggs)	" 20– " 18	9,874
Hidasta (Wills)	" 13– " 28	9,874
Stringless Green Pod (Ott. 6877)	" 7– " 17	9,653
Currie Rustless (Graham)	" 7– " 28	9,438
Jones White (Manitoba Agricultural College)	" 7– " 24	8,927
Wardwell Kidney Wax	" 7– " 24	8,858
Int. Challenge Black Wax (Ott. 6876)	" 7– " 28	8,567
Round Pod Kidney Wax (Ott. 6875)	" 7– " 17	7,986
" " (McDonald)	" 7– " 28	5,878

Hodson Long Pod for several years has proven to be one of our most satisfactory varieties.

THINNING OF BEANS.—This is the second year for this experiment. Two varieties, Round Pod Kidney Wax (McDonald) and Stringless Green Pod (Graham) were sown on May 15, 1925, in rows 30 feet long by 30 inches apart. The plants were later thinned to 2, 4, and 6 inches apart in the row. The following table gives the yield, in pounds per acre, for each variety, at the various distances, both green and ripe:

BEANS—THINNING EXPERIMENT

Distance of thinning	Round Pod Kidney Wax		Stringless Green Pod	
	Green	Ripe	Green	Ripe
	lb. per acre	lb. per acre	lb. per acre	lb. per acre
2 inches apart	11,906	871	10,012	1,452
4 "	9,438	1,162	10,960	2,033
6 "	4,930	581	10,890	2,033

Thinning to a distance of two inches apart has proven the most satisfactory method over a two-year period.

BEETS

VARIETIES.—Eight varieties were seeded on May 9, 1925. There was some slight variation in the "date ready for use" of the different varieties, as is shown by the following table. Each variety occupied one row 30 feet long and 30 inches wide, with plants thinned to about 2 inches apart in the row. The yield is recorded in bunches per acre. Each bunch contained five beets of marketable size. These were sold on the local markets.

BEETS—TEST OF VARIETIES

No.	Variety and source of seed	Date ready for use	Yield in bunches per acre
1	Early Model (Graham)	July 24	17,134
2	Early Wonder (Ewing)	" 29	16,843
3	Black Red Ball (Burpee)	" 29	16,117
4	Detroit Turnip Dark Red (Graham)	" 24	15,972
5	Detroit Dark Red (McDonald)	" 24	15,682
6	Eclipse (McDonald)	" 24	13,358
7	Crosby Egyptian (Steele Briggs)	" 29	12,632
8	Detroit Dark Red (Ott. No. 6050)	" 24	11,906

DATES OF SEEDING.—This experiment has been conducted for two years. Each seeding was in one drill 30 feet long by 30 inches wide. The first seeding was made on May 9, 1925, with successive seedings at 10-day intervals. Fifteen feet of each drill were harvested early in the season, and the balance left until the end of the growing season. The variety used was Detroit Dark Red. The following table gives the yield in bunches per acre of marketable and unmarketable vegetables:—

BEETS—DATES OF SEEDING

Date of planting	Early harvesting	Late harvesting	
	Marketable	Marketable	Unmarketable
May 9	15,972	5,808	3,484
" 19	21,490	5,808	2,323
" 29	20,328	5,808	3,484
June 8	12,778	8,131	.....
" 18	8,131	10,454	4,646

Plantings from the middle to the latter part of May would appear to give the greatest yields, and this bears out the findings of the previous year. If a late season vegetable is required seed must not be sown too early, as many of the beets become excessively large, coarse and of poor quality.

BRUSSELS SPROUTS

Three varieties were seeded this season, but did not make very satisfactory growth. In order of merit, however, on performance of past season we recommend: Paris Market, Dalkeith and Amager Market.

CABBAGE

VARIETIES.—Twenty varieties and strains were sown May 4, 1925, and transplanted to the open June 27, 1925. Thirty plants of each variety or strain were used. These were set 20 inches apart in rows 30 inches apart.

CABBAGE—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre
1	Danish Ballhead, Solid Emperor Strain (Harris)	81,022
2	Danish Ballhead M.S. (Harris)	73,181
3	Marblehead Mammoth (Ewing)	67,954
4	Danish Roundhead (Dupuy and Ferguson)	65,340
5	Haco (Red) (Dupuy and Ferguson	65,340
6	Danish Ballhead (Steele Briggs)	62,726
7	Danish Ballhead S.S. (Harris)	60,113
8	Chester Savoy (Steele Briggs)	60,113
9	Volga (Harris)	54,886
10	Flat Swedish (Dupuy and Ferguson)	54,886
11	Succession (Ewing)	49,658
12	Imp. American Savoy (Ferry)	49,658
13	Winnigstadt (Steele Briggs)	41,818
14	Copenhagen Market (James)	39,857
15	All Head, Early (Steele Briggs)	39,204
16	All Seasons (Steele Briggs)	39,204
17	Dala (McDonald)	38,551
18	Golden Acre (Harris)	33,977
19	Early Paris Market (McDonald)	28,096
20	Early Jersey Wakefield (McDonald)	27,443

It might be mentioned that the variety "Golden Acre" is an extra early cabbage of good quality.

DATE OF SEEDING AND EFFECT ON KEEPING.—This is a continuation of an experiment started in 1923. Two varieties, Copenhagen Market (Graham) and Extra Amager Danish Ballhead (Ott. 3422), twenty-five plants of each, were set 18 inches apart in rows 30 inches apart. The heads were placed in storage in the autumn of 1924, in a cement root-cellar, protected from frost, and were removed in the spring of 1925. The figures given below are for 1924. A similar planting was made this year, but the heads are still in storage and will be reported upon in 1926.

CABBAGE—EFFECT OF DATE OF SEEDING

Date of seeding	Variety and condition on removal from storage	
	Copenhagen Market (Graham)	Extra Am. Danish Ballhead (Ott. No. 3422)
May 7	Not satisfactory	Good.
" 17	Good	Extra good.
" 27	"	"
June 6	Not satisfactory	Medium.
" 16	" "	"

For two seasons Copenhagen Market has not proved so good for storage purposes as the Extra Amager Danish Ballhead. Very late seeding possibly does not allow the head to mature sufficiently to store properly.

CARROTS—VARIETY TEST

The carrots sown in the garden in the cultural test plot were so badly injured by carrot rust fly that no records were taken. Carrots sown in the field, approximately one-half mile distant from the garden, suffered very little injury, and the yields for variety tests given in the following table are from field plantings:—

CARROTS—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre
1	Hutchinson (Gregory)	16,262
2	Improved Danvers (D. & F.)	15,682
3	Early Scarlet Horn (D. & F.)	13,939
4	Chantenay (McDonald)	13,939
5	Ox Heart (Steele Briggs)	11,035
6	Red St. Valerie (Rennie)	11,035
7	Nantes Half Long (McDonald)	8,712
8	Chantenay (Ott. No. 3423)	6,970

CAULIFLOWER

Both varieties of cauliflower sown this season proved satisfactory. These were Early Dwarf Erfurt (McDonald) and Early Snowball (Graham).

CELERY

VARIETIES.—Sixteen varieties were sown in hotbeds April 16, 1925, and set out in the field on June 27. The varieties were planted in rows 5 feet apart, with plants 6 inches apart in the row.

CELERY—TEST OF VARIETIES

No.	Variety and source of seed	Average weight of twelve bunches	Yield in pounds per acre
		lb.	lb.
1	Winter Queen (Graham)	20	29,040
2	Evans Triumph (Dupuy and Ferguson)	20	29,040
3	Giant Pascal (Graham)	20	29,040
4	Easy Blanching (McDonald)	19	27,588
5	Garrahan Easy Blanching (Graham)	18	26,136
6	Easy Blanching (Garrahan)	18	26,136
7	New Golden (Ferry)	14	20,328
8	Golden Plume (Morse)	14	20,328
9	Golden Self Blanching (McDonald)	14	20,328
10	French Success (Harris)	14	20,328
11	Rose Ribbed Paris (Bruce)	14	20,328
12	Golden Self Blanching Super Stan. (Stokes)	14	20,328
13	White Plume (Graham)	13	18,876
14	Golden Self Blanching (Ott. No. 3410)	13	18,876
15	Paris Golden Yellow	12	17,424
16	Rose Ribbed S.B. (Vaughan)	12	17,424

Golden Self Blanching (early), White Plume (early), Giant Pascal (mid season), Rose Ribbed (main crop) and Winter Queen (main crop) are recommended.

METHODS OF BLANCHING.—The object of this experiment is to devise a means of producing celery of good quality and flavour by a method requiring less

labour than either No. 2 or No. 4. Both of these systems produce celery of excellent quality but require a lot of time for hilling up. Method No. 1 produces enormous yields, but the quality is low. Method No. 5 requires little labour but again the quality is poor. Method No. 3 seems to have something to recommend it. A regular 4-inch drain tile was slipped down over each plant when at a proper state for blanching. Tile are relatively cheap and if handled carefully can be used year after year. The operation requires a minimum of labour and the quality of vegetable produced was fair to quite good.

No.	Method of planting and blanching	Results
1	Plants grown on the level and set 6 inches apart each way	Small, soft, poor flavour.
2	Rows 5 feet apart, plants 6 inches apart in row, grown on level and earthed up.	Flavour and quality good.
3	Plants grown in double row 6 inches apart, plants 6 inches apart in row, double rows spaced 5 feet apart, plants alternated in row. Blanched by placing a 4-inch tile over each plant.	Good, lengthy growth and fair flavour.
4	Rows 5 feet apart, plants 6 inches apart in row, plants started in trench 6 inches deep and earthed up.	Flavour and quality good.
5	Rows 5 feet apart, plants 6 inches apart in row. Grown on level and blanched with boards.	Not juicy nor tender.

CITRON—TEST OF VARIETIES

Three varieties were sown and did very well this season. Colorado (Ott. 8197) yielded at the rate of 26,015 pounds per acre, Colorado (McDonald) yielded 17,545 pounds per acre, and Red Seeded (Rennie) yielded 9,075 pounds per acre.

SWEET CORN

VARIETIES.—Twenty-four varieties were sown on June 24, 1925. Yields are shown in the table following:—

SWEET CORN VARIETY TEST

No.	Variety and source of seed	Ready for use and Length of season	Yield in ears per acre
1	Pickaninny (Ott. 6576-86)	Aug. 28–Sept. 9	30,734
2	Golden Bantam (James)	Sept. 9– " 30	28,556
3	Assiniboine (Will)	" 3– " 17	25,168
4	Nuetta (Will)	" 3– " 17	24,200
5	Sweet Squaw (Ott. 6621-23)	" 9– " 22	23,474
6	Early Malcolm (Ott. 8205)	" 17–Oct. 14	23,232
7	Banting (Ottawa)	Aug. 28–Sept. 9	21,054
8	Extra Early Cory (Graham)	Sept. 17–Oct. 21	21,054
9	Alpha (Harris)	" 3–Sept. 17	20,328
10	Golden Bantam (McDonald)	" 22–Oct. 21	18,876
11	Earliest Catawba (Burpee)	" 8–Oct. 14	17,424
12	Whipple New Yellow (Harris)	" 22– " 21	17,182
13	Malakoff (Vaughan)	" 9–Sept. 30	14,762
14	Howling Mob (Burpee)	" 30–Oct. 21	14,762
15	Early Adams (Ferry)	" 18– " 21	13,552
16	Early Fordhook (Burpee)	" 30– " 21	13,310
17	Golden Giant (Rennie)	" 30– " 14	13,068
18	Burbank (Burbank)	" 17– " 21	12,826
19	Whipple Early Sweet (Harris)	" 22– " 14	12,100
20	Golden Bantam (Rennie)	" 30– " 21	9,680
21	Gehu (Will)	" 3–Sept. 17	9,438
22	Pocahontas (Harris)	" 17–Oct. 7	9,196
23	Black Mexican (McDonald)	" 30– " 7	6,050
24	Metropolitan (Vaughan)	Oct. 7– " 14	3,146

SUCKERING EXPERIMENT.—To determine earliness and yield, etc., two varieties, Golden Bantam (Graham) and Early Malcolm (Ott. 8205) were planted. One group had all suckers removed as they appeared and on the other group suckers were not removed.

Hills were 36 inches apart each way, and three plants were left in each hill.

SWEET CORN—SUCKERING EXPERIMENT

Suckers removed		Suckers not removed	
Yield in ears per acre		Yield in ears per acre	
Golden Bantam	Early Malcolm	Golden Bantam	Early Malcolm
Ready for use Sept. 17 16,698	Ready for use Sept. 9 24,200	Ready for use Sept. 12 22,990	Ready for use Sept. 9 27,346

Apparently nothing is gained in earliness, and a study of two years' yield would indicate a loss in yield when suckers are removed.

CUCUMBERS—TEST OF VARIETIES

Ten varieties were planted in hills 6 feet apart each way, with 3 plants per hill. All were of good quality except Gherkins. These have not been very successful at this Station.

CUCUMBER VARIETY TEST

No.	Variety and source of seed	Yield in pounds per acre
1	XXX Table (Rennie)	19,057
2	Prolific (McKenzie)	15,125
3	Early Fortune (McDonald)	14,016
4	Early Russian (Burpee)	12,705
5	Improved Long Green (McDonald)	12,100
6	Davis Perfect (Graham)	10,083
7	Early Frame (McKenzie)	8,772
8	Snow Pickling (Rennie)	6,756
9	The Vaughan (Vaughan)	5,243
10	Gherkin (Ferry). Poor germination	No yield

EGG PLANT

Three varieties were planted: New York Purple, Black Beauty and Extra Early Dwarf. The last named was the only one setting fruit, and yielded 2,904 pounds per acre. We do not recommend the growing of egg plant in this province.

LETTUCE

Thirteen varieties of lettuce were planted this season. In the "head" varieties New York is noted as one of the best. We also recommend Crisp as Ice, All Heart and All Seasons. In the "leaf" lettuce we recommend Grand Rapids.

MUSK MELON

Four varieties were planted. Honey Ball and Tip Top did not set fruit. Milwaukee Market yielded at the rate of 605 pounds and Golden Champion 2,420 pounds per acre. Musk melon is not recommended for this province.

ONIONS—TEST OF VARIETIES

Onions were sown in the open April 23, 1925. This is earlier than the weather usually permits. Each test row was 30 feet long, the rows 15 inches apart, and the plants set one inch apart in the row.

ONIONS—TEST OF VARIETIES

No.	Variety and source of seed	Yield pounds per acre	Average yield	
			Years	Average yield pounds per acre
		1925		
1	Ailsa Craig (Graham)	33,106	7	23,099
2	Giant Prize Taker (Graham)	32,525	6	23,229
3	Large Red Wethersfield (Graham)	29,040	3	23,520
4	Large Red Wethersfield (McDonald)	29,040	.....	.....
5	Large Red Wethersfield (Ott. 6041)	28,460	7	25,222
6	Southport Red Globe (Steele Briggs)	26,717	4	21,417
7	Southport Yellow Globe (McKenzie)	25,846	.....	.....
8	Yellow Globe Danvers (Graham)	25,555	6	22,699
9	Giant Yellow Prize Taker (Steele Briggs)	24,394	4	25,483
10	Yellow Globe Danvers (Steele Briggs)	23,813	4	25,047
11	Southport White Globe (Steele Brlggs)	23,813	4	23,593
12	Mammoth Silver King (Graham)	20,909	4	21,125
13	Yellow Globe Danvers (Ott. 6052)	18,586	6*	21,662
14	Extra Sel. Large Red Wethersfield (McDonald)	18,586	.....	.....
15	White Barletta (Graham)	17,714	7	13,698
16	Ebenezer or Japanese (Schell)	15,101	.....	.....
17	Australian Brown (McDonald)	9,293	6	13,842

*Not grown in 1924.

We recommend Yellow Globe Danvers and Large Red Wethersfield. Extra Early Flat Red, not grown this year, is one of the earliest onions, a fair yielder and of good quality when grown in this locality—recommended.

ESCHALLOTS

These were grown from small bulbs produced in 1924, and yielded 11,848 pounds per acre.

PARSLEY

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

PARSNIP

The yields of the varieties tested are given in the table following:—

PARSNIPS—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre
1	Hollow Crown (Ottawa No. 6048)	22,070
2	Cooper Hollow Crown (Dupuy and Ferguson)	21,490
3	Hollow Crown (McKenzie)	14,520
4	Guernsey XXX Half Long (Rennie)	14,520

DATE OF SEEDING.—Seedings were made at 10-day intervals, variety used Hollow Crown (Graham). Yield is reported in bunches (five roots per bunch.)

PARSNIPS—DATE OF SEEDING

Date of seeding	Yield in bunches per acre			Per cent of marketable to total roots
	Marketable	Unmarketable	Total	
May 7	11,616	2,904	14,520	80·0
" 17	8,712	4,646	13,358	65·2
" 27	3,485	1,162	4,647	75·0
June 6	9,874	2,323	12,197	80·9
" 16	8,712	1,162	9,874	88·2
" 26	2,904	1,162	4,066	71·4

Evidence tends to recommend early seedings. This season there was little difference in quality between early and late seedings, but late seedings lacked size.

GARDEN PEAS

VARIETIES.—Twenty-nine varieties were planted in test rows 30 feet long, 3 feet wide, with plants spaced approximately 1 inch apart in the row.

GARDEN PEAS—TEST OF VARIETIES

No.	Variety and source of seed	Ready for use and length of season	Yield per acre, green unshelled
			lb.
1	Daisy (Patmore)	July 26–Aug. 17	11,253
2	Seedling No. 1 (Invermere)	" 26– " 10	11,132
3	Gradus X American Wonder (O. 6267)	" 22– " 10	10,890
4	Market Garden (Gregory)	" 26– " 17	10,406
5	Seedling No. 6 (Invermere)	" 22– " 3	10,043
6	Lincoln (Invermere)	" 22– " 10	10,043
7	Seedling No. 2 (Invermere)	" 22–July 28	9,680
8	Gradus X Eng. Wonder (Ott. 2346)	" 19–Aug. 3	9,196
9	Seedling No. 3 (Invermere)	" 22– " 3	8,712
10	Potlatch (Buckbee)	" 26– " 17	8,712
11	Little Marvel (Rennie)	" 19– " 10	8,591
12	Gradus (Ott. No. 6739)	" 22– " 3	8,228
13	Prosperity or Gradus (Rennie)	" 21– " 3	7,986
14	McLean Advancer (Harris)	" 21– " 3	7,865
15	Bramfield Early Six Weeks (Child)	" 21–July 29	7,550
16	Sutton Excelsior (Harris)	" 19–Aug. 3	7,260
17	Danby Stratagem (Ott. No. 6370)	" 26– " 17	6,897
18	English Wonder (Ott. No. 6369)	" 22– " 3	6,534
19	British Wonder (Burpee)	" 21– " 10	6,413
20	English Wonder (Ott. No. 2342)	" 22– " 3	6,413
21	Laxtonian (Graham)	" 21–July 28	6,292
22	Quite Content (McDonald)	" 21–Aug. 10	5,808
23	Gregory Surprise (Gregory)	" 16– " 17	5,687
24	American Wonder (McDonald)	" 19– " 10	5,445
25	Extra Early Pedigree (Gregory)	" 25–July 29	4,937
26	Thomas Laxton (McDonald)	" 19– " 28	4,477
27	McLean Advancer (Livingstone)	" 26–Aug. 17	4,356
28	First and Best (McKenzie)	" 16– " 17	4,356
29	Stratagem (McDonald)	" 26– " 17	4,114

DISTANCE OF PLANTING.—Garden peas were planted in test rows 30 feet long, and 3 feet wide, with plants set at different distances apart in the row, to determine the effect, if any, on yield and earliness.

GARDEN PEAS—DISTANCE OF PLANTING

Variety and source of seed	Distance between plants in row		
	1 inch	2 inches	3 inches
	Pounds per acre	Pounds per acre	Pounds per acre
English Wonder (C.E.F.)	5,082	5,324	6,776
Thomas Laxton (McDonald)	5,324	7,018	6,534
Stratagem (McDonald)	3,630	2,783	1,573

No difference could be noted in date of ripening regardless of distance of spacing. Taking this in conjunction with last year's yields for a similar experiment we are inclined to recommend the thicker plantings.

PEPPERS

Harris Earliest (Harris) gave the biggest yield, followed in order by Red Chili (McDonald) and Long Red Cayenne (McDonald). We do not recommend the growing of peppers in this province.

PUMPKINS

Connecticut Field is recommended for main crop and Small Sugar for table use.

PUMPKINS—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre
1	Connecticut Field (McDonald)	52,702
2	Small Sugar (Graham)	33,342
3	King of the Mammoths (Graham)	21,780
4	Large Cheese (Steele Briggs)	2,958
5	Quaker Pie (McDonald)	807

RADISHES

Radishes were reported of good yield and quality this season. French Breakfast and Scarlet Oval may be recommended.

SPINACH

Of four varieties grown "Longstanding" is reported tender and of the highest quality.

SQUASH

The Hubbard varieties are recommended.

SQUASH—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre
1	Golden Hubbard (McDonald)	22,049
2	White Bush Scallop (Steele Briggs)	19,360
3	Kitchenette (Wedge)	19,360
4	Long White Bush (Ewing)	18,553
5	Hubbard (Graham)	18,553
6	Delicious (Graham)	13,176
7	Warted Hubbard (Steele Briggs)	9,142
8	Golden Hubbard (Harris)	5,916
9	New Acorn (Buckbee)	4,840
10	Table Queen (Vaughan)	3,227
11	Perfect Gem (Morse)	1,344

SWISS CHARD

Swiss chard of good size and quality can be grown here but finds no market.

TOMATOES

TEST OF VARIETIES.—Varieties were planted on April 16, 1925, in hotbeds. Picking was done from time to time as the fruit ripened. At the end of the season the balance left was harvested and recorded as "amount of green fruit" produced. The percentage of ripe fruit to a large degree indicates the earliness of the variety, and in the following table those varieties producing a high percentage of ripe fruit may be considered as being early.

TOMATOES—TEST OF VARIETIES

No.	Variety and source of seed	Yield in pounds per acre			Ripe—Per cent total crop
		Ripe	Green	Total	
1	Burbank (Bruce)	12,251	69,696	81,947	14·9
2	Sparks Earliana (Ewing)	14,429	46,283	60,712	31·2
3	Alacrity 10–5–1 (Ott. 5468)	8,031	50,639	58,670	13·7
4	Bolgiana (Bolgiana)	17,353	40,293	57,646	30·1
5	First and Best (Bruce)	7,623	45,738	53,361	14·3
6	Alacrity X Hipper 5–21 (Ott. 5458)	9,665	40,293	49,958	19·4
7	Alacrity X Earlibell 4–21 (Ott. 5455)	26,544	23,414	49,958	53·1
8	Wayahead (Bruce)	12,524	35,937	48,461	25·8
9	XXX Round Scarlet Skin (Rennie)	10,346	38,115	48,461	21·3
10	Sparks Earliana (Burpee)	7,961	38,660	46,621	17·1
11	Rosy Morn (Livingston)	1,770	44,105	45,875	3·9
12	Danish Export (Wiboltt)	8,712	34,848	43,560	20·0
13	Chalk Early Jewel (Steele Briggs)	5,853	37,026	42,879	13·6
14	North Dakota Earliana (Wedge)	12,725	29,948	42,673	29·8
15	Earliana Grade 2 (Langdon)	8,031	33,759	41,790	19·2
16	Earliest Market (Buckbee)	6,942	34,848	41,790	16·6
17	Manyfold (Livingston)	3,539	36,482	40,021	8·8
18	Pink No. 1 (Ott. 5463)	3,948	34,304	38,252	10·3
19	Self Pruning (Burpee)	8,304	29,403	37,707	22·0
20	Sunnybrook Earliana (Burpee)	9,393	26,681	36,074	26·0
21	Extra Early (Rennie)	5,309	30,492	35,801	14·8
22	Pepper Tomato (Diener)	4,356	31,037	35,393	12·3
23	Santa Rosa (Burbank)	2,314	32,670	34,984	6·6
24	Magnus (Livingston)	272	33,215	33,487	0·8
25	Greater Baltimore (Stokes)	8,641	21,780	30,421	28·4
26	Chalk Early Jewel (Carter)	.....	29,948	29,948	.....
27	Bonny Best (Stokes)	1,361	26,680	28,041	4·9
28	Monumental (Bolgiana)	6,162	21,780	27,906	22·1
29	John Baer (Steele Briggs)	1,906	25,592	27,498	6·9
30	Prosperity (Patmore)	3,539	21,780	25,319	14·0
31	Early Prosperity (Buckbee)	1,361	22,869	24,230	5·6
32	Norton (Livingston)	1,089	21,780	22,869	4·8
33	Matchless (Burpee)	.....	22,691	22,691	.....
34	Early Detroit (Ferry)	2,178	16,335	18,513	11·8
35	Gulf State Market (Ferry)	2,995	15,246	18,241	16·4
36	Favourite (Livingston)	.....	16,335	16,335	.....
37	San Jose Canner (Morse)	.....	16,335	16,335	.....
38	Coreless (Livingston)	.....	16,335	16,335	.....
39	Beauty (Livingston)	545	14,701	15,246	3·6
40	Abbotsford Argo (A. H. Horn, B.C.)	2,995	11,979	14,974	20·0
41	Stone (Livingston)	.....	14,157	14,157	.....
42	New Dwarf Ponderosa (Buckbee)	272	11,979	12,251	2·2
43	Matchless (Livingston)	136	11,979	12,115	1·1
44	Pepper Tomato (Burbank)	.....	10,890	10,890	.....
45	The Burbank (Burbank)	4,764	.....	4,764	100·0
46	Sunberry (Burbank)	65	2,178	2,243	2·9
47	Earliana Grade 3 (Langdon)	1,361	.....	1,361	100·0
48	Giant Pepper Tomato (Burbank)	136	.....	136	100·0

METHODS OF PRUNING.—Two varieties were used in this test, Alacrity (Ottawa) and Bonny Best (Stokes). The plants were one foot apart in the

row with rows 4 feet apart. All plants were pruned to one stem, and supported on wire. Further pruning of the plants consisted in heading back to one, two or three trusses of fruit, or not heading at all.

TOMATOES—METHODS OF PRUNING

Pruned to one stem and:—	Yield in pounds per acre							
	Bonny Best (Stokes)				Alacrity (Ott. 5465)			
	Green	Ripe	Total	Per cent of ripe fruit	Green	Ripe	Total	Per cent of ripe fruit
Not headed back	28,314	23,139	51,453	45·0	18,295	27,277	45,572	59·9
Headed back at third truss of fruit	19,602	16,117	35,719	45·1	16,553	20,473	37,026	55·3
Headed back at second truss of fruit	9,583	23,466	33,049	71·0	10,454	22,542	32,996	68·3
Headed back at first truss of fruit	2,178	15,137	17,315	87·4	2,178	17,642	19,820	89·0

Heading back the plants apparently reduces the total yield in accord with the severity of the pruning. Pruning, however, materially increases the percentage of ripe fruit. If ripe fruit is the main objective, pruning can be recommended, but if large total yield is required irrespective of degree of maturity, then the plants should not be headed back. These findings are in agreement with the work done the previous year.

POTATOES

SPROUTED VS. DORMANT SEED PIECES.—Two varieties were used, Irish Cobblers as representing the early type, and Green Mountains representing a main-crop type. These were planted in rows 30 inches apart, with the sets spaced 14 inches in the rows. The object was to determine the effect, if any, on total yield, of the use of sprouted rather than dormant seed pieces; and also the date when first ready for use. All were planted on May 5, 1925.

POTATOES—SPROUTED VS. UNSPROUTED SEED PIECES

Details	Sprouted		Unsprouted	
	Irish Cobblers	Green Mountains	Irish Cobblers	Green Mountains
	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Marketable	407 19	377 9	203 39	343 12
Unmarketable	75 26	113 9	101 50	37 43
Total	482 45	490 18	305 29	380 55
Date ready for use	July 21	Aug. 8	July 30	Aug. 18

Very material differences are noted between the yields of sprouted and unsprouted seed pieces. However, the fact remains, as was noted last year, that sprouting is practicable only where small areas are planted. Under such circumstances it would seem advisable to sprout the tuber before planting, both from a standpoint of increased yield and of earliness of maturity. This latter point, in particular, would appeal to the market gardener, or persons growing a small plot for home use.

DATES OF PLANTING.—Irish Cobblers and Green Mountains again were used. These were planted at different dates in rows 30 inches apart, with seed pieces set 14 inches apart in the row.

POTATOES—DATES OF PLANTING

Date of seeding	Irish Cobblers							Green Mountains						
	Marketable		Unmarketable		Total		Per cent crop marketable	Marketable		Unmarketable		Total		Per cent crop marketable
	bush.	lb.	bush.	lb.	bush.	lb.		bush.	lb.	bush.	lb.	bush.	lb.	
1926														
May 20	203	39	101	50	305	29	66·7	343	12	37	43	380	55	90·1
" 30	388	27	150	51	539	18	72·0	441	15	113	9	554	24	79·6
June 9	248	55	128	14	377	9	66·0	350	45	52	48	403	33	86·9
" 19	305	29	86	45	392	14	77·9	305	29	58	27	363	56	83·9
" 29	116	55	113	9	230	4	50·9	101	50	86	45	188	35	54·0

Apparently early varieties similar to Irish Cobblers, or main-crop varieties, as Green Mountains, are not benefited by planting so early that the ground is cold and unproductive. Plantings about the last week in May, or toward June 1, come on rapidly as the ground is then warm, and seed pieces make fast growth without any check. Seedings later than June 1, however, have not yielded so well. These figures are very similar to the findings of last season. Although we have no data on the following point, there is evidence from other sources supporting the belief that very early plantings of potatoes suffer more severely from attack by the potato beetle than do those planted at a later date. This seems reasonable, for when planted very early the first appearance of the plants above ground is very uneven. If these first small plants are inspected, they will usually be found covered with egg masses of the potato beetle. The growth is usually very slow and of a spindling nature, and the larvae soon cause a great deal of destruction. On the other hand, potatoes planted at a date as recommended above make very rapid, strong growth, and larvae cannot cause so much damage. Under these latter conditions too, a minimum amount of attention in the way of applications of poison will usually give maximum control.

RHUBARB

In 1923 seed of several varieties of rhubarb was sown to learn what length of time would be required for these to reach a stage sufficiently far advanced to use for forcing. They were found sufficiently matured for this purpose in the autumn of 1925, or three growing seasons from date of planting.

TREES, SHRUBS, FLOWERS AND LAWNS

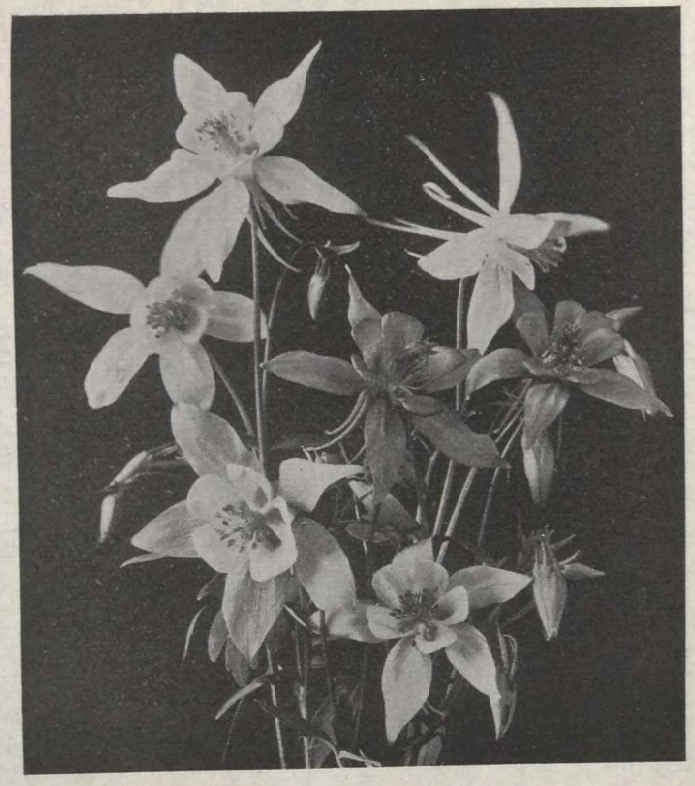
Little or no winter-killing occurred among the trees or shrubs, and in the perennial flowers also, little loss was noted.

The border of hardy herbaceous perennials made a good showing, and particular mention might be made of the very excellent showing of iris and paeonies. This border receives much favourable comment from visitors, and the value of plants of this type for beautifying the home grounds is being appreciated.

The sweet peas made a magnificent showing this season, as did also the dahlias. Among the latter are a number of seedling varieties selected at this Station that are receiving considerable attention and favourable comment from flower-lovers.

The roses wintered well and gave a profusion of bloom during the season.

The tulips and narcissi made a very good showing early in the season, while the annual flowers flourished much better than during the previous year.



Long-spurred seedling aquilegias at the Dominion Experimental Station, Charlottetown, P.E.I.

Madame L. Viger. An excellent collorette dahlia.

CEREALS

THE SEASON

A comparatively mild winter with little frost in the ground gave promise of an early spring for 1925; but backward, cold and wet weather set in, with the result that seeding operations were completed even later than on the average. The growing season was fair for most crops, but the harvesting season was decidedly unfavourable. Continued wet weather kept some crops in the field for four and five weeks after cutting. Much grain of inferior quality was produced on that account.

ROTATION FOR VARIETY TESTS

The rotation used for this purpose is a special four-year, grain-growing rotation started in 1914.

FIRST YEAR.—Hoed crop, manured 12 tons per acre.

SECOND YEAR.—Grain, seeded down with 10 pounds red clover, 2 pounds of alsike and 5 pounds of timothy per acre.

THIRD YEAR.—Clover hay, eight tons manure per acre are applied immediately after harvesting the clover crop. This is ploughed down early in autumn.

FOURTH YEAR.—Grain, seeded down with eight pounds red clover and two pounds alsike per acre.

UNIFORM TEST-PLOTS OF CEREALS

Heavy continued rain at harvest time lowered the quality and in some cases the yield of many of our one-sixtieth-acre test-plots this season.

In addition to the one-sixtieth-acre plots, the rod-row method of testing, inaugurated last year, was continued this year. By this system very small plots are used, but these are repeated frequently and it has been determined that the average of numerous plots, even though these be of small area is more accurate than is the figure representing yield obtained from one or two large plots. Obviously frequent replications of large plots would require a very extensive area for purposes of testing and a large amount of labour. The figures obtained from these oft-repeated small plots, are considered reliable, and the area required and the amount of labour involved in handling the crop are reduced to a minimum. The small area involved also admits of testing many more varieties on the same area of land.

Such a system has much to recommend it from the standpoint of the experimentalist, and it is felt that a step in the right direction has been taken in introducing it at this Station.

BARLEY—TEST OF VARIETIES

Ten varieties were sown on one-sixtieth-acre plots on May 9, 1925. Harvesting occurred between August 8 and 17. Much of this grain was quite badly discoloured, as it remained in stook for days owing to wet weather. The yields given in the following table are averages from two plots:—

BARLEY—TEST OF VARIETIES

Name of variety	Date of ripening	Number days maturing	Average length of straw, including head	Strength of straw, scale of 10	Actual yield per acre		Average yield	
							Number of years	—
					bush.	lb.		bush. lb.
Charlottetown No. 80	Aug. 20	103	38	9·5	84	3	14	63 31
Gold	" 15	98	42	9·5	68	6	16	58 0
Chinese Ott. No. 60	" 14	97	48	9·5	66	20	5	58 15
O.A.C. No. 21	" 10	93	44	9·5	64	41	16	58 31
Duckbill Ott. No. 57	" 17	100	45	10·0	63	6	8	52 27
Himalayan Ott. No. 59*	" 8	91	34	10·0	61	27	5	51 25
Pedigree Beardless	" 9	92	46	9·0	57	2	6	50 32
Swedish Chevalier	" 15	98	45	10·0	55	45	16	57 11
Horn C.I. No. 926	" 15	98	38	6·5	54	18	3	69 32
Albert Ott	" 8	91	43	10·0	49	33	16	49 19

*Hulless figured at 48 pounds per bushel.

OATS—TEST OF VARIETIES

Thirteen varieties were sown in one-sixtieth-acre plots on May 9, 1925. After cutting, and while the grain was still in the field, some person or persons, evidently on a night escapade, carried the sheaves from one plot of the variety Prolific and the entire crop of Liberty, Laurel, Longfellow, Columbian and Northland, into one large pile. These were hopelessly mixed and had to be discarded.

OATS—TEST OF VARIETIES

Variety	Date of ripening	Number of days to mature	Average length of straw, including head	Strength of straw, scale of 10	Actual yield of grain per acre	Average yield	
						Number of years	—
					bush. lb.		bush. lb.
Old Island Black	Aug. 16	99	56	9·0	83 3	14	70 2
Banner, Ott. 49	" 20	103	52	10·0	70 5	16	77 24
Victory	" 24	107	53	5·0	67 32	16	82 14
Gold Rain	" 23	106	55	5·0	65 3	16	77 14
*Prolific	" 23	106	54	5·0	63 18	4	72 0
O.A.C. 72	" 24	107	59	4·5	62 22	12	77 11
Alaska	" 10	93	40	10·0	58 23	2	51 6
Daubeney	" 11	94	40	9·5	48 11	15	60 6

*Yield of one plot only.

Daubeney and Alaska ripened early and were very severely damaged by sparrows. No correction has been made to allow for this damage.

TEST OF STRAINS OF BANNER OATS

This test was again conducted this year. Seven different strains were sown in one-sixtieth-acre plots on May 9, 1925. Slight differences in the date of maturity are noted in the table following:—

TEST OF STRAINS OF BANNER OATS

Strain or number	Date of ripening	Number of days maturing	Average length of straw	Strength of straw, scale of 10	Actual yield of grain per acre	Two-year average yield
					bush. lb.	bush. lb.
Saskatchewan No. 99	Aug. 21	104	54	9·5	73 31	71 17
Dow	" 20	103	52	8·5	70 20	63 16
Ottawa No. 49	" 20	103	52	10·0	70 5	69 14
MacDonald No. 4407	" 20	103	53	9·5	68 6	61 28
Dixon	" 20	103	55	9·5	66 14	55 26
Langille	" 18	101	48	10·0	66 6	70 10
Waugh	" 22	105	57	9·0	65 3	60 10

SPRING WHEAT

Eight varieties of spring wheat were sown in one-sixtieth-acre test plots (in duplicate) on May 9, 1925. Stook covers were used for wheat plots, and little or no damage resulted.

Early Red Fife was badly attacked by glume spot and some foot-rot (Gibberella sp.), which caused a shrivelling of the grain with consequent reduction in yield. The variety Reward, which promised well in the rod-row tests last season, was this year planted in the larger test-plots. The plot, however,

was unfortunately placed, being on a dead furrow, which no doubt materially reduced the yield. No correction has been made for these reductions.

SPRING WHEAT—TEST OF VARIETIES

Variety	Date of ripening	No. of days to mature	Average length of straw	Strenth straw scale of 10	Actual yield grain per acre		Average yield		
							No. years		
					bush.	lb.		bush.	lb.
†Charlottetown 123	Aug. 25	108	40	10	36	8	7	39	15
Huron Ott. 3	" 22	105	46	10	35	45	16	37	1
*Early Russian O. 40	" 22	105	46	10	35	8	10	40	..
White Fife	" 27	110	47	10	33	45	13	31	4
White Russian	" 24	107	43	10	32	..	16	32	30
Marquis	" 22	105	43	10	25	30	16	34	19
Ey. Red Fife Ott. 16	" 24	107	43	10	23	45	15	33	7
Reward Ott. 928	" 20	103	36	10	21	23	1	21	23

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

SEEDING GRAIN ACCORDING TO SIZE AND WEIGHT OF KERNEL

This experiment was started in 1924 under the auspices of the Industrial and Scientific Research Council of Canada, and is to be continued yet another year. Details of the experiment were included in the annual report for this Station for 1924. However, briefly summarized, an outline of the experiment is as follows. Tests are made by the rod-row method. Three varieties of oats are used:—

1. Daubeney, characterized by high tendency to tiller, and possessing small seeds (approx. 729,000 per bushel).

2. Banner, a medium tillering oat with medium sized seeds (approx. 448,000 per bushel.)

3. Abundance, little given to tillering and possessing large seeds (approx. 389,000 per bushel).

Seedings were made ranging from 1 bushel to 4½ bushels per acre by weight. Carefully made counts and very accurate weighings show how many seeds are sown per acre at each rate.

The object is to determine the effect on yield, tillering, etc., of the different rates of seeding, and also to determine to what extent seeding should be governed by the size of seed employed.

The results of this experiment are not to be published until the completion of the project in 1926.

HEAD-ROW WORK WITH CEREALS

This work, reported on last year, was continued this season. Between four hundred and five hundred head-rows and small multiplication plots were carried for purposes of investigation. A mass of material and considerable interesting data have been collected. Although this work has been conducted only for a period of two years, material has already been selected that gives promise that it may, before long, be of value in the production of superior or higher-yielding strains of small grains for this province.

MISCELLANEOUS TABLES

AREAS DEVOTED TO SEED PRODUCTION AT THE STATION, 1925

Crop	Variety	Field	Previous crop	Acreage	Yield per acre	
					bush.	lb.
Barley	Charlottetown 80	A—II	Timothy	1·0	49	32
"	"	Matheson	Potatoes	6·0	38	..
"	"	CC—VI	Mixed grain	3·0	34	16
Oats	Banner Ott. 49	B—I	Clover	1·0	57	23
"	"	A—IV	Mangels	1·0	56	3
"	"	Connolly	Hoed crop	10·0	38	17
"	O.A.C. 72	G—II	Timothy	0·4	37	14
Wheat	Huron	B—IV	Potatoes	1·0	32	54
"	Charlottetown 123	G—IV	Turnips	0·4	25	40
"	Early Red Fife	C—I	Potatoes	0·57	21	3
"	Huron	CC—VI	Hoed crop	1·0	17	44

OATS—PERCENTAGE OF HULL

Variety	1922	1923	1924	1925	4-year average
Daubeney	21·6	22·0	20·3	22·2	21·5
Gold Rain	22·3	25·5	26·5	28·5	25·7
O.A.C. 72	26·7	25·6	24·9	28·2	26·4
Banner Ott. 49	28·2	25·3	27·0	28·8	27·3
Victory	28·6	26·3	26·8	29·1	27·7
Old Island Black	29·1	30·6	27·6	31·5	29·7

FORAGE CROPS

THE SEASON

There was a very slight covering of snow during the winter of 1924-25, but the weather was mild, and grasses and clovers wintered fairly well.

The growing season proved favourable, but harvesting conditions were exceedingly bad. Continued rains kept considerable of the hay in the fields, before and after cutting, until it was either over ripe or off colour.

Decidedly wet weather continued into the autumn, with the heaviest rainfall recorded for years for the fall season. This condition made it very difficult to harvest root crops, and many roots went into storage in a dirty condition.

ENSILAGE CROPS

CORN

A number of varieties of corn were sown this year for variety-test purposes. Crows, blackbirds and pigeons damaged these so badly in the early spring that it was impossible to harvest areas that would give proper indication of yield. Rather than harvest and tabulate yields from such uneven stands where a large margin of error was bound to creep in, it was decided to discard the entire lot. This accordingly was done. It might be noted that this is the first season in which birds have caused any considerable damage in our corn crop.

SUNFLOWERS FOR ENSILAGE—TEST OF VARIETIES

Ten varieties were sown on June 12 in duplicate plots. Three-row plots were used, and at harvest time the two outer rows were discarded, the yields being computed from the centre rows only.

The figures in the following table are for the average of two plots:—

SUNFLOWERS—TEST OF VARIETIES

No.	Variety and source	Yield per acre	% dry matter	Dry matter in pounds per acre
		tons lb.		
1	Russian Giant, Disco	19 700	19·24	7,445
2	Mammoth Russian, McDonald	16 1,200	20·82	6,913
3	Mammoth Russian, C.P.R.	18 400	16·98	6,181
4	Manchurian, McKenzie	15 600	17·43	5,334
5	Manchurian, C.P.R.	16 ..	15·74	5,037
6	Ottawa 76	14 1,500	16·81	4,958
7	Manteca, C.P.R.	14 1,500	16·66	4,915
8	Black, C.P.R.	15 1,600	15·19	4,799
9	Mixed, C.P.R.	14 1,900	15·74	4,707
10	Mennonite, Rosthern	11 300	18·82	4,197

ROOTS

Mangels, sugar beets, carrots and swede turnips were tested this year. Seedings were made on two different dates to determine effect of early and late seeding. Duplicate plots were sown on each date. In the dry matter determinations duplicate tests were made from each plot, so that actually four determinations were made for each variety, for each date of seeding.

SWEDE TURNIPS—TEST OF VARIETIES

No.	Variety and source	Seeded May 21, 1925			Seeded June 11, 1925		
		Field weight per acre	% dry matter	Dry wt. lb per acre	Field weight per acre	% dry matter	Dry wt. lb per acre
		tons lb.			tons lb.		
1	Halls Westbury (K. McDonald)	34 600	12·31	*8,445	24 800	11·82	5,767
2	Shepherd (Trifolium No. 1283)	33 800	11·50	7,679	21 800	11·12	4,761
3	Bangholm (Ewing)	28 700	12·90	7,313	22 1,200	12·83	5,798
4	Halls Westbury (Ewing)	32 800	11·02	7,142	20 1,800	10·34	4,322
5	New Century (Bruce)	26 1,500	13·33	7,130	17 1,600	11·76	4,188
6	Invicta Bronze Top (Ewing)	31 1,200	10·93	6,907	20 600	11·68	4,741
7	Suttons Champ. Purp. Top (Rennie)	30 900	11·25	6,849	20 ..	12·46	4,985
8	Bangholm (Gen. Swed. Seed Co.)	27 500	12·25	6,678	23 1,400	11·98	5,679
9	Imp. Yellow Swed. (Gen. Swed S. Co.)	26 500	12·59	6,609	25 800	11·80	5,995
10	Bangholm (Trifolium No. 1322	27 1,800	11·78	6,573	18 400	12·26	4,462
11	Shep. Gold. Globe (Hjalmer Hart.)	29 800	11·14	6,550	18 1,800	12·66	4,787
12	Bangholm (Trifolium No. 1029)	24 900	13·26	6,486	21 200	12·87	5,432
13	Bangholm Olsg. (Hjalmar Hartmann.)	28 1,800	11·16	6,451	23 300	14·64	6,777
14	Kangaroo (Ewing)	27 1,600	11·40	6,337	17 1600	12·48	4,444
15	Suttons Champ. Purp. Top (Ewing)	25 1,600	11·88	6,128	18 800	12·27	4,515
16	Eleph. or Jumbo (Halifax Seed Co.)	26 500	11·63	6,106	16 1,200	11·94	3,963
17	Ditmars (H. H. McNutt)	27 600	10·92	5,962	20 400	10·05	4,060
18	Bangholm (McKenzie)	25 300	11·71	5,891	22 1,800	12·44	5,699
19	Bangholm (Charlottetown)	22 200	12·66	5,594	18 1,600	13·95	5,244
20	Eleph. or Mon. Imp. (Ewing)	22 1,200	12·17	5,501	18 600	12·09	4,668
21	Bangholm Purp. Top (Rennie)	22 200	10·34	4,572	17 1,800	13·43	4,808

*One plot only.

A study of the foregoing table strongly indicates the advantage of early seeding for Swedes. Judging by field weight, every variety has given a heavier yield from the earlier seedings. With only two exceptions the result is the same for the production of dry matter per acre.

SUGAR BEETS—TEST OF VARIETIES

Eight varieties were grown this season. These were sown on two different dates, and in duplicate plots at each date of seeding. The yield per acre is not so high as it should be because the regular 30- to 32-inch turnip-drill was used. Sugar beets should be grown in drills 18 to 24 inches apart with the beets thinned to about 6 inches apart in the row. Under such treatment high yields are obtained.

SUGAR BEETS—TEST OF VARIETIES

No.	Variety and source	Seeded May 21, 1925			Seeded June 11, 1925		
		Field weight per per acre	% dry matter	Dry matter lb. per acre	Field weight per per acre	% dry matter	Dry matter lb. per acre
		ton. lb.			ton. lb.		
1	Rabbethge & Giesecke (Dom. Sug. Co.)	18 1,600	23·62	8,882	12 1,000	24 76	6,191
2	Henning & Harv. (Dom. Sug. Co.)	17 1,500	23·94	8,498	10 1,200	24·26	5,144
3	Horning (Dom. Sug. Co.)	17 1,100	23·81	8,357	13 1,000	23·03	6,217
4	Vilmorin Imp. (Andr. & Sons)	17 1,000	23·01	8,054	11 600	23·48	5,307
5	Schreiber & Son (Dom. Sug. Co.)	16 1,400	22·61	7,552	10 200	24·07	48·62
6	Dieppe (Dom. Sugar Co.)	14 1,500	25·27	7,454	8 1,400	24·40	4,245
7	Dr. Bergman (Dom. Sug. Co.)	15 400	24·04	7,309	9 1,000	24·53	4,661
8	Home-Grown (Dom. Sug. Co.)	14 1,500	24·18	7,132	11 ..	24·30	5,346

Here again it will be noted that in every case there was a decided advantage in point of yield from early seedings.

When sown at proper distances sugar beets give large returns of dry matter per acre. They are valuable as cattle food but they are decidedly difficult to harvest unless some type of machine is employed for lifting the roots.

SUGAR BEETS FOR SUGAR

Samples were taken from the first seeding of different varieties of sugar beets and forwarded to the Division of Chemistry at Ottawa, where analyses were made as to their value for sugar production.

SUGAR BEETS—TEST FOR SUGAR PURPOSES

No.	Variety	Yield per acre	Per cent dry matter	Dry matter per acre	Per cent sugar in juice	Co.-ef. of purity
		lb.	%	lb.	%	%
1	Rabbethge & Giesecke	37,600	23·62	8,882	19·27	89·60
2	Henning & Harving	35,700	23·94	8,498	19·31	90·63
3	Horning	35,100	23·81	8,357	18·05	92·10
4	Vilmorin Improved	35,000	23·01	8,054	19·70	95·94
5	Schrieber & Son	33,400	22·61	7,552	19·44	98·68
6	Dieppe	29,500	25·27	7,454	18·62	89·93
7	Dr. Bergman	30,400	24·04	7,309	19·29	93·76
8	Home-Grown	29,500	24·18	7,132	20·79	98·09

The seed of Vilmorin Improved was from Andieux & Son, Paris, France; seed for all other varieties was from the Dominion Sugar Co., Chatham, Ont.

The Dominion Chemist notes that the beets were of excellent quality as to sugar content and purity. The sugar content of the entire beet is approximately 95 per cent of that found in the juice. Using this factor we can fairly well approximate the sugar production per acre of any of the varieties. As an example take No. 4 with a yield per acre of 35,000 pounds of roots.

$$\frac{19.70 \times .95}{100} \times 35{,}000 = 6{,}550 \text{ pounds sugar.}$$

The co-efficient of purity is of decided importance in factory practice. The sugar is more readily and cheaply obtained from beets possessing a high co-efficient of purity.

SUGAR BEETS—COLLABORATIVE WORK WITH P.E.I. FARMERS

Previous to the growing season, considerable interest was manifested in the possibilities of sugar production from sugar beets in this province. To gain some information with reference to such a possibility, the Experimental Station solicited the aid of a number of farmers who promised to grow and handle the crop as instructed. Seed of two varieties was supplied to growers, and plantings were distributed over the province at various points from Rollo Bay and St. Colombo on the east, to West Devon in the west. At harvest time samples from the different areas were collected, and, after being labelled and carefully packed, were shipped to the Dominion Chemist at Ottawa for analysis. In all sixty-four samples were tested.

SUMMARY OF RESULTS

	Per cent Sugar in Juice
One sample contained over	22
Two samples contained between	21 and 22
Thirteen samples contained between	20 and 21
Nineteen samples contained between	19 and 20
Sixteen samples contained between	18 and 19
Nine samples contained between	17 and 18
Three samples contained between	16 and 17
One sample contained between	15 and 16

Variety	Sugar in juice	Coeff. of purity
Colorado	19·05	86·81
Dr. Bergman	19·20	87·50

It was difficult to get a reliable figure to represent yield per acre from most of the tests, but in the majority of cases the tonnage was quite satisfactory.

The Dominion Chemist in summing up this work states in part that the tests "with scarcely an exception, have afforded data indicative of high quality, both as to sugar content and purity", and further that the work "well brings out the large number of samples which are distinctly rich in sugar—fully equal to the best as supplied to the sugar beet factories in Canada and the United States."

There seems little question, therefore, that sugar beets in quantity and of high quality can be produced in Prince Edward Island. It yet remains to determine whether or not sugar beets can be produced at a figure sufficiently economical to warrant their introduction, as a cash-crop, to this province.

MANGELS—TEST OF VARIETIES

Seedings were made on two different dates in duplicate plots.

MANGELS—TEST OF VARIETIES

No.	Variety and source of seed	Seeded May 21, 1925			Seeded June 11, 1925		
		Field weight per acre	% dry matter	Dry matter per acre	Field weight per acre	% dry matter	Dry matter per acre
		ton. lb.		lb.	ton. lb.		lb.
1	Elvetham Mammoth (Hjalmar Hartmann)	27 500	15·36	8,373	19 1,600	16·19	6,411
*2	Red Top White Sug. (Ewing)	15 500	25·40	7,747	13 1,200	24·95	6,787
3	Danish Sludstrup (Ewing)	24 100	15·77	7,584	14 1,000	15·10	4,380
4	Long Red Mammoth (Ewing)	28 1,300	12·80	7,332	17 1,000	16·28	5,697
5	Long Red (Halifax Seed Co.)	25 1,000	13·68	6,972	16 1,000	15·64	5,161
6	White Red Top Half Sug. Mang. (Hjalmar Hartmann)	24	14·12	6,778	18 1,000	14·02	5,189
7	Danish Sludstrup (K. McDonnald)	28 1,000	11·88	6,773	18 1,000	12·65	4,680
8	Giant White Half Sugar (Ewing)	25 1,500	12·87	6,630	21 1,000	12·44	5,350
9	Yellow Intermediate (C.E.F. Ottawa)	23 1,700	13·72	6,543	14 1,400	15·52	4,562
10	Rosted Barres (Hjalmar Hartmann)	26 200	12·52	6,534	20 1,000	12·82	5,257
11	Svalof Original Rubra (Gen. Swed. Seed Co.)	24 100	13·32	6,408	16 —	17·33	5,547
12	Yellow Eckendorfer (Hjalmar Hartmann)	25 1,800	12·19	6,314	17 —	13·40	4,556
13	Barres Half Long (Gen. Swed. Seed Co.)	20 1,300	14·88	6,147	20 —	14·23	5,690
14	Svalof Original Alpha (Gen. Swed. Seed Co.)	23 500	13·05	6,070	21 —	14·15	5,943
15	White Gr. Top Half Sug. Hjal. Hartmann)	21 200	13·89	5,862	15 1,000	13·47	4,175
16	Golden Tankard (Halifax Seed Co.)	22 500	13·11	5,836	10 1,400	14·77	3,160
17	Red Eckendorfer (Gen. Swed. Seed Co.)	25 —	11·56	5,778	13 –	14·51	3,773
18	Red Globe (Ewing)	22 1,000	12·80	5,767	11 1,000	15·51	3,568
19	Stryno Barres (Hjalmar Hartmann)	24 100	11·82	5,685	21 —	12·80	5,375
20	Giant Yellow Globe (Ewing)	27 1,000	9·91	5,453	18 1,000	12·58	4,656
21	Fjerritslev Barres (Hjal. Hartmann)	22 1,700	11·80	5,392	19 600	13·17	5,083
22	Giant Yel, Inter. (Halifax Seed Co.)	21 1,300	12·02	5,206	11 200	12·57	2,790
23	Yellow Eck. (Gen. Swed. Seed Co.)	23 —	11·26	5,181	14 1,000	12·83	3,721
24	Red Globe (Dupuy & Ferguson)	22 500	11·62	5,170	15 1,000	14·08	4,366
25	Giant Yel. Inter. (Ewing)	24 200	10·66	5,140	12 —	11·25	2,700
26	Golden Tank. (Ewing)	20 1,100	12·38	5,089	10 1,400	14·36	3,072
27	Taaroje Barres (Hjalmar Hartmann)	19 1,900	12·49	4,982	17 1,000	12·06	4,221
28	Red. Ecken. (Hjalm. Hartmann)	20 200	11·78	4,737	13 1,000	12·02	3,246
29	Barres Oval (Gen. Swed. Seed Co.)	20 1,300	11·42	4,718	17 –	13·43	4,567

* This is a sugar beet. The seed was included with the seed for the mangel tests, and the fact was not noted until after seeding had taken place. It was treated and reported as a mangel.

It will be noted that early seeding gives the highest yield in every instance, in some cases the yield being doubled.

FIELD CARROTS—TEST OF VARIETIES

Carrots also were sown on two different dates; both seedings were made in duplicate. Before being harvested, however, pilfering took place to such an extent in the duplicate plot of the second seeding that it was considered neces-

sary, in the interest of accuracy, to discard the lot. In the following table the figures for the early seeding are averages of two plots. For the later seeding the figures are taken from one plot only.

CARROTS—TEST OF VARIETIES

No.	Variety and source	Seeded May 21, 1925			*Seeded June 11, 1925		
		Field weight per acre	% dry matter	Dry matter per acre	Field weight per acre	% dry matter	Dry matter per acre
		ton. lb.			ton. lb.		
1	White Belgian (Hjalmar Hartmann)	12 700	13·11	3,237	6 1,600	12·30	1,673
2	Imp. White Vosges (K. McDonald)	13 800	11·76	3,153	9 1,200	11·92	2,289
3	Large White Belgian (Rennie)	12 1,200	12·04	3,033	10 —	11·75	2,350
4	White Belgian No. 9008 (Trifolium Den.)	12 1,400	11·77	2,989	6 400	13·47	1,670
5	Yellow Belgian (Ewing)	11 1,600	11·70	2,761	9 —	10·97	1,975
6	White Belgian (Graham)	9 1,500	13·19	2,573	12 —	11·79	2,830
7	White Belgian (Ewing)	11 400	11·31	2,534	13 800	10·48	2,809
8	White Belgian (Halifax Seed Co.)	11 100	11·44	2,529	9 —	12·49	2,248
9	Half Long White (Gen. Swed. Seed Co.)	10 1,000	11·84	2,487	7 —	12·42	1,739
10	Large White Vosges (Dupuy & Ferguson)	9 900	12·15	2,297	5 —	10·92	1,092
11	Intermediate White (Ewing)	9 1,900	11·23	2,235	8 —	12·39	1,982
12	Danish Champion (C.E.F. Ottawa)	8 1,100	11·68	1,997	13 400	12·17	3,213
13	Yellow Inter. (Ewing)	9 400	9·76	1,795	11 1,600	10·73	2,532
14	Danish Champion (Hjalmar Hartmann)	6 1,700	12·71	1,741	9 1,600	10·57	2,072
15	Yellow Inter. (Halifax Seed Co.)	7	10·96	1,535	5 800	12·63	1,364

*Single plots only.

Early seeding, here too, has in most cases given the highest yields.

EARLY VS. LATE SEEDING OF ROOTS

A study of the four preceding tables indicates the advantage to be gained from a fairly early seeding of root crops. In practically every instance decidedly heavier yields have been obtained from the earlier seeding. This bears out the findings of the previous season.

CLOVERS AND GRASSES

In June, 1924 a series of grass plots was sown, without a nurse-crop, and in duplicate. During that season fair growth was made, but it was found necessary to cut the weeds with the hay mower in late summer.

The object of the experiment was to determine not only the yielding ability of the various grasses, clovers, etc., but also the relative hardiness. This latter point applied more particularly to clovers obtained from various sources.

RED CLOVER

Eighteen varieties or strains were included in the test; these were all seeded uniformly at the rate of 12 pounds per acre.

RED CLOVER—TEST OF STRAINS AND VARIETIES

No.	Variety or strain and source	Yield per acre	Remarks
		lb.	
1	Early Swedish (Sweden)	*5,311	Winterered fairly well; one plot very weedy.
2	Late Swedish (Sweden)	5,120	Wintered well; good crop.
3	Spadone (Italy)	*4,978	One plot fair, one plot poor.
4	Atlaswede (Alberta)	4,453	Wintered well, good crop.
5	Alfred (au Lario)	4,188	Wintered well, good crop.
6	Transylvania (Balkan States)	4,097	One plot fair, one poor.
7	Umbria (North central Italy)	*4,039	One plot fair, one poor.
8	Kenora (Ontario)	3,909	Fair to good.
9	Medium Late Swedish (Sweden)	*3,480	Fair; one plot very weedy.
10	Ottawa (Ontario)	3,402	Wintered well; fair to good crop.
11	Dauphine (South-east France)	*3,391	Fair; one plot very thin.
12	Chateauguay (Quebec)	3,243	Fair to good.
13	St. Clet (Quebec)	*2,758	Poor to fair.
14	Marche (North Central Italy)	....	Winter-killed.
15	Emilia (North Central Italy)	.....	Winter-killed.
16	Mountains central Italy	.....	Winter-killed.
17	Padua (Italy)	.....	Wintered very poorly.
18	Sicily (Italy)	.....	Thin and weedy; no record taken.

*Yields computed from the crop on one plot only.

Seed imported from warmer countries is apparently of little value in this province, as it winter-kills badly.

WHITE DUTCH CLOVERS

Four strains were tested. Seeding was at the rate of 10 pounds per acre.

WHITE DUTCH—TEST OF VARIETIES

No.	Variety or source	Yield per acre	Remarks
		lb.	
1	Wild Scottish (Scotland)	*2,278	Wintered well.
2	Stryno (Denmark)	*2,069	" "
3	Morso (Denmark)	*1,951	" "
4	Ladino (Idaho, U.S.A.)	1,865	" "

*One plot only

Only one cutting was taken, although Ladino made a good second growth. Ladino is a very fine clover for pasture purposes. The low yield noted in the table is accounted for, in part, at least, by the fact that the stand was broken down to some extent. The mower only clipped the top from some plants.

SWEET CLOVERS

Five varieties were sown. Seeding was at the rate of 20 pounds per acre.

SWEET CLOVERS

No.	Variety	Yield per acre	Remarks
		lb.	
1	Dwarf Sweet	4,710	Part of plot wintered very well.
2	Zouave	.....	Winter-killed.
3	Arctic	.....	" "
4	Maccor	.....	" "
5	Hubam (annual)	.....	" "

We have had no success with sweet clover in this province, and to date we do not recommend its use.

TIMOTHY—TEST OF STRAINS

Five strains were sown at the rate of 20 pounds per acre. All gave fair and quite uniform crops.

No.	Strain and source	Yield per acre	Remarks
		lb.	
1	Timothy, Ohio Commercial (Ohio)	4,579	Wintered fairly well.
2	Timothy, Ohio No. 9349 (Ohio)	4,357	" "
3	Timothy, Boon, C.E.F. (Ottawa)	4,321	Wintered well.
4	Timothy, Ohio No. 6779 (Ohio)	4,283	Wintered fairly well.
5	Timothy, Ohio No. 3937 (Ohio)	3,781	" "

MISCELLANEOUS GRASSES

Couch grass made its appearance in all of the grass plots. On this account the entire series were ploughed up after the hay crop was removed. After cleaning up this area a new series of trials will be started.

MISCELLANEOUS GRASSES

No.	Variety	Rate seeding per acre	Yield per acre	Remarks
1	Red Top	12	4,336	Wintered well.
2	Reed Canary Grass	10	3,520	Fair to poor.
3	Meadow Fescue	20	3,080	Wintered well.
4	Tall oat grass	30	2,903	Thin stand.
5	Kentucky Blue Grass	25	.....	Wintered fairly well, very thin.
6	Orchard Grass	15	.....	Very thin stand—no yield taken.

HARVESTING HAY AT DIFFERENT DATES

Experimental cuttings were made this year on both clover and timothy. On July 18 sample cuttings were made on both areas when it was considered both clover and timothy were in full blossom. Samples were also taken from each area one week later.

It might be pointed out that these areas are both in the same rotation, and were side by side.

Date cut and state of maturity	Per cent dry matter
	p.c.
Clover hay, cut July 18, when just in full blossom	25·10
Clover hay, cut July 25, one week after full blossom	30·83
Timothy hay, cut July 18, when in full blossom	30·35
Timothy hay, cut July 25, one week after full blossom	37·05

It will be noticed in the table that after clover and timothy reach full bloom the crops dry out or mature rapidly. Approximately 1 per cent per day of moisture was lost immediately after the blooming period. Unless watched carefully and cut at the proper time, crops rapidly pass the point of greatest palatability.

Timothy was considered in full bloom when there was a large percentage of anthers extended over the entire area.

DRY-MATTER DETERMINATIONS

This year approximately thirteen hundred determinations were made with field and root crops to find the absolute dry matter produced per acre. The work was of particular value this season in computing the yield from grass plots and hay crops. During almost the entire period of haymaking rainy weather prevailed; under such circumstances it was very nearly impossible to obtain a figure properly representing the yield of the various plots. Some areas might be harvested and weighed on days when the weather was fine and the hay in good condition for storing. Other plots, of necessity, might be weighed when the hay was soft or damp. Obviously the latter plots would benefit thereby. When using absolute dry matter as a basis of yielding capacity, the entire moisture content is driven from the sample by exposing it to a temperature of 212° F. (boiling point of water) for a period of 24 hours. It is apparent therefore, that the initial water-content of the sample makes little or no difference, because comparisons are made only after the sample is entirely dry. In many of the tables in this report the total production per acre of dry matter is given. In tabulating yields from hay and grass plots the figure has usually been converted to "yield of hay" basis. This is done by dividing by 88 the total dry matter produced, and multiplying the result by 100. This brings the result to a "yield of hay per acre" basis with all hay having a uniform moisture content of 12 per cent.

SOILS AND FERTILIZERS

NITRATE OF SODA AND SULPHATE OF AMMONIA FOR POTATOES—RESIDUAL EFFECTS.

In 1923 an area of potatoes was devoted to the determination of best dates for the application of nitrate of soda, and also a comparison of nitrate of soda with sulphate of ammonia as a source of nitrogen for potatoes. The result of the work for that year will be found in our annual report for the year 1923, and also in the annual report of the Division of Chemistry for the year ending March 31, 1924.

In 1924 this area was seeded to barley following the potato crop. The yields from the various plots were carefully considered, but it could not be definitely stated that treatment the previous year had any effect on the crop, although there was some slight indication of a beneficial residual effect from applications of sulphate of ammonia.

This season the area was under clover hay. All plots were carefully measured according to the original markings. Samples were taken and dry-matter determinations made from each plot.

The figures are inconsistent, and after consideration, it was decided to eliminate their publication in this report.

MANURE VS. FERTILIZER FOR POTATOES

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

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

Treatment received per acre	1925			Average three years, 1923-24-25			
	Large	Small	Total	Large	Small	Total	Marketable
	lb.	lb.	lb.	lb.	lb.	lb.	%
Manure, 20 tons per acre	5,612	1,508	7,120	8,824	1,824	10,648	82·9
No manure Nitr. soda, 130 lb Sulp. amm., 100 lb Superphos, 500 lb Mur. pot., 160 lb	*5,536	1,584	7,120	7,275	1,984	9,259	78·6
Manure, 10 tons Nitr. soda, 65 lb Sulp. amm., 50 lb Superphos, 250 lb Mur. pot., 80 lb	**8,470	1,962	10,432	10,575	1,863	12,438	85·0
No manure or fertilizer	1,934	1,026	2,960	2,547	949	3,496	72·9

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

YIELD OF OATS IN ROTATION FOLLOWING POTATOES

Fertilizers in pounds per acre applied to potato crop	1924		1925		Average two years	
	Straw	Grain	Straw	Grain	Straw	Grain
	lb.	lb.	lb.	lb.	lb.	lb.
Manure, 20 tons	2,738	2,222	2,400	1,600	2,569	1,911
No manure Nitrate soda, 130 lb Acid phos., 500 lb Sulph. ammon., 100 lb Muriate pot., 160 lb	1,167	2,497	1,422	1,296	1,295	1,897
Manure, 10 tons Nitrate soda, 65 lb Acid phos., 250 lb Sulph. ammon., 50 lb Muriate pot., 80 lb	2,331	2,645	1,796	1,584	2,064	2,115
No manure or fertilizer	2,930	1,820	1,108	866	2,019	1,343

MANURE VS. FERTILIZER ON POTATOES CONTINUOUSLY

Treatment received per acre	1925			Average three years, 1923-24-25			
	Large	Small	Total	Large	Small	Total	Marketable
	lb.	lb.	lb.	lb.	lb.	lb.	%
Manure, 20 tons	7,080	2,600	9,680	8,309	2,958	11,267	73·7
No manure Nitrate soda, 130 lb Acid phos., 500 lb Sulph. amm., 100 lb Mur. potash, 160 lb	4,176	1,984	6,160	7,126	2,008	9,134	78·0
Manure, 10 tons Nitrate soda, 65 lb Acid phos., 250 lb Sulph. amm., 50 lb Mur. potash, 80 lb	5,694	2,386	8,080	7,981	2,462	10,443	76·4
No manure no fertilizer	670	1,090	1,760	1,554	1,817	3,371	46·1

A consideration of the first table indicates the desirability of the use of stable manure. Manure alone, at the rate of 20 tons per acre, over a three-year period, has produced a higher yield than 1,000 pounds per acre of a 4:8:8 chemical fertilizer alone. There is noticed also an increase in the percentage of marketable tubers. The use of half this quantity of manure (10 tons per acre) plus half the application of chemicals (500 pounds per acre) has given the highest average yield of the four treatments. The percentage of the total crop marketable from this plot is also the highest of the series. This would appear to be an argument favouring the use of reasonable quantities of stable manure to supply humus to the soil, supplemented by small applications of chemical fertilizers. Such a method employed on the farm would materially extend the area over which stable manure might be applied.

The second table shows the yield of oats following the various treatments on potatoes. It will be noted that the increase or decrease in yield closely follows that of the potatoes.

In the last table are given the yields from plots where potatoes have been grown continuously since 1923. Here the use of stable manure alone, in fairly heavy applications, seems better to maintain yields. This treatment is followed by stable manure plus fertilizers, with fertilizers alone displaying quite a drop in yield. As a series it will be noted that the percentage of total crop marketable is somewhat lower than where a rotation is practised. This would be of material consequence to the grower offering his crop for sale either as seed or table stock. It is expected, too, that this difference will be more pronounced as the experiment is continued.

MALAGASH VS. COMMON SALT

This experiment was undertaken in 1924 to determine the relative merits of Malagash salt vs. common salt. Common salt, as purchased for agricultural purposes, does not, as a rule, contain any chloride of potash. Malagash salt, on the other hand, according to the claims of the distributors, contains appreciable amounts of potash, although analyses by the Division of Chemistry at Ottawa disprove the presence of potash in percentages sufficiently high to be of value agriculturally.

In 1924 Malagash salt was applied to mangels and turnips at various rates of 200, 400 and 600 pounds per acre, and common salt at 200 and 400 pounds per acre, with suitable check plots. Yields from these plots were tabulated in our 1924 annual report, and, as noted at that time, no significant differences in yield could be attributed to the different rates of application.

In 1925 Banner oats (seeded down) followed the turnips and mangels. Unfortunately wet weather conditions caused the oat crop to break down badly, and it was heavily infected with rust. Under the circumstances yields could not be considered reliable, and the records were not taken.

Malagash salt and common salt at varying rates, alone, and supplemented by nitrate of soda and acid phosphate, were applied to oats in 1924. Our annual report for that year tabulates the yield from the oat crop, and no effect is noted that can be attributed to the various applications of salt.

This year a clover crop was harvested from this area, without having received further treatment.

YIELD OF CLOVER FOLLOWING MALAGASH AND COMMON SALT ON OATS (1924)

Applications in pounds per acre	Average yield Clover in pounds per acre
	lb.
Check, no treatment	3,368*
100 lb. Malagash salt	3,717
200 lb. Malagash salt	4,054
400 lb. Malagash salt	3,683
100 lb. common salt	3,569
200 lb. common salt	4,015
100 lb. Malagash salt plus 100 lb. nitrate soda	4,238
200 lb. Malagash salt plus 100 lb. nitrate soda	3,084
100 lb. Malagash salt plus 100 lb. nitrate soda and 300 lb. superphosphate	4,023*
200 lb. Malagash salt plus 100 lb. nitrate soda and 300 lb. superphosphate	4,061

NOTE.—Yields given are averages of four plots, as cured hay.
*Three plots only.

While slight increases from the applications of salt are recorded, the results are indefinite, and no conclusions can be drawn at the present stage of the experiment.

FERTILIZER FORMULÆ FOR POTATOES

In 1922 seventy-five plots, known as the Permanent Fertilizer Area, received the various treatments indicated here, and were then planted to potatoes. In addition to testing the value of different treatments it was planned to try out a new four-year rotation as follows:—

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

The fourth would depend for its crop on residues remaining from the original application, and would also be benefited by clover aftermath ploughed down the previous autumn. The 1925 crop was potatoes, representing the fourth year of the rotation.

Using the thirteen check plots as a basis for comparison we may assume that 1925 was not so favourable for potatoes as was 1922, for the yield is much reduced. Comparing the yields of the fertilized plots for these two years, we find that the average decrease in yield in 1925 is proportionately greater than that of the checks so it may be assumed that reduction in yield is due to a combined effect of shortage of plant food and unfavourable season.

FERTILIZER FORMULÆ FOR POTATOES

Applications in pounds per acre, 1922				Actual weight applied per acre	Equal to:	Yield in pounds per acre			
Nitr. soda, 15·5%	Sul. amm., 20%	Acid phos., 16%	Mur. pot., 50%			Potatoes 1922	Wheat 1923	Clover 1924	Potatoes 1925
				lb.	lb. goods	lb.	lb.	lb.	lb.
390	300	750	240	1,680	2,000 of 6–6– 6	21,080	1,400	4,501	7,960
325	250	750	240	1,565	2,000 of 5–6– 6	19,280	1,490	4,664	7,220
260	200	750	240	1,450	2,000 of 4–6– 6	20,100	1,210	4,119	7,140
195	150	750	240	1,335	2,000 of 3–6– 6	18,820	1,130	4,225*	7,460
325	250	1,000	240	1,815	2,000 of 5–8– 6	20,760	1,180	4,336*	8,520
260	200	1,000	240	1,700	2,000 of 4–8– 6	20,360	1,160	4,226	8,560
195	150	1,000	240	1,585	2,000 of 3–8– 6	22,900	960	4,620	7,660
260	200	1,000	400	1,860	2,000 of 4–8–10	26,920	1,170	4,753	9,520
260	200	1,000	320	1,780	2,000 of 4–8– 8	21,680	1,130	4,808	8,060
260	200	1,000	160	1,620	2,000 of 4–8– 4	18,940	1,180	3,655	7,360
290	225	560	180	1,255	1,500 of 6–6– 6	18,720	1,160	4,208	5,680
245	190	560	180	1,175	1,500 of 5–6– 6	16,620	1,220	4,072	6,040
195	150	560	180	1,085	1,500 of 4–6– 6	16,600	1,060	4,567	5,640
145	115	560	180	1,000	1,500 of 3–6– 6	19,160	1,020	4,489	4,960
245	190	750	180	1,365	1,500 of 5–8– 6	16,200	1,110	4,208	5,600
195	150	750	180	1,275	1,500 of 4–8– 6	15,600	590	4,450	6,720
145	115	750	180	1,190	1,500 of 3–8– 6	15,720	860	4,835	6,760
195	150	750	300	1,395	1,500 of 4–8–10	18,260	1,180	4,945	6,240
195	150	750	240	1,336	1,500 of 4–8– 8	18,880	1,070	4,459	5,720
195	150	750	120	1,215	1,500 of 4–8– 4	15,360	860	4,250	6,440
195	150	375	120	840	1,000 of 6–6– 6	16,080	1,070	3,911	5,680
165	125	375	120	785	1,000 of 5–6– 6	16,620	1,100	4,190	7,800
130	100	375	120	725	1,000 of 4–6– 6	15,400	950	4,195	5,160
100	75	375	120	670	1,000 of 3–6– 6	15,620	900	4,064	6,140
165	125	500	120	910	1,000 of 5–8– 6	15,260	960	4,118	4,840
130	100	500	120	850	1,000 of 4–8– 6	15,120	1,330	4,358	7,540
100	75	500	120	795	1,000 of 3–8– 6	18,700	1,120	4,510	7,180
130	100	500	200	930	1,000 of 4–8–10	17,740	1,230	4,573	6,820
130	100	500	160	890	1,000 of 4–8– 8	17,460	990	4,541	6,240
130	100	500	80	810	1,000 of 4–8– 4	14,800	1,170	4,182	5,840
Permanent check plot, no manure, no mud, no fertilizers						6,760	120	1,627	4,560
Check plot—no mud						5,680	320	2,670	6,400
Checks—manure and mud—no fertilizers (13 plots)						8,926	1,171	3,301	5,572

*Single plot only.

A number of years ago the area used for these tests was uniformly manured and received a coat of mussel mud. The check plot noted as "Permanent" has received no manure, mud or fertilizer for a great many years, certainly twenty and possibly more.

Another check received manure but no mud or fertilizer. The balance of the checks (13 plots) received manure and mud, and differ from the fertilizer plots only in receiving no chemical fertilizers.

There is some evidence in the table that applications of potash made in 1922 have affected the yields of potatoes in 1925. It would also appear that there is a residual effect due to acid phosphate.

SOURCES OF PHOSPHORIC ACID—TURNIPS, 1925

This season an experiment was conducted to determine the relative merits of certain sources of phosphoric acid. Acid phosphate (16 per cent) and Bessemer slag (16 per cent) were used, and in addition Ephos basic phosphate (27.5 per cent), distributed by the Egyptian Phosphate Co., London, England, and Ammo. Phos. (two grades, 13-48 per cent and 20-20 per cent) manufactured and distributed by the American Cyanamid Co., of New York. Ephos is manufactured from an Egyptian phosphatic rock, and is high in percentage of phos-

phoric acid. Ammo-Phos is a nitrogenous-phosphatic fertilizer and is manufactured in two grades, viz. a 13-48 containing 13 per cent Ammonia (NH_3) and 48 per cent phosphoric acid (P_2O_5); and a 20-20 containing 20 per cent and 20 per cent respectively of these two ingredients. The claim made for Ammo-Phos is that its concentrated nature will reduce freight costs materially.

The yields as shown in the table following are averages from four plots. It might also be pointed out that the outside drills from each plot were discarded as it was thought they might be influenced by the treatment given the adjacent plot.

SOURCES OF PHOSPHORIC ACID—YIELD OF TURNIPS, 1925

No.	Fertilizers applied, kind and rate per acre	Plant food supplied, pounds per acre			Average yield pounds per acre	Relative standing
		N	P_2O_5	K_2O		
1	Checks—No treatment (16 plots)	.....	.....	.....	11,660	100·0
2	292 lb. Ephos	.....	80	.....	20,560	176·3
3	500 lb. acid phosphate	.....	80	.....	25,040	214·8
4	500 lb. Bessemer slag	.....	80	.....	17,200	147·5
5	292 lb. Ephos 150 lb. nitrate of soda 100 lb. muriate of potash	.....	80	.....	.....	.....
		24	.....	.....	25,540	219·0
		.....	.....	50	.....	.....
6	500 lb. acid phosphate 150 lb. nitrate of soda 100 lb. muriate of potash	.....	80	.....	.....	.....
		24	.....	.....	40,280	345·5
		.....	.....	50	.....	.....
7	500 lb. Bessemer slag 150 lb. nitrate of soda 100 lb. muriate of potash	.....	80	.....	.....	.....
		24	.....	.....	18,020	154·6
		.....	.....	50	.....	.....
8	150 lb. nitrate of soda 100 lb. muriate of potash	24	.....	.....	11,120	95·4
		.....	.....	50	.....	.....
9	167 lb. Ammo-Phos (13–48)	18	80	.....	22,500	193·0
10	400 lb. Ammo-Phos (20–20)	66	80	.....	19,120	164·0
11	167 lb. Ammo-Phos (13–48) 39 lb. nitrate soda 100 lb. muriate of potash	18	80	.....	.....	.....
		6	.....	.....	30,180	258·8
		.....	.....	50	.....	.....
12	146 lb. Ammo-Phos. (20–20) 350* lb. acid phosphate 100 lb. muriate potash	24	29	.....	.....	.....
		.....	56	.....	29,600	253·9
		.....	.....	50	.....	.....

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

Consideration of the data in the preceding table leads to the belief that phosphoric acid was the limiting factor in crop production; nitrogen and potash, as per plot 8, had no beneficial effect.

Applications of phosphoric acid, as per Plots 2, 3 and 4 gave decided increases in yield. Plots 5, 6 and 7 received the same treatment as 8 except that phosphoric acid has been added. Such an addition has given most amazing results, increasing the yield almost fourfold in the case of Plot 6.

In the first series (Plots 2, 3 and 4) where phosphoric acid alone has been supplied, and in the second series (Plots 5, 6 and 7), where the phosphatic materials have been supplemented by nitrogen and potash, acid phosphate

would seem to be the best source of phosphoric acid. Ephos would appear to be the second best source, with Bessemer slag last. The response of the crop of course would be largely influenced by the solubility and consequent availability of each. It is the intention to conduct this experiment over the course of a four-year rotation (turnips, grain clover, timothy).

Plots 11 and 12 should be comparable to Plots 5, 6 and 7, as each has received like quantities of plant food (see note following table), but from different sources. It would seem that Ammo-Phos ranks somewhere between acid phosphate and Ephos or Slag as a source of phosphoric acid. Ammo-Phos of two grades has been used on 11 and 12. This has been supplemented to bring the plant food requirements on a par with 5, 6 and 7. Apparently there is no difference in the value of the two grades of Ammo-Phos as a source of plant food.

As was previously mentioned, this work will be carried over the period of a four-year rotation (turnips 1925, grain 1926, clover 1927 and timothy 1928). Definite conclusions are unwarranted until the completion of the experiment.

BACTERIOLOGY

Only one experiment was conducted at this Station this season—an experiment to determine the value, if any, of the preparation known as "Soilgro." Literature accompanying this material claims it to be: "A scientific bacteria culture for all forms of plant life," and that it will "increase size, quantity and quality of products," etc. This beneficial effect, it is presumed, is based on the further statement that the culture "contains different groups of nitrogen-fixing, ammonifying, nitrifying and decomposition bacteria."

This material was sold on the local markets at $6 per unit, each unit comprising two cans, each holding approximately one-half gallon, one containing a liquid and the other a solid.

These were mixed and applied, according to directions attached to the cans, to wheat, mangels and corn. Each crop was sown on twelve plots. Three plots received no treatment, and were considered as checks. Three plots were treated with Soilgro as directed. Three plots were treated with Soilgro that had been boiled or sterilized with live steam. If, as the advertisements stated, the beneficial effect was due to bacteria, boiling would kill these and the material be rendered of no value. The last three plots were treated in a manner similar to those receiving Soilgro, but the material used was mixed at home and consisted of an infusion of pig-manure, clover-heads and good garden soil. The appearance and odour of this "artificial" was very similar to that of "Soilgro."

The corn plots were ruined by crows, blackbirds and pigeons. The mangel seed did not germinate uniformly and the stand was so uneven that it was considered advisable, in the interest of accuracy, to discard the mangels. The wheat plots, however, came on nicely, and grew well throughout the summer.

The company claims that Soilgro "expedites maturity of growth." This wheat was sown late, and if the foregoing statement is true, the Soilgro should have enjoyed an advantage over other treatments. No difference was noted in date of maturity.

It may further be noted that the soil on this area could be classed only as "fair to poor" from an agricultural standpoint. No bacterial counts were made but judging by the appearance of nearby crops, fertility was low, and it might naturally be assumed that the number of beneficial soil organisms also

was low. If such was the case and the claim of the company was of value, namely, that Soilgro benefited the crop through the addition of bacteria to the soil, then Soilgro should again have had an advantage on an area such as this.

The data contained in the following table fail to substantiate the claims of the manufacturers in this respect:—

SOILGRO EXPERIMENT: YIELD FROM WHEAT PLOTS

Treatment	Yield per acre—Plot 1	Yield per acre—Plot 2	Yield per acre—Plot 3	Yield per acre based on Average three plots
	lb.	lb.	lb.	lb.
Soilgro	900	600	1,000	833
Soilgro (boiled)	950	875	800	875
Artificial	1,050	1,000	850	967
Check	900	925	850	892

There is no significant difference in the yields per acre, when judged on the average yield of three plots. The greatest difference noted is between Soilgro and the artificial, but even this amounts to less than 2½ bushels per acre.

In the light of the foregoing figures it would appear that the preparation Soilgro is of little or no value in furthering crop production. This conclusion is supported by evidence from other reliable sources.

POULTRY

A new phase of poultry work has been taken up at the Station this year, namely an effort to increase the weight of eggs produced. Careful selection and mating, together with trap-nest records over a number of years, have resulted in a very considerable improvement in the productivity of our strains both of Barred Plymouth Rocks and Single-comb White Leghorns. In previous years, however, at other points as well as at this Station, little attention was paid to size of egg. When the clause was entered in the rules and regulations governing Provincial and Dominion Egg-laying Contests that a bird must not only lay a certain number of eggs, but must maintain a certain standard in egg-weight, it was found that many of the so-called high-producers were not laying eggs that would grade up to standard. With this point in mind, all females were trap-nested during 1924. Not only was each egg recorded, but in addition each egg was weighed, and also the body weight of the bird was noted. In the spring of 1925, eggs were incubated only from those hens producing a large number of standard-weight eggs and that had been mated to males from dams possessing the same desirable characteristics. The chicks from such matings retain their identity by being wing-banded at time of hatching. Before long data will be available on the effect of such matings on the weight of eggs produced.

The stock on hand November 1, 1925, consisted of 48 males and 320 females as follows:—

Breed	Males	Hens	Pullets	Totals
Barred Plymouth Rocks	29	43	99	171
White Leghorns	19	83	95	197
	48	126	194	368

HOUSING AND YARDS.

No new buildings were added during the year. Many of the yards were ploughed and seeded to clover. The chicken-run was ploughed and seeded with clover early in the season. No birds were allowed to run on this during the year, the chicks being raised on a small section of the old yard with free run over an adjoining pasture field. Such ploughing of the runs and seeding to clover is necessary every year or two, otherwise the soil becomes foul, unsanitary and a breeding place for many of the diseases found in flocks.

FEEDS AND FEEDING.

The following system of feeding was practised during the year, and gave excellent results:

Sprouted oats was fed each day in the early morning. At noon mangels were fed. Every alternate day the mangels were boiled, mixed with a portion of the regular dry mash and fed as a wet mash. In the late afternoon the birds received a grain ration scattered in the floor litter; this ration consisted of equal parts of cracked corn and wheat. The mash used was as follows: One hundred pounds bran, 100 pounds cornmeal, 100 pounds coarse cut oatmeal, 100 pounds shorts, and from 10 to 20 per cent by weight of beef scrap. This mash, as well as shell, grit and charcoal, is fed in hoppers to which the birds have access at all times. Fresh drinking water also is before the birds at all times.

EGG-PRODUCTION.

Few pullets had started to lay by November 1, 1924, but by the first of the year practically all were laying. Electric light was used to encourage winter production. The birds suffered severely from colds, and production dropped considerably below that of previous years. The use of lights was discontinued in January.

The following tables summarize the year's production. It should be borne in mind that a number of excellent birds were discarded during the year because their egg-weight fell below standard. This is, of course, reflected in the lower average annual production of both pullets and mature hens.

EGG-YIELD—HENS VS. PULLETS

Month	Hens			Pullets		
	Number	Total eggs	Average per bird	Number	Total eggs	Average per bird
November, 1924	219	277	1·3	155	684	4·4
December, 1924	160	222	1·4	153	1,595	10·4
January, 1925	157	759	4·8	140	1,577	11·3
February, 1925	156	1,293	8·3	129	1,031	8·0
March, 1925	154	2,341	15·2	123	1,331	10·8
April, 1925	144	2,801	19·5	116	1,873	16·2
May, 1925	129	2,469	19·1	109	1,729	15·9
June, 1925	122	1,965	16·1	87	1,661	19·1
July, 1925	115	1,850	16·1	49	923	18·8
August, 1925	115	1,325	11·5	47	740	15·7
September, 1925	110	665	6·1	43	447	10·4
October, 1925	99	298	3·0	32	86	2·7
Totals	.....	16,265	122·4	.....	13,677	143·7

Average per bird per year, hens—122·4, pullets—143·7
" " month hens— 10·2, " —12.
Average for all birds per year 133·1
" " month 11·1
The average yearly production for all birds is fifteen eggs below that of the previous year.

INDIVIDUAL RECORDS OF SINGLE-COMB WHITE LEGHORN PULLETS BRED AND RAISED AT THE DOMINION EXPERIMENTAL STATION, CHARLOTTETOWN, PRINCE EDWARD ISLAND

225 eggs and over			200 to 224 eggs			175 to 200 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
82	242	Dec. 3.....	200	229	Nov. 1.....	191	192	Nov. 1.
64	236	Nov. 20.....	194	228	Nov. 1.....	198	192	Nov. 1.
81	225	Nov. 4.....	83	222	Nov. 14.....	85	191	Dec. 6.
.....	.....	.....	85	220	Nov. 24.....	29	191	Nov. 3.
.....	.....	.....	27	207	Nov. 2.....	14	188	Dec. 5.
.....	.....	.....	.....	.....	.....	9	187	Dec. 7.
.....	.....	.....	.....	.....	.....	73	185	Dec. 2.
.....	.....	.....	.....	.....	.....	49	180	Nov. 8
.....	.....	.....	.....	.....	.....	41	175	Nov. 3.
3 birds laid 703 eggs.			5 birds laid 1,106 eggs.			9 birds laid 1,681 eggs.		
Average per bird, 234·3 eggs.			Average per bird, 221·2 eggs.			Average per bird, 186·8 eggs.		

Seventeen birds laid 3,490 eggs.
Average per bird, 205·3 eegs.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS AND FEED CONSUMED BY S. C. WHITE LEGHORNS, BRED AND RAISED AT DOMINION EXPERIMENTAL STATION, CHARLOTTETOWN, P. E. ISLAND, FOR THE PERIOD FROM NOVEMBER 1, 1924 TO MAY 31, 1925

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 of feed consumed								
											Meat scrap	Grain	Mash	Grit	Shell	Roots	Oats sprouted	Charcoal	Total amount feed
				c.	$	c.	$	c.	$	$									
November, 1924	120	565	4·7	25	11 77	42·0	19 93	16·6	.....	8 16	.....	487	168	9	8	120	215	2½	1,009½
December, 1924	118	1,429	12·1	33	39 30	18·9	22 50	19·0	16 80	.....	.....	500	218	10	12	180	250	6	1,176
January, 1925	106	1,344	12·7	40	44 80	20·0	22 07	20·8	22 73	.....	.....	565	183	13	31	50	200	5	1,047
February, 1925	98	641	6·5	36	19 23	30·4	16 23	16·6	3 00	.....	6	385	105	12	16	60	200	4	788
March, 1925	95	750	7·9	30	18 75	27·0	16 66	17·5	2 09	.....	8	405	96	13	25	60	200	4	811
April, 1925	90	1,393	15·5	24	27 86	13·9	16 24	18·0	11 62	.....	.....	430	115	11	32	.....	150	.....	738
May, 1925	84	1,293	15·4	20	21 55	10·9	10 88	13·0	10 67	.....	8	260	90	.....	19	.....	100	5	482
Totals	.....	7,415	.....	.....	183 26	20·2	124 51	.....	66 91	8 16	22	3,032	975	68	143	470	1,315	26½	6,051½

Net gain over cost of feed for seven months—$58.75.

Cost of feed: Grain mixture—$2.22 per cwt.; mash, November, December, January, $2.50 per cwt., balance of period $2.65 per cwt.; grit $1.05 per cwt.; shell $1.45 per cwt.; roots $4 per ton; oats, $2.05 per cwt.; charcoal $3.25 per cwt.; meat-scrap $3.25 per cwt.

STATEMENT COVERING PRODUCTION, PROFIT AND LOSS AND FEED CONSUMED BY BARRED PLYMOUTH ROCKS BRED AND RAISED AT THE DOMINION EXPERIMENTAL STATION, CHARLOTTETOWN, P. E. ISLAND, FOR THE PERIOD FROM NOVEMBER 1, 1924 TO MAY 31, 1925

Month	Number of birds	Total eggs laid	Average per bird	Average price per doz.	Total market value	Cost per dozen	Total cost feed	Cost of feed per bird	Total monthly profit	Total monthly loss	Pounds of feed consumed								
											Grain	Mash	Grit	Shell	Roots	Oats sprouted	Charcoal	Meat scrap	Total amount feed
				c.	$	c.	$	c.	$	$									
November, 1924	35	119	3·4	25	2 48	63·1	6 26	17·9	.....	3 78	167	43	2	2	30	60	2	.....	306
December, 1924	35	166	4·7	33	4 57	53·8	7 44	21·3	.....	2 87	175	65	2	3	55	85	1	.....	386
January, 1925	34	233	6·9	40	7 77	43·2	8 39	24·7	.....	0 62	215	55	3	6	25	100	1	.....	405
February, 1925	31	390	12·6	36	11 70	23·3	7 57	24·4	4 13	.....	180	41	6	10	30	100	2	3	372
March, 1925	28	581	20·8	30	14 52	14·6	7 06	25·2	7 46	.....	160	32	9	17	30	100	2	4	354
April, 1925	26	480	18·5	24	9 60	10·9	4 37	16·8	5 23	.....	105	16	.....	5	.....	75	.....	.....	201
May, 1925	25	436	17·4	20	7 26	11·9	4 33	17·3	2 93	.....	140	10	.....	5	.....	30	.....	4	189
Totals	.....	2,505	.....	.....	57 90	21·8	45 42	.....	19 75	7 27	1,142	262	22	48	170	550	8	11	2,213

Net gain over cost of feed for seven months—$12.48.

Cost of feed: Grain mixture, $2.22 per cwt.; mash, November, December, January, $2.50 per cwt., balance of period $2.65 per cwt.; grit ,$1.05 per cwt.; shell $1.45 per cwt.; roots $4.00 per ton; oats, $2.05 per cwt.; charcoal $3.25 per cwt.; meat-scrap $3.25 per cwt.

Very severe culling of the flock took place after May 31 to remove such birds as were producing small eggs. For this reason the records in the two preceding tables have been carried until the end of May only.

FEEDING EXPERIMENT

Early in January an experiment was started to determine the relative merit of two different grain mixtures. The first consisted of equal parts of wheat and corn. This might be considered a commercial grain mixture, or one used by poultry-raisers purchasing their feed supplies. The other was considered a home-grown or "farmer's mixture" and consisted of 100 pounds wheat, 50 pounds oats, 50 pounds barley and 25 pounds buckwheat.

The experiment was conducted from January 1, 1925 to June 30, 1925, a period of six months, after which the pens were broken up.

GRAIN RATION—WHEAT AND CORN—JANUARY 1 TO JUNE 30, 1925

Month	No. of birds	No. of eggs laid	Value of eggs	Weight of grain fed	Weight other feeds
			$	lb.	lb.
January	53	627	20 88	300	279
February	49	278	11 58	220	181
March	47	358	8 95	200	198
April	45	698	14 51	220	243
May	45	588	9 80	230	111
June	43	574	9 56	160	94
Totals	.....	3,123	75 28	1,330	1,106

Cost grain consumed	$ 29 53
Cost other feeds consumed	21 76
Total cost feed	51 29
Value of eggs produced	75 28
Value of eggs over cost of feed	23 99

GRAIN RATION: WHEAT, OATS, BARLEY AND BUCKWHEAT—JANUARY 1 TO JUNE 30

Month	No. of birds	No. of eggs laid	Value of eggs	Grain fed	Weight of other feeds
			$	lb.	lb.
January	53	717	23 88	265	242
February	49	363	15 12	165	202
March	48	392	9 80	205	205
April	45	695	14 46	210	258
May	39	705	11 74	162	124
June	38	519	8 64	220	86
Totals	.....	3,391	83 64	1,227	1,117

Cost grain consumed	$ 29 02
Cost of other feeds consumed	22 65
Total cost of feed	51 67
Value of eggs produced	83 67
Value of eggs over cost of feed	32 00

From the foregoing tables it would appear that mixtures of the varieties of grain offered on the farm prove more satisfactory than does a mixture of wheat and cracked corn.

The figures shown in the table, however, are for the period of one year only. Data from several years' work will have to be obtained before conclusive evidence can be given.

SKIM-MILK VS. BEEF-SCRAP AS A SOURCE OF ANIMAL FOOD FOR WHITE LEGHORN PULLETS

An experiment was conducted for a six-month period to determine the relative values of skim-milk and beef-scrap. The experiment was conducted with two pens of S.C. White Leghorn pullets, equal in number.

The grain ration for both pens was the same, and was composed of equal parts corn and wheat. The mash used consisted of equal parts of cornmeal, bran, shorts and oatmeal. Sprouted oats was fed to each pen each morning. Beef-scrap was fed in a self-feeder, and was before the birds at all times. The pen receiving skim-milk was given all the milk the hens could drink.

SKIM-MILK VS. BEEF-SCRAP

Source of animal food	Cost of animal food	Total cost feed	No. of eggs laid	Value of eggs	Value of eggs over cost of feed
	$ cts.	$ cts.		$ cts.	$ cts.
Beef-scrap	1 14	11 21	1,287	38 61	27 40
Skim-milk	2 38	13 01	1,473	44 19	31 18

Cost of beef-scrap ..... $ 3 25 per 100 pounds.
Cost of skim-milk ..... 0 40 " "

The birds were weighed at the beginning of the test and both pens found about equal. When weighed at the end of the test it was found that those fed skim-milk were considerably heavier than those fed on beef-scrap.

From this it would appear that skim-milk forms a profitable source of animal food for laying pullets.

INCUBATION AND BROODING

The following table compares the fertility and hatchability of eggs hatched in April with that of eggs hatched in May:

APRIL HATCHING VS. MAY HATCHING

Month	Total eggs set	Number fertile	% fertile	Number of chicks hatched	% total eggs hatched	No. chicks alive when wing banded	% chicks alive when wing-banded	No. eggs required for one chick	No. eggs for one chick when wing-banded
April	3,199	2,446	76·46	1,343	41·98	842	62 70	2·38	3·80
May	729	550	75·44	388	53·22	*	*	1·88	*
Total	3,928	2,996	76·27	1,731	44·07	*	*	2·27	*
Apr. (W.L.)	1,769	1,354	76·54	749	42·34	545	72·76	2·36	3·25
(B.R.)	1,430	1,092	76·36	594	41·54	297	50·00	2·41	4·81
May (W.L.)	132	117	88·64	84	63·63	*	*	1·57	*
(B.R.)	597	433	72·52	304	50·92	*	*	1·96	*

*The late-hatched chicks were shipped out as day-olds, so that figures are not available after date of hatching.

FERTILITY AND HATCHABILITY OF EGGS FROM HENS VS. EGGS FROM PULLETS

Stock	Total eggs set	Number fertile	% fertile	No. of chicks hatched	% total eggs hatched	No. chicks alive when wing-banded	% chicks alive when wing-banded	Total eggs required for one chick	Eggs required for one chick wing-banded
B. R. Hens	993	760	76·53	401	40·38	240	59·85	2·47	4·14
B. R. Pullets	437	332	75·97	193	44·16	57	29·53	2·26	7·67

EGGS SET IN APRIL—HATCHED IN APRIL

	W.L.	B.P.R.
Total eggs set	871	712
No. eggs fertile	663	612
Per cent fertile	76·1%	86%
Number of chicks hatched	357	277
Per cent total eggs hatched	41%	39%
Per cent fertile eggs hatched	54%	45%
Total eggs required to hatch one chick	2·4	2·6
Total fertile eggs required to hatch one chick	1·8	2·2

EGGS SET IN APRIL—HATCHED IN MAY

	W.L.	B.P.R.
Total eggs set	898	718
Number of eggs fertile	638	533
Per cent. fertile	71%	74·2%
Number of chicks hatched	406	303
Per cent. total eggs hatched	45·2%	42·2%
Per cent. fertile eggs hatched	63	56
Total eggs required to hatch one chick	2·2	2·3
Total fertile eggs required to hatch one thick	1·5	1·7

EGG-SHIPPING EXPERIMENT

Early in the season an experiment was conducted to determine the value of the "Guaranise" process in the shipping of eggs. This process, presumably applicable on a commercial scale, makes use of certain chemical applications to the egg-shell intended to preserve the contents in their original shipping condition, fresh or otherwise, for some considerable period.

Five cases of eggs were shipped from the Poultry Division, Experimental Farm, Ottawa, four on May 19 and one on June 5, 1925; these arrived in Charlottetown on May 21 and June 9 respectively. They were shipped in commercial cases, 30-dozen capacity. Each end of each case was packed or treated in a different manner, giving the ten different treatments outlined in the following table. On arrival in Charlottetown, the eggs were graded by a Government Egg Inspector, and returned to Ottawa, as originally packed, for further inspection.

In addition to testing the value of the process, opportunity was taken to measure the effect on quality, if any, from shipping eggs packed with the large ends or the small ends up.

EGG-SHIPPING EXPERIMENT

Case No.	Lot No.	Details	Guaranised	No. doz.	Grade on arrival at Charlottetown	Weight per case
					doz. eggs	lb.
5	A	Specials	Yes	15	5 4 extras 8 5 firsts 1 0 cracked 0 3 leaks	61½
	B	Specials	No	15	3 6 extras 10 8 firsts 0 2 seconds 0 4 cracked 0 3 dirty 0 1 leak	
6	A	Commercial	Yes	15	7 3 extras 6 6 firsts 0 3 seconds 0 10 cracked 0 2 leaks	64½
	B	Commercial	No	15	11 3 extras 3 5 firsts 0 4 cracked	
7	A	Specials—large ends up	Yes	15	2 10 extras 11 6 firsts 0 2 seconds 0 5 cracked 0 1 bad	61½
	B	Specials—large ends down	Yes	15	0 7 extras 12 1 firsts 0 2 seconds 1 11 cracked 0 2 leaks 0 1 short	
8	A	Commercial—large ends up	Yes	15	4 6 extras 8 4 firsts 1 2 seconds 0 9 cracked 0 3 leaks	64½
	B	Commercial—large ends down	Yes	15	1 9 extras 9 10 firsts 2 4 seconds 0 11 cracked 0 1 bad 0 1 leak	
9	A	Specials—large ends up	No	15	6 4 extras 7 6 firsts 0 4 seconds 0 10 cracked	62½
	B	Specials—large ends down	No	15	0 3 extras 7 1 firsts 6 9 seconds 0 10 cracked 0 1 leak	

The value of the "Guaranising" process, judging from these figures, would seem still to be an open question. In case number 5, shipped to us as specials, the guaranised eggs graded out 35.5 per cent extras and 56.1 per cent firsts, while those not "guaranised" graded only 23.5 per cent extras with 71.1 per cent firsts. In case number 6 "Commercial" however, the untreated eggs graded 75 per cent extras against 48.3 per cent for the treated. In the "Specials—large ends up," the untreated graded 42.2 per cent extras, and the treated only 19 per cent.

Apart from testing the guaranising process, there is indication that eggs packed and forwarded with the large ends up ship better than when packed with the large ends down. See Dominion Poultry Husbandman's Report of 1925 for further details of this experiment.

PRINCE EDWARD ISLAND EGG-LAYING CONTEST

On October 28, 1925, the Seventh Annual Prince Edward Island Egg-Laying Contest came to a successful close following 52 weeks of fairly heavy production by the twenty pens of birds entered.

As under the rules of previous contests, each pen consisted of ten birds, all pens being fed and housed similarly. The entries consisted of eight pens Single-comb White Leghorns, one pen White Wyandottes, and eleven pens Barred Plymouth Rocks.

The leading pen at the close of the contest, was a pen of S.C. White Leghorns owned by G. F. Connors, Charlottetown, P.E. Island, with a total production of 2,186 eggs. The second highest was a pen of B. P. Rocks, owned by Joseph Carmichael, Peakes, R.R. 2, P.E.I., with 2,105 eggs; third place was won by a pen of S.C. White Leghorns owned by Samuel McPherson, Martinvale, P.E.I., with 2,024 eggs.

The leading hen for the year was a B.P. Rock owned by Charles McKenna, Newton Cross, P.E.I., with 288 eggs; second a B.P. Rock owned by Walter Buntain, Rustico, P.E.I., with 263 eggs; third, another of Mr. Charles McKenna's B.P. Rocks, with 254 eggs.

Out of 200 birds entered, 147 laid 150 or more eggs, one hundred and six laid 175 or more eggs, sixty-eight laid 200 or more, and twenty birds laid 225 eggs or over in 52 weeks.

Of the sixty-eight birds laying 200 or more eggs, only twenty-eight were eligible for registration, the balance being disqualified because eggs produced were underweight.

The method of feeding the contest birds has been changed somewhat from that used last season. Sprouted oats have substituted the hard grain scratch feed used in the morning. At noon during the summer the birds received green feed from the garden, such as lettuce or cabbage leaves, etc., and in the winter mangels were used as a green feed. Twice a week mangels were boiled, mixed with a portion of the regular dry mash, and fed at noon. Scratch grain was fed, in deep litter, in the late afternoon.

The dry mash consisted of 100 pounds bran, 100 pounds shorts, 100 pounds cornmeal, 100 pounds oatmeal, and from 50 to 75 pounds beef-scrap, the larger amount being used during the cold weather. Scratch-feed consisted of equal parts cracked corn and wheat, except during the heat of summer, when a greater proportion of wheat was used. Grit, shell, charcoal and dry mash are in hoppers and before the birds at all times. Fresh drinking water also is in the pens.

POULTRY WORK IN THE PROVINCE

Greater attention is being given, year by year, to the farm poultry flock throughout the province. Visits to the Experimental Farm Poultry Plant, the egg-laying contest, its weekly reports, a wide distribution of good practical literature on poultry-keeping and periodic newspaper articles along with the personal visits from the Registration Inspector and other farm officials, together with the energetic staff of men from the federal Live Stock Branch and provincial department, constantly keep before the public the importance of improvement in poultry, with resultant greater profits. The P.E. Island Egg and Poultry Association, under careful management, has also had a wide-spread

influence on poultry improvement in the province. This is a co-operative buying and selling association, handling poultry and poultry products strictly on a quality basis. The farmer soon realized that unless quality was offered, good prices were not forthcoming for his product. Latterly also, the association has been doing good work by operating a hatchery, utilizing only the best eggs obtainable and distributing day-old chicks at reasonable prices. During the hatching season of 1925 alone, in the neighbourhood of 20,000 day-olds were distributed by this institution in P.E. Island, with an additional 12,000 or more to Nova Scotia, New Brunswick and a few to Quebec.

In addition to lecture work and flock inspection, flock-culling demonstrations are held. Flock culling has been promoted to a great extent in the province, and many of the farm flocks are now being regularly culled either by officials from the Experimental Station, by the federal inspectors, or by the farmers or farmers' sons, a few of whom are becoming quite proficient in this work.

Such insistence and continued pressure is having its effect, and steady gains are being made in the poultry industry from the standpoint of volume and quality of production as well as economy of production.

While we have to admit that the entries in our contest are drawn from farm flocks perhaps a little above the average, yet we may accept the figures of the successive contests as fairly well representative of the increase in production noted throughout the province during the same period.

EGG-PRODUCTION IN THE CONTESTS

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

The first contest, open to the Maritime Provinces and Quebec, included a number of entries from professional poultry-raisers, and therefore the yearly average per bird has not been indicated.

As previously mentioned, these birds are from farm flocks. A study of the table shows a steady increase during the first years, and of late a rapid increase in production.

APIARY

Weather conditions during 1925 were quite unfavourable for honey-production, the bees were prevented from gathering pollen from the spring flowers owing to cool and backward weather conditions. During the summer, the rainfall being above the average, the bees gathered a light crop of honey. During the clover season and throughout the entire autumn season, winds and rain were against high honey-production.

WINTERING

The bees wintered badly and came out in poor condition in the spring of 1925. Of the eleven colonies placed in the cellar, six died, and out of sixteen

colonies wintered outside in four-colony wintering cases, five died. This makes a total loss of eleven colonies out of twenty-seven, or over 40 per cent. Many of the hives were found short of stores, and two frames of clover honey were given to each colony.

INCREASE

Fifteen new nuclei were started with queens purchased from F. W. Jones & Son and R. W. Willis. Ten of these made fairly strong colonies before going into winter quarters. To stimulate brood-rearing, each nucleus was fed early in September on sugar syrup composed of two parts water to one part sugar. The remaining five nuclei were rather weak and were united with other colonies.

HONEY-FLOW

One colony was placed on the scales on June 18, and weights were recorded daily until September 19. During this period the total increase in weight was 106 pounds.

The first heavy flow of honey occurred from July 15 to July 31. A total increase of 39 pounds was noted for this period, or an average of 2.43 pounds daily. A second heavy flow commenced on August 14, and continued until August 31. During this period a 30-pound increase was noted, or an average daily increase of 1.76 pounds. The greatest increase noted for any one day was 6 pounds gathered on August 22.

FEEDING

Feeding in preparation for winter storage commenced on September 18, and owing to rainy weather was continued until October 22.

A mixture of two parts of sugar and one part water was fed until the weight of each hive, not including the cover, was brought up to 70 or 75 pounds.

Twenty-four single colonies and one double colony were placed in quadruple-colony wintering cases for the winter of 1925-26.

GENERAL NOTES

A large exhibit, sent by the Division of Extension and Publicity, Ottawa, was shown at the Provincial Exhibition, Charlottetown. This was well situated, being placed immediately to the right of, and facing the main entrance to the main building. Under the supervision of courteous and well-informed assistants, the exhibits called forth much favourable comment; and a large amount of literature as well as valuable information was dispensed. The assistant superintendent judged exhibits of cut flowers and potted plants.

An exhibit was also shown at the Georgetown Exhibition. This is only a one-day fair, but it is well attended, the quantity of material shown is quite large and the quality would compare favourably with exhibits found at many of the larger and more pretentious exhibitions. Great enthusiasm is shown each year in the display made by the Experimental Station. A great many questions are answered and quite a large quantity of literature distributed. The superintendent and assistant judged the exhibits of cut flowers, potted plants, vegetables, field roots, tubers, etc.

The assistant judged field roots, flowers, potted plants, vegetables, etc., at Souris Exhibition and the Egmont Bay Fair.

The superintendent or members of the Station staff also judged on one of the school fair circuits in the late September and early October. This circuit comprises nine fairs. Several schools co-operate for each fair, and

exhibits and visitors are drawn, in some cases, from a radius of four to six miles. These fairs are well attended, not only by the pupils but by the parents as well, and are improving each year. The greater efficiency of the coaching being given by the teachers is readily apparent in the improved selection and display of exhibits by the students.

A field day was held at each of the Illustration Stations in the province, and, in the main, these were largely attended. Addresses are given, the work of the Station is explained and discussion on various farm problems then takes place. In particular a very lively interest is being displayed at the present time in commercial fertilizers for various farm crops. These field days are quite well advertised, and as many as 150 or 200 farmers have been in attendance at some Stations.

In so far as we have been able to determine, a copy of our annual report is being placed in the hands of every farmer in the province. Many press articles are prepared for publication in local and other newspapers and magazines. Through our bulletins, press and magazine articles and personal correspondence, it is felt that the rural population of the province is in close touch at all times with the various lines and phases of work being conducted at the Station.

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