DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL FARM

NAPPAN, N.S.

REPORT OF THE SUPERINTENDENT

W. W. BAIRD, B.S.A.

FOR THE YEAR 1924

One acre of Longstem flax grown at Nappan for fibre. The yield was 1906 pounds of green tow per acre.

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

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SEASONAL CONDITIONS

The winter of 1923-24 was characterized by changeable weather. It was mild and open until the middle of December and the snowfall during the winter was light, on the average. The rainfall in January was heavy (2.05 inches being recorded) and consequently the grass fields were poorly protected during the coldest period and again, during the spring months, when it was thawing and freezing. This resulted in a poor clover crop in most sections.

The total precipitation recorded for March, April and May was the lowest in seventeen years.

Spring opened early with very dry weather prevailing. Seeding started on May 7 and was general by the 20th of the month. Germination was slow due to lack of moisture. All crops made fair growth during May and June but suffered a set-back in July, which was extremely dry. Good weather was experienced for the harvesting of all crops and the yields were better than predicted at the end of July.

WEATHER OBSERVATIONS AT EXPERIMENTAL FARM, NAPPAN, N.S., 1924

Month	Temperature F.			Precipitation					Sunshine	
				Rainfall		Snowfall				
	Maximum	Minimum	Mean	Days	Inches	Days	Inches	Total inches	Number of days	Total hours
January	47	−17	18·17	8	2·05	6	19	3·95	19	105·2
February	40	−14	14·36	.....	.....	5	22	2·20	21	118·9
March	47	4	29·55	3	0·18	6	14	1·58	14	81·6
April	58	14	36·04	7	1·22	3	4	1·62	19	101·8
May	72	28	50·45	5	0·88	.....	.....	0·88	27	197·9
June	80	35	57·42	11	3·70	.....	.....	3·70	26	218·2
July	85	46	65·47	5	0·50	.....	.....	0·50	31	289·6
August	85	42	63·33	13	5·19	.....	.....	5·19	27	190·9
September	75	32	55·37	8	1·40	.....	.....	1·40	26	171·3
October	68	19	45·62	6	2·10	.....	.....	2·10	25	132·6
November	65	6	37·90	4	0·99	3	13	2·29	20	89·4
December	50	− 9	18·98	2	2·13	.....	.....	2·13	20	79·0

Days of Rainfall..... 72 Inches of Rainfall..... 20·34
Days of Snowfall..... 23 Inches of Snowfall..... 72 equal to 7·2 inches rain.
Days of Sunshine..... 275 Hours of Sunshine.....1,776·4
Total Precipitation, 27·54 inches.

TEMPERATURES RECORDED AT NAPPAN FROM 1909–1924

Month	1909			1910			1911			1912		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
January	55	−13	16·4	53	−10	23·32	54	−15	18·12	45	−24	11·70
February	40	−26	17·58	43	−16	20·12	43	−19	12·49	45	−18	18·22
March	50	− 5	28·59	47	10	31·48	52	−10	24·81	48	−15	27·54
April	63	17	36·28	71	22	44·81	73	12	36·63	66	17	37·64
May	73	29	47·83	70	29	49·25	85	26	52·96	77	24	50·27
June	85	31	59·41	77	31	55·76	81	35	59·21	84	35	56·29
July	85	41	63·85	84	49	65·01	89	45	68·48	92	40	63·61
August	87	43	63·14	79	33	62·33	86	38	64·21	81	38	60·75
September	79	32	58·56	74	32	54·03	75	27	53·71	73	33	52·99
October	75	24	47·93	66	24	46·04	66	21	43·96	74	25	46·80
November	65	16	38·36	61	17	37·09	60	13	34·33	66	14	36·32
December	40	−13	24·78	50	− 6	21·59	54	4	17·52	51	0	26·33

Month	1913			1914			1915			1916		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
January	52	− 4	23·96	46	−19	13·50	53	−10	21·61	47	−10	19·17
February	51	−15	13·31	42	−27	7·5	54	−14	23·64	48	−24	16·54
March	62	− 1	-	46	− 8	30·17	48	9	26·35	54	−12	20·56
April	71	14	40·03	61	8	33·94	62	18	36·50	57	24	38·28
May	67	26	47·75	79	24	49·03	71	26	45·72	70	26	48·09
June	74	31	54·56	77	26	54·19	81	30	56·44	77	32	58·31
July	82	41	62·33	84	35	61·54	81	43	62·99	85	39	63·14
August	80	33	61·00	84	40	62·84	81	34	63·04	85	37	63·76
September	78	31	54·59	84	33	56·25	78	32	56·49	80	31	57·53
October	72	28	55·28	69	20	47·02	68	24	48·11	75	20	46·44
November	65	10	38·09	60	7	33·59	57	19	38·46	60	3	32·26
December	55	0	27·50	51	−17	20·22	52	6	28·59	55	2	25·91

Month	1917			1918			1918			1920		
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
January	45	−23	15·83	39	−18	14·44	52	−13	20·99	26	−21	7·05
February	41	−16	9·57	50	−23	13·05	39	2	23·72	50	−16	19·77
March	56	− 7	27·38	49	−18	20·77	53	0	29·75	64	−14	24·85
April	59	20	37·63	67	14	36·98	60	20	38·65	60	18	36·71
May	57	28	41·51	80	24	51·41	75	24	48·40	75	24	48·30
June	82	32	59·21	80	30	55·84	84	31	58·38	78	30	56·54
July	85	85	64·64	81	38	63·98	85	33	64·83	83	44	64·49
August	84	47	67·38	80	33	60·10	80	38	63·17	87	39	66·02
September	78	29	53·69	81	30	57·51	78	33	56·80	78	31	57·48
October	69	29	48·05	67	23	46·84	64	20	43·11	75	26	50·04
November	58	3	31·70	56	12	34·63	60	7	35·98	60	10	31·79
December	49	−16	15·04	49	− 3	23·32	48	−18	17·44	50	− 7	24·84

TEMPERATURES RECORDED AT NAPPAN FROM 1909-1924—*Concluded*

Month	1921			1922			1923			1924			Monthly Mean	
	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Total	Average
January.....	50	— 9	18·82	47	—15	14·98	48	—26	12·95	47	—17	18·17	271·01	16·94
February.....	42	—17	15·68	43	—35	15·83	36	—20	7·44	40	—14	14·36	248·82	15·55
March.....	65	8	33·01	53	—11	29·48	44	—21	18·76	47	4	29·55	413·05	27·54
April.....	79	4	41·23	59	20	38·24	56	— 6	35·32	58	14	36·04	604·91	37·81
May.....	80	24	49·33	81	23	49·15	71	31	47·57	72	28	50·45	777·02	48·56
June.....	85	30	57·13	83	39	62·27	78	33	55·86	80	35	57·42	916·82	57·30
July.....	89	36	66·82	81	42	63·03	83	45	61·66	85	46	65·47	1024·87	64·05
August.....	80	38	60·66	83	44	64 43	78	40	60·42	85	42	63·33	1006·58	62·91
September....	85	30	58·31	78	29	55 48	76	31	55·52	75	32	55·37	894·26	55·89
October.....	74	18	47·00	74	24	46·09	73	23	48·76	68	19	45·62	757 09	47·32
November....	61	— 2	31·11	50	13	31·93	62	15	39·40	65	6	37·90	562·94	35·18
December.....	54	14	21·78	43	—15	17·96	56	— 2	29·71	50	— 9	18·98	362·11	22·63

PRECIPITATION RECORDS TAKEN AT NAPPAN FROM 1908–1924

Total precipitation for each month of the year for the past seventeen years with their averages

Month	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	Total for 17 years	Average for 17 years
	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.	in.
January	1·13	3·51	4·76	2·83	1·95	2·92	3·00	3·09	1·30	3·28	2·31	1·56	1·41	1·84	1·70	5·02	3·95	45·56	2·68
February	3·91	3·85	3·73	1·58	1·76	2·15	2·60	1·31	2·96	2·84	3·02	1·98	4·99	2·57	2·75	1·05	2·20	45·25	2·66
March	2·86	4·09	2·37	2·27	2·41	6·16	2·13	1·20	3·80	2·10	2·55	2·24	3·58	3·58	1·66	3·14	1·58	47·72	2·81
April	3·37	3·57	2·92	1·61	2·04	3·46	3·69	3·29	2·13	3·43	1·07	3·26	3·74	3·26	2·02	4·10	1·62	48·58	2·86
May	3·08	3·06	2·90	0·69	2·74	2·38	0·75	4·43	2·42	3·55	1·40	2·27	1·72	1·09	1·73	1·77	0·88	36·86	2·17
June	2·41	1·08	3·72	3·17	2·32	1·97	4·23	3·57	4·74	2·72	3·14	2·73	2·68	1·23	3·91	4·12	3·70	50·54	2·97
July	4·73	2·68	3·13	2·30	6·62	4·98	3·61	1·95	2·60	1·38	3·43	3·88	2·63	0·96	4·23	2·31	0·50	51·92	3·05
August	5·35	3·66	1·55	2·17	4·82	3·76	2·95	4·67	1·70	5·15	1·33	1·28	5·70	2·17	6·62	2·97	5·19	61·04	3·59
September	1·65	4·07	3·14	4·74	2·86	2·70	3·05	1·47	1·64	0·90	5·25	3·97	2·21	2·99	2·67	3·21	1·40	47·92	2·82
October	2·73	4·16	4·14	1·35	1·67	7·83	2·46	4·11	5·55	8·05	5·21	2·50	0·50	2·07	3·50	3·33	2·10	61·26	3·60
November	1·01	3·34	4·18	3·84	3·70	2·03	2·97	4·63	2·32	3·71	3·86	5·69	2·18	4·73	3·33	4·16	2·29	57·97	3·41
December	4·24	4·63	2·85	1·62	5·62	4·25	1·46	4·76	3·91	4·40	2·62	2·05	3·48	2·54	4·52	4·45	2·13	59·53	3·50
Totals	36·47	41·70	39·39	28·17	38·51	44·59	32·90	38·48	35·07	41·51	35·19	33·41	34·82	29·03	37·74	39·63	27·54	614·15	36·13

ANIMAL HUSBANDRY

The work of this division is divided into four main heads, namely cattle, sheep, swine, and horses. The object of maintaining live stock at this Farm is to collect data on cost of maintenance and production, likewise to study breeding problems. Marked progress along these lines has been made during the past season. The entire herd passed its fourth consecutive clean tuberculosis test during the year. On January 1, 1925, the following stock was on hand:—

PURE-BRED BREEDING STOCK

Guernseys	13 milch cows,	12 heifers,	8 bulls
Shorthorns	1 " "	6 "	3 "
Ayrshires			2 "
Holsteins			1 "

GRADE BREEDING STOCK

Holsteins	15 milch cows,	12 heifers
Ayrshires	11 " "	14 "

EXPERIMENTAL FEEDERS

Grade Shorthorns and Herefords	25 steers

GUERNSEYS

Marked progress has been made in the breeding work with Guernseys and some very promising young females and males have been dropped. The main object in this breeding work is to increase the standard of production and, at the same time, maintain a high butter-fat test. With this thought in mind, all cows are kept in R.O.P. work. Some very creditable records have been made up to date, as will be noted from the records of the following list of cows that have qualified.

GUERNSEYS QUALIFYING IN R.O.P.

Name	Age	Days in milk	Pounds milk	Per cent fat	Pounds fat
King's Blanche of Hillside	5	365	12,230	6·23	752
King's Blanche of Hillside	6	365	11,826	5·93	702
King's Blanche of Hillside	8	311	9,009	5·45	491
King's Blanche of Hillside	9	308	9,346	5·27	493
Cabbage Rose of Hillside	3	355	7,307	5·35	391
Cabbage Rose of Nappan	2	365	6,098	6·10	372
Patricia of Stannox	2	353	5,981	5·58	334
Princess Dairymaid 2nd	3	357	7,581	5·53	419
Princess Daisy of Hillside	4	348	8,026	5·18	416

4961—2½

The following table gives the complete record of King's Blanche of Hillside —1048—for each of her four full lactation periods, with production, feed cost and profit over feed cost:—

KING'S BLANCHE OF HILLSIDE AND HER RECORDS

Age	Days in milk	Pounds milk produced	Per cent butter-fat	Pounds butter 80 per cent fat produced	Cost of feed per period	Profit over cost of feed
					$ cts.	$ cts.
5 years 40 days	571	15,230·7	6·35	1,137·82	355 36	427 01
6 years 356 days	387	11,979·0	6·25	880·81	190 83	227 99
8 years 62 days	311	9,008·7	5·52	621·60	99 81	178 28
9 years 79 days	309	9,345·5	5·3	619·11	124·53	140 73
	1,578	45,563·9	5·55	3,259·34	770 53	974 01

Her average production is 5.69 tons milk yielding 0.407 tons butter per year, returning a net profit over feed cost of $243.50.

A very promising junior yearling bull, a son of King's Blanche of Hillside and sired by Mixter May Raider, the senior herd sire (the pedigree of which is given in full in our 1922 report), is being retained in the herd to combine the four outstanding qualities of King's Blanche (size, capacity, heavy milk production and high fat test) with those of Glamour's Fisherman of Nappan (smoothness, size and possibilities of production). By mating a son of King's Blanche with daughters of Glamour's Fisherman, exceptionally good results should be obtained.

Along with the increased demand of the consuming public for a better product has come a demand for a dairy cow that will give a richer product in sufficient quantity to make her a good commercial proposition. Judging by the increased demand for Guernsey females each year, it would seem that the Guernsey cow is fulfilling the above requirements to a very large degree. However, to assure permanency of this growing popularity, the Guernsey breeders should pay careful attention to their breeding operations, and while to breed for production alone is not advised, nevertheless it would seem advisable to make the production end the major factor, developing with it, as far as possible, a breed with size, smoothness and capacity.

INDIVIDUAL MILK RECORDS COMPLETED DURING YEAR—GUERNSEYS

Name of cow	Date of dropping calf	Age at beginning of period	Number of days in milk	Total pounds of milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds of butter produced in period	Value of butter at 40 cents per pound	Value of skim-milk at 20 cents per cwt.	Total value of product	Amount of meal eaten at $1.90 per cwt.	Amount of roots and ensilage eaten at $3.50 per ton	Amount of hay eaten at $9 per ton	Amount of green feed eaten at $3.50 per ton	Months on pasture at $2 per month	Total cost for period	Cost of feed to produce 100 pounds milk	Cost of feed to produce one pound butter, skim-milk neglected	Profit on one pound butter, skim-milk neglected	Profit on cow for period, labour and calf neglected
		yrs.						$ ct.	$ cts.	$ cts.	lbs.	lbs.	lbs.	lbs.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Cabbage Rose of Hillside–1909	June 22, 1923	6	301	4,962·4	16·49	5·2	322·50	129 00	9 41	138 41	2,615	5,210	3,637	1,279	3 3/5	84 67	1 71	26	14	53 74
Cabbage Rose of Nappan–2715	Nov. 10, 1923	2	364	6,094·5	16·74	6·12	466·33	186 53	11 44	197 97	2,834	6,262	3,728	2,183	3 9/10	93 31	1 53	20	20	104 66
King's Blanche of Hillside–1048	Jan. 10, 1924	9	309	9,345·5	30·24	5·3	619·14	247 56	17 70	265 26	4,318	7,427	3,948	2,183	3 9/10	124 53	1 33	20	20	140 73
Princess Daisy of Hillside–2039	July 3, 1923	7	392	6,911·5	17·60	5·31	459·18	183 67	13 09	196 76	3,225	6,922	3,993	1,367	5 1/15	103 95	1 50	23	17	92 81
Princess Daisy L. K. of H. 2nd –2041	Oct. 27, 1923	3	332	4,174·2	12·57	6·33	330·55	132 22	7 82	140 04	2,381	6,262	3,618	2,384	4 13/30	85 64	2 05	26	14	54 40
Princess Dairymaid of L. K. 4th –2044	Nov. 8, 1923	3	293	3,069·7	10·47	6·19	237·48	94 99	5 76	100 75	2,302	6,262	3,558	2,026	3 11/15	81 82	2 67	34	6	18 93
Princess of Stannox –2120	Oct. 8, 1923	7	340	4,846·6	14·22	5·19	314·84	125 94	9 19	135 13	2,371	6,132	3,558	2,396	4 2/15	84 37	1 74	27	13	50 76
Patricia of Stannox –2125	Jan. 3, 1924	3	366	6,669·3	18·22	5·66	471·94	188 78	12 58	201 36	2,995	7,262	4,388	2,183	3 27/30	101 09	1 52	21	19	100 27
Queen Sherhorn of Nappan–2716	Dec. 27, 1923	2	315	4,288·3	13·61	5·42	290·49	116 20	8 11	124 31	2,384	5,492	3,136	2,183	3 13/30	79 81	1 86	27	13	44 50
Total for herd 9 cows			3,012	50,362·0	150·16	50·72	3,512·45	1,404 89	95 10	1,499 99	25,425	57,231	33,564	18,184	36 1/10	839 19				660 80
Average for herd 9 cows			334	5,595·78	16·68	5·63	390·27	156 10	10 57	166 66	2,825	6,359	3,729·3	2020·4	4·01	93 24	1 67	24	16	73 42

The average butter-fat test of nine cows that have completed their lactation periods was 5.63 per cent, yielding 390.25 pounds butter, the average feed cost per one hundred pounds milk produced was $1.67 and the average profit over feed cost was $73.42. The following is a financial statement of the nine cows completing their year:—

To Feed Cost for Nine Cows and their Calves for One Year

25,425 pounds meal at $38 per ton	$ 483 08	
57,231 pounds roots and silage at $3.50 per ton	100 15	
33,564 pounds hay at $9 per ton	151 04	
18,184 pounds green feed at $3.60 per ton	32 73	
36 1-10 month's pasture at $2 per month	72 20	
12 tons straw at $4 per ton	48 00	
Nine bull services at $5	45 00	
Cost of feed for 9 calves up to 1 year	469 94	
		$ 1,402 14
Credit from 9 cows—		
3,512.22 pounds butter at 40 cents per pound	$ 1,404 89	
47,550 pounds skim milk at 20 cents per cwt	95 10	
8 heifer calves 1 year old	1,200 00	
1 bull 1 year old	100 00	
135 tons manure at $2 per ton	270 00	
		$ 3,069 99
Credit balance from 9 cows		$ 1,667 85

GRADE DAIRY HERD

The grading up of the dairy herd by the use of pure-bred sires from high producing dams has been carried on for thirteen years and will be completed at the end of the year 1925, when data collected to date will be compiled in bulletin form. The individual records completed during 1924 for the grade herd are given in the accompanying table:—

Comparison of Dams and Progeny at Same Age

—	Ayrshires		Holsteins	
	Dam	Progeny	Dam	Progeny
Number of cows	10	10	13	13
Lactation period	.....	1924	.....	1924
Average days in milk	269·6	280·4	325·1	302·5
Pounds of milk	4,452·4	5,410·5	5,678·5	6,530·9
Daily average pounds	16·51	19·26	17·47	21·59
Average test per cent	4·41	4·5	3·83	3·86
Pounds of butter	230·42	286·99	257·51	298·52
Feed cost	$ 48·73	48·09	57·02	53·46
Profit over feed	$ 29·10	48·34	30·99	48·65
Average increase in milk over dams in pounds	.....	958·09	.....	852·43
Per cent increase in milk over dams in pounds	.....	21·52	.....	15·01
Average increase in butter, in pounds	.....	56·57	.....	41·01
Per cent increase in butter	.....	24·55	.....	15·93
Increase in profit per cow	$.....	19·24	.....	17·66
Per cent progeny superior to dam	.....	90	.....	53·85
Per cent progeny equal to dam	.....	.....	.....	15·38

Grade Herd Production

Lactation periods completed in 1924

Name of cow	Date of dropping calf	Number of lactation period	Number of days in milk	Total pounds milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds of butter produced in period	Value of butter at 30 cents per pound	Value of skim-milk at 20 cents per cwt.	Total value of product	Amount of meat eaten at 1½ cents per pound	Amount of roots and ensilage eaten at $2 per ton	Amount of hay eaten at $7 per ton	Amount of green feed eaten at $3 per ton	Months on pasture at $1 per month	Total cost of feed for period	Cost of feed to produce 100 pounds milk	Cost of feed to produce one pound butter, skim-milk neglected	Profit on one pound butter skim-milk neglected	Profit on cow for period, labour and calf neglected
					lbs.			$	$	$	lbs.	lbs.	lbs.	lbs.		$	$	c.	c.	$
Ayrshires—																				
Bell 1AS11	Mar. 17, 1922	3	294	6,208·3	21·1	4·3	314·07	94·22	11·88	106·10	2,156	4,750	2,946	1,279	4 1/3	48·26	0·78	15	15	57·84
Bell 1AS12	Mar. 19, 1924	3	25[illegible]	5,748·2	22·72	4·9	331·36	99·41	10·93	110·34	2,029	5,176	3,388	2,183	3 29/30	49·64	0·86	15	15	60·70
Jessie 1A5	Dec. 24, 1923	5	299	7,613·7	25·5	4·5	403·08	120·92	14·54	135·46	2,486	6,381	3,659	1,620	3 29/30	56·67	0·74	14	16	78·79
Jessie 1A51	June 13, 1923	2	305	6,152·8	20·17	4·7	340·21	102·06	11·73	113·79	2,043	5,280	3,478	1,279	4 1/3	49·24	0·80	14	16	64·55
Jessie 1A52	Mar. 18, 1922	1	293	4,021·6	13·7	4·5	212·91	63·87	7·68	71·55	1,778	3,365	2,516	1,279	4 1/3	40·65	1·01	19	11	30·90
Jessie 1A52	Mar. 11, 1924	2	268	5,077·2	18·94	4·52	269·99	81·00	9·70	90·70	1,922	5,191	3,401	2,183	3 29/30	48·36	0·95	18	12	42·34
Jessie 1A122	Mar. 21, 1923	2	258	4,380·8	16·7	4·4	226·77	68·03	8·38	76·41	1,508	3,155	2,488	1,279	4 1/3	36·96	0·85	16	14	39·45
Myrtle 1A112	May 16, 1923	3	262	4,803·0	18·07	4·3	242·98	72·89	9·19	82·08	1,851	4,575	3,066	1,279	4 1/3	44·70	0·93	18	12	37·38
Myrtle 1A113	April 10, 1924	3	272	4,724·3	17·39	4·06	225·65	67·70	9·07	76·77	2,064	5,997	4,045	2,183	3 29/30	53·20	1·13	24	06	23·57
Spot 1A42	Mar. 8, 1924	3	300	5,374·7	17·91	4·79	302·88	90·86	10·23	101·09	2,096	5,896	3,965	2,183	3 29/30	53·21	0·99	18	12	47·88
Holsteins—																				
Jessie 1H4	Mar. 27, 1923	3	376	12,788·2	34·07	4·08	610·82	183·25	24·54	207·79	3,794	7,095	4,479	1,279	4 1/3	76·45	0·60	13	17	131·34
Jessie 1HS2	July 20, 1923	3	288	6,450·4	22·4	4·0	303·55	91·07	12·38	103·45	2,209	5,280	3,543	1,279	4 1/3	51·54	0·80	17	13	51·91
Jessie 1HS3	April 16, 1923	1	354	8,442·4	23·8	3·9	387·36	116·21	16·23	132·44	2,882	5,045	3,503	1,279	4 1/3	59·58	0·71	15	15	72·86
Myrtle 1H4	Nov. 15, 1923	5	290	10,348·8	35·68	3·82	455·03	139·59	19·91	159·49	2,959	5,786	3,744	2,135	3 29/30	63·05	0·61	13	17	96·38
Myrtle 1H42	April 15, 1922	1	309	6,416·7	20·8	4·0	301·96	90·59	12·32	102·91	2,656	5,400	3,825	1,279	4 1/3	58·24	0·97	19	11	44·67
Myrtle 1HS3	Feb. 18, 1924	3	278	5,981·1	21·51	3·77	265·28	79·58	11·51	91·09	2,299	5,801	3,873	2,183	3 29/30	55·33	0·92	21	9	35·76
Myrtle 1HS4	Mar. 10, 1923	1	344	5,735·9	16·67	3·9	263·18	78·95	11·02	89·97	3,047	6,840	4,575	1,279	4 7/12	67·44	1·17	25	5	22·53
Myrtle 1HS21	April 13, 1923	1	311	5,082·2	16·3	3·8	227·20	68·16	9·78	77·94	2,202	4,225	3,465	1,279	4 1/3	50·13	0·98	22	8	27·81
Spot 1H12	June 9, 1923	4	299	8,707·4	29·12	3·9	399·52	119·86	16·74	136·60	2,202	4,850	3,544	1,279	4 1/3	51·03	0·59	13	17	85·57
Spot 1H12	May 16, 1924	5	185	5,641·3	30·5	3·7	245·56	73·67	10·86	84·53	1,575	2,671	1,986	2,183	3 29/30	36·55	0·65	15	15	47·98
Spot 1H122	Apirl 12, 1923	1	355	4,351·0	12·26	3·9	199·63	59·89	8·36	68·25	2,008	4,440	3,523	1,279	4 1/3	48·12	1·11	24	6	20·13
Spot 1H122	April 27, 1924	2	197	4,152·6	21·08	3·62	176·85	53·06	8·00	61·03	1,278	2,561	1,820	2,183	3 29/30	32·15	0·77	18	12	28·91
Spot 1H22	Jan. 28, 1924	3	287	5,329·1	18·6	3·9	244·51	73·35	10·24	83·59	2,182	5,516	3,500	2,183	3 29/30	52·28	0·98	21	9	31·31
Spot 1H222	April 12, 1924	1	217	3,741·0	17·2	3·55	156·24	46·87	7·22	54·09	1,249	2,201	1,708	2,183	3 29/30	31·03	0·83	20	10	23·05
Spot 1H32	May 24, 1923	2	326	6,082·1	18·66	3·9	279·06	83·72	11·69	95·41	2,056	4,945	3,629	1,279	4 1/3	49·60	0·82	18	12	45·81

Note.—Prices used in above table are not in keeping with present day prices. These prices are kept constant from year to year, in order that a fairer comparison may be made of progeny with their dams at same age.

From the preceding figures, it may be noted that the progeny on the average show a marked superiority over dams both in production and per cent fat. The percentage of daughters running superior to dams is higher in Ayrshires than in Holsteins which may be accounted for in some degree by numbers.

The following table gives the actual feed requirements and feed cost to produce 100 pounds milk from the grade herd for one year, using market or cost of production prices of feeds consumed. The table is divided off in weekly periods and is an interesting study of the costs at different periods of the year.

The feeding requirement and feed cost figures should be of interest to dairymen as it gives a fair idea of the cost of producing 100 pounds of milk for the different periods of the year and also shows how cheaply milk can be produced during the summer months. July was very dry, the pastures dried up, and green feed was supplied, which naturally increased the cost; but the rains during August brought on the afterfeed and we had two splendid fields of clover on which the dairy cows were run in September. Note the reduction in cost of milk. It will pay to renew the old pastures and have them produce an abundance of good clover for the dairy herd.

MONTHLY FEED COST OF MILK PRODUCTION

Week ending	Cows	Feeds required per 100 lb. milk					Feed cost per 100 pounds milk
		Meal	Roots	Hay	Ensilage	Pasture	
	No.	Lb.	Lb.	Lb.	Lb.	Days	$ cts.
Jan. 5	20	41·9	117·8	77·4	.....	.....	1 44
" 12	18	38·8	123·0	72·2	.....	.....	1 23
" 19	19	41·0	138·4	74·6	.....	.....	1 28
" 26	19	42·6	158·3	79·9	.....	.....	1 36
Feb. 2	19	41·1	157·5	79·4	.....	.....	1 33
" 9	17	37·3	138·4	70·0	.....	.....	1 24
" 16	17	39·3	144·8	73·1	.....	.....	1 22
" 23	15	34·8	133·9	66·9	.....	.....	1 12
Mar. 1	16	36·7	128·3	65·6	.....	.....	1 15
" 8	16	33·5	121·5	64·7	.....	.....	1 07
" 15	19	33·5	121·5	63·6	.....	.....	1 07
" 22	18	31·4	24·1	58·9	76·6	.....	1 01
" 29	19	33·3	26·0	64·3	101·7	.....	1 11
April 5	19	31·9	24·4	60·4	76·3	.....	1 03
" 12	18	30·4	24·1	56·5	70·4	.....	1 00
" 19	18	29·6	.....	53·2	102·3	.....	0 99
" 26	22	30·5	.....	55·9	107·3	.....	1 05
May 3	23	29·6	.....	53·4	102·7	.....	1 00
" 10	22	28·2	.....	50·7	144·0	.....	1 04
" 17	24	28·9	.....	51·6	145·9	.....	1 07
" 24	26	37·3	.....	52·3	148·0	.....	1 11
" 31	27	32·0	.....	70·5	101·0	.....	1 08
June 7	28	34·9	.....	55·2	108·4	.....	1 09
" 14	29	30·4	.....	34·8	52·4	.....	0 96
" 21	29	20·9	.....	26·2	32·7	3·3	0 78
" 28	29	19·1	.....	.....	25·2	3·2	0 60
July 5	29	17·7	.....	.....	16·9	3·4	0 58
" 12	29	15·2	.....	.....	17·4	3·5	0 54
" 19	29	15·3	.....	.....	Green Feed	3·7	0 52
" 26	29	15·1	.....	.....	137·0	4·1	0 82
Aug. 2	29	17·0	.....	.....	139·0	4·4	0 88
" 9	29	17·5	.....	.....	161·0	4·6	0 95
" 16	29	19·6	.....	.....	245·7	5·2	1 02
" 23	29	20·3	.....	.....	180·0	5·3	1 08
" 30	29	21·4	.....	.....	178·9	5·5	1 12
Sept. 6	29	25·5	.....	.....	169·6	5·7	1 18
" 13	29	26·5	.....	.....	120·5	6·0	1 12
" 20	28	26·2	.....	35·3	.....	5·9	1 03
" 27	29	25·1	.....	.....	.....	5·5	0 82
Oct. 4	29	28·0	.....	.....	.....	5·4	0 87
" 11	29	39·3	.....	46·8	.....	5·8	1 26
" 18	28	47·6	100·5	84·4	61·3	.....	1 49
" 25	28	49·3	.....	86·1	293·3	.....	1 85

MONTHLY FEED COST OF MILK PRODUCTION—*Concluded*

Week ending	Cows	Feeds required per 100 lb. milk					Feed cost per 100 pounds milk
		Meal	Roots	Hay	Ensilage	Pasture	
Nov. 1	28	45·6	.....	79·7	253·4	.....	1 68
" 8	28	47·8	139·3	83·6	.....	.....	1 43
" 15	26	50·0	143·0	87·7	.....	.....	1 49
" 22	24	53·3	163·6	94·1	.....	.....	1 61
" 29	22	59·3	164·3	94·3	.....	.....	1 72
Dec. 6	21	57·9	159·4	121·7	.....	.....	1 82
" 13	21	59·4	161·4	123·2	.....	.....	2 13
" 20	21	55·4	153·9	114·9	.....	.....	1 94
" 27	21	60·0	164·6	122·9	.....	.....	2 09

BEEF CATTLE—SHORTHORNS

Owing to the light demand for beef Shorthorns and shortage of barn space, this herd is gradually being reduced in size to make room for the young Guernsey females that are coming on. Market prices of beef cattle have continued low on the local markets, thus offering poor inducement to the beef raiser in this section to expand his work. Unfortunately, a very high percentage of the beef steers raised through this section are not sufficiently well bred for export trade and, as the following data will show, it does not pay to ship anything but well-bred steers to the British market. The transportation charges are so high that unless the steers are of high order the returns will be disappointing. The major part of the work with beef cattle will be confined to the winter finishing of steers on different feeds and making a few trial shipments of export steers.

RESULTS OF THE FIRST TRIAL SHIPMENT SINCE THE EMBARGO WAS LIFTED, OF TWENTY EXPORT STEERS FED AT THIS FARM

Dr.

Transportation charges:—		
Freight on 20 steers Nappan to Halifax, cleaning car		$ 48 75
Stock-yard charges at Halifax, 20 steers at 95c		19 00
Roping, branding, tagging and loading 20 steers at $1.71		34 20
Expenses on ship:—		
Hay, straw, feed, pails, etc., at $5.06 each		101 20
Boat freight:—		
Halifax to Cardiff, 20 steers at $20		400 00
Insurance, 20 steers at $140 each at ¾ per cent		24 60
Commission charges in England 20 steers at $3.86		77 20
Total cost		$ 704 95
Cost per steer		35 25
Cost per 100 pounds, 23,621.75 lbs		2 98

Cr.

Sale of steers in England:—		
10 steers to L. Cross, Durley Manor, at £27 10s		$ 1,221 00
10 steers to J. Sharpe, Norfolk, at £25		1,110 00
		$ 2,331 00
Less transportation charges, etc		704 95
Total returns for 20 steers		$ 1,626 05
Total returns per steer		81 30
Total returns per 100 pounds		6 88
Net returns on 23,621.75 pounds at $6·8837 per cwt	$ 1,626 05	
Original cost of 20 steers, 21,263 pounds at 5c	1,063 15	
Gross profit on 20 steers fed	562 90	
Gross profit on 1 steer fed	28 15	
Feed cost per steer for 3 months	23 42	
Profit over feed per steer	4 73	

Mr. Charles Logan, of Amherst Point, shipped fifteen good grade steers along with the Farm shipment and he received £26 0s. 10d. per steer. This netted him about $6.75 per hundred weight f.o.b. car Nappan. Had it not been for two steers in this lot that showed a little Holstein breeding, his steers would have realized a few shillings more. Mr. John Wood, of Amherst Point, also shipped ten steers along in the same shipment. They were a nice bunch of steers and well finished, but owing to the fact that a few showed dairy blood, eight sold at £24 and two of the plainer ones were killed and brought £30 5s. 2d. netting Mr. Wood about $5.52 per hundred f.o.b. car. The first two lots brought about 75 cents per hundred more than was offered at that time on the local markets. The third lot would have brought from 5¾ to 6 cents on the local markets. The steers that demand the price and find a ready market are broad across the loin, deep, low-set beef type, uniform in size and colour.

EXPERIMENTAL FEEDING WORK

TUURNIPS VERSUS CORN, SUNFLOWERS AND O.P.V. ENSILAGE

To ascertain the feeding value in producing 100 pounds milk with the four main succulents, two feeding tests were conducted during the winter of 1923-24. Six cows were used in the first test which compared turnips with sunflower ensilage. Seven and eleven cows respectively were used in test No. 2 (turnips versus sunflower versus corn versus O.P.V. ensilage). Each feeding period lasted for three weeks, but the production of the third week only was used. The hay and meal rations were kept constant for all groups.

COST OF RAISING CALVES—PURE-BRED AND GRADES

		Guernseys		Grades	Shorthorns	
		Bulls	Heifers	Heifers	Bulls	Heifers
Number of animals		1	8	13	5	2
Average number days fed		365	365	365	345	365
Pounds whole milk consumed		1,477	12,170	9,035	.....	.....
Pounds skim milk consumed		2,722	22,756	41,778	.....	.....
Pounds meal consumed		798	5,791	12,104	3,057	1,222
Pounds roots and silage consumed		1,141	9,326	13,814	6,125	1,805
Pounds hay consumed		1,256	11,831	20,376	7,817	2,677
Pounds green feed consumed		.....	298	2,056	888	244
Feed cost of cows when suckling calves	$	.....	.....	.....	373 43	142 95
Total cost	$	51 48	418 46	515 22	473 34	179 59
Average cost	$	51 48	52 31	39 63	94 67	89 80
Feed Prices.						
Whole milk, per cwt	$	.....	1 67	1 15	.....	.....
Skim-milk, per cwt	$	.....	0 20	0 20	.....	.....
Meal, per cwt	$	.....	1 72	1 72	1 72	.....
Roots and silage per ton	$	.....	3 50	3 50	3 50	.....
Green feed per ton	$	.....	3 60	3 60	3 60	.....
Hay, per ton	$	.....	9 00	9 00	9 00	.....

COST OF REARING YEARLING HEIFERS

—	Guernseys Heifers	Grade Heifers	Shorthorns Heifers
Number of animals	1	17	4
Average number days fed	374	351	365
Pounds meal consumed	1,097	18,522	4,170
Pounds roots and silage consumed	3,055	34,597	10,590
Pounds hay consumed	2,758	31,276	7,904
Months on pasture	2 13/30	79 1/10	19 1/3
Total cost	$ 43 13	711 38	172 00
Average cost	$ 43 13	41 85	43 00

Prices used:
Meal, per cwt., $1.90.
Roots and silage per ton, $3.50.
Hay, per ton, $9.00.
Pasture, per month, $2.00.

The following is the feed cost of maintaining six Shorthorn cows during 1924:—

	lbs.
Average pounds meal consumed	2,191·5
Average pounds hay consumed	4,705·0
Average pounds roots and silage consumed	7,687·5
Average pounds green feed consumed	2,180·0
Average cost per cow	$80 18

TURNIPS VERSUS SUNFLOWER SILAGE FOR MILK PRODUCTION, 1924

—	Period 1 Turnips	Period 2 Sunflower silage	Period 3 Turnips	Average of periods 1 and 3
Number of cows in test	6	6	6	6
Pounds milk produced	851·5	704·1	786·3	818·9
Average pounds milk per cow per day	20·27	16·76	18·72	19·5
Average per cent butter fat	5·0	4·8	5·0	5·0
Total pounds fat produced	42·58	33·8	39·32	40·95
Average pounds fat per cow per day	1·01	0·8	0·93	0·97
Total pounds meal consumed	350	350	350	350
Total pounds roots	1,330	.....	1,330	1,330
Total pounds silage	.....	1,050	.....	.....
Total pounds hay	630	630	630	630
Pounds meal consumed per 100 pounds milk produced	41·1	49·7	44·4	42·7
Pounds silage and roots consumed per 100 pounds milk produced	156·2	149·1	169·1	162·4
Findings from experiment:—				
Cost of meal mixture at $1.82 per cwt	$ 6 37	6 37	6 37	6 37
Cost of roots at $2.95 per ton	$ 1 96	.....	1 96	1 96
Cost of silage at $3.60 per ton	$	1 89	.....	.....
Cost of hay at $9 per ton	$ 2 84	2 84	2 84	2 84
Total cost of feed	$ 11 17	11 10	11 17	11 17
Cost of feed to produce 100 lb. milk	$ 1 31	1 575	1 42	1 36
Cost of feed to produce 100 lb. butter-fat	$ 26 23	32 84	28 40	27 30

Taking the average of the two root-feeding periods, one fed previous to and one following sunflowers, we have a daily average production of 19.5 pounds per cow per day, while the average for the sunflower period was 16.76 pounds, an increase of 2.74 pounds of milk per day in favour of roots. The cost per hundred pounds of milk was also 21.5 cents less for turnips than for sunflowers which is partly due to the fact that sunflowers ran higher in cost of production.

It is also found that roots produced 114.8 pounds, or 13.7 per cent, more milk and 7.15 pounds, or 15 per cent, more fat than sunflowers. In this test, 1,330 pounds roots proved equal to 56 pounds meal, 103 pounds hay and 1,221

pounds sunflowers, which, at prices charged for other feed, gives roots a valuation of $5.52 per ton. As the deductions are taken from only one year's test, they cannot be taken as conclusive. This work will be continued for four or five years and the average given.

STEER-FEEDING EXPERIMENT USING TIMOTHY AND MARSH HAY

To determine the relative value of the native marsh hay better known as broadleaf and good timothy in the finishing of beef steers, twenty steers were purchased, dehorned, and put on feeding test December 31, 1923. They were divided in two lots of ten each and selected as uniformly as possible.

Roots were fed at the rate of 30 pounds per steer per day, and the grain ration during the first seven weeks consisted of 3 parts bran, 1½ parts shorts, 3 parts crushed oats and 1 part oil meal. The finishing ration was 2 parts bran, 3 parts crushed oats, 1 part each oil meal and corn meal. The meal was fed at the rate of 3 pounds per steer per day at the start, and increased one pound per week for the first four weeks, remaining at 7 pounds for three weeks, and then again increased one pound per week until 10 pounds per steer per day was reached.

STEER FEEDING EXPERIMENT, 1924

——		Pen 1 Broadleaf	Pen 2 Timothy
Number of steers in test		10	10
Initial weight, December 31, 1923, gross, pounds, at start		11,160	10,580
Initial weight, average, pounds, at start		1,116	1,058
Finished weight, March 31, 1924, gross, pounds, 91 days		12,040	12,076
Finished weight, average, pounds, 91 days		1,204	1,207·6
Total pounds gain in 91 days		880	1,496
Average pounds gain in 91 days		88	149·6
Average pounds daily gain		0·967	1·644
Total pounds hay consumed		16,380	15,015
Average pounds hay consumed per steer per day		18	16·5
Total pounds roots consumed		27,300	27,300
Total pounds grain consumed		7,510	7,510
Average pounds grain consumed per steer per day		8·25	8·25
Total cost of hay, broadleaf $5, English $9 per ton	$	40 95	67 57
Total cost of roots at $2.95 per ton	$	40 27	40 27
Total cost of grain at $1.86 per cwt	$	139 69	139 69
Total cost of feed	$	220 91	247 53
Total cost of feed per pound gain	cts.	25·1	16·5
Initial cost of steers at $5 per cwt	$	558 00	529 00
Final value of steers at $6.88 per cwt	$	828 35	830 83
Value of spread plus gain	$	270 35	301 83
Increase over cost of feed, total	$	49 44	54 30
Increase over cost of feed, average	$	4 944	5 43
Increased return per steer over cost of feed in favour of lot No. 2	$	.....	0 49

From a study of the table it will be noted that the ten steers receiving timothy hay made an average daily gain of 0.677 pounds per steer more than lot 1, which was fed broadleaf. It is well to state that a portion of the difference may be accounted for in the individuals. Three steers in lot 1 did not do well, their average daily gain being only 0.50 pounds per steer against the other seven in the same lot making an average daily gain of 1.17 pounds per steer. The steers in lot 2 receiving timothy all made fairly uniform gains, their average daily gains being 1.644 pounds per steer, consequently one cannot draw definite deductions from the one year's test. This test is being continued for at least three years.

DEHORNING TEST, 1924

Fourteen yearling heifers were dehorned on April 17, 1924. The following data give the average weights before and after dehorning and the gain or loss in three weeks:—

	pounds
Average weight before dehorning	615·7
Average weight in three weeks	613·9
Average gain or loss in three weeks	−1·8

The average loss per animal is practically nothing and is more than made up in the ease with which stock may be handled and the freedom from injury out in the fields.

SWINE

Two herds of swine are maintained at this Farm, numbering in all 116 head, including 95 Yorkshires and 21 Berkshires. Special attention is given to the development of the bacon type of hog in the Yorkshires as well as Berkshires. Data on feeds and feeding, cost of production and cost of maintenance are compiled from each of the breeds. The season of 1924 has been more or less disappointing to the swine breeders, as prices dropped lower than for 1923—contrary to all expectations. Nevertheless, the breeder should not feel discouraged for, as the following figures will show, with average production from their sows, a fair sale of young breeding stock, and the balance finished, their pigs would at least convert many of the waste products of the farm into ready cash. The twelve Yorkshire sows dropped eighteen litters during the year, and the three Berkshires dropped four litters. The most of these were finished on the Farm as the demand for breeding stock was much lighter than usual owing to the low price of pork. The following is a summarized financial statement of the twelve Yorkshire sows and three Berkshire sows:—

FINANCIAL STATEMENT OF BROOD SOWS

Average pounds meal per day	Average cost of feed per sow for one year	Average number of pigs per litter	Average number raised	Average per cent raised	Average cost at six weeks	Average value of litter at six weeks
	$ cts.				$ cts.	$ cts.
12 Yorkshires—6·2	42 39	11·06	7·44	67·27	3 80	46 78
3 Berkshires—6·1	42 42	7·75	7·75	100·0	4 10	48 50

	Twelve Yorkshires	Three Berkshires
	$ cts.	$ cts.
Average value per pig at six weeks	6 29	6 26
Average profit per pig over cost of feed	2 49	2 16
Average profit per sow over cost of feed	26 11	22 25
Total profit over feed cost from sows	333 29	66 75

The grain mixture fed to these sows was 100 pounds bran, 200 pounds oats or mixed grain, 200 pounds shorts and 40 pounds oil meal. The prices used in compiling the table figures were: grain mixture, $1.74 per cwt., skim milk 20 cents per cwt., roots $2.95 per ton and pasture at 50 cents per month.

FINANCIAL STATEMENT OF FEEDS FOR THE SWINE HERD, 1924
(Fifteen Brood Sows, One Boar and Progeny)

Feed Cost

To 33,914 pounds grain to brood sows and boar at $1.74 per cwt.	$ 590 10	
53,371 pounds grain to experimental feeders at $1·824 per cwt.	973 49	
3,500 pounds grain to increased stock on hand at $1.74 per cwt.	61 00	
5,250 pounds grain to feeders from 6 weeks of age to start of feeding test at $1.82 per cwt.	95 55	
1,000 pounds tankage at $53 per ton.	26 50	
852 pounds fish meal at $100 per ton.	42 60	
1,000 pounds bone meal at $53 per ton.	26 50	
1,635 pounds whole milk at $1.50 per cwt.	24 53	
3,528 pounds green feed at $4 per ton.	7 06	
6,385 pounds apples at $2 per ton.	6 39	
48,415 pounds skim milk at 20c per cwt.	96 83	
15,223 pounds roots at $3.90 per ton.	29 68	
24,000 pounds straw at $4 per ton.	48 00	
Pasture—16 head, 2 months at 50c per month.	16 00	
	$ 2,044 23	

Credit

By sale of 126 carcasses pork—		
12,371 pounds dressed at 11 cents.	$ 1,360 81	
4,318 pounds dressed at 10¾ cents.	464 19	
73 pounds dressed at 10 cents.	7 30	
70 pounds dressed at 12 cents.	8 40	
577 pounds dressed at 9 cents.	51 93	
557½ pounds live weight at 8 cents.	44 60	
200 pounds live weight at 7 cents.	14 00	
Sale of 1 non-registered boar.	15 00	
Sale of 1 non-registered boar.	8 00	
Sale of 1 non-registered sow.	25 00	
Sale of 1 registered boar.	12 00	
Sale of 11 registered boars and sows at $10.	110 00	
Sale of 15 non-registered boars and sows at $6.	90 00	
Increase of 3 brood sows at $25.	75 00	
Young feeders on hand, 55 at $6.	330 00	
71 tons manure at $1.	71 00	
Profit over feed cost for year, $643.	$ 2,687 23	

FEED COST OF RAISING PIGS TO SIX WEEKS OF AGE AND OF PRODUCING PORK

Feed cost of young pigs at 6 weeks

To feed for 15 sows, average yearly cost of feed $42.396.	$ 635 94		
22 boar services at $1.	22 00		
7,500 pounds straw at $4 per ton.	15 00		
		$	672 94
By 15 tons manure at $1.			15 00
Total feed cost of 165 pigs at 6 weeks.			657 94
Total feed cost of 1 pig at 6 weeks.			3 99

Feed cost to produce one pound pork

To cost of 105 pigs at 6 weeks at $3.99.	$ 418 95		
Feed for 105 pigs until beginning of feeding test.	84 84		
Feed for 105 pigs for 127 days on feeding test.	1,178 39		
5 tons starw at $4 per ton.	20 00		
		$	1,702 18
By 12 tons manure at $1.			12 00
Total feed cost to produce 14,387 pounds pork.			1,690 18
Total feed cost to produce 100 pounds pork.			11 74
Total feed cost to produce 1 pound pork.			0·117

NOTE:—The market price of pork ranged from 10 to 12 cents per pound while the average for the year was 11 cents, thus showing the cost of production to be slightly more than the average market value. This increase in cost of pork production over the previous year is due to two factors, (1) the increase cost of mill feeds, which not only increased the cost of maintaining the brood sows but likewise increased the cost per pound gain by nearly 2 cents and (2) the number of pigs raised. If there had been sufficient accommodation for feeding a larger number of pigs, the same number of sows would have raised them within the year, thus reducing the cost per pig at six weeks by $1 per pig.

GREEN FEED, BARLEY AND CORN EXPERIMENT

Thirty-five hogs were started on test in July, five pens of seven each were fed and treated as follows:—

Pen 1—Fed green feed, barley and kept inside.
Pen 2—Same feed as Pen 1, outside run.
Pen 3—Fed barley, corn and kept inside.
Pen 4—Fed green feed, corn and kept inside.
Pen 5—Same feed as Pen 4, outside run.

The results of this experiment are compiled in the following table:—

FEEDS AND HOUSING FOR PIGS

—	Pen 1	Pen 2	Pen 3	Pen 4	Pen 5
Hogs in test	7	7	6	7	7
Initial weight, gross, pounds	341·0	242·0	190·0	215·0	234·0
Initial average weight, pounds	48·7	34·5	31·7	30·7	33·4
Finished weight, gross, pounds	1,608·0	1,403·0	1,058·0	1,380·0	1,389·0
Finished average weight, pounds	229·7	200·4	176·3	197·1	198·4
Days on test	143	143	143	143	143
Total gain for period, pounds	1,267·0	1,161·0	868·0	1,165·0	1,155·0
Average gain for period, pounds	181·0	165·9	144·6	166·4	165·0
Average gain per hog per day, pound	1·27	1·16	1·01	1·16	1·15
Pounds meal eaten per period	4,269·0	3,988·0	3,439·0	3,988·0	3,988·0
Pounds skim-milk eaten per period	700·0	700·0	700·0	700·0	700·0
Pounds tankage eaten per period	68·0	68·0	57·0	68·0	68·0
Pounds green feed eaten per period	770·0	770·0	.....	770·0	770·0
Pounds meal eaten per pig, daily	4·26	3·98	4·0	3·98	3·98
Pounds meal eaten per pound gain	3·37	3·43	3·96	3·42	3·45
Cost of feed $	96 10	90 08	76 50	90 08	90 08
Cost of feed per pig $	13 73	12 87	12 75	12 87	12 87
Cost of feed per pig per day cts.	9·6	9·0	8·9	9·0	9·0
Cost of feed per pound gain cts.	7·64	7·764	8·8	7·73	7·8
Cost of feed per cwt. gain $	7·60	7·76	8·80	7·73	7·80

Prices used:—Grain, $2.14 per cwt. Tankage, $53 per ton.
Skim-milk, 20 cts. per cwt. Green feed, $4 per ton.

The table shows very little difference between pens Nos. 1, 2, 4 or 5. The corn-fed pens cost slightly more per pound gain and were thicker, shorter pigs. The barley-fed lots were of good length and finish for bacon hogs. The results from pen No. 3 show the need of green feed in a ration together with an outside run. One of these pigs went down with rickets when four months old and the remainder lacked the growthiness of the other hogs as the average gains show.

SUMMER VS. WINTER FEEDING FOR PORK PRODUCTION

—	Summer fed	Winter fed
Hogs in test	34	71
Initial weight, gross, pounds	1,222	3,507
Initial weight average, gross, pounds	36·0	49·4
Days on test	143·0	118·5
Finished weight, gross, pounds	6,838·0	11,740·0
Finished average weight, gross, pounds	201·0	165·4
Total gain for period, pounds	5,616·0	8,233·0
Average gain for period, pounds	165·2	115·9
Average daily gain per hog, pounds	1·16	0·98
Pounds meal eaten per period	19,672·0	33,699·0
Pounds milk eaten per period	3,500·0	30,220·0
Pounds green feed eaten per period	3,080·0	
Pounds hay eaten per period	.....	2,105·0
Pounds tankage eaten per period	329·0	1,141·0
Pounds fish meal eaten per period	.....	1,769·0
Pounds meal eaten per pound gain	3·5	4·1
Total cost of feed $	442 86	735 58
Cost of feed per head $	13 02	10 36
Cost of feed per head per day cts.	9·1	8·75
Cost of feed per pound gain cts.	7·88	8·93

Prices used:—Meal, per cwt. 2 14 1 62
Skim-milk, 20 cents per cwt.
Green feed, $4 per ton.
Tankage, $53 per ton.
Fish meal, $5 per cwt.
Hay, $10 per ton.

The table gives the data collected on feeding for summer and winter pork production. Although the price of grain was lower for the winter-fed lot, the gains made were less, bringing the cost per pound gain up higher than the summer-fed lot.

TANKAGE VS. SKIM-MILK VS. FISH MEAL

A test was started to ascertain the relative value of tankage, skim-milk and fish meal in supplying the animal protein to the hog ration. Eighty-one pigs were used in this test and divided as follows: Group I, fed in piggery with no outside runs; lot 1, tankage, lot 2 skim-milk, lot 3 fish meal; group II, fed in sheep barn, large pens, no outside runs; lot 1 tankage, lot 2 skim-milk, lot 3 fish meal; group III, fed in rough shed with daily outside runs; lot 1 tankage, lot 2 skim-milk, lot 3 fish meal. They were fed as follows: Pigs from 6 to 14 weeks, a mixture of 2 parts crushed oats, 2 parts middlings, 1 part crushed barley; pigs from 14 to 20 weeks old got a mixture of equal parts by weight of oats, middlings and barley; pigs 20 weeks and over received 1 part crushed oats, 1 part middlings, 2 parts crushed barley and tankage and fish meal were added at the rate of from 8 to 11 per cent of the ration. Skim-milk was started at 4 pounds per pig per day and gradually increased to 12 pounds. The accompanying table gives the feeding results.

From the table the following points of interest may be noted: Pigs fed on tankage on the average made better daily gains than those fed on skim-milk or fish meal; the difference between the latter two on the average was practically nil. According to analysis taken from Henry's "Feeds and Feeding," the pigs on skim-milk received about 109 pounds more digestible protein than those fed on tankage and about 91 pounds more than those on fish meal. The pigs which were fed fish meal received about 18 pounds more than those on tankage. Had the digestible protein supplied been equal in all cases, the skim-milk fed lot would have shown the cheaper cost per pound gain. In nearly all cases the pigs on skim-milk retained a more healthy appearance throughout the feeding period. The tankage lot with outside runs made slightly better gains than those on tankage under close confinement, while those on fish meal made better gains under close confinement. Pigs on skim-milk made about the same gains under all conditions.

TANKAGE VS. SKIM-MILK VS. FISH MEAL

	Group 1 (in piggery)			Group 2 (in sheep barn)			Group 3 (in outside shed)		
	Lot 1 Tankage	Lot 2 Skim-milk	Lot 3 Fishmeal	Lot 1 Tankage	Lot 2 Skim-milk	Lot 3 Fishmeal	Lot 1 Tankage	Lot 2 Skim-milk	Lot 3 Fishmeal
Hogs in test	6	9	9	9	9	6	7	7	9
Iniatial weight, gross, pounds	348·0	424·0	295·0	868·0	340·0	260·0	286·0	308·0	378·0
Initial average weight, gross, pounds	58·0	47·0	33·0	96·0	38·0	43·0	41·0	44·0	42·0
Finished weight, gross, pounds	1,007·0	1,319·0	1,596·0	1,587·0	1,411·0	1,038·0	1,219·0	1,118·0	1,445·0
Finished weight, average, gross, pounds	168·0	146·5	177·0	176·0	157·0	173·0	174·0	160·0	161·0
Days on test	104	112	128	75	127	160	116	118	135
Total gain for period, pounds	659·0	895·0	1,301·0	719·0	1,071·0	778·0	933·0	810·0	1,067,0
Average gain per hog, per period, pounds	110·0	99·5	144·5	80·0	119·0	130·0	133·0	116·0	119·0
Average daily gain, per hog, pounds	1·06	0·89	1·13	1·07	0·936	0·8	1·15	0·98	0·88
Pounds meal eaten per period	2,685·0	3,244·0	5,415·0	3,246·0	4,229·0	3,432·0	3,190·0	2,953·0	5,305·0
Pounds hay eaten per period	156·0	252·0	288·0	169·0	286·0	240·0	203·0	207·0	304·0
Pounds tankage eaten per period	336·0	.....	.....	406·0	.....	.....	399·0	.....	.....
Pounds skim-milk eaten per period	.....	9,650·0	.....	.....	10,920·0	.....	.....	9,650·0	.....
Pounds fish meal eaten per period	.....	.....	677·0	.....	.....	429·0	.....	.....	663·0
Pounds meal eaten per pound gain	4·07	3·62	4·16	4·53	3·95	4·41	3·42	3·65	4·97
Total cost of feed...$	53 17	73 11	123 01	64 20	91 78	78 25	63 25	68 17	120 61
Cost of feed per head..$	8 86	8 12	13 67	7 13	10 20	13 04	9·04	9·74	13·40
Cost of feed per head per day...cts.	8·5	7·25	10·7	9·5	8·0	8·2	7·8	8·25	9·9
Cost of feed per pound gain...cts.	8·07	8·17	9·45	8·9	8·57	10·0	6·78	8·4	11·3

Prices-used:—Meal mixture, $1.62 per cwt.
Hay, $10 per ton.
Milk, 20 cents per cwt.
Fish meal, $5 per cwt.
Tankage, $2.65 per cwt.

According to analysis, the digestible protein costs were
6 cents per pound for milk.
13 " " fish meal.
4·6 " " tankage.

By averaging each of the three lots fed on tankage, skim-milk and fish meal respectively, the following data is obtained:—

Items	Tankage	Skim-milk	Fishmeal
Number hogs in test	22	25	24
Number days on test	96	119	139
Average gain per hog, pounds	105	111	131
Average daily gain per hog, pounds	1·1	0·93	0·94
Meal consumed per pound gain, pounds	3·95	3·75	4·5
Cost of feed per pound gain, cents	7·8	8·4	10·2

WINTERING BROOD SOWS—HEAVY AND LIGHT GRAIN FEEDING

Nine sows were used in this experiment; three were fed a heavy grain ration outside, three a light grain ration outside, and three a light grain ration inside. The outside sows had sleeping quarters in portable hog cabins and the inside sows were in the main piggery. The heavy-fed sows received 8 pounds grain per day for two months after weaning their fall litter, then 7 pounds per day until farrowing in the spring. The light-fed sows received 6 pounds per day for the entire period until spring farrowing. All sows were fed turnips during the winter as green feed and the results were as follows:—

Group	Number pigs farrowed	Average weight pigs farrowed	Number raised to six weeks	Per cent raised
		lb. (21 pigs)		
Heavy fed outside	35	2·76	15	42·9
Light fed inside	29	3·39	27	93·1
Light fed outisde	25	3·44	19	76·0

The heavy-fed sows were too fat and clumsy and were troubled with paralysis at farrowing time. One sow farrowed prematurely, losing her entire litter and later had to be killed. The light-fed sows produced strong litters, uniform in size, and raised a higher percentage to maturity. These were in good condition at farrowing time, were active and killed less of their young, although they were no older. The three sows inside on light feed raised the highest number to maturity, but the average weight at birth was less than the average of the light-fed lot outside.

SHEEP

The flock of pure-bred Shropshires on January 1, 1925, at this Farm consisted of twenty ewes, two-shear and over, seven shearlings, nine ewe lambs and one ram lamb, headed by the imported ram, Buttar 332/38074. Six rams were sold during the year, five lambs and one shearling. Sixteen head were shown at the Maritime Winter Fair in December, 1924, winning the following ribbons: Shearling ewe, first and third; ewe lamb, first and second; wether lamb, first and second; group of four pure-bred lambs any breed, first; group of three wether lambs, any breed, first; group of five market lambs, second on foot and sixth in carcass class; single carcass wether lamb, second and seventh; single carcass shearling, first. There were from six to eighteen entries in each of the classes. Four ewes, two ewe lambs and a ram were received from the

flock of Multi-nipple sheep originated by the late Dr. Graham Bell, Baddeck, Cape Breton. These are being experimented with to determine the economic value of this unique strain. During the season of 1924 the twenty Shropshire ewes dropped 24 lambs, raising 23, or 115 per cent.

FINANCIAL STATEMENT OF FEEDS FOR THE PURE-BRED FLOCK OF SHROPSHIRES

Dr.		
To feed for 20 ewes and ram—		
2,700 pounds meal at $1.93 per cwt	$ 52 11	
3,401 pounds roots at $3.27 per ton	5 56	
4,876 pounds hay at $9 per ton	21 94	
3,410 days pasture at 2 cents per day	68 20	
1,400 pounds tops at $1 per ton	0 70	
	$	148 51
To feed for 9 yearlings—		
1,193 pounds meal at $1.93 per cwt	23 02	
2,885 pounds roots at $3.27 per ton	4 72	
1,301 pounds hay at $9 per ton	5 85	
1,466 days pasture at 2 cents per day	29 32	
700 pounds tops at $1 per ton	0 35	
	$	63 26
To feed for 23 lambs—		
1,828 pounds meal at $1.93 per cwt	33 28	
2,188 pounds roots at $3.27 per ton	3 58	
630 pounds hay at $9 per ton	2 84	
3,013 days pasture at 1 cent per day	30 13	
	$	69 83
	$	281 60
Cr.		
By Sale of 244 pounds wool at 31·016 cents per pound	$ 75 68	
Sale of 8 pounds wool at 35 cents per pound	2 80	
Sale of 282 pounds lamb at 20 cents	56 40	
Sale of 2 lambs, 200 pounds at 10 cents live weight	20 00	
Sale of 52 pounds mutton at 12 cents	6 24	
Sale of 2 pure-bred ram lambs at $20	40 00	
Sale of 2 pure-bred ram lambs at $18	36 00	
Sale of 1 pure-bred ram lamb at $25	25 00	
Sale of 1 pure-bred ram yearling at $25	25 00	
Sale of 2 hides at $1	2 00	
Increased stock, 9 ewes and 1 ram at $15	150 00	
32 tons manure at $2	64 00	
	$	503 12
Profit over feed cost	$	221 52
Total cost of feeds for 30 sheep for 1924	$ 211 77	
Total cost of feeds for 1 sheep for 1924	7 06	
Total cost to raise pure-bred lambs—		
To Feed cost for 20 ewes and ram 365 days	148 51	
Feed cost for 23 lambs for 365 days	69 83	
	$	218 34
LESS—		
163 pounds wool at 31·016 cents per pound	$ 50 56	
32 tons manure at $2 per ton	64 00	
	$	114 56
Total feed cost for 23 lambs	$	103 78
Total feed cost for 1 lamb		4 512

HORSES

The number of horses in the stable on January 1, 1925, was as follows: (Pure-bred Clydesdales), one stallion, four aged mares, one three-year-old mare, one yearling filly, one yearling stallion, two colts, one seven-year-old gelding; and (grades), three aged mares, three geldings, one express mare and one driver. The Farm was very unfortunate in losing the stallion Baron Begg—20119—in August, 1924, from a growth in the intestines which closed off the passage. This stallion has left some very promising progeny; they are not large but possess quality. One pure-bred Clydesdale mare was purchased to take the place of a grade mare which was sold.

COST TO RAISE A COLT TO ONE YEAR OF AGE

Feed for dams for 6 months:—		
97·3 bushels oats at 64 cents per bushel	$ 62 27	
484 pounds bran at $30.60 per ton	7 41	
5,475 pounds hay at $10.10 per ton	27 65	
115 pounds roots at $2.95 per ton	0 17	
		$ 97 50
Feed for 2 colts for year:—		
29·4 bushels oats at 64 cents per bushel	18 82	
470 pounds bran at $30.50 per ton	7 17	
3,600 pounds hay at $9 per ton	16 20	
28 pounds roots at $2.95 per ton	0 04	
		$ 42 23
Total cost for 2 colts for year		$ 139 73
Total cost for 1 colt for year		69 87

MAINTENANCE COST OF NINE HEAVY HORSES

To—		
26 tons, 200 pounds hay at $10.10 per ton		$ 263 61
911 bushels oats at 64 cents per bushel		583 04
2 tons, 553 pounds bran at $30.50 per ton		69 43
1 ton, 472 pounds roots at $3.90 per ton		4 82
Total cost of feed		$ 920 90
Cost for one horse		102 32
By—		
16,445 hours work at 10 cents per hour	$ 1,644 50	
Average hours work per horse, 1,827·2 at 10 cents	182 72	
Profit over feed cost for labour, per horse	$ 80 40	

Average feed consumed by a 1,500 pounds horse for one year:—

Hay	5,800 pounds
Oats	101.21 bushels.
Bran	506 pounds
Roots	275 pounds.

FIELD HUSBANDRY

Spring opened early; the first seeding at this Farm was on May 7 and it was general throughout the district by May 20. Germination was slow owing to the extremely dry spring. Fair growth was recorded during May and June but July was very dry with only one-half inch of rain recorded; consequently, all crops suffered from lack of moisture. Even though there were frequent showers throughout June and August, the soil was so dry that many of the showers were not beneficial as the moisture rarely reached the roots. On two fields at this Farm, which had been fairly well protected, an excellent crop of clover was harvested, but otherwise the clover throughout the district was practically all winter-killed. Hay, grain, roots and silage crops were all stored in excellent condition. Hay, roots and silage crops were about average, while grain yields were above average. Pastures were short for July and August and were supplemented with green feed in the form of an oats, peas, vetch mixture. The season on the whole was above the average for getting farm work done, and as far as crop returns were concerned the year was very satisfactory. The prices of farm commodities were low throughout the season, therefore the cash returns were not encouraging.

ROTATION OF CROPS

The value of a systematic rotation cannot be over-estimated and some form should be adopted on every farm if economical results are to be obtained from our farming operations. At this Farm, a four-year rotation is practised:—First year, Hoed crop following sod, manured at the rate of 20 tons per acre; second year grain; third year, clover hay; and fourth year hay or pasture. Other rotations are being tried out, and as soon as the fields are in sufficiently uniform condition, data will be published from them.

COST OF PRODUCTION OF FIELD CROPS

The following are the itemized accounts of the production costs of the various farm crops. Manure costs include value of manure, plus the cost of application. All items are based on records taken of the exact time required to perform the operations on the medium to heavy clay soil on this Farm.

Cost to Produce Wheat, 1924
Second Crop in Four-year Rotation

Area—1 acre.

Rent of land	$ 4 00
Use of machinery	3 00
Manure, 6 tons at $2	12 00
Ploughing, 3·6 hours, tractor at $1	3 60
Harrowing, disk and smoothing, 2·4 hours, tractor at $1	2 40
Seeding, 1.25 hours, 2 horses at 52 cents	0 65
Reaping, 1.25 hours, 3 horses at 62 cents	0 78
Stooking, 1·5 hours, 1 man at 28 cents	0 42
Twine, 2 pounds at 16 cents	0 32
Re-stooking and turning out, 1·4 hours, 1 man at 28 cents	0 39
Hauling to barn, 1·5 hours, 2 horses at 52 cents	0 78
Hauling to barn, 3·4 hours, 1 man at 28 cents	0 95
Threshing, 20.85 bushels at 7 cents	1 46
Seed- 2 bushels at $2	4 00
Total cost per acre	$ 34 75
Less straw, 1,576 pounds at $2 per ton	1 58
Cost of grain	$ 33 17

Yield per acre, 20.85 bushels. Cost per acre, $33.17. Cost per bushel, $1.59.

Cost to Produce Barley, 1924
Second Crop in Four-year Rotation

Area—1 acre.

Rent of land	$ 4 00
Use of machinery	3 00
Manure, 6 tons at $2	12 00
Ploughing, 3.6 hours at $1	3 60
Harrowing, disk and smoothing, 2·4 hours, tractor at $1	2 40
Seeding, 1.25 hours, 2 horses at 52 cents	0 65
Reaping, 1·12 hours, 3 horses at 62 cents	0 69
Stooking, 1.5 hours, 1 man at 28 cents	0 42
Twine, 2 pounds at 16 cents	0 32
Re-stooking and turning out, 1·9 hours, 1 man at 28 cents	0 53
Hauling to barn, 1·3 hours, 2 horses at 52 cents	0 68
Hauling to barn, 3 hours, 1 man at 28 cents	0 84
Threshing, 31.5 bushels at 5 cents	1 58
Seed—2 bushels at $1.25	2 50
Total cost per acre	$ 33 21
Less straw, 1,413 pounds at $4 per ton	2 83
Cost of grain	$ 30 38

Yield per acre, 31·5 bushels. Cost per acre, $30.38. Cost per bushel, 96·5 cents.

Cost to Produce Oats, 1924
Second Crop in Four-year Rotation

Area—1 acre.

Rent of land	$ 4 00
Use of machinery	3 00
Manure, 6 tons at $2	12 00
Ploughing, 3·6 hours, tractor at $1	3 60
Harrowing, disk and smoothing, 2·4 hours, tractor at $1	2 40
Seeding, 1·25 hours, 2 horses at 52 cents	0 65
Reaping, 1·25 hours, 3 horses at 62 cents	0 78
Stooking, 1·5 hours, 1 man at 28 cents	0 42
Twine, 2·4 pounds at 16 cents	0 38
Re-stooking and turning out, 1·9 hours, 1 man at 28 cents	0 53
Hauling grain to barn, 2 hours, 2 horses at 52 cents	1 04
Hauling grain to barn, 3·9 hours, 1 man at 28 cents	1 09
Threshing, 56·5 bushels at 4 cents	2 26
Seed—3 bushels at $1	3 00
Total cost per acre	$ 35 15
Less straw, 1,560 pounds at $4 per ton	3 12
Cost of grain	$ 32 03

Yield per acre, 56·5 bushels. Cost per acre, $32·03. Cost per bushel, 56·7 cents.

Cost to Produce Sunflower Ensilage, 1924

First Crop in Four-year Rotation

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Manure, 8 tons at $2	16 00
First ploughing, 11·12 hours, 2 horses at 52 cents	5 78
Second ploughing, 3·3 hours, tractor at $1	3 30
Harrowing, double disk and smoothing, 6 hours, tractor at $1	6 00
Drill seeding, 1 hour, 2 horses at 52 cents	0 52
Cultivating, 3 times, 3·1 hours, 2 horses at 52 cents	1 61
Hoeing, 20 hours, 1 man at 28 cents	5 60
Cutting, 4·3 hours, 2 horses at 52 cents	2 24
Hauling to silo, 13 hours, 2 horses at 52 cents	6 76
Hauling to silo, 9 hours, 1 man at 28 cents	2 52
Cutting into ensilage, 4 hours, 4 men at 28 cents	4 48
Gasoline used in tractor, 3·4 gallons at 33 cents	1 12
Seed—15 pounds at 10 cents	1 50
Total cost per acre	$ 64 43

Yield per acre, 13·55 tons.
Cost per acre, $64.43.
Cost per ton, $4.75.

Cost to Produce Corn Ensilage, 1924

First Crop in Four-year Rotation

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Manure, 8 tons at $2	16 00
First ploughing, 11·12 hours, 2 horses at 52 cents	5 78
Second ploughing, 3·3 hours, tractor at $1	3 30
Harrowing, double disk and smoothing, 6 hours, tractor at $1	6 00
Drill seeding, 1 hour, 2 horses at 52 cents	0 52
Cultivating, 3 times, 3·1 hours, 2 horses at 52 cents	1 61
Hoeing, 25 hours, 1 man at 28 cents	7 00
Cutting, 4 hours, 2 horses at 52 cents	2 08
Hauling to silo, 10 hours, 2 horses at 52 cents	5 20
Hauling to silo, 7·5 hours, 1 man at 28 cents	2 10
Cutting into ensilage 3·75 hours, 3 men at 28 cents	3 15
Gasoline used in tractor, 3 gallons at 33 cents	0 99
Seed—25 pounds at 5 cents	1 25
Total cost per acre	$ 61 98

Yield per acre, 14·12 tons.
Cost per acre, $61.98.
Cost per ton, $4.39.

Cost to Produce O.P.V. Ensilage, 1924

First Crop in Four-year Rotation

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Manure, 8 tons at $2	16 00
Ploughing, 11·12 hours, 2 horses at 52 cents	5 78
Harrowing, disk and smoothing, tractor, 6 hours at $1	6 00
Seeding, 2 hours, 2 horses at 52 cents	1 04
Cutting, 2 hours, 2 horses at 52 cents	1 04
Hauling to silo, 9 hours, 2 horses at 52 cents	4 68
Loading, 6·5 hours, 1 man at 28 cents	1 82
Cutting into ensilage, 3 hours, 2 men at 28 cents	1 68
Gasoline used in tractor, 2·4 gallons at 33 cents	0 79
Seed—Oats, 1¾ bushels at 75 cents; Peas, 1 bushel at $3 15; Vetch ½ bushel at $3.90	6 41
Total cost per acre	$ 52 24

Yield per acre, 4·7 tons.
Cost per acre, $52.24.
Cost per ton, $11.11.

COST TO PRODUCE TURNIPS. 1924

First Crop in Four-year Rotation

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Manure, 8 tons at $2	16 00
First ploughing, 11·12 hours, 2 horses at 52 cents	5 78
Second and third ploughings, 6 hours, tractor at $1	6 00
Harrowing, double disk and smoothing, 6 hours, tractor at $1	6 00
Running rows, 2·5 hours, 2 horses at 52 cents	1 30
Seeding, 2·3 hours, 1 horse at 42 cents	0 97
Seed—1·5 pounds at 50 cents	0 75
Cultivating, 3·1 hours, 2 horses at 52 cents	1 61
Hoeing, 44·6 hours, 1 man at 28 cents	12 49
Pulling, 25 hours, 1 man at 28 cents	7 00
Hauling to cellar, 16 hours, 2 horses at 52 cents	8 32
Loading and storing, 10·7 hours, 1 man at 28 cents	3 00
Total cost per acre	$ 76 22

Yield per acre, 724 bushels or 18·1 tons.
Cost per acre, $76.22.
Cost per bushel, $0·105.
Cost per ton, $4.21.

COST TO PRODUCE HAY, 1924.

Third Year in Four-year Rotation.

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Seed—10 pounds timothy at 13½ cents, 8 pounds red clover at 23½ cents, 2 pounds alsike at 13½ cents (Half)	1 75
Manure, 4 tons at $2	8 00
Mowing, 1·56 hours, 2 horses at 52 cents	0 81
Tedding, 0·6 hours, 2 horses at 52 cents	0 31
Raking, 0·6 hours, 1 horse at 42 cents	0 25
Coiling, 2 hours, 1 man at 28 cents	0 56
Shaking out, loading and storing, 8·1 hours, 1 man at 28 cents	2 27
Hauling to barn, 2·25 hours, 2 horses at 52 cents	1 17
Total cost per acre	$ 22 12

Yield per acre, 2·32 tons.
Cost per acre, $22.12.
Cost per ton, $9.53.

COST TO PRODUCE HAY, 1924

Fourth Year in Four-year Rotation

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Seed—(seeded in 1922)	1 63
Manure, 2 tons at $2	4 00
Mowing, 1·29 hours, 2 horses at 52 cents	0 67
Tedding, 0·15 hours, 2 horses at 52 cents	0 08
Raking, 0·5 hours, 1 horse at 42 cents	0 21
Coiling, 2·1 hours, 1 man at 28 cents	0 59
Loading and storing, 5·35 hours, 1 man at 28 cents	1 50
Hauling, 3 hours, 2 horses at 52 cents	1 56
Total cost per acre	$ 17 24

Yield per acre, 1·75 tons.
Cost per acre, $17.24.
Cost per ton, $9.85.

CULTURAL EXPERIMENTS

The cultural experiments outlined in the 1922 report are being continued and the results compiled. No definite data can be published until four to six years' results are obtained. Other field experimental work is being carried on, including drainage experiments (depth of drains and value of underdraining), rotation experiments, the use of lime, slag and wood ashes for marsh lands along with test to determine the value of renewing run-out marsh lands.

TOP-DRESSING HAY LAND

In the spring of 1921 the five-acre field D2 was equally divided and one-half top-dressed with 20 tons of manure per acre. The other half received no treatment. The following are the results for the four succeeding years:—

Treatment	Yields of hay per acre							
	1921		1922		1923		1924	
	ton	lb.	ton	lb.	ton	lb.	ton	lb.
Top dressed (20 tons per acre)	2	520	2	1,360	3	100	2	944
No top dressing	2	180	2	672	2	630	1	1,744

This field was fairly uniform in fertility at the start, and consequently the effect of the manure was very light the first two years, but gave good results the third and fourth year. However, it would also indicate that a 20-ton application is far too heavy to be economical as a top dressing on hay land and that lighter and more frequent applications would be preferable.

RENEWING MARSH LAND

This project was started in 1922 and is being continued from year to year. Seven and three-quarter acres were ploughed in the fall of 1923 and ditched and levelled the following spring. The area was treated similarly to the blocks renewed in 1922 and 1923. The yield on the marsh already renewed was 1.5 tons per acre, while on the old land it was 1.345 tons. The following are the financial statements of each block under test:—

MARSH RENEWED IN 1922—10 ACRES

	Dr.	Cr.
1922: Expenses for ditching, levelling, preparing sod for seeding and fertilizers applied	$637 00	
1922: Returns, 307 bushels grain at 65 cents		199 55
Straw, 9·59 tons at $3		28 77
1923: Returns, 20·06 tons hay at $8.91		178 73
1924: Returns, 15·69 tons hay at $9		141 21
Balance due on renewing		88 74
	$637 00	$637 00

MARSH RENEWED IN 1923—13·6 ACRES

	Dr.	Cr.
1923: Expenses for ditching, levelling, preparing sod for seeding and fertilizers applied	$ 704 46	
1923: Returns, 536 bushels oats at 64 cents		$ 343 04
229 tons straw at $4		91 60
1924: Returns, 20·63 tons hay at $9		185 67
Balance due on renewing		84 15
	$ 704 46	$ 704 46

MARSH RENEWED IN 1924—7¾ ACRES

Ditching and levelling ditch banks—		
Manual labour, 953 hours at 28 cents	$ 266 84	
Horse labour, 73 hours at 10 cents	7 30	
		274 14
Preparing sod, fertilizing and seeding—		
2 horses, 1 man, 180 hours at 52 cents	$ 93 60	
Harrowing, tractor, 14 hours at $1	14 00	
Grass seed: 77·5 pounds timothy at 13½ cents	$ 10 46	
46·5 pounds red clover at 23½ cents	10 93	
31 pounds alsike at 13½ cents	4 19	
	25 58	
23 bushels seed oats at $1	23 00	
		$ 156 18

MARSH LAND RENEWED IN 1924—*Concluded*

Fertilizer used—		
Slag, 2·7 tons at $17.50	47 25	
Limestone, 2·5 tons at $6	15 00	
Wood ashes, 0·75 tons at $8	6 00	
		68 25
Total cost		$ 498 57
Cost per acre		64 33
Total yield—		
441·4 bushels grain at 75 cents		$ 331 05
7·166 tons straw at $4		28 66
Total returns		$ 359 71
Returns per acre		46 41
Balance due on renewing		138 86

LIME ON MARSH LAND

Plot No.	Treatment	Yield per acre		
		Oats, 1922	Hay, 1923	Hay, 1924
		bush.	tons	tons
1	½ ton slag, 18 per cent P_2O_5	33·9	2·19	1·509
2	Check, no treatment	25·3	1·92	1·366
3	1½ tons limestone	29·5	2·32	1·898
4	2½ tons limestone	31·7	2·43	1·795
5	Check, no treatment	22·6	2·04	1·545
6	½ ton slag, 18 per cent P_2O_5	26·8	2·25	1·844
7	1,400 pounds wood ashes	25·8	1·97	1·968

DIFFERENT DATES OF SEEDING SUNFLOWERS

The following table shows the results obtained in 1924 from seeding sunflowers at different dates and also a four-year average from 1921 to 1924 inclusive:—

DATES FOR SEEDING SUNFLOWERS

Date of Seeding	Height	Stage of maturity when cut	Yield per acre		Four-year average yield per acre	
	inches		tons	lbs.	tons	lbs.
May 27	102	100% bloom	26	1,666	26	1,916
June 3	98	95% "	30	1,833	25	1,828
June 10	90	95% "	20	1,000	26	1,080
June 17	88	85% "	18	1,000	27	1,150

To date the variation has been slight, and undoubtedly the stage of maturity when harvested had as much to do with the yield as the date of seeding, as the water content is much higher while the plant is blooming than after the seed starts to form.

DISTANCE APART FOR SEEDING SUNFLOWERS

This experiment was started in 1921 to ascertain the relative merits of narrow and wide rows. The following table shows the results obtained in 1924 and also a four-year average:—

Distance	Height	Stage of maturity when cut	Yield per acre		Four-year average yield per acre	
	inch		tons	lbs.	tons	lbs.
2½ feet	108	90% bloom	23	792	22	948
3 "	96	90% "	19	528	22	1,682
3½ "	100	90% "	18	880	21	1,585

A slight increase is shown in favour of the three-foot rows covering a period of years, though it is apparent from 1924 results that for a very dry season the closer planting is preferable as the foliage covers the ground more completely and in this way aids in retaining the moisture in the soil.

FIELD CROPS, 1924

Crop and Variety	Field	Acreage	Total yield	Yield per acre
			bush.	bush. lbs.
Oats—				
Gold Rain	Railroad field	2	135·6	67 26
Gold Rain	Marshall Hill, 3	4	140·0	35 0
Gold Rain	Marsh	7¾	441·4	56 31
Banner	B2	8	453·0	56 21
Barley—				
Charlottetown, No. 80	B2	4	126·0	31 24
Wheat—				
Huron	B2	4	83·4	20 51
Huron	Marsh	¼	4·7	18 48
Mixed grain—				
Oats, 1¾ bushels, Barley, ¾ bushel	Railroad field	12	479·0	39 40
Wheat, ¼ bushel	Acre lots, G3	4	130·5	32 27
Buckwheat	Roach field	¾	19·9	26 28
Hay—				tons
1st year	B1	16	37·26	2·33
1st year	D1	3	9·78	3·26
1st year	Acre lots, G3	8	11·52	1·44
2nd year	B3	14	24·48	1·74
2nd year	A1	6	12·44	2·07
5th year	D3	5	10·39	2·08
6th year	D2	5	10·86	2·17
Renewed	Marsh	28·6	42·90	1·5
Old	Marsh	42	56·49	1·345
Roots—Turnips—				bush.
Bangholm club root resistant	B4	6	4,343·0	724·0
Bangholm club root resistant	Acre lots, G3	4	2,991·2	747·8
Sunflowers—			tons	tons
Mammoth Russian	B4	4	54·22	13·56
Corn—				
Longfellow	B4	4	56·45	14·11
O.P.V.	B2	2	9·395	4·698
O.P.V.	Odd lots	5	33·79	6·76

HORTICULTURE

The season of 1924, from a horticultural standpoint, was very good. All bulbs, bush-fruits, trees and shrubs came through the winter in good condition. The dry spring permitted garden work to be well under way by May 14 and no killing frost was experienced during the early growing period. A drought during July had its effect on production, and particularly was this noticeable with beans and peas. On the other hand, the dry season with its abundant sunshine had its effect on disease control; there was practically no rust, anthracnose, apple scab, potato blight, or mildew on gooseberries. A heavy wind and rain on August 26 did much damage to fruit trees, flowers, and corn. The first fall frost was recorded on September 27, of one degree, and the first real killing frost of six degrees was recorded on October 21. The yields of all vegetables were above the average but the market demand was slow and prices low.

TREE FRUITS

COMMERCIAL ORCHARD

Even though this orchard suffered from the deep snow of 1922-23 and required much top grafting to put it in shape, the trees came through the winter in fair condition and most of them made a strong, vigorous growth during the summer of 1924. The different cover crops on test were ploughed in on July 14 along with an application of barnyard manure, applied at the rate of 11.5 tons per acre. After two thorough cultivations given on July 15 and 21, the following cover crops were sown: common red clover, white or dutch, alsike, sweet clover, hubam, vetch and rape, these being sown in the same order as 1923; that is, each cover crop was sown on the same area as for previous years. In from five to six years the relative merits of each as a cover crop should be discernible. During the winter of 1923-24, the hubam and sweet clover were completely winter-killed, white or dutch 75 per cent, common red 50 per cent, and rape gave a vigorous growth with some of the dormant vetch seed showing signs of growth.

The varieties which have developed best and produced the most uniform fruits in this orchard are as follows: Duchess, Pewaukee, Tolman Sweet, Baxter, Charlamoff and Arabka Winter.

COMMERCIAL ORCHARD—COST OF PRODUCTION

Spraying, 2 horses, 9 hours at 52 cents		$ 4 68
Spraying, 2 men, 18 hours at 28 cents		5 04
Pruning, 1 man, 17 hours at 28 cents		4 76
Gathering limbs, 2 horses, 3 hours at 52 cents		1 56
Gathering limbs, 2 men, 6 hours at 28 cents		1 68
Removing and resetting trees, 2 men, 6 hours at 28 cents		1 68
Ploughing, tractor, 10 hours at $1		10 00
Harrowing, tractor, 5 hours at $1		5 00
Sowing cover crop, 1 man, 4 hours at 28 cents		1 12
Cost of seed for cover crop		12 65
Cost of spraying material—		
Lime sulphur	$2 55	
Arsenate of lime	1 40	
		3 95
Manure (half to be charged first year), 32 tons at $2		32 00
Picking fruit, 52 hours at 28 cents		14 56
88 barrels at 25 cents		22 00
Total cost		$ 120 68
By 88 barrels apples at $3		264 00
To profit		$ 143 32

THE OLD VARIETY TEST ORCHARD

The good varieties gave the largest and best quality of fruit harvested from them in the past two years. All orchards were sprayed three times during the summer with dormant, bud moth and calyx spray. As the weather was dry the spray remained and excellent results were obtained in insect control. Some of the more tender-skinned varieties, such as Fameuse, McIntosh, St. Lawrence and Montreal Peach developed a very high percentage of scab.

SMALL FRUITS

STRAWBERRIES

Fifty-eight varieties of strawberries were tested, during the year 1923-24, in plots 1/545 of an acre each, using the matted row system. All plants were set out May 30 and 31 on ground which had been used for a garden the previous year. The soil was a fairly heavy clay loam but previous to the garden crop

of 1922, it received a heavy application of strawy manure which helped to lighten the soil, making it more open, loose and friable and better suited to strawberry growing, as indicated by the yields obtained. The following is the production of thirteen leading varieties for 1924: Parson's Beauty, 21,357 pounds; Francesca, 20,949 pounds; Ophelia, 20,472 pounds; Williams, 20,233 pounds; Jessie, 19,552 pounds; Jeanne D'Arc, 19,279 pounds; Equinox, 18,053 pounds; Cassandra, 17,576 pounds; Early Jersey Giant, 17,304 pounds; Greenville, 16,282 pounds; Lavinia, 15,839 pounds; Sample, 15,737 pounds; Swindle, 15,328 pounds. The remaining forty-five varieties ranged at the rate of from 4,973 to 14,987 pounds per acre.

Twenty-six out of the fifty-eight varieties have been on test for thirteen years. The following is a list with the average yield per acre: Seedling No. 12, 7,911 pounds; St. Antoine de Padua, 7,587 pounds; Michel Early, 7,382 pounds; Haverland, 7,303 pounds; Seedling No. 15, 7,084 pounds; Jeanne D'Arc, 6,816 pounds; Equinox, 6,801 pounds; G. H. Coughill, 6,669 pounds; Bisel No. 1, 6,513 pounds; Swindle, 6,432 pounds; Capt. Jack, 6,326 pounds; Crescent, 6,320 pounds; Bisel No. 2, 6,255 pounds; Beder Wood, 5,980 pounds; Barton's, 5,905 pounds; Nick Ohmer, 5,902 pounds; Beverly, 5,882 pounds; Thompson Late, 5,732 pounds; Glen Mary, 5,636 pounds; Gandy, 5,572 pounds; Cole Seedling, 5,340 pounds; Joe, 5,287 pounds; Bomba, 4,619 pounds; Wm. Belt, 4,184 pounds; and Success, 4,033 pounds. The Dunlap, an excellent variety, has only been on test for twelve years but has an average yield of 8,340 pounds, and commercially is one of the most popular varieties grown.

BLACK CURRANTS

Ten varieties were tested and all came through the winter in good condition except Giant, three bushes of which died during the winter. The remaining varieties made a strong growth with a good setting of fruit which was of excellent quality, being uniform in size and evenly ripened. The variety Buddenborg gave a yield at the rate of 12,100 quarts; Kerry, 11,220 quarts; Eagle, 9,460 quarts; Saunders, 8,800 quarts; Magnus, 8,588 quarts; Climax -1373- 8,360 quarts; Topsy, 7,920 quarts; Climax, 7,480 quarts; Victoria, 7,040 quarts; and Boskoop Giant, 6,600 quarts per acre. Of the varieties of black currants so far tested over the period of a year, the following are to be recommended: Kerry, Boskoop Giant and Climax.

RED CURRANTS

Five varieties were on test in 1924. The yields were low as these bushes have not fully recovered from the severe breaking down they received from snow during 1922-23. Good wood growth was made during 1923 and 1924 and without further setback these bushes should be in full fruiting stage by 1925. Perfection was the highest yielder with 5,500 quarts, London Market second with 2,420 quarts per acre. Wilder was the lowest with 1,100 quarts per acre. Of the varieties of red currants tested so far over a period of years, the following are to be recommended: Victoria, Cumberland Red and Perfection.

RASPBERRIES

The raspberry plantation was so badly broken down in 1922-23 that all bushes were cut back to within six inches of the ground in the spring of 1923. Splendid growth was recorded during the season and the bushes came through the winter of 1923-24 in good condition but were a little too thick for good yields. After the fruiting season, the plantation was put into shape and bushes supported by wires. On careful examination of the canes, it was found that a few varieties were infected with mosaic, anthracnose and spur blight, mosaic

running as high as 50 per cent, anthracnose 35 per cent and spur blight 15 per cent on some varieties. As far as possible all diseased canes were removed by the fall pruning. The leading varieties yielded at the following rates per acre: King, 4,510 pounds, Herbert, 4,400 pounds (average of 5 plots); Newman, 4,400 pounds (average of 3 plots); Ruby Red, 4,400 pounds, Count, 3,740 pounds, London, 3,520 pounds, Eaton, 3,300 pounds, Cuthbert, 2,640 pounds (average of one plot each). Of the varieties tested at this Farm over a period of years, the following are to be recommended: Newman, Herbert and Cuthbert.

GOOSEBERRIES

Nine varieties were tested in 1924. As all bush fruits are in one plantation they suffered alike from the heavy snow fall of 1922-23. The bushes were quite badly broken and it will take a year or two before they will have sufficiently recovered to give good yields. The following was the rate of yield per acre obtained from the leading varieties: Deacon, 1,540 quarts; Rideau, 1,540 quarts; Alma, 1,320 quarts; Pearl, 1,100 quarts; Silvia, 880 quarts; Charles, 660 quarts. The varieties Duncan, Barrett and Mabel did not produce fruit. Of the varieties tested at this Farm over a period of years, the following are to be recommended: Duncan, Rideau and Houghton.

VEGETABLE VARIETIES

GARDEN BEANS

Twenty-one varieties and strains of bush beans and four of pole beans were tested in 1924. These were planted on May 29 in plots 1/554 of an acre each. All varieties germinated 100 per cent, made strong growth, and gave promise of heavy yields, but owing to the dry weather, production dropped very rapidly after the first picking. The plants were free from anthracnose and the stock was of excellent quality. The leading varieties with the rate of yield per acre were as follows: Challenge Black Wax, 384 bushels 26 pounds; Hodson Long Rod, 369 bushels 12 pounds; Sutton Masterpiece, 369 bushels 12 pounds; Wardwell Kidney Wax, 353 bushels 34 pounds; Davis White Wax, 338 bushels 20 pounds; Bountiful Green Bush, 323 bushels 6 pounds. Of the varieties tested at this Farm over a period of years the following are to be recommended: Hodson Long Pod, Masterpiece, Stringless Green Pod and Round Pod Kidney Wax.

GARDEN PEAS

Twenty-four varieties and strains were grown in 1924. These were planted out on May 14 on plots 1/363 of an acre each. The bushes were not supported and consequently they ripened very unevenly with the result that a continued pulling and turning had a tendency to dis-root or break the plants. The peas, like the beans did not keep up their productiveness but were cut down by the dry weather during July. The leading varieties with their yields were as follows: McLean Advancer x Gregory Surprise (a cross-bred), 181 bushels 18 pounds; Gregory Surprise x English Wonder, 191 bushels 21 pounds; Laxton Progress, 181 bushels 18 pounds; American Wonder, 171 bushels 15 pounds; Seedling No. 3, 171 bushels 15 pounds. Of the varieties tested over a period of years, the following are to be recommended: Thomas Laxton, Gregory Surprise, McLean Advancer and Gradus.

BEETS

Seven varieties were tested in 1924. The seed was sown in plots of 1/528 of an acre on May 15 and harvested on October 16. The order of yield was as

follows: Cardinal Globe, Eclipse, Edmund Early, Early Model, Detroit Dark Red, New Early Black Red Ball. Of the varieties tested over a period of years, the following are to be recommended: Detroit Dark Red, Eclipse and Black Red Ball.

CARROTS

Six varieties of carrots were tested in 1924. The seed was sown on plots of 1/528 of an acre each on May 15 and harvested October 16. The varieties were as follows in order to yields: Selected Chantenay, St. Valery, Garden Gem, and Nantes Half Long. Of the varieties tested over a period of years, the following are to be recommended: Chantenay, Nantes Half Long and Improved Danvers.

CORN

Eleven varieties were tested in 1924. Seed was planted on May 29 and all varieties made splendid growth, but the heavy wind and rain storm of August 26 broke it down so badly that very few ears developed and, therefore, the records were of no value. Of the varieties tested at this Farm over a period of years, the following are to be recommended: Early Malcolm, Early Cory and Golden Bantam.

CABBAGE

Twenty varieties or strains of cabbage were tested in 1924. The seed was sown in the hotbeds on April 23 and transplanted into the open on May 29 in plots of 1/484 of an acre each. The crop yields were much better than for 1923 notwithstanding the prevalence of club root. Root maggot was easily controlled by the use of corrosive sublimate solution sprayed around the roots of the plants mixed at the rate of one ounce corrosive sublimate to ten gallons of water. The cabbage worm was very bad just about the time the plants were mature. As it is not always safe to use strong poisons at this time, common salt was applied but it required the second application to exterminate them. Considerable variation was noted in the productiveness in cabbage of the same variety but from different strains or sources of seed. For example, Danish Ballhead from one source yielded at the rate of 103,092 pounds per acre while the same variety from another source yielded 70,180 pounds per acre. The next heaviest yielding varieties were Imp. American Curled Savoy and Glory of Holland. Of the varieties tested at this Farm over a period of years, the following are to be recommended: Copenhagen Market, Danish Ballhead, Enkhuizen Glory and Early Jersey Wakefield.

TOMATOES

Thirty varieties of tomatoes were tested in 1924. The seed was sown in the hotbeds on April 1, pricked off on May 7 and transplanted into the open on June 18 in plots of 1/363 of an acre each with five plants to the plot. The season was exceptionally well suited to tomato growing and some large yields were recorded. The variety First of All yielded at the rate of 1,403 bushels 36 pounds per acre; Bonny Best, 1,318 bushels 54 pounds; John Baer, 1,052 bushels 42 pounds per acre. The other varieties ranged from 235 bushels 57 pounds up to 798 bushels 36 pounds. Of the varieties tested at this Farm over a period of years the following are to be recommended: Bonny Best, Alacrity, Sparks Earliana and John Baer.

CELERY

Eight varieties were on test in 1924 and the seed was sown in the hotbed on April 7. It came up so poorly that a second sowing was made on April 24 but not more than 59 per cent germinated. The more healthy plants were transplanted to the open on June 30. The ground was dry and only one-half inch rain fell through July, consequently the plants made a very poor growth. The

following is the order of yields: Giant Pascal, White Plume, Early Blanching, Easy Blanching, Rose Ribbed, Self Blanching, Paris Rose Ribbed, Golden Self Blanching and Paris Golden Blanching. Of the varieties tested at this Farm over a period of years, the folowing are to be recommended: Paris Golden Yellow, Evans Triumph and Giant Pascal.

LETTUCE

Ten varieties or strains were tested during the season of 1924. Seed was sown in the open on May 15, germination was very rapid and the growth good. Grand Rapids is one of the best loose leaf varieties while New York is perhaps one of the best headed varieties. Of the varieties grown at the Farm over a period of years and tested, the following are to be recommended: Grand Rapids, Black Seeded Simpson and Iceberg.

SQUASH

Nine varieties or strains were tested during 1924 and planted on May 31. The method of planting was as follows: Three beds for each variety with six plants to the bed. The beds were prepared by removing the earth from a 4 inch by 4 inch square ten inches deep then filled to a depth of 5 inches with barnyard manure, well tramped, and the remaining space filled with good top soil. The leading varieties with yields were: Kitchenette, 41,028 pounds; Golden Hubbard, 38,376 pounds; Green Hubbard, 29,172 pounds; Mammoth Golden Bush, 17,472 pounds; Long White Marrow, 16,224 pounds; and New Acorn, 12,480 pounds. Of the varieties grown at this Farm over a period of years and tested, the following are to be recommended: Golden Hubbard, Green Hubbard and Kitchenette.

PUMPKINS

Four varieties were planted on May 31 in beds similar to those prepared for squash. The following are the rates per acre from yields taken from 1/273 of an acre: King Mammoth, 63,063 pounds; Sugar, 50,232 pounds; Small Sugar, 30,030 pounds; Large Cheese or Kentucky, 16,380 pounds per acre. Of the varieties tested at this Farm over a period of years, the following are to be recommended: King of the Mammoth, Sugar and Large Cheese.

CUCUMBERS

Seven varieties were tested in 1924. The seed was sown on May 31 in oeds similar to those used for pumpkins and squash. The varieties threw out an exceptionally strong growth of vines and the yields were the best in years as may be noted from the following rates per acre: Arlington Early White Spine, 82,644 pounds; Imp. Long Green, 75,466 pounds; Extra Early White Spine, 73,914 pounds; Giant Pera, 73,138 pounds; Davis Perfect No. 12, 73,138 pounds: XXX Table, 57,618 pounds. Of the varieties tested at this Farm over a period of years, the following are to recommended: Extra Early White Spine, Davis Perfect and XXX Table.

CAULIFLOWERS

Two varieties were tested in 1924. Seed was sown in hotbeds on April 23 and transplanted to the open on May 30 in duplicate plots. The plants made good growth the first four weeks after transplanting but club root developed and growth was checked, therefore records were of no value. The two varieties grown were Early Snowball and Extra Early Erfurt. Of the varieties tested at this Farm over a period of years, the following are to be recommended: Extra Early Snowball and Extra Early Erfurt.

PARSNIPS

The only variety grown was Hollow Crown. Seed was sown on May 15 and harvested on November 12, yielding 29 pounds of marketable roots and 10 pounds unmarketable per plot of 1/528 of an acre. This variety has proven the best of any grown at this Farm.

PARSLEY

Champion Moss Curled was the only variety grown. It made splendid growth on our heavy clay loam and produced a large leaf with abundance of crimp.

RADISH

Six varieties were under test during 1924, namely, Selected Turnip White Tipped, a very early small round radish with good quality and one that holds its firmness; Extra Early Selected White Tipped, similar in size and quality to the former variety; Early Scarlet White Tip, early, tender, crisp and retains its firmness until quite old; XXX Scarlet Oval makes rapid growth but goes pithy quickly; French Breakfast, small with only fair quality; Early Scarlet Long, poor quality. Of the varieties tested at this Farm over a period of years, the following are to be recommended: Selected Turnip White Tipped and Early Scarlet White Tipped.

POTATOES (STRAIN TEST WITH CERTIFIED STOCK)

A test was started in 1924 with three strains of Green Mountains and four of Irish Cobblers and one strain known as Hoben. All seed were from certified stock. The sets were planted in triplicate plots of 1/48 of an acre each on June 5. Planting was done by hand in order to obtain uniformity. All plots were sprayed three times during the season with Bordeaux 4-4-40 with arsenate of lime added to the first two applications. Owing to the continued dry weather these sprays were most effective in beetle and blight control. The following table gives a slight description of each strain, also yields and freedom from disease:—

STRAIN TEST OF POTATOES

Variety	Breeder	Size	Description	Per cent diseases	Total average yield per plot	Average yield per plot unmarketable	Total yield per acre
					lbs.	lbs.	bush. lb.
Green Mountain	J.F.M.	Medium	Medium uniform		493	31	394 24
Green Mountain	McC.	Medium	Smooth, uniform	2·5% mosaic, 3% leaf roll	415	16	332 0
Green Mountain	W. S.	Medium to large	Smooth, uniform	6·4 mosaic %	404	19	323 12
Irish Cobbler	W. H. McG.	Medium	Medium, uniform		385	38	308 0
Irish Cobbler	W. S.	Medium	Smooth, uniform		403	27	322 0
Irish Cobbler	N.	Medium to large	Rough		283	20¼	226 24
Irish Cobbler	W. W. F.	Medium to large	Rough	3·8% black leg	246	22¼	196 48
Hoben	H.	Large	Rough, not uniform	8·5 mosaic	138¼	3½	331 12

CULTURAL TESTS WITH VEGETABLES

CONTROL OF CABBAGE ROOT MAGGOT

Two varieties were used in the test in 1924, namely, Copenhagen Market and Danish Ballhead, and the following table gives the results obtained:—

CONTROLLING ROOT MAGGOT

Methods	Copenhagen Market	Danish Ballhead
	lb.	lb.
Control No. 1—		
Tar disc around stems	132	116
Control No. 2—		
Corrosive sublimate, 1 ounce to 10 gallons water poured around roots	123	130
Check plot No. 3	100	65

Root maggot was present in both check plots but the Danish Ballhead plots had the greater number of injured plants, as indicated by the yields.

THICKNESS OF PLANTING BEANS

This experiment is to determine the relative merits of different distances apart in planting beans. Two varieties were used, namely, Hodson Long Pod and Masterpiece. The distances planted were 2, 4 and 6 inches. The seed was planted on May 29 and the following table gives the results:—

DISTANCES FOR PLANTING BEANS

Variety	Distance apart	Ready for use	Length of pod	Height of bush	Yield per plot
	inch		inch	inch	lb.
Hodson Long Pod	2	Aug. 9	8	20	19
Hodson Long Pod	4	" 6	8	20	15
Hodson Long Pod	6	" 6	8	20	11
Masterpiece	2	July 31	8	20	25
Masterpiece	4	" 27	8	20	18
Masterpiece	6	" 27	8	20	17

Under average conditions the 4-inch planting is to be recommended.

THICKNESS OF PLANTING PEAS

This experiment is to determine the relative merits of different distances apart in the planting of peas. Three varieties were used and each was planted 1, 2 and 3 inches apart. The seed was sown on May 14 and the following table gives the results:—

PLANTING PEAS

Variety	Distance apart	Ready for use	Weight per plot
	inch		lb.
English Wonder	1	July 16	8
English Wonder	2	" 15	10
English Wonder	3	" 15	11
Thomas Laxton	1	" 15	16
Thomas Laxton	2	" 13	18
Thomas Laxton	3	" 13	13
Stratagem	1	" 25	16
Stratagem	2	" 25	13
Stratagem	3	" 25	14

Taking the average of all three, the two inches apart planting gave a slightly better yield but the three inches apart plants gave the most uniform picking.

DATES FOR SEEDING BEETS

This experiment is to determine the relative effect of planting at different dates on earliness, quality and yield of beets. One variety was used and seed was sown on May 15, 22 and 29. The 30-foot rows were divided in two, half being used as midseason vegetables and the remaining half left for fall storage. The following table gives the data collected:—

DATES FOR SEEDING BEETS

Variety	Date of seeding	Mid-season	Date harvested	Yield marketable	Yield unmarketable
				lb.	lb.
Detroit Dark Red..	May 15	Good quality and size.....	Aug. 31...	29	
	" 22	Small, good quality.....	" 31	24	2
	" 29	Very small, good quality.....	" 31	22	3
	" 15	Too large and coarse.....	Oct. 15	48	29
	" 22	Good quality.....	" 15	32	16
	" 29	Very good quality and size.....	" 15	30	9

This experiment proved that the late planting gives a much better vegetable for fall storing.

DATES FOR SEEDING CARROTS

This experiment is to determine the relative effect of various dates of sowing on earliness, quality and yield of carrots. The same method was followed as for beets and the following results obtained:—

DATES FOR SEEDING CARROTS

Variety	Date of seeding	Mid-season	Date harvested	Yield marketable	Yield unmarketable
				lb.	lb.
Chantenay.....	May 15	Good quality and size.....	Aug. 22	29	.....
	" 22	Good quality and fair size.....	" 22	26	.....
	" 29	Good quality, small.....	" 22	22	3
		Fall harvesting			
	" 15	Poor quality, rough.....	Oct. 16	57	14
	" 22	Good quality and size.....	" 16	42	9
	" 29	" "	" 16	40	3

This experiment proved, as in the case of beets, that the late planting gives a better vegetable for fall storing.

DATES FOR PLANTING PARSNIPS

The same method was followed as for beets and carrots and the following results recorded:—

Variety	Date of seeding	Quality	Yield marketable	Yield unmarketable
			lb.	lb.
Hollow Crown.....	June 15	Too large and split.....	30	5
	" 22	Good size and quality.....	23	4
	" 29...	Fair size and good quality.....	12	2
	July 7	" "	18	5

The late plantings gave better quality of parsnips but a lighter yield.

POTATOES—SPROUTING TEST

This test is to ascertain the relative merits of sprouting potatoes versus non-sprouting before planting. Two varieties were used, namely Irish Cobblers for early crop and Green Mountains for main crop. One lot of each was exposed to subdued light for six weeks at a temperature of from 40 to 50 degrees Fahrenheit and the second lot of each was kept dormant. The third lot was planted from the general bin. The sets were planted on June 5 and harvested on October 5. The following table gives the comparative yields:—

Variety	Method	Yield per acre	
		bush.	lb.
Irish Cobbler	Subdued light	265	50
Irish Cobbler	Dormant	314	10
Irish Cobbler	General bin	275	30

The yields from the Green Mountains were not recorded as many of the plants were pulled for mosaic infection.

METHODS OF PRUNING TOMATOES

A test was carried on to ascertain the relative value of different methods of pruning to single stems. Twenty plants were set one foot apart for use in each test. All plants were transplanted into the open on June 18.

Variety	Method	Date fruit ripe	Weight of ripe	Weight of green	Total weight
			lb.	lb.	lb.
Bonny Best, Stokes	Not headed back	Sept. 2	18	34	52
Alacrity, 4-2-2-1	" "	" 2	34	11	45
Bonny Best	Stopped 3rd fruit truss	" 12	37	31	68
Alacrity	" "	" 12	50	10	60
Bonny Best	Stopped 2nd fruit truss	" 8	41	9	50
Alacrity	" "	" 8	59	12	71
Bonny Best	Stopped 1st fruit truss	" 2	40	12	52
Alacrity	" "	" 2	55	5	60

Bonny Best fruit although somewhat smaller than Alacrity was much smoother and more uniform in size, making it more suitable for basket packing. It was noted that Bonny Best had more checked fruit as it reached maturity.

FLORICULTURE

The summer of 1924 was not quite so suitable to the growing of annuals as 1923, due to the lack of moisture during July, yet fair growth was recorded and there was a continuous bloom from early in June until the first killing frost on October 21. Practically all annuals were started during April in hotbeds, the germination and growth being good and they were transplanted to the open on June 24.

BULBS

Eight varieties of daffodils were tested, being planted on November 23, 1923, and they came through the winter in good condition with the exception of one variety which was badly winter-killed. A good bloom was recorded from May 11 to May 25.

Nine varieties of early tulips and thirteen varieties of the later Darwin varieties were planted on November 13, 1923. All early varieties wintered well and gave a good bloom, the earliest being Pottebakker White, which began to bloom May 15. The Darwin varieties gave an excellent supply of bloom from May 25 until June 5. All bulbs were allowed to remain in the ground and good results are looked for in the spring of 1925, which will be compared with those of the same varieties set out in the fall of 1924.

PERENNIALS

The perennial border again made an excellent showing and was arranged to give continuous bloom from early in May until frost. Phlox, larkspur, pæonies, aquilegia, irises, golden glow and white rocket made the most conspicuous showing.

CEREALS

CHARACTER OF SEASON

The spring of 1924 opened early. The total precipitation for March, April and May was only 4·08 inches. During May, 0·88 inches fell, June had 3·70 inches, and July 0·50 inches; the total for the year being 27·54 inches. The average for seventeen years was 36·13 inches, average for the year being 8·59 inches less. The precipitation for June was fair but the greater part of it fell in light showers and the ground was too dry for it to be 100 per cent beneficial. Seeding was started on May 7. Germination was slow due to lack of moisture. Fair growth was recorded until the middle of July, when the real effect of the drought became apparent. Particularly was this true with the late-seeded grains, the early seedings suffering least. Considering the lack of precipitation during the growing season, the grain yields were exceedingly good with a fair crop of straw. Splendid weather was experienced for harvesting, consequently the grain was stored in good condition. The work in this division has been expanded along new lines during the past year. In addition to the regular variety tests, the rod-row method of studying and comparing the relative merits of the different varieties was started. In all, 264 rod-rows were seeded during 1924, including twenty varieties of wheat, twenty-eight of oats and eighteen of barley. A start was also made on head selection tests and the developing of new strains.

VARIETY TESTS OF GRAIN

The variety tests were cut down to the leading varieties of economic value and all plots seeded in triplicate plots 1/60 of an acre each instead of duplicate as heretofore.

SPRING WHEAT

Five varieties were tested in 1924. The seed was sown on May 14 and the wheat harvested when ripe. The following table gives the number of years tested with average days ripening and also the average yields along with yields of 1924. Huron is a bearded wheat but is superior to White Russian as a milling wheat and has been one of our heaviest producers.

SPRING WHEAT—AVERAGE AND 1924 YIELDS

Variety	Years tested	Number days maturing	Average yield per acre		Yield per acre in 1924	
			bush.	lb.	bush.	lb.
Huron, Ottawa 3	12	108·8	34	40·4	37	30
White Russian	9	121·8	34	34·5	35	—
Marquis, Ottawa 15	12	109·5	32	2·0	32	30
Red Fife, Ottawa 16	11	113·0	31	54·0	—	—
Early Red Fife, Ottawa 17	12	112·0	31	38·3	33	30
Ruby, Ottawa 623	7	102·3	27	43·1	27	20
Bishop	11	108·8	27	38·6	—	—

It will be noted that the yield in 1924 was slightly above average for all varieties except Ruby, Ottawa 623 which is very early and received very little benefit from the August rains.

BARLEY

Three varieties of six-rowed and two of two-rowed were tested in 1924. Seed was sown on May 14 and the following table gives the years tested with average days of ripening also yields. The last column gives the 1924 yields.

BARLEY—AVERAGE AND 1924 YIELDS

Variety	Years tested	Number days maturing	Average yield per acre		Yield per acre in 1924	
			bush.	lb.	bush.	lb.
(Six-rowed)—						
O.A.C. No. 21	10	97·3	44	4·6	46	12
Stella, Ottawa 58	10	99·8	41	43·5	—	—
Manchurian, Ottawa 50	10	98·5	39	42·9	—	—
Albert, Ottawa 54	5	85·4	34	36·8	—	—
Himalayan, Ottawa 59 (hulless)	4	86·2	42	4·5	47	—
Chinese, Ottawa 60	3	90·0	50	23·3	44	28
(Two-rowed)—						
Charlottetown, No. 80	7	96·1	57	25·4	64	8
French Chevalier	10	100·6	49	15·3	—	—
Duckbill	7	97·0	46	34·6	54	8

Chinese Ottawa 60 is not only giving good yields, but is proving to be one of the earliest ripening barleys on test. Himalayan Ottawa 59 is a hulless variety and a splendid producer. Charlottetown No. 80 is the highest yielder of all varieties on test. Chinese and O.A.C. No. 21 contained some smut which reduced their yield somewhat.

OATS

Six varieties of oats were tested during 1924 and seeding took place on May 14. The following table gives the results and both average and 1924 yields.

OATS—AVERAGE AND 1924 YIELDS

Variety	Years tested	Number days maturing	Average yield per acre		Yield per acre in 1924	
			bush.	lb.	bush.	lb.
Banner, Ottawa 49	12	104·7	75	24·2	82	32
Victory	12	105·2	74	10·6	80	—
Lincoln	11	106·0	73	10·7	—	—
Danish Island	11	105·8	71	7·8	—	—
O.A.C. No. 72	9	103·4	70	27·7	72	12
Gold Rain	12	104·0	70	24·2	80	20
Ligowo	11	104·7	67	33·8	—	—
Pioneer	10	103·0	67	25·4	—	—
Daubeney, Ottawa 47	9	100·2	62	15·1	—	—
Alaska	3	91·7	71	32·7	78	28
Liberty (hulless)	4	92·5	59	15·0	—	—
Laurel, Ottawa 477	1	94·0	65	10·0	65	10

Banner has given, over a twelve-year period, the highest yield of any variety and leads in 1924 with Gold Rain a close second, the latter being undoubtedly an exceptionally good variety, running high in weight per measured bushel and having a low per centage of hull. Alaska is a new oat, ripens early, gives a fair yield and is well suited to sowing with six-rowed barley as a mixed grain. Laurel Ottawa 477 is a new hulless variety being tested here for the first time.

BUCKWHEAT

The variety test of buckwheat was very unsatisfactory owing to the season, and the yields were not considered of sufficient value to report.

FLAX

Three varieties of flax were tested for seed production. Novelty was the best yielder producing 22 bushels 19 pounds per acre, Premost second with 21 bushels 10 pounds, and Longstem third with 13 bushels 12 pounds per acre.

REGISTERED SEED GRAIN

Eight acres were sown to registered Banner oats. The total production was 452.8 bushels or an average of 56.6 bushels per acre. Four acres were sown to registered Huron wheat (Ottawa 3), yielding 83.2 bushels, or an average of 20.9 bushels per acre. Four acres were sown to registered Charlottetown No. 80 barley yielding 126 bushels, or an average per acre of 31.5 bushels. The major part of this stock will be for sale during the spring of 1925 as it has passed inspection and will be registered under the Canadian Seed Growers' Association.

FORAGE CROPS

CHARACTER OF SEASON, 1924

More suitable weather conditions could not be desired than were experienced during the cropping season of 1924 for farming operations. Spring opened early and the soil was ready to work by May 7. True, the season lacked sufficient moisture to give large yields but, on the other hand, it was an excellent season for weed control and cultivation and, where sufficient cultivation was given to conserve the available moisture, good average yields were obtained. Roots, corn and sunflowers suffered their greatest setback during July, the total precipitation for that month being one-half inch. The leaves of the corn, sunflowers and roots hung in a wilted state throughout the hot, sunny days of July but August and September saw a great improvement in condition and fair average yields were recorded. Good weather was experienced in October for the harvesting of all forage crops and they were stored in good condition.

SOIL AND CULTURAL METHODS

The variety test plots of corn, sunflowers and roots were seeded with a "Planet Junior" drill in triplicate plots of one one-hundredth of an acre each. The soil was a medium clay loam, summer ploughed from timothy sod in 1923, manured early in the spring of 1924 and cross-ploughed, and ploughed the second time in order to get a good seed-bed. The field was badly infested with couch grass and consequently it took more work to get it in shape. The extra working seemed to conserve more moisture in the field than would have been present otherwise, as excellent yields were obtained, notwithstanding the dry season.

CROPS FOR ENSILAGE

INDIAN CORN

Twenty-two varieties of corn were tested in 1924. Seed was sown on May 27 and the crop harvested September 29. The five leading varieties with their yields were Longfellow (Disco), 23 tons 1,666 pounds; Compton's

Early (Duke), 23 tons 1,333 pounds; Hybrid (Wimple), 22 tons 1,333 pounds; Burr Leaming (Carter), 22 tons 666 pounds; and Wisconscin No. 7 (Parks), 21 tons 1,000 pounds. The majority were in the milk stage when harvested. The accompanying table gives the dry matter content and yields for 1923 tests.

SUNFLOWERS

Ten varieties were tested in 1924. The seed was sown on May 27 and the crop harvested when each variety ran from 75 to 100 per cent in bloom. The Mammoth Russian strains were the highest producers. Mammoth Russian (McDonald) yielded 31 tons 1,666 pounds; Russian Giant (Disco), 31 tons 1,333 pounds; Mammoth Russian (C.P.R.), 23 tons 1,000 pounds per acre. Manteca (C.P.R.) and Mixed Mennonite (Rosthern) were early maturing but the lowest yielders, producing 17 tons 1,000 pounds and 11 tons 666 pounds respectively. The following table gives the yield and dry matter content of sunflowers during the season of 1923.

ROOTS

MANGELS

Thirty-four varieties of strains of mangels were tested in 1924. These were sown in triplicate plots of one one-hundredth of an acre and the seeding down on May 29. Germination was slow but growth was rapid during the latter part of June and in August and September, resulting in good yields being recorded. Harvesting was completed on October 18. The yields recorded are shown in the accompanying table.

TEST OF INDIAN CORN

Variety	1923			1924			Average dry matter per acre
	Yield per acre	Percentage dry matter	Dry matter per acre	Yield per acre	Percentage dry matter	Dry matter per acre	
	tons lbs.		lbs.	tons lbs.		lbs.	lbs.
Longfellow—Duke	22 750	12·63	5,651·9	18 0	16·45	5,922·0	5,787·0
90 Day White Dent—Disco	17 1,250	13·0	4,582·5	18 333	14·52	5,275·6	4,929·1
Leaming Improved—Parks	17 750	13·21	4,590·5	15 1,000	17·12	5,307·2	4,948·9
Wisconsin No. 7—Parks	15 1,750	12·93	4,105·3	21 1,000	15·80	6,794·0	5,449·7
Leaming—Duke	15 1,500	12·96	4,082·4	18 1,666	15·80	5,951·2	5,016·8
Wisconsin No. 7—Duke	14 1,000	14·29	4,144·1	18 1,333	14·62	5,458·1	4,801·1
North Dakota—Steele Briggs	14 750	12·45	3,579·4	18 1,333	18·88	7,048·5	5,314·0
White Cap Yellow Dent—Steele Briggs	13 1,750	14·68	4,073·7	15 1,333	15·84	4,963·1	4,518·4
Longfellow, lot 1099—Disco	13 1,750	12·45	3,454·9	23 1,666	14·87	7,087·9	5,271·4
Twitchel's Pride—E. F. Fredericton	13 750	15·35	4,106·1				4,106·1*
Golden Glow—Duke	12 1,750	12·16	3,131·2	18 1,333	16·71	6,238·3	4,684·8
Northwestern Red Dent—Disco	12 1,250	13·91	3,512·3				3,512·3*
Quebec 28, McD. College	11 500	12·85	2,891·3	17 333	17·26	5,925·9	4,408·6
Northwestern Dent—McKenzie	11 250	13·70	3,048·3				3,048·3*
Compton's Early—Duke	9 1,750	12·39	2,447·0	23 1,333	16·36	7·743·7	5,095·4
Pride Yellow Dent—Disco	8 750	14·68	2,458·9	19 333	18·78	7,198·9	4,828·9
Hybrid—Wimple				22 1,333	16·13	7,312·2	7,312·2*
Burr Leaming—Carter				22 666	16·57	7,401·2	7,401·2*
Yellow Dent—Wimple				19 1,666	17·03	6,755·1	6·755,1*
Bailey—Duke				18 1,000	17·89	6,619·3	6,619·3*
Northwestern Red Dent—Brandon				18 1,000	16·45	6,086·5	6,086·5*
Amber Flint—Wimple				18 333	19·90	7,230·3	7,230·3*
Northwestern Dent, North Dakota—McK				16 1,666	18·48	6,221·5	6,221·5*
Northwestern Dent, Nebraska—McK				16 1,333	19·16	6,386·6	6,386·6*
Northwestern Dent—Wimple				16 1,000	18·26	6,025·8	6,025·8*

TEST OF SUNFLOWERS

Variety	1923			1924			Average dry matter per acre
	Yield per acre	Percentage dry matter	Dry matter per acre	Yield per acre	Percentage dry matter	Dry matter per acre	
	tons lbs.		lbs.	tons lbs.		lbs.	lbs.
Mantece—C.P.R.	24 1,750	16·36	8,139·1	17 1,000	9·60	3,360·0	5,749·6
Black—C.P.R.	21 1,450	14·18	6,161·2	22 333	11·55	5,120·5	5,640·9
Mixed—C.P.R.	19 1,750	14·73	5,855·2	20 1,666	10·18	4,241·6	5,048·4
Giant Russian—Disco	18 750	15·68	5,762·4	31 1,333	.....	.....	5,762·4*
Ottawa No. 76	17 1,500	.....	.....	18 1,666	11·37	4,282·6	4,282·6*
Marmoth Russian—McDonald	14 1,250	18·17	5,314·7	31 1,666	14·49	9,225·2	7,270·0
Russian Giant—C.P.R.	10 1,250	16·36	3,476·5	23 1,000	10·17	4,779·9	4,128·2
Mixed Mennonite—Rosthern	8 1,200	16·84	2,896·50	11 666	9·72	2,203·1	2,549·8
Manchurian—McKenzie	8 1,000	15·36	2,611·2	22 333	10·79	4,783·5	3,697·4
Manchurian—C.P.R.	.....	.....	.....	22 666	11·70	5,225·9	5,225·9*

* One year only.

MANGEL—VARIETY TEST

Variety	Correct yield per acre			Per cent dry matter	Yield of dry matter per acre
	tons	lb.	bush.		lb.
Jumbo White Sugar—Rennie	31	1,850	1,277	10·68	6,819·2
Danish Sludstrup—McDonald	31	354	1,247	9·72	6,060·8
Barres Oval—Gen. Swedish Seed Co	30	282	1,206	11·10	6,691·3
Fjerritsler Barres—Hjalmar Hartmann	29	1,779	1,195	11·94	7,137·6
Stryno Barres—Hjalmar Hartmann Co	28	1,532	1,151	10·92	6,282·5
Rosted Barres—Hjalmar Hartmann	28	1,525	1,151	13·29	7,645·1
Danish Sludstrup—Ewing	28	861	1,137	13·41	7,625·1
Long Red Mammoth—Ewing	27	1,827	1,117	11·62	6,487·1
Giant Yellow Globe—Ewing	27	1,665	1,113	10·16	5,655·6
Svalof Red—General Swedish Seed Co	27	1,347	1,107	12·17	6,735·7
Barres Sludstrup—Gen. Swedish Seed Co	27	875	1,098	12·73	6,985·6
Selected Giant Rose Inter. Sugar—Ewing	27	621	1,092	13·74	7,504·9
Perfection Mammoth Long Red—Rennie	27	475	1,090	12·75	6,945·6
Yellow Leviathan—Rennie	27	271	1,085	11·75	6,376·8
Barres Half Long—Gen. Swedish Seed Co	26	355	1,047	11·40	5,968·5
Barres Sludstrup—Hjalmar Hartmann Co	26	242	1,045	10·90	5,694·4
Eckendorfer Red—Gen. Swedish Seed Co	25	1,749	1,035	11·78	6,096·0
Yellow Eckendorfer—Hjalmar Hartmann Co	25	1,479	1,030	12·05	6,203·2
Golden Tankard—Ewing	25	1,318	1,026	12·20	6,260·8
Taaroje Bros.—Hartmann Co	25	988	1,020	11·35	5,787·1
Red Globe Mangel—Dupuis & Ferguson	25	470	1,009	11·04	5,571·9
Red Globe—Ewing	25	433	1,009	12·01	6,057·0
Yellow Eckendorfer—Gen. Swedish Seed	25	118	1,002	12·28	6,154·5
Leviathan—Rennie	25	62	1,001	8·54	4,275·3
Yellow Intermediate—C.E.F. Ottawa	24	1,332	986	11·53	5,686·8
Svalof Original Alfa—Gen. Swedish Seed	24	940	979	11·75	5,750·5
Long Yellow—Ewing	24	754	975	12·63	6,157·6
Elevathan Mammoth—Hjalmar Hartmann Co	24	289	966	.....	.....
White Red Top Half Sugar—Hjalmar Hartmann Co	23	948	939	10·81	5,075·1
Giant Yellow Globe—Rennie	22	955	899	10·86	4,882·1
Eckendorfer Red—Hjalmar Hartmann Co	22	948	899	12·04	5,411·7
Golden Tankard—Rennie	22	108	882	13·79	6,082·5
White Green Top Half Sugar—Hjal. Hart	21	1,224	864	11·15	4,819·5
Green Top White Sugar—Ewing	18	921	738	.....	.....

It will be noticed that the leading variety, Jumbo White Sugar from Rennie, was the leader in both the 1923 and 1924 tests. This is a very uniform sugar mangel which varies somewhat in type, the roots ranging from intermediate to long in shape. Several new varieties were tested from Hjalmar and Hartmann Company, Denmark and from the General Swedish Seed Company. The Long Red types while giving good yields on the average are very undesirable in shape, hard to harvest, and the wastage is greater than with the smoother and more uniform roots.

TURNIPS

Twenty-six varieties or strains of Swedes and four varieties of fall turnips were tested in 1924. These were seeded on May 28 and the Swedes harvested October 24, while the fall turnips were harvested on September 24. The following are the corrected yields obtained on these plots.

The leading variety, Hall's Westbury (Ewing), was also the heaviest yielder in 1923. The yields were exceptionally good, several varieties having an average weight per root of twelve to fifteen pounds and many roots approached twenty pounds in weight. There was no club-root infection in 1924, the only damage the crop suffered was in June when the cabbage root maggot was somewhat troublesome. The fall turnips gave good yields and are a profitable crop to grow where roots are wanted in early autumn for dairy cows or for fattening stock.

TURNIP VARIETY TEST

Variety	Correct yield per acre			Per cent dry matter	Yield of dry matter per acre
	tons	lb.	bush.		lb.
Swedes—					
Hall's Westbury—Ewing	43	1,306	1,746	9·86	8,608·4
Invicta Bronze Top—Rennie	42	363	1,687	8·13	6,858·7
Ditmars—McNutt	41	440	1,649	7·13	5,878·0
Best of All—Rennie	40	1,047	1,621	9·09	7,367·2
Best of All—Ewing	39	829	1,577	8·73	6,881·8
Invicta Bronze Top—Ewing	37	1,548	1,511	12·77	9,647·5
Bangholm—Ewing	36	1,459	1,469	9·93	7,294·5
Bangholm 116—Trifolium	35	1,306	1,426	10·33	7,365·9
Westbury Purple Top-Rennie	34	1,401	1,388	10·14	7,037·3
Bangholm—McKenzie	34	1,024	1,380	8·51	5,873·9
Hazard's Improved Bronze Top—Rennie	34	803	1,376	9·96	6,852·8
Bangholm—Trifolium	33	1,964	1,359	9·56	6,497·4
Kangaroo Bronze Green Top—Rennie	33	1,773	1,355	8·64	5,855·6
Magnum Bonum—Ewing	33	581	1,332	9·15	6,092·2
Imp. Jumbo or Elephant—Rennie	33	264	1,325	9·07	6,010·1
Sutton's Champion Purple Top—Rennie	33	161	1,323	10·45	6,913·8
Olsgard Bangholm—Hjalmar Hartmann Co	32	1,836	1,317	8·54	5,622·4
Kangaroo—Ewing	32	1,308	1,306	8·24	5,381·4
Shepherd—Trifolium	32	198	1,284	9·26	5,944·7
Bangholm—Nappan	30	194	1,204	10·81	6,507·0
Shepherd Golden Globe—Hjalmar Hart Co	29	1,551	1,191	10·20	6,074·2
Elephant or Monarch Improved—Ewing	29	759	1,175	6·18	3,631·3
Improved Yellow Swedish—General Swedish Seed Co.	29	678	1,174	10·79	6,331·4
Sutton's Champion Purple Top—Ewing	29	139	1,163	11·89	6,912·7
Bangholm—General Swedish Seed Co	28	1,423	1,148	9·93	5,702·1
Bangholm Purple Top—Rennie	28	1,312	1,146	10·13	5,805·7
Fall Turnips—					
Yellow Tankard BL 351—Danskehandboforeningers Frosynying	36	734	1,455	6·79	4,938·6
Fynsk Bortfelder Porti 3660—Danskehandboforeningers Frosynyning	33	1	1,320	7·70	5,082·1
Furness Bortfelder—Hjalmar Hartmann Co	32	1,351	1,307	6·63	4,332·8
Dalis B.L. 773—Danskehandboforeningers Frosynying	29	494	1,170	8·30	4,855·0

CARROTS

Sixteen varieties of carrots were seeded on May 29 and harvested October 22. The yields were fair, the intermediate varieties in most cases outyielding the long types which are hard to harvest. The following table gives the results obtained:—

CARROT VARIETY TEST

Variety	Corrected yield per acre	Per cent dry matter	Yield of dry matter per acre on corrected yield basis	General type
	tons lb. bush.		lb.	
Improved Inter. White—Ewing	16 1,827 677	8·79	2,973·4	White intermediate.
Mammoth White Intermediate—Rennie	16 1,334 667	8·39	2,796·7	"
Danish Champion—C.E.F. Ottawa	15 1,125 622	10·86	3,380·2	Yellow intermediate.
Large White Belgian—Rennie	15 1,026 620	8·44	2,618·6	White intermediate.
Mammoth Short White—Rennie	15 242 605	8·66	2,619·0	"
Champion—Hjalmar Hartmann Co.	14 1,185 584	11·60	3,385·5	Yellow intermediate.
White Belgian—Dupius & Ferguson	14 78 562	9·22	2,588·8	Long white.
French White Belgian—Ewing	13 1,907 558	9·42	2,628·8	"
Champion—General Swedish Seed Co	13 1,435 549	9·64	2,644·7	Yellow intermediate.
White Belgian—Hjalmar Hartmann Co	13 1,180 544	10·24	2,783·2	Long white.
White Belgian No. 1207—Trifolium	13 1,033 541	14·07	3,803·5	White intermediate.
New Yellow Intermediate—Ewing	13 916 538	9·43	2,538·2	Yellow intermediate.
Yellow Belgian—Ewing	13 370 527	13·86	3,654·9	"
Half Long White—General Swedish Seed Co	12 1,490 510	9·74	2,644·7	White intermediate.
Large White Vosges—Dupuis & Ferguson	12 1,471 510	9·86	2,511·4	Short white.
James B.L. 781—Danskehandbo-foreningers Frosynyning	10 690 414	12·95	2,679·4	Red intermediate.

SUGAR BEETS

Eight varieties were tested in 1924 and analysis made of the sugar content and co-efficient of purity by the Chemistry Division at Ottawa. The following table gives the results:—

SUGAR BEET VARIETY TEST

Variety	Corrected average yield per acre	Analysis of Dominion Chemist		
		Sugar in juice	Co-efficient of puriy	Average weight of one root
	tons lb. bush.	%	%	lb. oz.
Horning	21 1,009 860	17·56	90·03	2 6
Henning and Harving	19 1,737 795	17·36	86·38	2 4
Dr. Burgman	19 1,009 780	13·49	80·42	1 15
Schreiber and Son	18 1,316 746	16·58	87·70	2 1
Kitchener	18 89 722	18·02	92·41	2 0
Vilmorin's Imp. Sel. B	17 1,695 714	17·56	90·95	1 10

The variety from Sluice Brothers was a complete failure due to poor germination. The average per cent of sugar is good and the co-efficient of purity is high. The possible yields under suitable soil conditions and with proper cultivation is most encouraging. Due to the great interest taken in a sugar beet industry in this section, some fifteen to twenty tests of sugar beets

were started in co-operation with farmers in this district. The following table gives the names of those co-operating with the Experimental Farm, Nappan, also the yields, together with the sugar and purity tests.

CO-OPERATIVE SUGAR BEET TESTS, 1924

Name and Address	Actual yield per acre		Weight of one root	Sugar	Co-efficient of purity
	tons	lb.	oz.	p.c.	p.c.
Burton Lewis, West Brook, N.S.	4	1,284	9·1	19·59	87·98
F. S. Black, R.R. No. 4, Amherst, N.S.	8	1,408	6·8	20·51	87·58
E. N. Smith, Linden, N.S.	13	1,664	10·0	19·31	80·28
John Brander, Shinimecas, N.S.	12	685	10·9	18·14	83·83
James Stewart, Amherst Point, N.S.	10	571	12·9	20·28	87·38
Lorne Fisher, Lorneville, N.S.	9	1,439	13·2	20·65	88·08
Amos Fowler, Amherst Point, N.S.	9	490	15·2	19·65	91·66
John R. Grimmett, Shinimecas, N.S.	9	1,342	11·0	19·36	84·16
William Fowler, Amherst Point, N.S.	16	381	32·0	16·20	85·17
Samuel Freeman, West Amherst, N.S.	2	991	12·6	18·95	82·31
Charles Logan, Amherst Point, N.S.	8	575	13·0	19·88	87·16
Archie Moore, Shinimecas Bridge, N.S.	8	1,408	15·0	21·62	88·53
Average yield per acre	9	1,020	13·7	19·51	86·18

GRASSES AND CLOVERS

GRASSES WITH CLOVERS AND ALONE

This experiment was started with the object in view of ascertaining the production of the various grasses alone and in combination with red clover and alsike. The 1924 results together with the average yield of dry matter for the past two years are included in the accompanying table.

From the table it will be noted that a mixture of 8 pounds timothy, 8 pounds red clover and 2 pounds of alsike has, from a two year average, given the highest number of pounds dry matter per acre.

GRASSES WITH CLOVERS AND ALONE

Seed mixtures	Green weight		Average per acre			Average dry matter per acre	Average dry matter 1923, 1924
			Cured as hay		Dry matter in crop		
	tons	lb.	tons	lb.	per cent	lb.	lb.
10 pounds red clover, 8 pounds timothy	4	1,210·0	2	658·0	35·25	3,246·5	5,091·05
10 pounds red clover, 15 pounds meadow fescue	1	1,663·0	0	1,742·0	34·75	1,272·9	4,427·15
10 pounds red clover, 15 pounds orchard grass	2	1,725·0	1	916·0	34·94	2,000·3	3,845·47
10 pounds red clover, 6 pounds timothy, 10 pounds meadow fescue	3	1,627·5	2	18·0	41·52	3,026·9	4,687·40
10 pounds red clover, 6 pounds timothy, 10 pounds orchard grass	3	436·5	1	1,645·0	41·39	2,580·6	4,213·50
10 pounds red clover, 10 pounds meadow fescue, 10 pounds orchard grass	2	1,778·5	1,	1,040·5	39·98	2,215·1	4,116·24
6 pounds alsike, 8 pounds timothy	4	1,868·0	2	1,102·5	41·04	4,025·0	5,238·91
6 pounds alsike, 15 pounds meadow fescue	5	330·0	2	1,263·0	36·77	3,605·2	5,145·47
6 pounds alsike, 15 pounds orchard grass	3	632·0	1	1,307·0	33·50	2,212·4	3,643·81
6 pounds alsike, 6 pounds timothy, 10 pounds meadow fescue	5	1,041·5	2	1,938·5	39·06	4,343·4	5,588·97
6 pounds alsike, 6 pounds timothy, 10 pounds orchard grass	4	694·0	2	712·0	40·36	3,589·4	4,605·39
6 pounds alsike, 10 pounds meadow fescue, 10 pounds orchard grass	3	525·5	1	1,449·0	39·14	2,601·4	4,471·41

GRASSES WITH CLOVERS AND ALONE—*Concluded*

Seed mixture	Green weight	Average per acre: Cured as hay	Average per acre: Dry matter in crop	Average dry matter per acre	Average dry matter 1923, 1924
8 pounds red clover, 2 pounds alsike, 8 pounds timothy	5 1,148·0	3 472·0	43·23	4,845·2	6,151·50
8 pounds red clover, 2 pounds alsike, 15 pounds meadow fescue	4 748·0	1 1,787·0	39·89	3,443·0	5,369·66
8 pounds red clover, 2 pounds alsike, 15 pounds orchard grass	2 1,387·0	1 294·0	34·33	1,818·8	3,477·57
8 pounds red clover, 2 pounds alsike, 6 pounds timothy, 10 pounds meadow fescue	4 1,246·0	2 161·0	32·25	2,981·8	4,725·07
8 pounds red clover, 2 pounds alsike, 6 pounds timothy, 10 pounds orchard grass	4 1,388·0	2 1,227·0	45·64	4,284·7	5,381·83
8 pounds red clover, 2 pounds alsike, 10 pounds meadow fescue, 10 pounds orchard grass	4 1,068·0	2 516·0	38·85	3,522·9	5,067·08
12 pounds timothy	5 668·0	3 116·0	45·74	4,879·5	5,798·56
30 pounds meadow fescue	2 1,227·0	1 738·0	41·86	2,188·0	4,125·92
30 pounds orchard grass		Winter-killed			3,315·81*
8 pounds timothy, 15 pounds meadow fescue	4 1,494·5	2 1,298·5	47·11	4,458·3	4,458·30†
8 pounds timothy grass, 15 pounds orchard grass	3 578·5	1 1,662·5	46·91	3,086·2	3,803·06
15 pounds meadow fescue, 15 pounds orchard grass	2 1,618·0	1 1,094·0	44·78	2,515·7	3,602·49

* 1923 results only. † 1924 results only.

RATES OF SEEDING HAY AND PASTURE MIXTURES

The results show very little variation in the average yields of dry matter for two years, the third mixture giving the highest yield. The findings are included in the accompanying table.

RATES OF SEEDING HAY AND PASTURE MIXTURES

Seed mixtures	Green weight	Average per acre: Cured as hay	Average per acre: Dry matter in crop	Average dry matter per acre	Average dry matter 1923, 1924
	tons lb.	tons lb.	per cent	lb.	lb.
10 pounds red clover, 8 pounds timothy	6 339·0	3 45·0	40·36	4,980·0	6,144·57
8 pounds red clover, 8 pounds timothy, 2 pounds alsike	4 1,637·0	2 729·0	36·27	3,495·3	5,875·57
5 pounds red clover, 8 pounds timothy, 5 pounds alsike	7 1,931·0	3 1,468·0	46·10	7·344·2	7,520·89
8 pounds red clover, 6 pounds timothy, 2 pounds alsike, 2 pounds red top	8 180·0	3 1,254·0	36·92	5,973·7	6,494·92
8 pounds red clover, 4 pounds timothy, 2 pounds alsike, 4 pounds red top	6 179·0	2 1,280·5	39·75	4,871·1	5,931·94
8 pounds red clover, 6 pounds timothy, 2 pounds alsike, 2 pounds red top, 6 pounds meadow fescue	5 988·0	2 978·5	39·43	4,339·5	5,769·39
8 pounds red clover, 4 pounds timothy, 2 pounds alsike, 4 pounds red top, 6 pounds meadow fescue	6 659·5	2 1,529·5	39·33	4,979·3	6,135·46

EARLY AND LATE RED CLOVER WITH EARLY AND LATE GRASSES

The clovers and grasses entirely winter-killed so no results were recorded on the 1923 seeding. The plots seeded in 1922 gave fairly good yields, there being very little difference between the clovers, but timothy outyielded meadow fescue in dry matter per acre when they were combined with either early or late clover.

MEADOW FESCUE IN HAY AND PASTURE MIXTURES

The object of this experiment was to test the value of meadow fescue in hay and pasture mixtures. The average dry matter yields shown in the table are hardly consistent with the mixtures used, so no deductions can be drawn until further data along this line have been collected.

CLOVERS—VARIETY TEST

The Dutch clover, red clover and alsike plots seeded in 1923 were all winter-killed, therefore records for 1924 are not available.

ALFALFA TESTS

The plot seeded broadcast without a nurse crop was the only one that did not winter-kill. The yield was 1,979.1 pounds dry matter per acre.

TIMOTHY—VARIETY TEST

The timothy plots seeded in 1923 were winter-killed, but the plots seeded in 1922 gave a very good yield from the second cutting as is shown by the accompanying table.

MEADOW FESCUE IN HAY AND PASTURE MIXTURES

Seed mixtures	Average per acre			Average dry matter per acre	Average dry matter 1923, 1924
	Green weight	Cured as hay	Dry matter in crop		
	tons lb.	tons lb.	per cent	lb.	lb.
8 pounds red clover, 2 pounds alsike, 8 pounds timothy	5 1,344	2 765	35·06	3,977·2	5,292·12
8 pounds red clover, 2 pounds alsike, 7 pounds timothy, 2 pounds meadow fescue	7 1,291	2 1,547	35·40	5,413·0	6,315·44
8 pounds red clover, 2 pounds alsike, 7 pounds timothy, 4 pounds meadow fescue	7 900	2 1,654	33·26	4,955·7	5,939·41
8 pounds red clover, 2 pounds alsike, 7 pounds timothy, 6 pounds meadow fescue	8 820	3 116	32·35	5,441·3	6,745·39
8 pounds red clover, 2 pounds alsike, 6 pounds timothy, 2 pounds meadow fescue	6 1,975	2 1,156	29·54	4,128·2	6,073·77
8 pounds red clover, 2 pounds alsike, 6 pounds timothy, 4 pounds meadow fescue	5 1,628	2 445	31·12	3,576·3	5,739·40
8 pounds red clover, 2 pounds alsike, 6 pounds timothy, 6 pounds meadow fescue	4 890	.....	32·88	2,843·6	5,030·63

TIMOTHY VARIETY TEST

Varieties	Average per acre		
	Green weight	Dry matter	Dry matter
	tons lb.	per cent	lb.
Grand Prairie	2 600	54·05	2,480·8
Ottawa B.K. 1921	2 —	51·26	2,027·2
Ohio Commercial	2 760	48·25	2,287·4
Nova Scotia Commercial	2 1,040	51·60	2,526·7
Ohio 9352	2 1,300	56·88	3,014·7
Ohio 6779	2 400	51·90	2,290·4
Ohio 3937	2 940	51·00	2,493·0

TURNIP SEED PRODUCTION

One hundred and sixty bushels of Bangholm club-root-resistant Swede turnips were pitted during the fall of 1923. When the pit was opened on May 7, 1924, less than seven per cent were thrown out, including dead crowns. The remainder were set out on May 7 in rows three feet apart and three feet in the rows, making one-half acre. The area was cultivated three times but the soil was a sandy loam and the season very dry, consequently the plants did not develop good strong tops and thus the seed production was cut down. However, the 268 pounds seed gathered was uniformly ripened and of good quality. The average yield per acre was 536 pounds. The following is a summary of the cost of production for 1924:—

COST TO PRODUCE TURNIP SEED
(Year 1924)

Area—1 acre.	
Rent of land	$ 4 00
Use of machinery	3 00
Manure, 4 tons at $2	8 00
Pitting, 1 man, 12 hours at 28 cents	3 36
Planting, 1 man 60 hours at 28 cents	16 80
Planting, 2 horses 30 hours at 52 cents	15 60
Harvesting, 1 man 120 hours at 28 cents	33 60
Cleaning, 1 man 20 hours at 28 cents	5 60
300 bushels roots at 8 cents	24 00
Total cost	$ 113 96

Yield per acre, 536 pounds.
Cost per acre, $113.96
Cost per pound, 21·2 cents.

EXPERIMENTS WITH FERTILIZERS

There are two main experiments with fertilizers being conducted at this Farm. The first is testing the relative merits of complete fertilizers of different formulæ applied to the potato crop in a three-year rotation (potatoes, oats and clover hay) at three rates of application. All plots are 1/40 of an acre each and in duplicate. The second is a comparison of different brands of basic slag, ground rock phosphate and superphosphate applied to the grain crop in a three-year rotation (grain, clover hay and timothy hay). The 1923 plots were in triplicate and 1/40 of an acre each. The 1924 plots were in quintuple and 1/320 of an acre each, including check plots.

FERTILIZER FORMULAE FOR POTATOES

From a careful study of the results obtained during the past three years, some very interesting as well as valuable information has been obtained from the use of commercial fertilizers in the growing of potatoes. The average total yield from all fertilized plots covering a period of three years was 224.03 bushels per acre, while the checks or unfertilized plots yielded an average of 97.57 bushels per acre. One-eighth of the total yield was unmarketable. The increase over average of checks was 117.4 bushels of marketable and 9.07 bushels unmarketable potatoes. Valuing the 117.4 bushels of marketable at 40 cents and 9.07 bushels unmarketable at 20 cents, we have an increase in crop value of $48.77 per acre over the unfertilized area. The average fertilizer cost per acre was $26.66, leaving a profit over fertilizer applied of $22.12 per acre.

The preceding figures are taken from the average of all three applications, 2,000 pounds, 1,500 pounds and 1,000 pounds per acre. The various formulæ were prepared by using sulphate of ammonia and nitrate of soda in equivalent amounts as sources of nitrogen, superphosphate as the source of phosphoric acid and muriate of potash as the source of potash. The tables give the results obtained.

FERTILIZER FORMULAE FOR POTATOES, 1924

PROFIT AND LOSS

Formulae	6-6-6			5-6-6			4-6-6			3-6-6			5-8-6		
Application per acre, in pounds	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Average yield of duplicate plots—															
Marketable...Bush.	178·0	166·7	145·3	122·8	143·0	138·2	129·7	149·3	176·0	146·7	150·7	157·7	137·0	158·3	152·7
Unmarketable... "	16·0	14·0	21·0	13·3	18·0	16·0	15·3	19·3	19·3	19·0	16·0	22·3	14·3	20·7	14·0
Increase over average of checks—															
Marketable...Bush.	113·3	102·0	80·6	58·1	78·3	73·5	65·0	84·6	111·3	82·0	86·0	93·0	72·3	93·6	88·0
Unmarketable... "	2·9	0·9	7·9	0·2	4·9	2·9	2·2	6·2	6·2	5·9	2·9	9·2	1·2	7·6	0·9
Value of increase...$	45 90	40 98	33 82	23 28	32 30	29 98	26 44	35 08	45 76	33 98	34 98	39 04	29 16	38 96	35 38
Cost of fertilizer...$	20 55	30 70	41 09	18 39	27 58	36 77	16 22	24 30	32 44	14 06	21 09	28 12	19 95	29 92	39 89
Profit...$	25 35	10 28	−7 27	4 89	4 72	−6 79	10 22	10 78	13 32	19 92	13 89	10 92	9 21	9 04	−4 51
Average profit of applications...		9 45			0 94			11 44			14 91			4 58	

	4-8-6			3-8-8			4-8-10			4-8-8			4-8-4		
Application per acre, in pounds	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Average yield of duplicate plots—															
Marketable...Bush.	157·0	175·7	163·0	137·7	161·3	163·7	154·8	175·0	183·3	148·3	204·3	179·7	132·3	192·7	190·7
Unmarketable... "	19·0	14·0	14·0	20·0	17·7	21·0	19·3	19·7	20·0	20·0	21·0	16·3	8·7	18·3	23·7
Increase over average of checks—															
Marketable...Bush.	92·3	111·0	98·3	73·0	96·6	99·0	90·1	110·3	118·6	83·6	139·6	115·0	67·6	128·0	126·0
Unmarketable...Bush.	5·9	0·9	0·9	6·9	4·6	7·9	6·2	6·6	6·9	6·9	7·9	3·2	−4·4	5·2	10·6
Value of increase...$	38 10	44 58	39 50	30 58	39 56	41 18	37 28	45 44	48 82	34 82	57 42	46 64	26 16	52 24	52 52
Cost of fertilizer...$	17 78	26 68	35 56	15 62	23 43	31 24	19 70	29 56	39 40	18 74	28 12	37 48	16 82	25 24	33 64
Profit...$	20 32	17 90	3 94	14 96	16 13	9 94	17 58	15 88	9 42	16 08	29 30	9 16	9 34	27 00	18 88
Average profit of applications...		14 05			13 68			14 29			18 18			18 41	

Prices used: Marketable potatoes, per bush., 40 cents.
Unmarketable potatoes, per bush., 20 cents.

FERTILIZER FORMULAE FOR POTATOES

AVERAGE RESULTS OF THREE YEARS' POTATO CROP, 1922-23-24

Formulae		6-6-6			5-6-6			4-6-6			3-6-6			5-8-6		
Application per acre, in pounds		1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Average yield of duplicate plots in bushels—																
Marketable	Bush.	173·0	179·8	174·9	159·1	188·7	189·4	162·8	198·6	219·8	172·1	196·3	212·9	180·1	194·0	207·9
Unmarketable	"	29·7	27·2	32·0	27·1	26·5	28·0	29·8	26·9	26·1	26·1	25·7	30·7	28·5	32·0	24·8
Increase over average of checks—																
Marketable	Bush.	94·9	101·7	96·8	81·0	110·6	111·3	84·7	120·5	141·7	94·0	118·2	134·8	102·0	115·9	129·8
Unmarketable	"	10·2	7·7	12·5	7·6	7·0	8·5	10·3	7·4	6·6	6·6	6·2	11·2	9·0	12·5	5·3
Value of increase	$	40 00	42 22	41 22	33 92	45 64	46 22	35 94	49 68	58 00	38 92	48 52	56 16	42 60	48 86	52 98
Cost of fertilizer	$	20 55	30 70	41 09	18 39	27 58	36 77	16 22	24 30	32 44	14 06	21 09	28 12	19 95	29 92	39 89
Profit	$	19 45	11 52	0 13	15 53	18 06	9 45	19 72	25 38	25 56	24 86	27 43	28 04	22 65	18 94	13 09
Average profit of applications	$		10 36			14 35			23 55			26 78			18 23	

		4-8-6			3-8-6			4-8-10			4-8-8			4-8-4		
Application per acre in pounds		1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Average yield of duplicate plots in bushels—																
Marketable	Bush.	187·9	208·1	199·2	182·0	197·5	229·8	195·8	222·3	229·6	191·9	216·5	235·6	159·2	199·5	200·0
Unmarketable	"	29·8	28·4	26·6	30·2	26·6	29·3	27·1	28·1	29·0	30·0	30·0	27·0	25·7	34·2	34·2
Increase over average of checks—																
Marketable	Bush.	109·8	130·0	121·1	103·9	119·4	151·7	117·7	144·2	151·5	113·8	138·4	157·5	81·1	121·4	121·9
Unmarketable	"	10·3	8·9	7·1	10·7	7·1	9·8	7·6	8·6	9·5	10·5	10·5	7·5	6·2	14·7	14·7
Value of increase	$	45 98	53 78	49 86	43 70	49 18	62 64	48 60	59 40	62 50	47 62	57 46	64 50	33 68	51 50	51 70
Cost of fertilizer	$	17 78	26 68	35 56	15 62	23 43	31 24	19 70	29 56	39 40	18 74	28 12	37 48	16 82	25 24	33 64
Profit	$	28 20	27 10	14 30	28 08	25 75	31 40	28 90	29 84	23 10	28 88	29 34	27 02	16 86	26 26	18 06
Average profit of applications	$		23 20			28 41			27 28			28 41			20 39	

Prices used: Marketable potatoes, per bush., 40 cents.
Unmarketable potatoes, per bush., 20 cents.

SUMMARY

Average Yields and Profits

Application per acre	Increase in yield over average of checks		Value of increase	Average cost of fertilizer	Profit over cost of fertilizer
	Marketable	Unmarketable			
	bush.	bush.	$ cts.	$ cts.	$ cts.
Pounds—					
2,000	131·8	9·27	54 57	35 55	19 02
1,500	122·05	9·05	50 63	26 66	23 97
1,000	98·3	8·90	41 10	17 78	23 32

The profits over fertilizer costs indicate quite clearly that the heavier applications are not the most profitable when applied to soils of average fertility. The 1,500 pounds application gave the greatest profit but it was only 65 cents more than that for 1,000-pound application and the extra freight, truckage and labour charges for handling the additional 500 pounds would more than offset the 65 cents profit. Therefore, under average soil and climatic conditions 1,000 to 1,200 pounds would appear to be the most economical application. Studying the figures in the summary, from the standpoint of potato production, the results indicate that an increase in nitrogen content of the fertilizer beyond certain limits, gives a corresponding decrease in profits. This is found to be the case in comparing the profits of a 3-6-6 with that of a 6-6-6 mixture, the former giving an increased profit over the latter of $16.42 per acre. Again, in comparing a 3-8-6 with a 5-8-6, the increase in profit is $10.86 per acre over the latter formula. For the potato crop alone our results show that on a moderately heavy clay loam of good tilth and of fair fertility, a fertilizer which is not

Gold Rain oats, following the potato fertilizer formulae test, yielding 64.4 bushels per acre.

very high in nitrogen and medium to high in phosphoric acid and potash will give the greatest profit over cost of fertilizer, for example a 3-8-6, a 4-8-8 or a 3-6-6 mixture. Only one year's results are available from grain yields following the potato crop in this rotation (potatoes, grain and clover hay) therefore definite conclusions cannot be drawn. However, the increase in profits from the fertilized areas over the unfertilized areas is quite marked, ranging from $4.22 per acre for 1,000 pounds, to $8.36 for the 1,500 pounds and $13.05 for the 2,000-pound application. These tests will be continued until at least six year's averages are available, when more definite conclusions can be drawn. Another table gives the second year's results, from the oat crop following potatoes.

FERTILIZER FORMULAE FOR POTATOES—SECOND YEAR'S RESULTS IN A THREE-YEAR ROTATION OF POTATOES, OATS AND HAY

PROFIT AND LOSS

Formulae:		6-6-6			5-6-6			4-6-6			3-6-6			5-8-6		
Application per acre, in pounds		1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Total yield, average of duplicate plots—																
Grain	Bush.	56·5	65·9	71·8	60·0	67·1	70·6	61·8	72·9	78·8	67·6	60·0	75·4	60·6	58·8	71·2
Straw	Tons	0·82	0·89	1·12	0·76	0·99	1·07	0·89	0·83	1·16	0·98	0·83	1·04	0·77	0·81	0·99
Increase over average of checks—																
Grain	Bush.	3·6	13·0	18·9	7·1	14·2	17·7	8·9	20·0	25·9	14·7	7·1	22·5	7·7	5·9	18·3
Straw	Tons	0·14	0·21	0·44	0·08	0·31	0·39	0·21	0·15	0·48	0·30	0·15	0·36	0·09	0·13	0·31
Value of increase—																
Grain	$	2 30	8 32	12 10	4 54	9 09	11 33	5 70	12 80	16 58	9 41	4 54	14 40	4 93	3 78	11 71
Straw	$	0 56	0 84	1 76	0 32	1 24	1 56	0 84	0 60	1 92	1 20	0 60	1 44	0 36	0 52	1 24
Total value of increase	$	2 86	9 16	13 86	4 86	10 33	12 89	6 54	13 40	18 50	10 61	5 14	15 84	5 29	4 30	12 95
Average value of increase of three applications	$	8 63			9 36			12 81			10 53			7 51		

		4-8-6			3-8-6			4-8-10			4-8-8			4-8-4		
Application per acre, in pounds		1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000	1,000	1,500	2,000
Total yield, average of duplicate plots—																
Grain	Bush.	51·8	58·2	68·2	57·6	61·8	68·8	58·2	67·1	71·8	54·7	68·2	67·1	58·2	66·5	67·1
Straw	Tons	0·76	0·85	0·92	0·83	0·92	1·07	0·80	1·03	1·07	0·67	0·90	0·96	0·79	0·86	0·92
Increase over average of checks—																
Grain	Bush.	−1·1	5·3	15·3	4·7	8·9	15·9	5·3	14·2	18·9	1·8	15·3	14·2	5·3	13·6	14·2
Straw	Tons	0·08	0·17	0·24	0·15	0·24	0·39	0·12	0·35	0·39	−0·01	0·22	0·28	0·11	0·18	0·24
Value of increase—																
Grain	$	−0·70	3 39	9 79	3 01	5 70	10 18	3 39	9 09	12 10	1 15	9 79	9 09	3 39	8 70	9 09
Straw	$	0 32	0 68	0 96	0 60	0 96	1 56	0 48	1 40	1 56	−0 04	0 88	1 12	0 44	0 72	0 96
Total value of increase	$	−0 38	4 07	10 75	3 61	6 66	11 74	3 87	10 49	13 66	1 11	10 67	10 21	3 83	9 42	10 05
Average value of increase of three applications	$	4 81			7 34			9 34			7 33			7 77		

Average profit of 1,000 lb. application, $4.22
" " 1,500 lb. " $8.36
" " 2,000 lb. " $13.05

Prices used:—Grain (oats), per bush., 64 cents.
Straw, per ton, $4.

BASIC SLAG EXPERIMENT

This test was continued in 1924 but in plots of 1/320 of an acre each and in quintuple with thirty check plots. The work on these plots was all done by hand, except sowing the grain, which was drilled in. The plots were reaped and threshed by hand in order to eliminate as far as possible any chance of experimental errors.

The following tables give the 1924 results, also two-year average crop yields from each brand of slag. The average yields of the ninety slag plots for 1924 was 54.85 bushels per acre in comparison with 51.35 bushels as the average for the thirty check plots, an increase of 3.50 bushels in favour of the slag plots. All plots (slag and check plots) received an application of 100 pounds nitrate of soda and 50 of potash per acre.

BASIC SLAG EXPERIMENT—PROFIT AND LOSS, FIRST YEAR'S RESULTS FROM A THREE-YEAR ROTATION—1924—OATS

Fertilizer used	XX fortified slag 14 per cent		XXX fortified slag 17 per cent		"Best of all" fortified slag 20 per cent		Belgian slag 16 per cent		English slag 16 per cent		Not fortified open hearth 10-11 per cent		Ground natural rock phosphate 28-30 per cent			Superphosphate 16 per cent,		With ground limestone 4,000 lbs
Application, per acre..... lb.	1,000	500	825	412	700	350	875	437	875	437	1,270	635	500	250	1,000	875	437	437
Average yield per acre of triplicate plots—																		
Grain..... bush.	50·7	47·1	53·8	55·4	54·8	56·1	56·7	55·2	61·5	53·5	58·2	52·7	55·8	53·2	58·0	57·3	55·0	52·2
Straw..... tons	0·99	0·97	1·0	1·02	1·03	1·07	1·04	0·97	1·04	1·04	1·01	1·06	1·0	0·85	1·03	1·08	1·01	1·04
Increase per acre over average of checks—																		
Grain..... bush.	−0·65	−4·23	2·44	4·06	3·47	4·77	5·3	3·85	10·12	2·18	6·88	1·35	3·47	1·85	6·65	5·95	3·65	0·88
Straw..... tons	−0·04	−0·06	−0·03	−0·0	−0·01	0·05	0·02	−0·05	0·01	0·01	−0·01	0·04	−0·03	−0·18	0·01	0·06	−0·02	0·01
Value of increase—																		
Grain..... $	−0·42	−2·71	1·56	2·60	2·22	3·05	3·39	2·46	6·48	1·40	4·40	0·86	2·22	1·18	4·26	3·81	2·34	0·56
Straw..... $	−0·16	−0·23	−0·11	−0·01	0·03	0·20	0·06	−0·20	0·05	0·05	−0·04	0·14	−0·10	−0·71	0·04	0·22	−0·08	0·04
Total increase..... $	−0·58	−2·94	1·45	2·59	2·25	3·25	3·45	2·26	6·53	1·45	3·36	1·00	2·12	0·47	4·30	4·03	2·26	0·60
Cost of fertilizers..... $	4·60	2·30	4·12	2·06	3·78	1·89	5·25	2·62	4·55	2·27	5·58	2·79	3·50	1·75	7·00	4·37	2·18	6·98
Gain or loss per acre..... $	−5·18	−5·24	−2·67	0·53	−1·53	1·36	−1·80	−0·36	1·98	−0·82	−2·22	−1·79	−1·38	−1·28	−2·70	−0·34	0·08	−6·38
Average gain or loss for each fertilizer.....$	−5·21		−1·07		−0·09		−1·08		0·58		−2·00		−1·79			−2·21		
Average gain or loss for 2 years, 1923, 1924.....$	−3·42		0·73		1·41		0·27		1·02		−3·29		−3·52			−3·55		

Average loss over check plots, $1.65.
Average of 30 check plots, grain 51·35 bush.
straw 1·025 tons.
Average of 90 fertilized plots, grain 54·85 bush.
straw 1·01 tons.
Forty per cent of cost price of fertilizer charged against first year crop.
Prices used in above calculations, grain 64 cents per bush., straw, $4 per ton and slag at the following prices:—

XX Slag	$ 23 per ton.
XXX Slag	25 "
Best of All	27 "
Belgian	30 "
English	26 "
Open Hearth	22 "
Ground rock phosphate	35 "
Superphosphate	25 "
Ground limestone	6 "

BASIC SLAG EXPERIMENT—PROFIT AND LOSS TABLE, 1924—YIELDS OF HAY ON PLOTS TREATED WITH SLAG IN 1923

Fertilizer used	XX fortified slag 14 per cent		XXX fortified slag 17 per cent		"Best of all" fortified slag 20 per cent		Belgian slag 16 per cent		English slag 16 per cent		Not fortified open hearth 10-11 per cent		Ground natural rock phosphate 28-30 per cent			Superphosphate 16 per cent,		With ground limestone 4,000 lbs.
Application per acre..... lb.	1,000	500	825	412	700	350	875	437	875	437	1,270	635	500	250	1,000	875	437	437
Average yield of triplicate plots per acre.....tons	1·31	0·86	1·12	0·67	1·12	1·43	1·3	1·22	1·06	0·83	0·97	1·00	0·9	0·66	0·93	0·99	1·03	0·95
Increase over average of checks per acre.....tons	0·365	−·085	0·175	−·275	0·175	0·485	0·355	0·275	0·115	−·115	0·025	0·055	−·045	−0·285	−0·015	0·045	0·085	0·005
Value of increase per acre... $	3·65	−·85	1·75	−2·75	1·75	4·85	3·55	2·75	1·15	−1·15	0·25	0·55	−·45	−2·85	−0·15	0·45	0·85	0·05
Cost of fertilizer per acre.... $	4·60	2·30	4·12	2·06	3·78	1·89	5·25	2·62	4·55	2·27	5·58	2·79	3·50	1·75	7·00	4·37	2·18	6·98
Profit or loss per acre..... $	−0·95	−3·15	−2·37	−4·81	−2·03	2·96	−1·70	0·13	−3·40	−3·42	−5·33	−2·24	−3·95	−4·60	−7·15	−·392	−1·33	−6·93
Gain or loss for each fertilizer per acre..... $	2·05		−3·59		0·47		−0·79		3·41		−3·79		−5·23			−4·06		
Profit or loss on grain, 1923, per acre..... $	−1·62		2·53		2·90		1·62		1·45		−4·57		5·25			−4·88		
Profit and loss for two years per acre..... $	−3·67		−1·06		3·37		0·83		−1·96		−8·36		−10·48			−8·94		

Yields:—Average of 60 fertilized plots, 1·02 tons.
Average of 11 check plots, 0·945 tons.

Prices used:—Hay, $10 per ton.
Slag and other fertilizers at market prices.

XX Slag	$ 23	per ton.
XXX Slag	25	"
Best of All Slag	27	"
Belgian Slag	30	"
English Slag	26	"
Open Hearth Slag	22	"
Ground Rock Phosphate	35	"
Superphosphate	25	"
Ground Limestone	6	"

40 per cent of cost of fertilizers charged against second year's crop.

It is well to repeat again that in fertilizer investigational work it is not desirable to draw definite conclusions from one or even two years' work and more particularly is this the case with fertilizer of the nature of basic slag. From a careful study of the second year's results there is sufficient proof that it requires carefully collected data over a period of years before one may make conclusive deductions as to the relative values of the various materials used in this experiment. The following interesting observation was noted from 1923 and 1924 results: where soil conditions are right, a marked increase in crop yields may be obtained with grain as well as clover hay (that is with any of the slags), but on the other hand, from tests conducted here, there appear to be conditions existing in some soils that prevent any response from the slag, irrespective of the brand used. Just what produces these conditions we are not prepared to state, although it may be revealed in future tests. The slag test as conducted in 1924 coincides in general fairly well with the results of 1923 as may be noted by comparing the two reports.

MALAGASH SALT

Two experiments with Malagash salt and common salt were started during the spring of 1924 as follows: No. 1, To determine the effect of applications of Malagash salt and common salt when applied to the root crops at the rates of 200, 400, and 600 pounds per acre; No. 2, To determine the effect of applications of Malagash salt and common salt when applied to the grain crop alone at different rates per acre and in conjunction with nitrate of soda and superphosphate.

All plots were in quadruplicate and 1/320 of an acre each. The land on which test No. 1 was conducted received an application of 15 tons barnyard manure per acre while test No. 2 received no manure and was seeded down with clover and timothy. The following tables give the first year's results:—

As the preceding figures are from one year's results, no definite deductions may be drawn from them. Sufficient is it to say that under our soil conditions very little benefit was noted from the use of the salt. These tests will be continued over a period of years in order to get as much data as possible.

MALAGASH SALT EXPERIMENT—TURNIPS—1924—PROFIT AND LOSS TABLE

Fertilizer.	Malagash Salt.			Common Salt	
Application per acre..... lb.	200·0	400·0	600·0	200·0	400·0
Average yield of quadruplicate plots.....bush.	798·4	793·6	830·4	844·8	812·8
Increase over average of checks...bush.	−8·0	−12·8	24·0	38·4	6·4
Value of increase..... $	−0·80	−1·28	2·40	3·84	0·64
Cost of fertilizer..... $	2·00	4·00	6·00	2·86	5·72
Profit..... $	−2·80	−5·28	−3·60	0·98	−5·08
Average profit of application..... $		−3·89		−2·05	

Average yield on check plots, 806·4 bushels.
Prices used:—Common salt, $28.60 per ton.
Malagash salt, $20 per ton.
Turnips, 10 cents per bushel.

MALAGASH SALT EXPERIMENT—OATS—1924—PROFIT AND LOSS TABLE

Fertilizer	Malagash salt	Common salt	Malagash salt	Common salt	Malagash salt	Malagash salt	Nitrate of soda	Malagash salt	Nitrate of soda	Ma agash salt	Nitrate of soda	Super-phosphate	Malagash salt	Nitrate of soda	Super-phosphate
Application per acre.....lb.	100	100	200	200	400	100	100	200	100	100	100	300	200	100	300
Average yield on quadruplicate plots—															
Grain.....bush.	28·3	30·4	27·9	34·5	31·0	27·7		35·9		37·7			33·5		
Straw.....tons	0·689	0·778	0·769	0·815	0·708	0·77		0·87		0·94			0·916		
Increase over average of checks—															
Grain.....bush.	−1·7	0·4	−2·1	4·5	1·0	−2·3		5·9		7·7			3·5		
Straw.....tons	0·036	0·125	0·116	0·162	0·055	0·117		0·217		0·287			0·263		
Value of increase.....$	0·944	0·756	−0·88	3·528	0·86	−1·004		4·644		6·076			3·292		
Cost of fertilizer.....$	0·40	0·57	0·80	1·14	1·60	1·80		2·20		3·30			3·70		
Profit.....$	−1·344	0·19	−1·68	2·39	−0·74	−2·80		2·44		2·78			−0·41		

NOTES

(1) Yield on check plots: Grain, 30 bushels.
Straw, 0 653 tons.

(2) Prices used: Grain , 64 cents per bushel.
Straw, $4 per ton.
Malagash salt, $20 per ton.
Common salt, $28.80 per ton.
Nitrate of soda, $70 per ton.
Superphosphate, $25 per ton.

(3) 40 per cent fertilizer value charged against first year's crop.

POULTRY

The poultry experimental breeding and feeding work has made marked progress during the year. There has been an increased demand for information along all lines of poultry work. The demand for bred-to-lay stock has been greatly in excess of the supply. The prices of eggs had a downward tendency toward mid-season, but on the average were not sufficiently low to discourage production.

The weather conditions throughout the hatching season were only fair, sudden changes in temperature making it difficult to maintain even temperatures in the incubator and brooder rooms. Furthermore, it was late in the season before the young chicks could be let out on the soil, therefore the numbers hatched and raised to maturity were below previous years. The egg production was good throughout the year from the plant and Egg-Laying Contest.

As the poultry industry plays a very important part in the finances of this country, it is encouraging to see the increased interest that is being taken in the breeding stock. Few fully realize the gross revenue that might be turned in each year from the hens alone. Take for example Nova Scotia with her 800,000 hens. Assuming that the average production is nine dozen eggs per hen at 30 cents per dozen, it gives an average gross revenue of $2.70 per year from each hen, or a grand total revenue to the farmers of the province of $1,565,000. This amount is just a little more than half of what it should and could be from the same number of hens highly bred and properly fed. The possibilities are being well demonstrated from the data collected from the experimental breeding and feeding work carried out by this and other Experimental Farms.

As outlined in our previous reports, special attention is given to pedigree breeding of Barred Rocks, the object being to demonstrate the possibilities of establishing a flock with a higher average egg production, and, at the same time to maintain a good breed type. All birds are trap-nested and each bird's identity is retained by the use of leg and wing bands. Data on feeding, housing, hatching and rearing of poultry are carefully compiled each year.

PEDIGREE BREEDING

The pullets from the 1919-20 and 1920-21 stock were mass-mated until they had completed their pullet year, then selections were made for the mating season. During the spring of 1921, ten hens ranging from a 176 to 213 egg record were mated to cockerel No. 1 whose dam's record was 175 and whose sire's dam had 217 eggs to her credit. From these matings, three full brothers from D 8, a 206-egg hen, and cockerel No. 8079 from D 14, a 213-egg hen, were selected for 1922 matings. During that season, thirty-four different matings were made. In 1923, eight cockerels were used and one hundred and two matings made; of these, eight were with registered females. In 1924, twenty-five cockerels were used and two hundred and fifty matings made, and during this year twelve more hens qualified for registration in the contest. The following table gives a summary of production by years:—

SUMMARY OF PRODUCTION BY YEARS

Year	Number of birds	Average egg production	Number of birds	Average egg production	Number of birds	Average egg production
1919-20	6	208·3	4	184·0	17	159·8
1920-21	11	218·0	13	187·1	16	164·3
1921-22	16	218·9	8	181·4	14	159·3
1922-23	8	275·9	19	223·3	14	174·1
1923-24	3	281·0	23	226·5	46	170·7

It will be noted that there has been a gradual increase each year in the average production per bird along with an increase in number of birds over the 150-egg mark. One of the above hens, E 210, reached the 314-egg mark within the year.

HOUSING

The new breeding house which was started in 1923 was completed during the year and a new brooder and incubator building 16 feet by 67 feet was built. These two buildings will greatly expedite the experimental work as this has been seriously handicapped in previous years for sufficient room to carry on important tests. Besides these buildings, there are twenty-six colony-type houses 10 by 12 feet. These are largely used for the Contest pens at. the present time and they afford extra housing for the growing chicks during the summer months.

FEEDING EXPERIMENTS

BEEF SCRAP VERSUS SKIM-MILK

The object of this experiment is to determine the relative value of beef scrap versus skim-milk when added to the laying ration. The pens were made up of ten birds each as uniform in breeding and type as it was possible to select them.

Pen No. 1 received beef crap in the hoppers which were before the birds at all times. The following rations were fed from November 1, 1923 to February 1, 1924: Grain mixture: 100 pounds wheat, 100 pounds cracked corn, 50 pounds oats and 50 pounds barley, while from February 1 to May 31 the barley was fully replaced by oats. Dry mash: 100 pounds bran, 100 pounds middlings, 100 pounds corn meal, 100 pounds crushed oats, 50 pounds oil cake and 15 pounds charcoal.

Pen No. 2 received the same grain and dry mash mixtures as pen 1 but skim-milk was supplied in the place of beef scrap. Both pens received all the water they would take.

The following is a summary of the 1923-24 feeding test, also a three year average:—

BEEF SCRAP VERSUS SKIM-MILK

Pens	Total laid eggs	Total feed cost	Value of eggs	Average eggs per bird	Cost per dozen	Cost per bird	Profit over feed cost	Profit per bird over feed cost
		$ cts.	$ cts.		cts.	$ cts.	$ cts.	$ cts.
Pen 1—Beef scrap.	645·0	11 24	24 17	64·5	13·54	1 124	12 93	1 29
Pen 2—Skim-milk	824·0	19 79	30 55	82·0	15·95	1 076	19 79	1 979
Three-year average:								
Pen 1—Beef scrap.	625·3	12 91	23 70	62·5	22·48	1 29	10 79	1 079
Pen 2—Skim-milk	938·7	12 05	28 56	93·96	19·78	1 20	16 51	1 65

NOTE.—Ten birds were used in each test.

The average amount of beef scrap consumed each year by pen No. 1 was 31.33 pounds at an average cost of $6.29 per hundred weight, amounting to $1.97. The average amount of skim-milk consumed by pen No. 2 was 500 pounds at 20 cents per hundred weight, amounting to $1. The skim-milk pen consumed on the average 11 cents worth more meal than the pen on beef scrap.

When this is deducted from the increased profits of the skim-milk pen over the beef scrap pen it leaves a profit of $5.61. If the increased profit over feed consumed can be credited to the skim-milk used when marketed through the eggs, it has an average market value of $1.32 per hundred weight. It is also of interest to note that the average protein supplied in each case was approximately the same. The 500 pounds skim-milk supplied 19 pounds while the beef scrap supplied 18.79 pounds.

HOME-MIXED VERSUS COMMERCIAL FEEDS

A test was started in 1922 to ascertain the relative value of home-mixed versus commercial feed mixtures in economic egg production. Two pens of pullets have been fed each year. The pens are selected for uniformity of type and breeding and are either full sisters or half sisters. The following home-mixed rations were fed to pen No. 3: Grain: 100 pounds wheat, 100 pounds corn, 50 pounds oats and 50 pounds barley until February 1 when barley was replaced by oats. The grain was fed in the litter twice daily. Dry mash: 100 pounds bran, 100 pounds middlings, 100 pounds corn meal, 100 pounds crushed oats, 50 pounds oil cake, 50 pounds tankage, 50 pounds blood meal and 15 pounds charcoal. The prices of the mixtures were $2.21 and $2.19 per hundred weight respectively. Pen No. 4 was fed on a commercial scratch grain which cost $2.82 per hundred weight and a commercial dry mash mixture costing $4 per hundred weight. Grit, shell and green feed in the form of mangels, etc. were fed to both pens alike.

The following table gives a summary of the 1923-24 feeding test also a three year average:—

HOME-MIXED VERSUS COMMERCIAL FEEDS

Pens	Total eggs laid	Total feed cost	Value of eggs	Average eggs per bird	Cost per dozen	Cost per bird	Profit over feed cost	Profit per bird over feed cost
		$ cts.	$ cts.		cts.	$	$	$
Pen 3— Home-mixed....	843	13 63	30 02	84·3	22·2	1 363	16 39	1 63·9
Pen 4— Commercial.....	655	13 25	23 58	65·5	27·8	1 325	10 33	1 03·3
Three-year average:								
Pen 3— Home-mixed....	680	12 45	25 22	68·0	23·7	1 241	12 77	1 27·7
Pen 4— Commercial.....	607	13 24	22 64	60·7	28·3	1 322	9 40	0 94·0

NOTE.—Ten birds were used in each test.

The three-year average shows a greater and more economical production from the use of home-mixed feeds, the profit per bird being $1.277 against 94 cents. These feeding tests are conducted over six month feeding periods from November 1 to April 30.

METHODS OF FEEDING

The grain mixtures are always fed in the litter twice daily. Care is exercised in feeding the grain and if it is found that the hens are leaving some in the litter they are fed lighter in the mornings and kept working all day if possible. Dry mash is fed from the hoppers which are before the birds at all times. Fresh water is supplied each day and if there is plenty of skim-milk, the hens are given all they will take. Green feed in the form of cabbage and mangels (while they last, then sprouted oats) are supplied until the birds can get out on the grass. Moist mash is usually supplied during the winter months

for the noon meal. If there are plenty of small potatoes or turnips available they are cooked and mixed with the mash. It is a very palatable dish and it adds variety to the ration. A little variety aids in keeping the birds in good form. The grain and dry mash mixture given under the heading " Home-mixed feeds" are the ones used for the 1923-24 feeding periods.

WINTER PRODUCTION

Early-hatched, well-matured pullets should be ready for their winter quarters by the middle of October. Have the good pullets selected not later than October 20 and into their winter quarters. They should be ready to lay by November 1 as it is the winter production that increases the bank account. Last year, the 200 pullets on the plant showed a profit over feed cost for each month in the year (even in November). These profits ranged from 5 to 21 cents per bird per month, the average profit per bird for the year being $2.84. Thirty pullets in the Contest had an average profit over feed cost of $5.01 per bird for the year, their average production being 205.3 eggs each.

COMPARING EARLY, MEDIUM, LATE-MATURING PULLETS

The following table gives the results of three lots of pullets, the early versus late maturing:—

EARLY VERSUS MEDIUM VERSUS LATE MATURING PULLETS

Pullets	Total eggs laid	Total feed cost	Value of eggs	Average eggs per bird	Cost per dozen	Feed cost per bird	Profit over feed cost	Profit per bird over feed cost
		$ cts.	$ cts.		cts.	$ cts.	$ cts.	$ cts.
Early matured....	2,995	44 08	107 63	156·9	17·6	2 26	63 55	3 214
Medium matured.	2,614	43 08	93 74	133·1	19·7	2 21	50 66	2 573
Late matured.....	2,067	39 48	72 81	105·6	22·9	2 02	33 33	1 703

NOTE.—Average number of birds used in each case was 19·5.

The early-matured birds show an increase in profit over feed cost of $1.51 more than the late matured birds. The early maturing birds were hatched from the 15th to 22nd of April, the medium maturing from the 4th to 11th of May while the late maturing were hatched May 29.

A table gives the yearly statement on 230 Barred Rock pullets kept on the plant for 1923-24:—

YEARLY STATEMENT OF BARRED ROCK PULLETS, NOVEMBER 1, 1923, TO OCTOBER 31, 1924

Month	Number of birds	Total pounds of feed	Total cost of feed	Total number of eggs	Selling price	Value	Profit over cost of feed	Loss	Cost per bird	Eggs per bird	Cost per dozen	Profit per bird
			$ cts.		cts.	$ cts.	$ cts.	$ cts.	cts.		cts.	cts.
November	200	1,805	28 65	1,046	45	39 22	10 57	.....	14·32	5 23	32·9	5·3
December	200	2,721	40 60	2,367	55	108 49	67 89	.....	20·3	11·83	20·6	33·9
January	200	2,519	41 96	2,446	50	101 92	59 96	.....	20·98	12·23	20·6	30·0
February	200	2,104	37 58	2,041	45	76 54	38 96	.....	18·79	10·21	22·1	20·0
March	185	1,622	34 75	2,307	48	92 28	57 53	.....	18·78	12·47	18·1	31·1
April	177	1,267	27 73	2,048	35	59 73	32 00	.....	15·66	11·57	16·5	18·1
May	167	1,240	28 80	1,978	35	57 69	28 89	.....	17·24	11·84	17·5	17·3
June	161	877	18 99	1,303	35	38 00	19 01	.....	11·80	8·09	17·5	11·8
July	152	916	19 43	1,686	35	49 18	29 75	.....	12·78	11·09	13·8	19·6
August	120	1,072	22 33	1,387	40	46 23	23 90	.....	18·61	11·56	19·4	19·9
September	115	1,036	22 98	1,244	45	46 65	23 67	.....	19·98	10·81	22·2	20·6
October	115	874	21 13	940	45	35 25	14 12	.....	18·37	8·17	26·9	12·3

PULLETS RUN IN CONTEST 1923–24

									$ cts.	Per year		$ cts.
Nov. 1, 1923 to Oct. 31, 1924	30	3,245	66 10	6,159	42·2	216 58	150 48	.....	2 23	205·3	12·88	5 01
Averages	.....	21,298	411 03	26,952	.....	967 76	556 73	.....	2 10	137·5	18·3	2·84

COST OF PRODUCING CHICKS

The following is a summary, per period, with the total and average cost to rear chicks to five months of age. All period averages are taken on the number of chicks alive at the end of the period:—

COST OF PRODUCING CHICKS

—	Totals	Average per chick alive per period
	$ cts.	$ cts.
(Buckeye machine)		
Incubation period, April, 438 chicks	106 95	0·244
(Prairie State machine)		
Incubation period, April, 317 chicks	35 51	0·112
Brooder period, May and June	31 40	0·100
Total cost of 315 chicks alive at June 30	173 86	0·552
Range cost of 131 chicks, early hatched—		
June	8 12	0·0619
Range cost of 207 chicks, early, medium and late hatched—		
July	19 58	0·0955
Range cost of 207 chisks, medium and late hatched—		
August	36 07	0·1742
Range cost of 207 chicks—		
September	36 69	0·1772
Total cost of 207 chicks	100 46	0·4850
Total cost of 207 chicks at 5 months	274 32	1·325

NOTE.—Unfortunately, during the breeding season the coal fires died down one night just after midnight. A large number of chicks got a severe chill and several died from penumonia. The cost per chick is therefore much higher than usual.

EGG-LAYING CONTEST

The fifth Egg-Laying Contest was completed on October 31, 1924. There were twenty entries of ten birds each making a total of 200 birds. Out of the 200 birds, 64 laid the required number of eggs to qualify for registration but two birds were turned down on account of laying small eggs, that is eggs weighing less than an average of 24 ounces to the dozen. Two more were turned down on account of down on the legs, one with stubs and one with white lobes, leaving 58 birds out of the 200 which were eligible for registration.

From the increased demand for bred-to-lay stock during the past few years, it is becoming apparent that the Contests are going to play a very important role in the development of breeding stock, for birds that qualify in Contests must not only be up to the standard of perfection set for the breed but they also must lay 200 or more eggs averaging 24 ounces to the dozen. In this way, the selection of a very high type of breeding stock will be effected.

The contest birds are housed in comfortable shed-roofed houses 10 by 12 feet. These houses are divided in two pens with solid wood partitions. Nearly two-thirds of the fronts are glass and curtains, thus affording plenty of sunlight and fresh air for the birds. All pens are provided with hoppers for dry mash, shell, grit, beef scrap and oyster shells. A complete record is kept of each individual production. The quantities of feed consumed by each pen is weighed at the beginning and end of each four-weekly period. Individual egg weights are recorded each day. Close attention is given to the health and feed requirements of the birds. The feed mixtures used for 1923-24 were as follows:— Grain mixture: 100 pounds wheat, 100 pounds cracked corn, 50 pounds oats, 50

pounds barley until the first of February when the barley was replaced by oats. Dry mash: 100 pounds bran, 100 pounds middlings, 100 pounds corn meal, 100 pounds crushed oats, 50 pounds oil cake, 50 pounds tankage, 50 pounds blood meal and 15 pounds charcoal. Green feed was supplied in the form of cabbage, mangels and turnips while the supply lasted then sprouted oats were used until green clover and grass could be obtained. Plenty of fresh water was kept before the birds at all times.

Individual and pen records are sent out at the end of each week to all contestants and on application, to any person who is interested. Substitutes are allowed in case of death, thus enabling the strength of the pens to be kept up. All birds laying 200 eggs weighing 24 ounces to the dozen are eligible for registration provided they are free from standard disqualifications.

The leading pen at the close of the contest was No. 20, Barred Rocks, owned by the Experimental Farm, Nappan, with a total of 2,372 eggs or an average of 237·2 eggs per bird. This pen laid 130 eggs in thirteen days from March 15 to 27, 1924 and was the first pen in any Canadian contest to make a perfect weekly score of 100 per cent production, while E 210 in the same pen laid 121 consecutive days from March 2 to June 30, 1924, the longest consistent laying period on record in any Canadian contest. Her yearly production was 314 eggs.

The second highest pen was No. 15 of White Leghorns, owned by the Experimental Station, Charlottetown, P.E.I., with a total of 2,124 eggs or an average of 212·4 eggs. The third highest was pen No. 19 owned by the Experimental Farm, Nappan, with 2,083 eggs or an average of 208·3 eggs per bird. The fourth highest was pen No. 8, Barred Rocks, owned by Mrs. John J. Simpson, Wallace Bridge, N.S., with 2,076 eggs or an average of 207·6 per bird. The fifth highest was pen No. 7, Barred Rocks, owned by Mrs. Fred Chapman, Amherst, N.S., with a total of 2,020 eggs or an average of 202 per bird. The sixth highest pen was No. 9, Barred Rocks, owned by E. N. Smith, Shinimecas Bridge, N.S., with a total of 1,970 eggs or an average of 197 per bird. This pen also made a perfect score of 90 eggs in 9 days having 100 per cent production for the week ending April 23.

The total eggs laid by the 200 birds were 35,371 or an average of 176·86 eggs per bird.

Out of the 200 birds in the contest, there were 7 over 250 eggs, one of these laying 313 eggs, 25 were over 225 and under 250, 37 were over 200 and under 225, 35 laid between 175 and 200, 40 ranged from 150 to 175 and 57 laid less than 150 for the 52 weeks.

There has been a gradual increase in the average production of the contest birds each year and the following table gives the average for each of the five years of the contest:—

	Number of birds	Average production
		eggs
Contest year—		
1919-20	200	121·1
1920-21	220	127·8
1921-22	200	138·3
1922-23	200	143·3
1923-24	200	176·9

The following table gives a pen summary of egg production and feed consumed as well as profit realized over cost of feed consumed for the year:—

PEN SUMMARY OF EGG PRODUCTION AND FEED CONSUMED, NOVA SCOTIA EGG LAYING CONTEST, NAPPAN, N.S., 1923-24

Owner and Address	Pen	Breed	Total eggs laid	Cost per dozen	Value of eggs	Grain	Mash	Scrap	Grit	Shell	Green feed	Miscellaneous feed	Total cost of feed	Profit
				cts.	$ cts.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	$ cts.	$ cts.
Mrs Geo. Stewart, Pugwash, N.S.	1	B.R.	1,462	18·5	51 15·5	586	225	43	24	50	136	40	22 61	28 54·5
Lawson Lowe, Amherst, N.S.	2	B.R.	1,868	16·0	66 61·5	649	271	46	24	48	136	40	24 96	41 65·5
R. Bligh & Son, Lakeville, N.S.	3	B.R.	1,646	15·7	58 79	605	196	37	16	45	136	40	21 56	37 23
David Bacon, Nappan, N.S.	5	B.R.	1,936	14·9	67 66·5	643	204	56	24	52	136	40	24 18	43 48·5
Fred Cochran, Amherst, N.S.	6	B.R.	1,992	15·4	70 84	653	251	56	35	53	136	40	25 57	45 27
Mrs. Fred Chapman, Amherst, N.S.	7	B.R.	2,020	14·2	71 76	655	246	39	17	40	136	40	23 94	47 82
Mrs. John J. Simpson, Wallace Bridge, N.S.	8	B.R.	2,076	13·7	72 58	656	204	43	31	49	136	40	23 79	48 79
E. N. Smith, Shinimecas Bridge, N.S.	9	B.R.	1,970	15·0	68 33·5	659	243	47	20	53	136	40	24 73	43 60·5
D. G. O'Reilly, Annapolis Royal, N.S.	10	W.L.	1,953	10·9	68 56·5	467	203	28	10	28	136	40	17 78	50 78·5
B. M. Smith, Wallace Bridge, N.S.	11	W.W.	16,02	18·0	55 52	648	240	42	23	46	136	40	24 07	31 45
McFarlane Bros., Fox Harbour, N.S.	12	B.R.	16,05	18·8	56 09	638	265	52	29	56	136	40	25 27	30 82
McFarlane Bros., Fox Harbour, N.S.	13	R.I.R.	1,213	23·0	41 18	648	215	41	23	50	136	40	23 34	17 84
Corbett & Hough, Deep Brook, N.S.	14	W.L.	1,758	14·8	62 02	578	290	19	15	38	136	40	21 74	40 28
Exp. Station, Charlottetown, P.E.I.	15	W.L.	2,124	11·4	73 84·5	564	187	35	12	38	136	40	20 27	53 57·5
Exp. Station, Kentville, N.S.	16	W.W.	1,206	18·4	42 62	557	160	21	15	34	136	40	18 83	23 79
Exp. Station, Kentville, N.S.	17	B.R.	1,454	18·5	51 52·5	595	213	48	18	42	136	40	22 49	29 03·5
Exp. Station, Charlottetown, P.E.I.	18	B.R.	1,327	20·3	46 11·5	605	199	51	22	41	136	40	22 47	23 64·5
Ex. Farm, Nappan, N.S.	19	B.R.	2,083	12·6	72 89·5	601	184	49	18	37	136	40	21 95	50 94·5
Exp. Farm, Nappan, N.S.	20	B.R.	2,372	11·5	83 60·5	620	240	49	14	38	136	40	23 57	60 03·5
Exp. Farm, Nappan, N.S.	21	B.R.	1,704	14·4	60 08	543	258	28	10	28	136	40	20 58	39 50
Totals			35,371	15·3	1,241 80	12,170	4,494	830	400	866	2,720	800	453 70	788 10

Total production	35,371	Total value of eggs laid	$1,241 80
Average production per bird	176·9	Total gain	788·10
Total cost of feed	$453 70	Average gain per bird	$3·945
Cost to feed one bird	$ 2 27		

BEES

The sunshine records for 1924 would indicate a good season for bee-keepers, but the extremely dry weather during the spring and summer months and the lack of good pasturage resulted in only a fair production. The clover crop was very poor, winter-killing being severe during the winter and spring months. Fruit bloom, dandelions and garden flowers provided abundant pasturage in June and August.

The first examination was made on April 21. Three colonies were dead and five had to be united with queen-right colonies. The remaining twelve had an average strength of 5.5 frames per hive. Spring feeding was necessary, combs of late honey saved from last year's crop being used for this purpose.

The total honey crop for the season amounted to 1,049 pounds, or an average production of 87.5 pounds spring count. The highest production of a single hive was 221 pounds, this same hive having produced 212½ pounds in 1923. Over 90 per cent of the total production was light honey. An increase of ten colonies was made during 1924, two of these being swarms and the balance nuclei from some of the weaker hives with queens from Ottawa or from our best breeding queen.

WINTERING, 1924

Twenty-two hives were packed for winter in two-colony wintering cases with planer shavings for protection. Feeding was done by means of ten-pound honey pails with perforated lids. These have proven much superior to Miller feeders for this purpose. This operation was completed on October 22 and packing was finished on December 4. The average strength when packed was 8.9 frames per colony and the average weight 73.5 pounds after feeding.

FINANCIAL STATEMENT

To 1,049 pounds extracted honey at 20 cents		$ 209 80
To 10 colonies increase at $7		70 00
By 320 pounds sugar fed at $8.90 per cwt	$ 28 48	
By 5 colonies united at $7	35 00	
By 3 colonies died at $7	21 00	
By 240 hours labour at 27 cents	64 80	
By profit	130 52	
	$ 279 80	$ 279 80

EXPERIMENTAL WORK

Data were collected on the relative value of wintering weak versus strong colonies with the following results:—

Number and type of colony	Average frames covered in November, 1923	Average frames covered in April, 1924	Average honey crop 1924
			lb.
Weak—3	7·3	4·3	38·3
Strong—8	10·0	6·0	79·0

In comparing Jumbo and ten-frame Langstroth hives, the following data were collected:—

Kind of hive	Number of hives	Average frames covered in November, 1923	Average frames covered in April, 1924	Honey produced in 1924
				lb.
Jumbo	3	9·5	5·0	112
Langstroth	10	9·0	5·4	57

Work on swarm control was started, shallow supers being used for detecting queen cells. The de-queening and re-queening method, if carefully carried out, is a big factor in swarm control.

FIBRE DIVISION

FLAX

Fifty-four sixtieth-acre plots of flax were sown in 1924. Seeding was done on May 4, except for the "Date of Seeding" experiment. Pulling started on July 31 and continued through the first half of August, the plots being pulled as they matured. The experiments carried on were variety tests, dates of seeding, dates of harvesting and rates of seeding. The straw was de-seeded and retted here and shipped to Kentville, where it was scutched and the records of fibre and tow yields taken. One and one-half acres Longstem flax were seeded on May 7 and this was pulled on August 6 and 7. After drying, the weight from this area was 4,790 pounds straw, threshing off 12.75 bushels seed. Five hundred pounds of the de-seeded flax straw was retted and scutched, yielding 53.75 pounds fibre and 43 pounds tow. The balance was broken, making 2,250 pounds green tow, and this was used for upholstering purposes.

FLAX YIELDS, 1924, Average of Duplicate Plots

Description of Plot	Average weight of straw per acre	Yield of seed per acre	Yield of fibre per acre	Yield of tow per acre
	lb.	lb.	lb.	lb.
Riga Blue—home grown	3,660	638	292·5	405·0
Riga Blue-imported	3,840	719	255·0	397·5
Dutch Blue-home grown	3,810	681	285·0	435·0
Dutch Blue-imported	3,780	706	277·5	397·5
Riga Blue-home grown	3,750	605	322·5	465·0
Riga Blue-imported	3,780	586	285·0	420·0
Dutch White Blossom	4,500	809	292·5	427·5
Longstem	3,540	601	270·0	360·0
829 C	3,930	627	337·5	427·5
770B	4,260	771	277·5	315·0
Saginaw	3,810	571	277·5	420·0
Pure Line No. 5	3,450	613	232·5	345·0
Dutch Blue	3,420	604	202·5	375·0
Japan No. 3	3,690	660	247·5	382·5
Dates of Seeding Riga Blue—				
May 24	3,930	588	262·5	360·0
June 2	3,750	619	240·0	337·5
June 7	3,510	535	225·0	337·5
June 14	3,810	503	270·0	390·0
Dates of Harvesting Riga Blue—				
July 31	3,810	372	345·0	420·0
August 7	3,630	533	330·0	465·0
August 15	3,150	505	315·0	390·0
August 22	3,570	568	322·5	405·0
Rates of Seeding Riga Blue—				
80 pounds per acre	4,110	690	352·5	360·0
90 pounds per acre	3,750	560	307·5	465·0
100 pounds per acre	3,600	553	330·0	420·0
110 pounds per acre	4,170	493	390·0	495·0
120 pounds per acre	3,690	538	292·5	585·0

Two varieties Dutch White Blossom and 770 B were two weeks later than the others in maturing.

HEMP

Thirty-six plots of hemp were seeded in 1924, the following experiments being conducted:—

Rates of Seeding: 40, 45, 50, 55 and 60 pounds per acre.

Dates of Seeding: May 24, June 2, June 9, June 16 and June 23.

Dates of Harvesting: all seeded May 24, harvested September 4, 11, 18 and 25.

Seeding broadcast versus in drills: Variety tests: Minnesota No. 8 and Clington.

Germination was very poor with the first two experiments, therefore no results are published.

DATE OF HARVESTING

Date of Harvesting	Dry straw per acre	Weight of fibre per acre	Weight of tow per acre	Total weight fibre and tow per acre
	lb.	lb.	lb.	lb.
September 4	4,620	524·0	540	1,064·0
September 11	4,530	476·25	750	1,226·25
September 18	4,830	547·5	780	1,327·5
September 25	4,350	440·6	720	1,160·63

NOTE.—The first cutting was made just previous to coming into bloom.

SEEDING BROADCAST AND IN DRILLS AND VARIETY TEST

Method and Variety	Dry straw per acre	Weight of fibre per acre	Weight of tow per acre	Total weight fibre and tow per acre
	lb.	lb.	lb.	lb.
Broadcast	4,860	446·25	810	1,256·25
Drill	4,410	342·2	810	1,152·2
Minnesota No. 8	3,210	432·2	780	1,212·2
Chington	6,120	805·3	750	1,555·3

MISCELLANEOUS

All fences and buildings received the necessary repairs to put them in good shape for the year and some 1,608 feet of new No. 9 woven wire fence were erected on the northeast end of the Farm.

The Farm had over the average number of visitors for the year. Many small groups or Farmers' Clubs visited the Farm during the growing season and spent the day going over the experimental work being conducted here.

Many agricultural meetings were attended by the staff, who also judged at a number of fairs and exhibitions during the year. Small exhibits were arranged for at as many of the fall fairs as was possible, and a very successful exhibit of sheep was made at the Maritime Winter Fair.

OTTAWA: Printed by F. A. ACLAND, Printer to the King's Most Excellent Majesty, 1925.