DOMINION OF CANADA

DEPARTMENT OF AGRICULTURE

DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

STE. ANNE DE LA POCATIÈRE, QUEBEC

REPORT OF THE SUPERINTENDENT

J. A. STE. MARIE, B.S.A.

FOR THE YEAR 1927

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DOMINION EXPERIMENTAL STATION
STE. ANNE DE LA POCATIÈRE

REPORT OF THE SUPERINTENDENT, J. A. STE. MARIE

THE SEASON

The spring of 1927 opened under normal conditions and fairly early for this district. The land, however, was difficult to work on account of the wet cold weather of the latter part of April. The month of May was favourable and seeding on drained land was conducted under very good conditions. The rainy weather of the latter part of May and early days of June contributed to good germination of all seed. June was unfavourable on account of drought, but in July, rain was abundant and well distributed. The temperature of August and September was good. There were no bad storms to cause the grain to lodge or to shatter and the crop was harvested in very good condition giving a good yield and quality of grain.

The hay crop was above the average and was harvested in good condition by the farmers that started early in the season.

The season, particularly the latter part, was very favourable to the production of roots, resulting in one of the largest crops ever harvested. On the other hand, it was a very poor year for corn.

The fruit crop harvested in this district was above the average and of a high quality. The same can be said of the potatoes, which is one of the main cash crops of this district.

1927—METEOROLOGICAL RECORDS

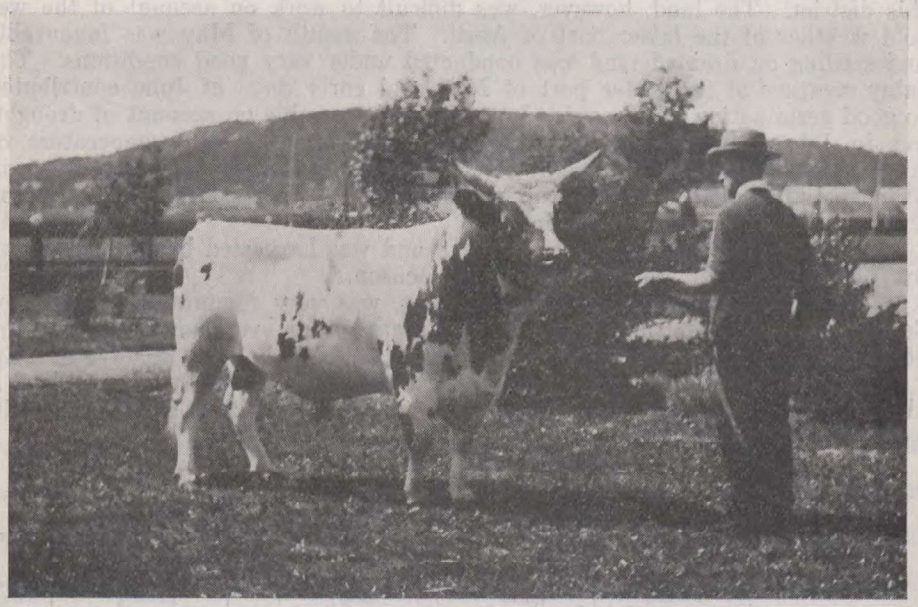
Months	Temperature (F.)								Precipitation (Inches)				Sunshine (hours)	
	Mean		Maximum 1927			Minimum 1927			Rain	Snow	Total Precipitation			
	1927	Average 14 years	Highest	Date	Mean maximum	Lowest	Date	Mean minimum	1927	1927	1927	Average 15 years	1927	Average 9 years
	°	°	°	°	°	°	°	°	in.	in.	in.	in.	hrs.	hrs.
January	13·5	10·5	43	30	21·7	−20	26	4·9	0·79	25·25	3·31	2·38	56·50	92·39
February	11·6	11·8	32	17	20·9	−11	4	2·1	.....	18·50	1·85	2·61	83·45	112·10
March	25·8	16·3	44	11	35·9	− 5	22	15·7	1·06	2·0	.....	2·43	118·35	132·48
April	34·8	38·7	77	19	49·6	5	7	19·9	0·98	.....	0·98	2·68	182·10	157·22
May	40·6	48·4	70	26	53·9	19	3	27·2	3·34	.....	3·34	3·12	144·00	208·70
June	52·6	58·3	87	30	68·2	23	2	37·0	1·40	.....	1·40	2·86	198·5	219·32
July	61·0	64·3	89	1	75·6	35	20	46·3	4·46	.....	4·46	3·21	236·45	249·10
August	56·9	61·9	82	23	71·9	28	25	41·9	2·06	.....	2·06	2·39	242·30	227·56
September	51·7	53·7	78	6	66·6	18	27	36·8	1·78	.....	1·78	3·21	150·00	164 32
October	40·8	43·5	70	3	52·5	17	16	29·1	2·30	.....	2·30	3·28	79·20	113·71
November	30·0	30·4	70	2	42·0	8	25	18·1	7·06	7·0	7·13	2·47	36·30	68·69
December	18·0	16·1	45	31	28·6	− 8	12-26	17·3	1·08	45·0	5·58	2·08	52·30	66·99
	36·5	37·8	89	.....	48·9	−20	.....	23·8	26·31	97·75	34·19	27·2	1,580·55	1,816·18

ANIMAL HUSBANDRY

DAIRY CATTLE

The Ayrshire herd at this Station numbered 56 head on December 31, and is used for experimental feeding and breeding work. It is now headed by two Class A.A. bulls, one being "Ste. Anne Lord Kyle 12th" —97949—, a son of the ex-champion cow "Briery Lass" —85707—, which had an official record

of 22,035 pounds of milk and 979 pounds of butter fat, in one year, and three consecutive official records making a total production of 54,091 pounds of milk and 2,087 pounds of butter fat in three consecutive years. His sire was "Ottawa Lord Kyle" —77049—, A.R. No. 52, Class A., R.O.P. No. 249, also a Royal Prize winner and a son of the imported bull "Overton Lord Kyle" —70090— (18830). The other sire is "Ottawa Supreme 28th" —106001—, a son of the famous imported cow "Auchinbay Mina 5th" —70080, which had a record of 16,243 pounds of milk and 677 pounds of butter fat as a four-year-old and was Grand Champion female at the Royal. The sire of this bull was "Shewalton Mains Supreme" —83930— (22659), also a Class A.A. bull.



Ste. Anne Lord Kyle 12th—97949—class A.A., the herd sire.

These two bulls are used in a herd of 24 cows, all of which have official records or are daughters of cows with official records.

During the year, some very practical feeding experimental work with roots, silage and oat and pea hay was carried on. A large number of high-quality bulls were sold in this part of the province to improve local herds.

Another silver cup was won during the year for an Honour Roll record with the "Briery Lass" cow.

Dairy Herd Records

The accompanying table gives records of all cows and heifers which have finished their lactation period during the year 1927.

The feeds have been charged as follows:—

Beet pulp, per ton	$ 39 50
Oat hay, per ton	8 66
Pasture per month, per cow	2 00
Meal mixture, per ton	40 00
Hay, per ton	8 00
Roots (cost figures)	2 20
Silage (cost figures)	3 42
Green Feed (O.P.V.)	2 50

Name and number of cows	Date of calving	Number of days in lactation period	Total pounds of milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds of butter produced in period	Value of butter at 32 cts. per pound	Value of skim-milk at 20 cents per 100 pounds	Total value of products	Amount of meal at $2 per 100 pounds	Amount of roots at $2.20 per ton	Amount of silage at $3.42 per ton	Amount of green feed at $2.50per ton	Amount of beet pulp at $39.50 per ton	Amount of hay at $8 per ton	Amount of oat hay at $8.66 per ton	Months of pasture at $2 per month	Total cost of feed for period	Cost to produce 100 pounds of milk	Cost to produce 1 pound of butter, skim-milk neglected	Profit on cow during period, labour and calf neglected
		days	lb.	lb.	%	lb.	$ cts.	$ cts.	$ cts.	lb.	lb.	lb.	lb.	lb.	lb.	lb.		$ cts.	$ cts.	cts.	$ cts.
Briery Lass—85707	May 20, 1926	331	16,165·7	48·84	4·09	742·8	237·70	29·10	266·80	3,289	4,850	3,300	1,450	430	2,612	120	4	106·02	0·66	14·3	160·78
Lawndale Daisy—83184	Feb. 6, 1927	337	13,026·3	38·65	4·44	680·0	217·60	23·45	241·05	2,815	5,060	4,450	3,570	973	1,470	.....	4	107·01	0·82	15·7	134·01
Milkmaid—60341	June 7, 1926	319	10,949·5	34·32	4·71	606·6	194·11	19·71	213·82	2,527	2,030	4,655	1,150	90	1,522	930	4	82·07	0·75	13·5	131·75
Floss of Elmbrook—72578	April 18, 1926	313	11,288·5	36·06	4·29	570·0	182·40	20·32	202·72	2,652	2,275	4,415	1,230	400	1,820	564	4	90·25	0·80	15·8	112·47
Lady Jane—63284	April 14, 1926	325	11,066·8	34·05	4·09	532·3	170·34	19·92	190·26	2,810	2,540	4,460	1,150	380	2,070	514	4	94·07	0·85	17·6	96·19
Quennie of Lawndale—82120	June 28, 1926	305	9,842·5	32·27	4·29	496·3	158·82	17·72	176·54	2,481	2,825	4,336	1,100	60	1,636	970	4	81·43	0·83	16·4	95·11
Ravanette du Lac—73342	Jan. 29, 1927	293	9,825·5	33·53	4·23	488·4	156·28	17·69	173·97	2,201	3,650	4,340	2,100	310	1,830	430	4	81·37	0·83	16·7	92·60
Ste. A. Ravanette 2nd—85839	Oct. 18, 1926	372	10,014·2	26·92	4·15	489·0	156·48	18·03	174·51	2,615	3,820	7,140	2,500	.....	2,170	410	4	90·29	0·90	18·5	84·22
Springburn Lovely Actress—63540	April 10, 1926	284	8,700·0	30·63	4·11	420·9	134·69	15·66	150·35	2,195	1,510	3,810	1,100	435	1,728	630	4	79·68	0·92	18·9	70·67
Lennoxville Doreen 2nd—66096	April 18, 1926	346	8,716·8	25·48	4·09	420·0	134·40	15·69	150·09	2,253	2,140	4,515	1,150	300	1,510	710	4	79·60	0·91	18·9	70·49
Palida de Ste. A.—77863	Nov. 19, 1926	281	7,411·1	26·10	4·48	390·2	124·86	13·34	138·20	1,891	2,725	5,361	1,070	.....	1,700	790	4	69·55	0·94	17·8	68·65
Ravensdale Queen Bess—67093	Aug. 23, 1926	292	8,219·9	28·15	4·06	392·3	125·54	14·80	140·34	2,059	2,575	4,770	850	.....	1,725	1,120	4	72·98	0·89	18·6	67·36
Ste. Anne Daisy 2nd—92070	Jan. 5, 1927	328	7,276·2	22·18	4·52	386·7	123·74	13·10	136·84	1,830	3,990	4,360	2,690	270	1,480	.....	4	71·06	0·98	18·4	65·78
Ste. A. Alizette 2nd—87701	April 11, 1926	265	6,555·4	24·73	4·40	357·6	114·43	11·80	126·23	1,667	1,390	4,075	1,237	245	1,499	565	4	64·68	0·99	18·1	61·55
Ste. A. Doreen 3rd—86192	Jan. 19, 1926	376	8,619·2	22·92	3·86	391·2	125·18	15·51	140·69	2,196	2,555	4,645	950	150	2,347	739	4	79·41	0·92	20·3	61·28
Ste. A. Frivole 2nd—86194	Jan. 11, 1927	287	7,482·1	26·07	3·94	340·7	110·94	13·47	124·41	1,781	4,120	4,110	2,480	.....	1,618	50	4	64·97	0·87	18·7	59·44
Ste. A. Fadette 2nd—87702	Mar. 17, 1927	285	7,267·6	25·50	4·23	361·4	115·65	13·08	128·73	1,847	2,745	5,135	2,640	285	1,558	.....	4	71·90	0·99	19·9	56·83
Suzette—42813	April 1, 1926	266	7,667·0	28·82	4·19	378·0	120·96	13·80	134·76	2,017	1,395	4,860	1,405	445	1,843	530	4	78·39	1·02	20·7	56·37
Ste. Anne Lovely Star 2nd—86195	Jan. 2, 1927	303	7,023·1	23·18	4·07	336·5	107·68	12·64	120·32	1,785	4,943	4,060	2,570	.....	1,846	50	4	66·89	0·95	19·9	53·43
Florida de Ste. A. 2nd—80547	April 18, 1926	308	6,759·1	21·94	4·07	323·8	103·62	12·17	115·79	1,630	1,735	4,225	1,000	135	1,971	715	4	64·63	0·96	19·9	51·16
Ste. A. Malonie 2nd—89284	Oct. 4, 1926	323	6,528·5	20·21	4·25	326·4	104·44	11·75	116·19	1,778	2,375	4,771	1,100	.....	1,674	730	4	65·56	1·00	20·0	50·63
Oakland de Ste. A. 2nd—80550	Jan. 30, 1927	305	7,097·9	23·27	3·91	326·8	104·58	12·78	117·36	1,714	4,155	4,650	2,880	110	2,476	.....	4	70·47	0·99	21·6	46·89
Ste. A. Finette 2nd—83980	Aug. 19, 1926	296	6,125·9	20·70	4·16	300·1	96·03	11·03	107·06	1,640	2,585	4,180	750	.....	1,544	750	4	61·16	1·00	20·4	45·90
Mathilda de Ste. A. 3rd—78891	July 21, 1926	321	5,561·1	17·42	3·94	259·5	83·04	10·06	93·10	1,278	1,450	4,180	1,000	.....	1,252	1,024	4	53·00	0·95	20·4	40·10
Total		7,464	209,220	.....	.....	10,323·5	3,303·51	376·62	3,680·13	50,951	59,438	108,806	39,122	5,018	42,901	12,341	96	1,846·47	.....	.....	1,833·66
Average for herd		311	8,717·5	28·03	4·19	430·1	137·65	15·69	153·34	2,123	2,893	4,534	1,630	209	1,788	514	4	76·94	0·88	17·9	76·40
Average for the best 5 cows		325	12,499·4	38·46	4·26	626·3	200·43	22·50	222·93	2,819	3,351	4,256	1,710	455	1,899	426	4	95·89	0·767	15·4	127·04

OFFICIAL RECORDS:—CANADIAN RECORD OF PERFORMANCE, 1927

Name and number of cows	Age at commencement of test	Number of days milking	Pounds of milk produced	Pounds of of fat produced	Average per cent fat
		days	lb.	lb.	%
305 Day Class—					
Briery Lass—85707	10	305	16,009	613	3·83
Floss of Elmbrook—72578	6	305	11,273	484	4·29
Quennie of Lawndale—82120	4	305	9,843	416	4·23
Lady Jane—63284	9	305	10,967	410	3·74
Ravanette du Lac—73342	6	293	9,826	405	4·12
Ste-Anne Frivole 2nd—86194	2	295	8,182	342	4·18
Springburn Lovely Actress—63540	7	284	8,700	337	3·87
Ste-Anne Daisy 2nd—92070	2	305	7,109	334	4·70
Ste-Anne Alizette 2nd—87701	2	265	6,555	301	4·59
Ste-Anne Frivole 2nd—86194	3	287	7,482	281	3·76
Ste-Anne Lovely Star 2nd—86195	3	303	7,023	267	3·80
Ste-Anne Malonie 2nd—89284	2	305	6,363	255	4·01
365 Day Class—					
Milkmaid—60341	9	318	10,950	507	4·63
Lady Jane—63284	9	326	11,067	414	3·74
Ste-Anne Ravanette—85839	3	365	9,999	409	4·09
Ste-Anne Daisy 2nd—92070	2	328	7,276	343	4·71
Ste-Anne Doreen 3rd—86192	2	365	8,589	318	3·70
Total	.....	5,259	157,213	6,436	.....
Average 305 day class	.....	296·4	9,111	370·4	4·07
Average, 365 day class	.....	340·4	9,576	398·2	4·16
Average for two year old cows	.....	310·5	7,346	315·5	4·29
Average for 17 cows	.....	309·4	9,248	378·6	4·09

AVERAGE HERD PRODUCTION SINCE 1921

Year	Number of cows	Average production of milk	Average production of butter
		lb.	lb.
1921	17	5,452	250·22
1922	9	5,251	238·00
1923	12	5,870	272·10
1924	19	7,868	344·56
1925	13	9,764	494·39
1926	20	10,072	527·00
1927	24	8,713	430·15

Attention is drawn to the foregoing table which outlines the production and feed cost of production for the whole herd in the year 1927. A study of this table will reveal the close relationship that exists between high milk and fat production, liberal feeding, and large profits over feed cost.

Attention is also drawn to the table showing the official Record of Performance records. Nine of these were two- and three-year-old cows that were bred and reared at this Station and are daughters of either a Record of Performance or an Advanced Registry bull. This goes to show that R.O.P. and A.R. bulls are the kind to have at the head of the herd.

COST OF FEED TO RAISE CALVES (MALE AND FEMALE) FROM BIRTH TO ONE YEAR OF AGE

As in former years, specific records were kept of the milk and other food consumed for a group of male and female calves from birth to one year of age, to determine the cost of rearing. In studying these tables, it should be observed that these calves were pure-bred and were fed, as the feed consumed will attest, with the object of obtaining a normal growth and getting them in condition for sale as breeders at one year of age.

From the information contained in these tables, which outline the average cost of raising male and female calves to twelve months of age, it would seem desirable that well-bred stock be well fed where this can be done. The feed cost varies from thirty ($30) to forty ($40) dollars per head at one year of age.

COST OF FEED TO RAISE CALVES (MALE) FROM BIRTH TO ONE YEAR OF AGE

Name of bulls and numbers	Amount of whole milk at $1.50 per cwt.	Amount of skim-milk at 20 cts per cwt.	Amount of meal at 2 cts. per lb.	Amount of hay at $8.00 per ton	Amount of roots at $2.20 per ton	Amount of silage at $3.42 per ton	Month of pasture at $1.50 per month	Total cost of feed
	lb.	lb.	lb.	lb.	lb.	lb.	months	$ cts.
Ste-Anne Lord Kyle 20th—105301	565	2,089	1,007	1,215	940	130	.....	38·90
Ste-Anne Lord Kyle 21st—105304	396	2,159	1,055	1,355	980	130	.....	38·08
Ste-Anne Supreme 5th—105384	600	1,749	1,001	1,260	740	80	.....	38·42
Ste-Anne Supreme 8th—114053	352	1,826	640	703	550	.....	2⅓	28·64
Ste-Anne Supreme 9th—113471	290	2,548	728	1,328	1,230	.....	.....	30·51
Ste-Anne Lord Kyle 23rd—113474	238	2,600	693	1,404	1,830	.....	.....	30 26
Average	406·8	2,161·8	854	1,210·8	1,045	56·6	0·39	34 17

COST OF FEED TO RAISE HEIFERS FROM BIRTH TO ONE YEAR OF AGE

Name of cows and numbers	Amount of whole milk at $1.50 per cwt.	Amount of skim-milk at 20 cts. per cwt.	Amount of meal at 2 cts. per lb.	Amount of hay at $8.00 per ton	Amount of roots at $2.20 per ton	Amount of silage at $3.42 per ton	Month of pasture at $1.50 per month	Total cost of feed
	lb.	lb.	lb.	lb.	lb.	lb.	months	$ cts.
Ste-Anne Lady Jane—105302	410	2,159	930	1,178	580	570	.....	35·33
Ste-Anne Doreen 4—105303	396	2,159	926	1,168	890	570	.....	35 60
Ste-Anne Primerose 3—105381	334	2,159	912	1,128	890	570	.....	34 03
Ste-Anne Mignonne de Supreme—113469	304	2,106	604	555	.....	.....	1⅓	25 07
Ste-Anne Ravanette Blanche—113470	312	2,066	586	557	.....	.....	1⅓	28 64
Ste- Anne Flavia de Supreme—113476	242	2,460	534	885	2,150	.....	.....	25 13
Ste-Anne Primerose de Kyle—113477	286	2,320	578	928	2,370	.....	.....	26 82
Average	326	2,204	724	914	983	244·3	0·38	29 51

EXPERIMENTAL FEEDING

For the fifth year, experimental feeding has been conducted to determine the comparative value of roots, peas and oat hay, or silage for the production of milk.

For these experiments, eleven cows not too far advanced in their lactation were available. Six of them were fed silage (corn and sunflowers) as the base of the ration during period 1 and 3. For period 2, silage was replaced by roots (swede turnips). A similar procedure was followed with five other cows in the silage versus pea and oat experiment.

The results obtained in period 2 were compared with the average of period 1 and 3. Each period was of three weeks' duration.

The meal mixture fed was charged at the market price and was composed of the following:—

Barley meal	400 pounds at	$2 15	per cwt.
Corn meal	200 "	2 10	"
Bran	200 "	1 60	"
Distillers grain	200 "	1 50	"
Oilcake meal	200 "	2 60	"
Average cost of meal mixture		$40.00	per ton

The other feeds fed were charged at cost of production prices for that year and were as follows:—

Hay (mixed hay)	$8 00 per ton
Oat and pea hay	8 66 "
Silage (corn and sunflowers)	3 42 "
Roots	2 20 "

SILAGE *vs.* OAT AND PEA HAY

Experimental feeding		Period 1	Period 2	Period 3	Average of periods 1 and 3
		Silage	Oat and pea hay	Silage	
Number of cows in test	No.	6	6	6	6
Number of days in test	"	14	14	14	14
Pounds of milk produced by 6 cows	lb.	2,031	1,904	1,678	1,855
Average milk per cow per day	lb.	24·2	22·66	20·0	22·08
Total pounds fat in milk	lb.	80·39	75·28	68·02	74·21
Average per cent fat in milk	%	3·96	3·95	4·05	4·0
Total meal consumed	lb.	618	568	470	544
Total silage consumed	"	3,010	.....	3,010	3,010
Total oat and pea hay consumed	"	.....	1,092	.....	.....
Total hay consumed	"	756	756	756	756
Findings from experiment					
Silage consumed per 100 pounds milk	lb.	148	.....	180	162·2
Silage consumed per 100 pounds fat	"	3,744	.....	4,425	4,056
Oat and pea hay consumed per 100 pounds milk	"	.....	57	.....	.....
Oat and pea hay consumed per 100 pounds fat	"	.....	1,451	.....	.....
Hay consumed per 100 pounds milk	"	37	39·7	45	41
Hay consumed per 100 pounds fat	"	941	1,004	1,113	1,019
Cost of meal fed at $40 per ton	$	12·36	11·36	9·40	10·88
Value of silage fed at $3.42 per ton	$	5·14	.....	5·14	5·14
Value of oat and pea hay fed at $8.66 per ton	$	.....	4·72	.....	.....
Value of hay fed at $8 per ton	$	3·02	3·02	3·02	3·02
Total cost of feed	$	20·52	19·10	17·56	19·04
Feed cost to produce 100 pounds milk	$	1·01	1·00	1·05	1·03
Feed cost to produce 100 pounds fat	$	25·53	25·37	25·82	25·65

From the above table it will be noted that milk was produced for 3 cents less per hundredweight when pea and oat hay was fed than when silage was fed, while the butter fat was produced for 28 cents less per hundredweight. In other words, one pound of pea and oat hay proved equal to 2·85 pounds of silage. It should be stated, however, that the value of either silage or pea and oat hay is closely connected with the quality of the crop fed, its yield per acre, and cost per ton.

SILAGE VS. ROOTS

Experimental feeding		Period 1	Period 2	Period 3	Average of periods 1 and 3
		Silage	Roots	Silage	
Number of cows in test	No.	5	5	5	5
Number of days in test	"	14	14	14	14
Pounds of milk produced by 5 cows	lb.	2,256	2,028	1,805	2,035
Average milk per cow per day	"	32·2	28·96	25·8	29·0
Average per cent fat in milk	%	4·1	3·92	3·94	4·03
Total pounds fat produced by 5 cows	lb.	92·4	79·5	71·07	81·73
Total meal consumed	"	656	589	524	590
Total silage consumed	"	2,382	.....	2,540	2,461
Total roots consumed	"	.....	2,540	.....	.....
Total hay consumed	"	630	630	630	630
Findings from experiment					
Silage consumed per 100 pounds milk	lb.	106	.....	141	121
Silage consumed per 100 pounds fat	"	2,578	.....	3,574	3,011
Roots consumed per 100 pounds milk	"	.....	125	.....	.....
Roots consumed per 100 pounds fat	"	.....	3,195	.....	.....
Hay consumed per 100 pounds milk	"	28	31	35	31·02
Hay consumed per 100 pounds fat	"	682	792	886	770.8
Cost of meal fed at $40 per ton	$	13·12	11·78	10·48	11.80
Value of silage fed at $3.42 per ton	$	4·07	.....	4·34	4.21
Value of roots fed at $2.20 per ton	$	.....	2·79	.....	.....
Value of hay fed at $8 per ton	$	2·52	2·52	2.52	2.52
Total cost of feed	$	19·71	17·09	17.34	18.53
Feed cost to produce 100 pounds milk	$	0·87	0·84	0.96	0·92
Feed cost to produce 100 pounds fat	$	21·33	21·50	24·40	22·67

In studying the above table, it will be noted that one hundred pounds of milk was produced at a cost of 92 cents when silage was fed and 84 cents per hundredweight when roots replaced silage. It will also be noted that 2,461 pounds of silage was replaced advantageously by 2,540 pounds of roots (swede turnips). The quantity of hay remained the same, in all the three periods, while the meal consumed was fed at the rate of one pound per 3·4 pounds of milk produced for all periods. The milk produced in periods 1 and 3 exceeded that of period 2 by only 2 pounds.

It may be stated that the results obtained, which seem to be in favour of the feeding of roots, can be partly explained through the fact that the silage fed contained only 14·71 per cent of dry matter, an unusually low figure, while the roots had 9·92 per cent of dry matter, which is a fair average.

FIVE YEARS TRIAL IN THE COMPARISON OF SILAGE, ROOTS AND OAT AND PEA HAY, FOR DAIRY COWS

Experimental feeding		Silage	Roots	Oat and pea hay
Average number of cows in experiment	No.	8	8	8
Number of days under test	"	14	14	14
Pounds of milk produced by 8 cows, average	lb.	2,662	2,710	2,619
Average per cent fat in milk for 2 years only	%	4·15	4·02	4·05
Total meal consumed by 8 cows	lb.	769	812	791
Total silage consumed	"	3,796	.....	.....
Total roots consumed	"	.....	4,151	.....
Total oat and pea hay consumed	"	.....	.....	1,287
Total hay consumed	"	1,153	1,153	1,153
Findings from experiment:—				
Silage consumed per 100 pounds milk	lb.	143	.....	.....
Roots consumed per 100 pounds milk	"	.....	153	.....
Oat and pea hay consumed per 100 pounds milk	"	.....	.....	49
Average per cent dry matter in silage	%	13·35	.....	.....
Average per cent dry matter in roots	%	.....	10·26	.....
Average per cent dry matter in oat and pea hay	%	.....	.....	88
Hay consumed per 100 pounds milk	lb.	43	42·5	44
Cost of meal fed at $37.00 per ton	$	14·23	15·02	14·63
Value of silage fed at $3.83 per ton	$	7·28	.....	.....
Value of roots fed at $3.04 per ton	$	.....	6·30	.....
Value of oat and pea hay fed at $9.43 per ton	$	.....	.....	6·07
Value of hay fed at $8.53 per ton	$	4·92	4·92	4·92
Total cost of feed	$	26·43	26·24	25·62
Feed cost to produce 100 pounds milk	$	0·99	0·97	0·98
Feed cost to produce 100 pounds fat (average for 2 years only)	$	20·32	19·03	21·11

The above table contains a resume of five years' comparative experimental feeding. During this period forty cows were used in these feeding trials, so the table is based on an average of eight cows for each year.

The feeds used have been analyzed each year by the Dominion Chemist for dry matter determination, with the exception of oat and pea hay.

The prices used are the cost prices for each crop grown each year on the farm during the five years of the test. The concentrates are charged at the market price for each year of the feeding trial.

The butter fat determination and cost have been recorded only for the two last years of the trials.

In studying the above table it will be noted that 143 pounds of corn silage contained an average of 13·35 per cent of dry matter.

SWINE

FEED COST OF RAISING PIGS TO 6 WEEKS OF AGE

	No.	
Number of sows	9	
Number of litters farrowed	13	
Number of pigs born	153	
Number of pigs raised	114	
Average number of pigs raised per litter	8·8	
Total cost of feed for 9 sows		$ 472 60
13 boar services at $1.00		13 00
Total feed cost of 114 pigs at 6 weeks		$ 485 60
Average cost of 1 pig at 6 weeks		4 26

AVERAGE FEED COST OF RAISING PIGS TO 6 WEEKS OF AGE FOR A PERIOD OF 5 YEARS

	No.	
Number of sows	9	
Number of pigs born	113·6	
Number of pigs raised	89·2	
Cost of feed for 9 sows		$ 319 23
10 boar services at $1.00		10 00
Total feed cost of 89·2 pigs at 6 weeks		$ 329 23
Average cost of 1 pig at 6 weeks		3·68

The preceding statement gives the average cost in 1927 of pigs at 6 weeks of age, which is $4.26 and also the average cost for a period of five years which is $3.68 per pig.

As indicated by the table, the average for a period of five years shows the total feed cost per pig to be $3.68 when an average of 9·9 pigs were raised per litter. The number of pigs raised per litter and the number of litters farrowed per sow are the most important factors controlling the cost of pigs at weaning time.

COST OF FATTENING WITH CORN, BARLEY AND OATS

With the object of determining whether barley or oat meal could advantageously replace corn meal in the ration for hogs, an experiment was conducted in 1924, repeated twice in 1925, and again this year. Twelve pigs about the same weight were divided into three lots of four each and each group received one of the above feeds in their ration.

The feed consumed as well as the weights of each group are given in the following table for 1927 and also the average of four years.

For the cost of feed consumed, the reader's attention is referred to the first page of this section.

COST OF FATTENING WITH CORN, BARLEY, OATS

		1927			Average of 4 years		
		Corn	Barley	Oat	Corn	Barley	Oat
Number of pigs	No.	4	4	4	4	4	4
Initial weight gross	lb.	278	275	277	359·9	355	354·5
Initial weight average	lb.	69·5	68·7	69·2	89·97	88·75	88·6
Finish weight gross	"	685	714	642	929·6	912·2	856·7
Finish weight average	"	171.2	178.5	160.5	232.4	228.1	214.2
Number of days in experiment	days	80	80	80	90	90	90
Total gain for period	lb.	407	439	365	569·7	557·2	502·2
Average gain per head	"	101·7	109·7	91·2	142·4	139·3	125·5
Average daily gain per head	"	1·27	1·37	1·14	1·58	1·55	1·4
Corn meal eaten by group	"	720	.....	.....	902	.....	.....
Barley meal eaten by group	"	.....	758	.....	.....	972·2	.....
Ground oat eaten by group	"	.....	.....	430	.....	.....	815·5
Shorts	"	256	256	256	262	358	257
Middlings	"	185	204	190	564·5	477·5	569
Screenings	"	441	460	446	441	460	446
Bran	"	75	95	95	75	95	95
Skim-milk	"	665	665	665	1,025	1,037·5	1,050
Clover hay	"	39	39	39	49·5	49·5	49·5
Roots (turnips)	"	150	150	150	233·3	233·3	233·3
Meal eaten for 1 pound gain	"	4·12	4·04	3·88	3·94	4·24	4·35
Skim-milk for 1 pound gain	"	1·63	1·51	1·82	1·79	1·86	2·09
Total cost of feed	$	24·28	36·33	29·49	33·73	37·17	34·01
Cost of feed per head	$	6·07	9·08	7·37	8·07	8·89	8·13
Feed cost to produce 1 pound gain	$	0·06	0·083	0·08	0·06	0·069	0·057

It will be noted that there is not much difference in the value of any one of these meals for fattening hogs. The type and quality of the pork produced, however, was certainly superior in the lots fed oats and barley to that in the lot fed corn.

The table shows also that for the four-year period slightly more oats and barley than corn were required to produce one pound gain, but at the price quoted for the feeds, the group fed oats is still slightly lower in cost of feed per pound gain than the others. The group fed barley was the most expensive to feed, showing a cost of 6·9 cents per pound gain.

It will be observed that the cost given for one pound gain was obtained by using the market price for feeds. This is usually a less accurate gauge than is the cost of production. For instance, the cost of producing oats in 1927 was 36·5 cents per bushel or $21.47 per ton, while the market price was $48 per ton, giving a difference in favour of the cost of production of $26.53. In using the cost of production figure for oats, 1 pound gain would cost 6·8 cents instead of 8 cents as reported in the table. In the case of barley the cost of production would be $41.40 per ton of meal instead of $44 per ton which would reduce the cost of one pound gain from 8·3 cents to 7·7 cents.

The cost of one pound gain when corn meal was fed was a little lower than the cost when oats or barley were fed, but considering the type and quality of the hogs, there is no doubt that the groups fed oats or barley would command a higher price than the group fed corn.

There is also the fact that oat and barley can be easily produced on most farms while corn has to be bought outside.

MINERAL MIXTURES VS. IODINE FOR BROOD SOWS

In order to further test the value of potassium iodide or mineral mixtures for pregnant sows, this test was repeated again this year. The iodide is useful in the control of hairlessness and goitre in young pigs at birth, while suitable mineral mixtures help to prevent rickety conditions in the growing pigs.

This experiment was conducted for the first time in 1924 and has been continued since that date.

The mineral mixture was composed of two parts bone phosphate, one part charcoal, one part ground limestone and one-quarter part of salt and was fed at the rate of 2½ per cent of the meal ration.

Potassium iodide was mixed at the rate of one ounce of iodide to one gallon of water and fed at the rate of one tablespoonful of this mixture per sow per day. The meal mixture fed was the same for each group.

MINERAL MIXTURES VS. IODINE FOR BROOD SOWS

—		Minerals	Check	Iodide
Number of sows	No.	1	2	2
Number of pigs born	"	9	26	30
Average weight per pig at birth	lb.	3·7	2·3	2·6
Number of pigs raised	No.	6	14	23
Average weight at weaning	lb.	18	18·5	22

The readers will note that only one sow is reported in the group fed minerals. Two sows were placed on this feed as in the other two groups but one aborted on March 12.

From the above table, it would seem that the feeding of potassium iodide had been of benefit since these sows produced larger litters and more vigorous pigs. The number of pigs born is greater and only seven died at birth, three were smaller at weaning time. In the check lot from the 26 pigs born only 14 were raised until weaning time. In this case the individuality of the sows should be considered as 13 of that number were raised from one sow.

In the lot fed mineral matter only, one sow farrowed nine pigs of which six were raised to weaning time; four were very good, two rather small.

From the tests carried the previous years about the same results were obtained. The individuality of the sows might have been responsible in part for the above results but the addition of minerals and potassium iodide in the ration also seems to be valuable.

SHEEP

The flock at the end of the year 1926 was composed of 56 head and included one imported Leicester ram, Border Standard—19146—(6172), 37 breeding ewes, 9 ewe lambs, 9 ram lambs and 1 pure-bred Shropshire ram used for cross breeding.

Fifteen ewes were crossed with the pure-bred Shropshire ram, the 22 others being bred to the imported Leicester ram.

The group of pure-bred Leicester ewes bred to the Leicester ram, gave birth to 28 lambs of which 12 were raised. The high mortality is attributed in part to the poor quality of hay available for feeding.

Of the 15 ewes bred by the pure-bred Shropshire ram, 12 ewes gave birth to 23 lambs of which 17 were raised.

SHROPSHIRE-LEICESTER CROSS VS PURE-BRED LEICESTER LAMBS

This experiment begun for the first time in the fall 1922, was carried each year since that time with the object of determining if there was any advantage in cross breeding to produce lambs for the market.

CROSS-BRED VS. PURE-BRED LAMBS—1923-1927

—		Cross-bred	Pure-bred
Number of ewes	No.	13·75	13·75
Number of lambs raised	"	13·5	13·75
Average weight at birth	lb.	8·1	7·8
Average weight at 6 months	"	75·2	73·6
Average gain per head	"	67·1	65·8

From the above figures, it will be noted that the cross-bred lambs were slightly heavier at birth than the pure-bred and were heavier at 6 months of age, by a slight margin. Nevertheless, the difference in weight is not sufficient to be responsible alone for the greater demand of the cross-bred over the pure-bred lambs on the market. The cross-bred lambs were of a low set, blocky, type had a better appearance than the pure-bred Leicesters when offered for sale and were always preferred by the drovers when marketed.

COST OF MAINTAINING THE BREEDING FLOCK

Number of sheep fed	57
36,640 lbs. of hay at $8 per ton	$146 56
4,580 lbs. of oat at 2·2 cents per pound	100 76
3,300 lbs. of bran at $32.20 per ton	53 13
5 months pasture, 57 heads at 20 cents per head per month	57 00
Total feed cost	$ 357 45
Cost per head	6 27

It will be noted, that it cost $6.27 to feed a sheep one year. This is very high but with the poor pasture available for sheep at this Station, a greater quantity of grain must be fed to keep the sheep in good condition otherwise the lambs would not reach the most desirable weight for the fall market. This situation has repeated itself each year since 1922 with the exception of in 1925 when better pasture was available and as a result the cost of feeding was reduced to $4.89.

The average feed cost per head for five years is $6.23. The feed cost for each year since 1922 is as follows:—

Year	Feed cost per head
1927	$ 6 27
1926	6 38
1925	4 89
1923	6 99
1922	6 61

HORSES

The Percheron stud kept at this Station continues to show improvement and the young mares which are being raised will be used to replace the mares which are advanced in years. The stud now contains 11 mares, three years old and up; two two-year old females; two yearling females; three colts under a year; one two and one three-year old stallion.

The group of mature females, besides being used for experimental feeding and breeding, supplies the necessary horse labour needed for the farm work.

During the year, a string of home-bred Percherons was shown at the Quebec Fair with much success against fairly strong competition. The prizes captured included one grand championship (female, any age), eight firsts, two seconds, one third and one sixth prize.

As in former years, a graded string of Percherons was also shown at the annual Percheron Horse Show held at Ste. Anne de la Pocatiere, P.Q. This

brings together, for the competition, practically all the Percherons of the Lower St. Lawrence district. The Show was a fair success and the Experimental Station exhibits carried away most of the honours.

A feature of particular interest for this Station and district was the importation by the Director of the Experimental Farms of a three-year old stallion, named "Chacal" (12951) (165185) from the famous Percheron district of Nogent-le-Rotrou, France. This stallion should, if his breeding and general quality are indications of his value, contribute still further to improve the standard of breeding done at this Station and district.

FEED CONSUMED BY DRAFT HORSES AND COST OF HORSE LABOUR

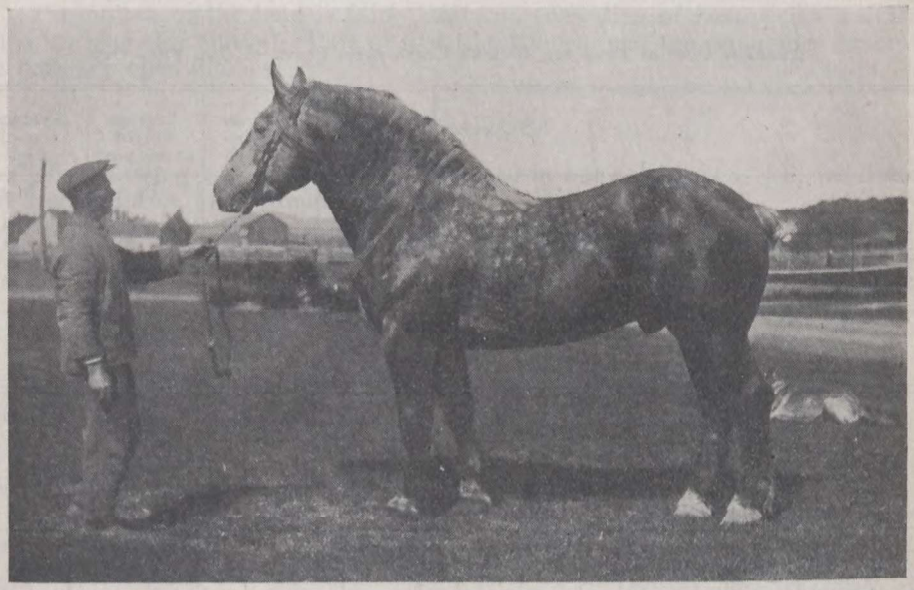
Name	Age	Weight	Feed consumed			Total cost of of feed	Hours of work	Cost of work work per hour
			Hay at $7.25 per ton	Oats at 74 cts. per bushel	Bran at $32.20 per ton			
	Years	lb.	lb.	lb.	lb.	$	hrs.	$
Mela	15	1,625	5,400	4,440	720	127 80	2,082	·0614
Fanchette	9	1,600	5,400	4,440	720	127·80	2,048	·0624
Juliette	7	1,825	5,400	4,440	720	127 80	1,833	·0697
Mathilda	7	1,730	5,400	4,590	720	131 06	1,824	·0719
Mela 3rd	5	1,700	5,400	4,440	720	127 80	1,953	·0654
Jeannette 3rd	5	1,650	5,400	4,440	720	127 80	1,779	·0718
Mela 4th	4	1,650	5,240	4,300	720	124 17	1,650	·0753
Julia 3rd	4	1,575	5,400	4,440	720	127 80	1,506	·0848
Minette 2nd	4	1,550	5,400	4,440	720	127 80	1,508	·0847
Average	6·66	1,656	5,382	4,441	720	127 76	1,798	·0705

AVERAGE NUMBER OF HOURS AND AVERAGE FEED COST OF WORK PER HOUR FOR A PERIOD OF SIX YEARS

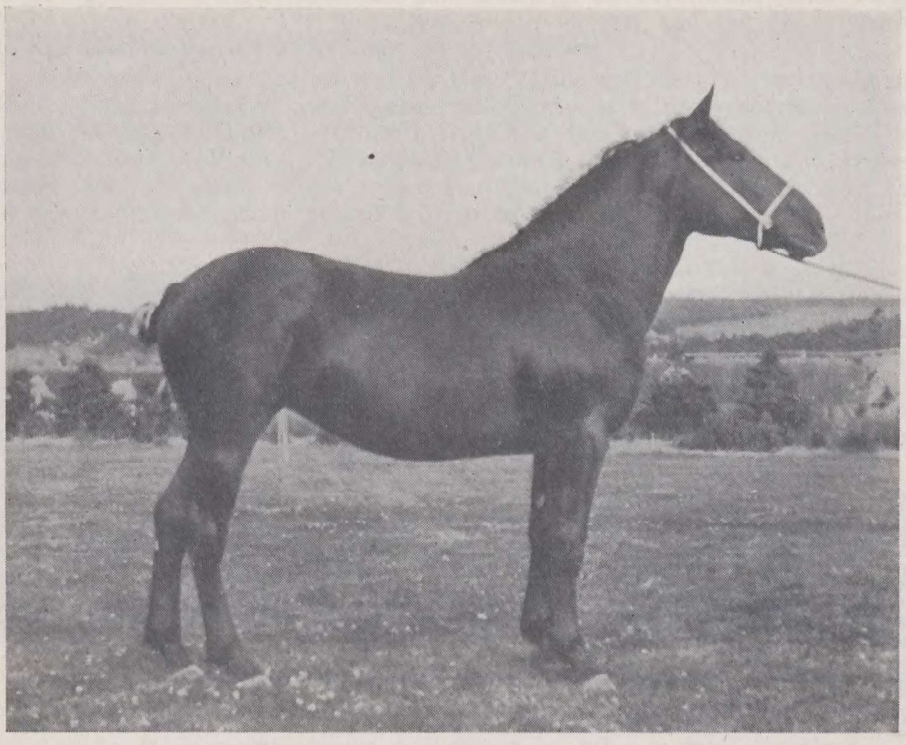
Years	Average number of hours of work	Average feed cost of work per hour
		$
1927	1,798·0	·0705
1926	1,891·3	·0598
1925	1,551·0	·0805
1924	1,953·8	·067
1923	1,852·8	·055
1922	2,034·0	·065

As in former years, records were kept of the feed consumed and of the cost of labour performed by the mares which are used for breeding and also to perform the Experimental Station's work. As presented in the above table, it will be noted that while working only an average of 1,798 hours, or, roughly, 180 days during the year, the cost of horse labour during the year averaged approximately 7 cents per hour, and for the six-year period the cost was 6·6 cents per hour, when performing 184 days of work. Had these horses been at work continually, the cost would naturally be reduced still lower. The average cost obtained would seem to be the best argument in favour of breeding more draft horses which will find a ready market at the present time. It may also be stated in this connection that the use of a good pair of fairly heavy horses is one of the chief means to assure the proper cultivation of the average farm.

Home bred group of Percherons on the Ste. Anne Station.



Imported Percheron stallion, Chacal (12951) 165185.



A yearling filly.

AVERAGE COST OF FEED FOR RAISING COLTS FROM BIRTH TO ONE YEAR OLD

——	Number colts	Average weight at birth	Average weight at one year	Average cost of feed
		lb.	lb.	$ cts.
1922	4	239	1,092	34 82
1924	3	200	975	34 12
1926	3	160	834	37 45
1927	1	125	900	34 28

COST OF FEED FOR RAISING COLTS FROM BIRTH TO 2½ YEARS OF AGE

Name	Date of birth	Weight		Feed Consumed			Pasture	Cost of feed
		Birth	2½ years	Hay at $7.25 per ton	Oats at 74 cts. per bushel	Bran at $32.20 per ton		
		lb.	lb.	lb.	lb.	lb.	mth.	$ cts.
Ste. Anne Cormier	May 20, 1925	175	1,375	4,948	3,188	673	9	111 61
Mathilda 2nd	April 20, 1925	110	1,525	5,433	3,683	753	8	123 45

AVERAGE COST OF FEED FOR RAISING COLTS FROM BIRTH TO 2½ YEARS OF AGE

Years	Number of colts	Average weight at birth	Average weight at 2½ years	Average cost of feed
		lb.	lb.	$ cts.
1923	4	239	1,588	117 30
1924	2	210	1,562	122 29
1925	3	200	1,427	103 19
1927	2	143	1,450	117 53

The above tables are presented as a hope and a plea to induce more farmers into the breeding of draft horses.

It will be noted that the feed cost to raise a Percheron colt to one year of age at an average weight of 950 pounds is $35.17 and an average of $115.08 for the feed cost up to 2½ years, that is, to the age when a colt can be broken, at an average weight of 1,507 pounds.

The above figures should induce more farmers to raise their own horses and have some surplus ones for sale.

FIELD HUSBANDRY

The spring of 1927 opened under normal conditions and fairly early for our district. The land, however, was difficult to work on account of the wet cold weather of the latter part of April, and, on account of many wet days in the latter part of May and the first part of June, the seeding proceeded slowly and did not finish until late in June. The temperature of August and September was good. On the whole, the season was favourable and the crops gave good yields, especially grains and roots.

The crops for which the average cost of production is given in this report have been grown on rotation of three-, four- and five-years' duration.

The nature of the land is fairly uniform, consisting of heavy clay surface soil with blue clay subsoil. Part of it is tile-drained, and the remainder drained by ordinary open ditches.

COST FACTORS

The following list of the cost factors used in our calculations will facilitate the interpretation of the report presented:—

APPLICATION OF MANURE TO ROTATIONS

Rotation	Year Crop	Manure per acre	Percentage of value of the manure for each crop
			%
Three-year	1st year	12 tons	50
	2nd year		30
	3rd year		20
Four-year	1st year	16 tons	40
	2nd year		30
	3rd		20
	4th		10
Five year	1st year	20 tons	40
	2nd year		25
	3rd year		20
	4th		10
	5th year		5

FIXED CHARGES IN PRODUCING FARM CROPS

Rent of land (including taxes), $6.25 per acre.

Manure, $2 per ton (including $1 for the cost of applying).

Ensiling, $1.04 per ton (including hauling, machinery, gas, man labour).

Threshing: Oats and barley, 4 cents per bushel; wheat and peas, 8 cents per bushel.

Uses of machinery, $2.85 per acre.

Manual labour and teamster, 26 and 27 cents per hour.

Horse labour, 10 cents per hour.

Twine, 14·5 cents per pound.

Seed

Oats	$1.35 per bushel
Wheat	3.00 per bushel
Barley	1.80 per bushel
Peas	3.50 per bushel
Corn	3.00 per bushel
Sunflowers	10 cents per pound
Turnips	47 cents per pound
Red Clover	35 cents per pound
Alsike	35 cents per pound
Alfalfa	29 cents per pound
Timothy	12 cents per pound

COST OF PRODUCING CROPS

COST OF PRODUCING INTERTILLED CROPS PER ACRE IN 1927

Cost factors	Corn	Sunflowers	Turnips	Sunflowers and corn
	$ cts.	$ cts.	$ cts.	$ cts
Rent and taxes	6 25	6 25	6 25	6 25
Share of cost of manure	12 53	12 53	12 80	12 80
Seed	2 75	1 00	1 10	1 55
Manual labour	10 41	10 41	26 27	10 06
Horse labour	3 73	3 73	6 65	3 40
Ensiling	11 22	15 77	.....	12 69
Machinery	2 85	2 85	2 85	2 85
Twine	0 34	0 49	.....	0 40
Cost per acre	50 08	53 03	55 92	50 00
	tons lb.	tons lb.	tons lb.	tons lb.
Yield per acre	12 920	17 1,060	20 400	14 200
	$ cts.	$ cts.	$ cts.	$ cts.
Cost per ton	4 02	3 03	2 77	3 54

The reader will note in the preceding table that corn has been produced at the cost of $4.02 per ton as compared with $3.54 for sunflowers and corn mixture, with $3.03 for sunflowers and with $2.77 for swede turnips. The point to keep in mind, as far as this district is concerned, is the relatively low cost at which roots can be produced in comparison to the other succulent crops. This is partly explained by the generally short and cool seasons prevailing in this district.

COST OF PRODUCING GRAIN

Cost Factors	Oats	Wheat	Barley	Peas
	$ cts.	$ cts.	$ cts.	$ cts.
Rent and taxes	6 25	6 25	6 25	6 25
Share of cost of manure	9·60	8·64	9 60	4 80
Seed	3 75	4 00	4 00	8 75
Manual labour	5 84	6 27	6 47	7 81
Horse labour	3 40	3 33	4 40	2 41
Twine	0 49	0 39	0 55	.....
Threshing	4 40	2 82	1 88	3 60
Machinery	2 85	2 85	2 85	2 85
Total cost per acre	35 58	34 55	36 00	36 47
Cost of straw per acre	4 02	3 91	2 00	.....
Cost of producing grain per acre	32 56	30 64	34 00	36 47
	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Yield of grain per acre	88 00	35 38	49 00	45 18
Cost per bushel	37 cts.	86 cts.	69·3 cts.	80·5 cts.

The grain crops, this year, gave very good results and the yields are much over the average of past years. It should be specially noted that a crop of peas returns a large profit over its costs of production, and it is felt that pea and barley culture should receive more consideration by the farmers having clay or clay loam soils.

The reduction of cost per bushel in the growing of grain crops can be made possible particularly through the use of high-quality seed, by seeding the grain as early as possible in a well-prepared seed bed, and thirdly, by improving the degree of fertility of the soil. If attention is given to these points, much can be done on most of our farms.

COST OF PRODUCING HAY

Cost factors	Clover	Alfalfa and Clover	Timothy	Oat hay
	$ cts.	$ cts.	$ cts.	$ cts.
Rent and taxes	6 25	6 25	6 25	6 25
Share of cost of manure	5 96	6 40	3 20	5 40
Seed	2 87	2 45	2 45	6 12
Manual labour	4 10	4 21	2 91	8 02
Horse labour	0 97	0 90	0 90	4 30
Machinery	2 85	2 85	2 85	2 85
Cost per acre	23 00	23 06	18 56	32 74
	tons lbs.	tons lbs.	tons lbs.	tons lbs.
Yield per acre	2 1,760	2 1,660	2 1,040	3 1,460
Cost per ton	$ 7 99	$8 15	$7 37	$8 66

The outstanding feature of the above table is that it illustrates the feasibility of growing leguminous and succulent forage crops for the dairy herd in three different forms at reasonable cost. As a general rule there is always a shortage of alfalfa or clover hays on most of the dairy farms. Pea and oat hay, besides being easy to grow, produces a good tonnage, is a crop rich in protein and quite palatable if cut before it is too ripe and cured properly. The advantage of this last crop is that it may be converted advantageously into silage, cured as hay or allowed to ripen for grain if the harvest of clover hays has been abundant.

FOUR YEARS' AVERAGE IN THE YIELD AND COST OF PRODUCTION OF CROPS

Crops	Average yield per acre for 4 years	Average cost per ton or bushel for 4 years
		$
Intertilled Crops		
Corn	13 tons	4 20
Sunflowers	15 tons 1,400 pounds	3 48
Turnips	19 tons 700 lb.	3 06
Sunflowers and corn mixture	14 tons 1,120 pounds	3 83
Grain Crops		
Oats	79 bushels 4 pounds	0 35·9
Wheat	29 bushels 55 pounds	1 06
*Barley	37 bushels 41 pounds	0 87·8
*Peas	51 bushels 56 pounds	1 29
Hay Crops		
Clover	3 tons 520 pounds	7 91
Alfalfa and Clover	3 tons 80 pounds	7 81
Timothy	2 tons 800 pounds	8 66
Oat and pea hay	3 tons 840 pounds	9 43

* Three years average only.

It should be noted that the yields of all crops mentioned in the preceding table are very much larger than the yields generally obtained by the farmers of our district. This is due to the observance, as far as possible, of the factors which are involved in the production of good crops. These factors are always the same, namely: rotation of crops, good cultural methods, good seed and the application of proper amounts of manure or fertilizers.

The main factor fixing the high cost of corn silage in this district is climatic conditions. The season being short, corn does not reach a stage of desirable maturity. Sunflowers suffering less from such conditions give a better yield. However, in general, roots (Swede turnips or mangels) is the crop giving most satisfaction, because for this crop, the limiting factor is not so much the climatic conditions, but rather the cultural methods and labour which are more or less under the control of the farmers.

YIELD PER ACRE AND COST OF THE DRY MATTER PER 100 POUNDS OF DIFFERENT CROPS

Crops	Yield, 1927	Dry matter percentage	Dry matter per acre		Cost per 100 pounds of dry matter	
			1927	Average 4 years	1927	Average, 4 years
	tons lb.	%	lb.	lb.	$ cts.	$ cts.
Corn	12 920	16·45	4,100	3,752	1 22	1 44
Sunflowers	17 1,060	12·35	4,330	4,342	1 22	1 30
Swede turnips	20 400	10·57	4,270	3,934	1 31	1 51
Sunflowers and corn	14 200	12·98	3,660	3,708	1 35	1 40
Oat hay	3 1,460	88·0	6,565	5,839	0 56	0 55
Clover	2 1,760	87·1	5,017	5,683	0 46	0 45
Alfalfa and Clover	2 1,660	89·2	5,049	5,526	0 46	0 43
Timothy	2 1,040	88·4	4,455	4,242	0 42	0 49
	bush. lb.					
Oats	88 —	90·8	2,717	2,451	1 20	1 16
*Barley	49 —	90·7	2,133	1,648	1 59	2 02
*Peas	45 18	90·8	2,468	2,850	1 48	1 40
Wheat	35 38	88·9	1,901	1,608	1 61	1 96

* Three years average only.

The dry matter per acre for intertilled crops has been calculated according to analysis of samples made by the Dominion Chemist and the Division of Forage Plants, Ottawa; while analyses by Henry & Morisson were used for calculating the dry matter yield of grains.

In the preceding table, it should be noted, that the costs per 100 pounds of dry matter do not vary greatly among succulent feeds. The same comment applies for the various kinds of hay. More variations will be noted for the grains, but the composition of the dry matter of these different crops should not be forgotten in studying these tables.

ROTATION OF CROPS

Rotations of unequal duration are established at this Station, namely, three-year, four-year and five-year rotations, in order to determine the most suitable ones for the average farm in the district, and their influence on crop production.

The yield and cost of production of the crop in each rotation are reported.

FOUR-YEAR ROTATION

(Undrained land)

1st year—Turnips, corn and sunflowers.
2nd year—Wheat.
3rd year—Clover hay.
4th year—Timothy hay.

YIELD AND COST OF PRODUCTION

Crop	Yield, 1927	Cost per acre, 1927	Cost per ton or bushel, 1927	Average yield for 6 years
		$ cts.	$ cts.	
Turnips	21 tons 1,400 pounds	50 17	2 31	14 tons 600 pounds
Corn	10 tons 600 pounds	46 78	4 54	8 tons 900 pounds
Sunflowers	19 tons 400 pounds	54 18	2 82	15 tons 250 pounds
Wheat	15 bush. 36 pounds	33 44	2 14	23 bush. 32 pounds
Clover hay	2 tons 1,920 pounds	23 38	7 90	2 tons 1,223 pounds
Timothy hay	2 tons 520 pounds	18 56	7 70	2 tons 466 pounds

FOUR-YEAR ROTATION

(Tile-drained land)

YIELD AND COST OF PRODUCTION

Crop	Yield, 1927	Cost per acre, 1927	Cost per ton or bushel, 1927	Average yield, for 6 years
		$ cts.	$ cts.	
Turnips	23 tons 1,600 pounds	50 17	1 10	15 tons 1,200 pounds
Corn	12 tons 600 pounds	48 64	3 95	10 tons 1,550 pounds
Sunflowers	17 tons 1,920 pounds	53 02	2 90	13 tons 1,637 pounds
Wheat	34 bush. 6 pounds	35 15	1 03	31 bush. 36 pounds
Clover hay	2 tons 1,420 pounds	22 80	8 41	2 tons 1,082 pounds
Timothy hay	2 tons 1,540 pounds	18 56	6 70	2 tons 367 pounds

This type of rotation appears to be practical for a dairy farm having a permanent pasture, because a larger amount of feed is available for winter than for summer.

FOUR-YEAR ROTATION

(Part drained and part undrained)

1st year—Corn and sunflowers.
2nd year—Oats.
3rd year—Alfalfa and clover mixture.
4th year—Hay and pasture.

YIELD AND COST OF PRODUCTION

Crops	Yield, 1927	Cost per acre, 1927	Cost per ton or bushel, 1927	Average yield for 4 years
		$ cts.	$ cts.	
Corn and Sunflowers mixed	14 tons 200 pounds	50 00	3 54	14 tons 1,120 pounds
Oats	88 bushels	36 10	0 41	79 bush. 6 pounds
Alfalfa and Clover	2 tons 1,660 pounds	23 06	8 15	3 tons 20 pounds
Hay and equivalent of 7 months' pasture for 1 cow	1,000 pounds	16 21	.....	

This four-year rotation includes an area of 27 acres, 6·75 acres for each field. The fourth year crop has been pastured at the equivalent of seven months of pasture for one cow per acre and 1,000 pounds of hay per acre has been harvested during the pasture season which had been very luxuriant. It should be noted that the yield of oats was exceptionally large.

This rotation is, at this Station, a model of what could be done on many farms on a greater scale in this district.

THREE-YEAR ROTATION

(Tile-drained)

1st year—Sunflowers and corn.
2nd year—Wheat.
3rd year—Clover hay.

YIELD AND COST OF PRODUCTION

Crop	Yield, 1927 per acre	Cost per acre, 1927	Cost per ton or bushel, 1927	Average yield for four years
		$ cts.	$ cts.	
Sunflowers	15 tons 880 pounds	51 90	3 36	15 tons 1,150 pounds
Corn, Longfellow	14 tons 79 pounds	53 81	3 64	12 tons 872 pounds
Wheat	38 bushels	33 67	0 89	31 bushels
Clover hay	3 tons 240 pounds	23 00	7 37	2 tons 785 pounds

This short rotation would be convenient in districts where intensive growing of special crops is the object or on farms relatively small, or on very light soils.

FIVE-YEAR ROTATION

(Undrained)

1st year—Turnips.
2nd year—Wheat.
3rd year—Clover.
4th year—Timothy hay.
5th year—O.P.V. hay.

YIELD AND COST OF PRODUCTION

Crop	Yield per acre, 1927	Cost per acre, 1927	Cost per ton or bushel, 1927	Average yield for 4 years
		$ cts.	$ cts.	
Oats and peas hay	3 tons 1,460 pounds	32 74	8 66	3 tons 635 pounds
Turnips	15 tons 400 pounds	55 43	3 64	15 tons 1,450 pounds
Wheat	21 bush. 18 pounds	31 89	1 50	21 bush, 15 pounds
Clover hay	2 tons 1,400 pounds	22 42	8 30	2 tons 545 pounds
Timothy hay	2 tons 1,800 pounds	18 56	6 40	2 tons 645 pounds

This type of rotation would seem recommendable wherever the farm soil is of clay or clay loam. It includes oats and peas, hay and roots in replacement of silage. It will supply a considerable quantity of good roughage for wintering cattle. A part of the oat and pea mixture can be used as a supplement to pasture during the summer months if needed, cured as hay or allowed to ripen for grain. The low yield of wheat is explained through the late preparation of this field for seeding and then rust infection at ripening.

DRAINAGE EXPERIMENT

In 1922, two four-year rotations were established to determine the difference in yields from underdrainage.

The following table gives the yearly yield and the average yield of six years.

FOUR-YEAR ROTATION—DRAINED VS. UNDRAINED LAND

Crop	Tile-Drained		Undrained	
	Yield 1927	Average of 6 years	Yield 1927	Average of 6 years
	tons lb.	tons lb.	tons lb.	tons lb.
Corn	12 600	10 1,550	10 600	8 900
Sunflowers	17 1,920	13 1,637	19 400	15 250
Turnips	23 1,600	15 1,200	21 1,400	14 600
	bush. lb.	bush. lb.	bush. lb.	bush. lb.
Wheat	34 6	31 36	15 36	23 32
	tons lb.	tons. lb.	tons lb.	tons lb.
Clover	2 1,420	2 1,082	2 1,940	2 1,223
Timothy	2 1,540	2 367	2 520	2 466

During the six years that observations were made and records of crop yield taken, two very dry summers, one cold spring and one wet fall have occurred. These factors affecting the yields of crops should be borne in mind in studying the results.

It will be noted, that during a period of six years, with exception of wheat, no significant increases in yields have been derived from artificial drainage on this type of soil, which is heavy clay.

FERTILIZING HAY ON A FIELD SCALE

The object of this experiment is to determine the value of commercial fertilizers and farm manure for fertilizing hay on a field scale.

A five-year rotation is established on a field of approximately 9 acres in area and on heavy clay soil.

Section 1 received 16 tons of manure per acre; 8 tons top-dressed on oat stubble for clover hay and 8 tons applied in the fall for third-year timothy.

Section 2 was fertilized as follows: first and second year, unfertilized; third year, 200 pounds superphosphate, 100 pounds of nitrate of soda, 75 pounds muriate of potash applied in the spring; fourth year, 200 pounds of superphosphate, 100 pounds of nitrate of soda, 75 pounds of potash applied in the spring; fifth year, 100 pounds of nitrate of soda.

Section 3 received no manure or fertilizer and is used as check.

FERTILIZER FOR HAY

Average yield and cost of production for three years

Rotation year	Crop	Manure		Fertilizers		No manure or Fertilizers	
		Yield 1927	Cost per ton or bushel	Yield 1927	Cost per ton or bushel	Yield 1927	Cost per ton or bushel
		tons lb.	$ cts	tons lb.	$ cts	tons lb.	$ cts
1st	Peas and oats hay	2 1,820	12 22	2 1,860	11 86	2 1,060	11 33
		bush. lb.		bush. lb.		bush. lb.	
2nd	Oats	60 3	39 84	69 24	34 54	62 20	34 44
		tons lb.		tons lb.		tons lb.	
3rd	Clover hay	2 600	10 09	2 1,160	7 99	2 400	7 65
4th	Timothy hay	2 420	9 16	2 1,340	7 49	2 320	7 39
5th	Timothy hay	2 540	9 13	2 700	7 79	2 240	7 22

It should be noted that the soil is of clay nature and was reasonably rich in fertilizing elements at the start of this experiment in 1922. From this fact, it is explained why the results were nearly as good on unfertilized as on fertilized fields. However, commercial fertilizers seem to give better results than manure on a cost basis. With the start of the second cycle of the rotation, it is also felt that the yield of the unfertilized section will decrease materially and the cost of crops will increase.

COMPARISON OF MANURE, SPENT HOPS AND YEAST, AND COMMERCIAL FERTILIZERS

The object of the experiment is to determine the possibility of growing forage crops, grain and hay by total or partial replacement of manure on poor gravelly and sandy soil, also to compare spent hops and yeast with manure and commercial fertilizers.

The experiment is conducted on a four-year rotation and was started in 1924.

Section 1: 10 tons spent hops and yeast were applied to the first year crop which was in pea and oat hay and 10 tons on oat stubble the following year.

Section 2: 10 tons manure were applied to the first-year crop and 10 tons on oat stubble the following year.

Section 3: 100 pounds nitrate of soda, 200 pounds superphosphate and 50 pounds muriate of potash were applied to the first-year crop; 50 pounds nitrate of soda and 150 pounds superphosphate to the second-year crop; 50 pounds of muriate of potash and 150 pounds superphosphate to the third-year crop.

Section 4: 8 tons manure and 150 pounds superphosphate were applied to the first-year crop; no fertilizers on the second-year crop; 150 pounds superphosphate and 50 pounds muriate of potash to the third-year crop.

Section 5 is used as a check plot and received no fertilizers or manure.

FERTILIZERS EXPERIMENT

Yield per acre in 1927

Section	Treatment or rotation	First year oat and pea hay	Second year oats	Third year clover hay	Fourth year timothy hay
		lb.	bush. lb.	lb.	lb.
No. 1	Spent hops and yeast	2,200	55 10	.....	.....
No. 2	Manure	1,750	47 22	2,700	2,350
No. 3	Commercial fertilizers	1,525	36 —	2,475	1,550
No. 4	Manure and commercial fertilizers	1,650	40 30	3,425	2,300
No. 5	No manure or fertilizers	1,300	27 7	475	500

It should be noted that this poor gravelly soil has been very responsive to application of any kinds of fertilizers and for each crop grown. Very good results are obtained from the use of spent hops and yeast which has been under experiment for two years only. More information will be obtained on this subject after the experiment has been conducted longer.

REGISTERED GRAIN CROP VS. UNREGISTERED GRAIN CROP

To show the advantage of producing registered grains, a special table was prepared in which the profit realized on the same crops as registered and as unregistered is compared.

Statements		Oats	Wheat	Barley	Peas
Yield per acre	bush.	88	34	48	44
Cost of registered grain per bush	cts.	48·8	98	83·3	92
Cost of unregistered grain per bushel	"	40·3	89·5	72·8	84
Value of registered grain per bushel	$	1·25	3·00	1·75	3·50
Value of unregistered grain per bushel	$	0·75	1·75	1·10	2·50
Value per acre of grain crop as registered	$	98·00	89·50	74·40	145·00
Value per acre of grain crop as unregistered	$	66·00	59·50	52·80	110·00
Profit per acre of grain crop as registered	$	57·16	57·11	36·66	105·24
Profit per acre of grain crop as unregistered	$	30·54	29·07	17·86	73·04
Profit per acre due to registration only	$	26·62	28·04	18·80	32·20

It should be noted that the profit per acre due to registration only is $26.62 for oats, $28.04 for wheat, $18.80 for barley, and $32.20 for peas.

In the preparation of the above table, the following charges have been made for the registration grain; fifteen cents per acre for inspection; registration, five cents per bushel; cleaning three and half cents per bushel for registered grain and three and a half cents for unregistered.

HORTICULTURE

TREE FRUITS

APPLE—VARIETY EXPERIMENT

No serious damage by snow was recorded this year. Of the 900 apple trees of the orchard only two were partly destroyed by the frost. These were of the Sorel variety.

The blooming period came rather early and the blossoms were plentiful. Several varieties were in bloom on June 15. Five spraying operations with lime sulphur were carried on and resulted in a healthy crop of fruits free from insect bites and scab.

The total crop of apples in the orchard amounted to 521 barrels as compared with an average of 444 barrels 9 gallons for the last three years.

The following yields were obtained with one tree of each of the varieties recommended in previous reports.

YIELD OF APPLE TREES IN VARIETY EXPERIMENT

Variety	Date planted	Yield to date
		bush.
Crimson Beauty	1915	6½
Yellow Transparent	1914	6
Duchess	1913	3½
Melba	1913	3½
Lobo	1913	5½
Wealthy	1914	7¾
Barred Fameuse	1915	10½
McIntosh	1914	8
Red Fameuse	1918	1½

Among the varieties originated at the Central Experimental Farm, Horticultural Division, the following seem very promising.

Variety	Season
Hume	October to the end of November
Joyce	October to the end of November
Pedro	October to the end of November
Sandow	End of November to February 15
Niobe	January to the end of March
Bruno	End of November to April 15.

Two trees of the Bruno variety which were planted in 1913 have given the following yields as an average for four years.

Variety	Year	Yield
		Bushels
Bruno	1924	5
Bruno	1925	4
Bruno	1926	4½
Bruno	1927	6½

APPLE—KEEPING EXPERIMENT

Storage investigations are being conducted to determine the keeping qualities of newly introduced varieties and the season these varieties will be suitable for table use. With this object in view 129 varieties were stored in a cellar last fall. Temperature records are taken daily and observations made at different dates.

The following table shows the results of these observations on some of the varieties under experiment.

Variety	Temperature		Season
	Date	Average	
Winter St. Lawrence, seedling	Oct.	42·8	Sept. 12 to Oct. 15
Dulcet	Nov.	40·5	Sept. 15 to Oct. 25
Winton	Dec.	35·0	Oct. 10 to Nov. 20
Walter	Jan.	34·5	Nov. to Jan. 20
Bruno	Feb.	35·0	Nov. to April 20
Rosalie	Mar.	36·0	Dec. to April 1

APPLE—THINNING EXPERIMENT

Apple thinning was tried on 7 trees of different varieties. Only one apple was left per spur. Seven other trees of the same varieties were kept unthinned and used as a check. The thinning was done when the apples measured about one inch in diameter.

Variety	Thinned				Unthinned			
	Yield				Yield			
	Colour	No. 1	No. 2	Total	Colour	No. 1	No. 2	Total
		gal.	gal.	gal.		gal.	gal.	gal.
Yellow Transparent	Good	20	8	28	Good	16	12	28
Fameuse	Good	24	8	32	Medium	24	16	40
North Star	Good	24	4	28	Medium	14	10	24
Wealthy	Good	12	4	16	Medium	16	8	24
Duchess	Good	12	4	16	Medium	14	8	22
Wolf River	Good	28	8	36	Medium	24	8	32
Alexander	Good	20	6	26	Medium	12	4	16

PLUM—TEST OF VARIETIES

Four other varieties of plums were added last spring to the twenty-two varieties already under experiment. These are the hybrid varieties: Emerald, Kahinta, Omaha, and Waneta. The total crop of the year was 508 gallons.

The yields mentioned below were obtained this year from one tree of each of the following varieties.

Variety	Date planted	Yield
		gal.
Hudson River	1914	41½
Latchford	1914	40½
John A	1914	18
Damson	1913	15
Bradshaw	1914	13½
Damas	1915	11

The following varieties seem the most suitable for this district: Blue Damas (Damson), Reine Claude of Montmorency, Yellow, Bradshaw, Red Purple, Lombard, Red Purplish, Hudson River, Dark Red, Latchford, Violet.

CHERRY—TEST OF VARIETIES

The 16 varieties of cherry trees under test have given a reduced yield this year with the exception of the Large Montmorency variety which has given a satisfactory yield. A few varieties cannot stand the climatic conditions of this district namely: Fouche Morello, Griotte d'Ostheim. These varieties have been replaced by the Large Montmorency and French Cherry which are more hardy in this district.

One tree of each of the following varieties, planted in 1913, were found the most satisfactory and produced the following yields:—

Large Montmorency, 8 gallons.
French Cherry, 6½ gallons.

PEAR—TEST OF VARIETIES

The three varieties of pear trees planted in 1919 have given this year the first worthwhile yield. The Flemish Beauty produced 6 gallons, while the Clapp Favorite and Bartlett varieties each yielded 3 gallons of pears. The fruits from the Flemish Beauty were a good deal above those from the other varieties for size as well as for quality.

SMALL FRUITS

RASPBERRY—TEST OF VARIETIES

The raspberry plantation includes 12 varieties. The rows are kept 6 feet apart while a distance of 3 feet is left between each bunch of plants. The four varieties which are reported hereafter are very suitable for our climate and at least one of them should have a place in every plantation of small fruits in the district.

The average yield of these varieties in order of earliness is given below:—

Variety	Number of days fruiting	Average yield per acre
	days	lb.
Brighton	28	3,870
Newman No 23	33	5,555
Superlative	30	5,585
Latham	29	5,101

STRAWBERRY—TEST OF VARIETIES

Four varieties of strawberry have been under test for five years. Hermia and Lavinia are not hardy enough for this district and have not given satisfactory yields. Strawberries are planted 18 inches apart and a distance of 3½ feet is left between the rows.

The average yields of strawberries for four years were as follows:—

Variety	Average yield per acre
	lb.
Cassandra	4,822
Portia	4,769
Hermia	1,971
Lavinia	1,426

CURRANT—TEST OF VARIETIES

The Currant plantation includes 16 varieties of which 8 are black currant, 5 red currant, 3 white currant. These have been under test for five years and the results obtained were conclusive enough to ascertain which varieties ought to be preferred.

These are reported below together with their average yield per acre for a period of four years.

Black Currant

Variety	Yield per acre Average for 4 years
	lb.
Kerry	3,817
Saunders	3,782
Magnus	2,901

Red Currant

Variety	Yield per acre Average for 4 years
	lb.
Cumberland	5,578
Red Grape	4,204

White Currant

Variety	Yield per acre Average for 4 years
	lb.
Large White	6,113
White Dutch	5,868

GOOSEBERRY—TEST OF VARIETIES

Four varieties are under experiment namely: Rideau, Smith Improved, Industry and Mabel. The last variety has always given satisfactory results in this district. It is more resistant to late blight than any other variety, and produces a fruit of good size and fair quality.

FLOWERS

ANNUALS—TEST OF VARIETIES

The total collection of flower seeds amounted to 250 varieties or species. Most of them were sown in open ground on May 21. The following varieties were in bloom by the 1st of July: Acroclinium, Arctotis, Asperula, Calendula, Candytuft, Eschscholtzia, Linaria, Mathiola Bicornis.

Ricinus, Stocks and Dahlia were sown in hotbeds March 26. Dahlias showed their first bloom on August 3, and Stocks the 24th of August.

Sweet peas were sown in open ground and were in bloom from July 16 to September 29 when a severe frost occurred.

ASTERS—TEST OF VARIETIES

Nineteen varieties were transplanted on May 26, having been sown in hotbeds on March 26. Of all the varieties under test the Snow Queen produced the first bloom on July 18. Among the varieties with ramified foliage the asters of the Crego or Comet type were the most attractive being supported by long and delicate stems.

TULIPS—TEST OF VARIETIES

The thirty varieties of tulips planted on October 26, 1926, were included in the four following groups: Early Tulips, Cottage Tulips, Parrot Tulips and Darwin Tulips. The blooming period extended from May 25 to June 21. For a period of five years the Darwin group was the most satisfactory. This group includes the following varieties: Farncombe Sanders, Scarlet Hippolyte (blue violet), La Candeur, white, and Philippe de Commines (velvety black).

VEGETABLES

BEANS

Distance Apart of Planting.—During five years, two varieties of beans were used for this test. The distances between the plants in this experiment were 2, 4 and 6 inches. The results obtained, both for the quality as well as for earliness, are in favour of the two inches planting.

Varieties	Distance apart of planting		
	2 inches	4 inches	6 inches
	gal.	gal	gal
Stringless green pod	29¼	22¾	22½
Round Pod Kidney Wax	26¾	23¾	21¼

Test of Varieties.—On May 20, twenty-seven varieties of beans were planted. Each variety was sown in a row 30 feet long and 30 inches apart. These varieties included green pods and yellow pods. The following varieties having been under test for four years are recommended for the district, and listed in order of their earliness.

Variety	Average yield 4 years
	gal.
Currie Rust proof, yellow pods	10¼
Round Pod Kidney Wax, yellow pods	9½
Masterpiece, green pods	11¾
Hodson long pod, yellow pods	9½
Refugee, green pods	10½

BEETS

Different Dates of Planting.—For five years, seedings of beet, carrot, and parsnip have been made at intervals of ten days; the first seeding about May 10, the last one, about the first days of July. The vegetables were cropped as soon as ready for market. The average yield of five years for the four seedings for a row of 30 feet long is given in the following table.

BEET—DIFFERENT DATES OF SEEDING

Variety	Date of seeding	Yield
		bunches
Detroit Dark Red	May 7	24
Detroit Dark Red	May 17	28
Detroit Dark Red	May 30	19
Detroit Dark Red	June 15	17

CARROT—DIFFERENT DATES OF SEEDING

Variety	Date of seeding	Yield
		bunches
Chantenay	May 10	22
Chantenay	May 17	22
Chantenay	May 30	26
Chantenay	June 15	19

PARSNIP—DIFFERENT DATES OF SEEDING

Variety	Date of seeding	Yield
		bunches
Hollow Crown	May 10	21
Hollow Crown	May 17	18
Hollow Crown	May 30	24
Hollow Crown	June 15	17

NOTE.—In the above tables, bunches mean ten roots of each variety, for beets as well as for carrots and parsnip.

BEET—VARIETY EXPERIMENT

This experiment was conducted with fifteen varieties of beet. The seeds were sown on May 17 in rows 30 feet long. The varieties Crosby Egyptian and Eclipse were the first ready for the market. Among the round varieties, Detroit Half Long is the most easy to conserve in winter. The following three varieties give satisfaction.

Variety	Colour	Quality	Yield
			lb.
Crosby Egyptian	Dark red	Good and early.	100
Eclipse	Red	Good	96
Detroit Half Long	Dark red	Good	80

CARROTS—VARIETY EXPERIMENT

From the ten varieties of carrots under test, for more than four years, the Amsterdam or Coreless variety is the earliest. It is ready for the market ten days before the Chantenay, but is less productive. The Favorite variety under test for the first year, was as early as the Amsterdam. As principal crops for the market, these two varieties cannot take the place of the Chantenay.

PEAS

Distance Apart of Planting.—Three varieties of peas were used in this experiment. In the following table are given the distance apart of plants and the results obtained for an average of five years.

Variety	Distance apart of plants		
	1 inch	2 inches	3 inches
	gal.	gal.	gal.
Laxton	17½	14½	15
Stratagem	15½	14	10½
English Wonder	17	16	13

Variety Experiment.—Eighteen varieties of peas were sown on May 21, one inch apart on plots 30 feet long.

The eight following varieties are recommended for the district—Early Peas; Alaska, Blue Bantam and Laxtonian; half early peas: English Wonder and Advancer; late peas: Stratagem, Potlatch and Champion of England.

PARSNIP—VARIETY EXPERIMENT

Four rows 30 feet long were sown with two varieties of parsnip on May 17. On July 31 the parsnips were ready for the market.

The results obtained were the following:—

Varieties	Source	Yield		Total
		Marketable	Unmarketable	
		lb.	lb.	lb.
Hollow Crown	Graham	33	10	43
Hollow Crown	C.E.F.	30	11	41
Cooper Champion	D. & F.	28	12	40
Hollow Crown	Kenneth McDonald	25	13	38

SQUASH—VARIETY EXPERIMENT

Twelve varieties of squash were sown on May 25. The seeds were sown in hills 9 feet apart each way; three hills for each variety.

The variety English Vegetable Marrow was ready for market on July 26, and the White Bush Marrow on July 30.

The varieties recommended for the district are Hubbard and Kitchenette.

The results obtained were as follows:—

Variety	Yield
	lb.
Golden Hubbard	80
Green Hubbard	78
Kitchenette	79
English Vegetable Marrow	48
White Bush Marrow	42

PUMPKINS—VARIETY EXPERIMENT

Among the six varieties of pumpkins under test at this station, for five years, the variety Small Sugar for table and Connecticut Field for principal cropping are preferred.

The yield of three hills for each variety were as follows:—

Variety	Yield
	lb.
Small Sugar	95
Connecticut Field	187
King of the Mammoth	185

RADISH—VARIETY EXPERIMENT

Nine varieties of radishes under test were shown on May 17. There was a plot fifteen feet long for each variety and fifteen inches between the plots. The largest yields were obtained with the following varieties: Icicle, Scarlet Oval, Twenty-days and French Breakfast.

The Twenty-days variety was ready for the market on June 14. It is the earliest variety.

TURNIPS—VARIETY EXPERIMENT

Four varieties were under test and sown on May 21. Each variety was grown in a row 30 feet long.

The results obtained were as follows:—

Variety	Date usable	Yield
		bunches
Golden Ball	July 28	10
Purple Top Milan	July 30	9
Snowball	Aug. 2	11
Red Top	Aug. 3	9

NOTE.—One bunch equals 5 turnips.

LEEK—VARIETY EXPERIMENT

The plants of two varieties were placed in the ground on May 17, 2 inches apart. The seed had been sown in hotbeds on April 5.

A row 30 feet long for each variety gave the following yields:—

Caretan, 36 pounds.
London Flag, 52 pounds.

SWISS CHARD—VARIETY EXPERIMENT

Three varieties of Swiss Chard, Lucullus, Silver Leaf, Fordhook were sown on May 17. All these varieties were ready for use the same date, September 7. The variety Lucullus is more productive and preferable to the two others, but all are good.

SALSIFY—VARIETY EXPERIMENT

Only one variety of salsify, Mammoth Sandwich Island, was under test in a row 30 feet long. The plants were two inches apart. The whole crop was of 32 pounds.

SPINACH—VARIETY EXPERIMENT

Twelve varieties were under test this year. The results obtained for a row 15 feet long in each variety are mentioned in the following table:

Variety	Source	Season length	Bunches
Long Standing	McDonald	June 19 to June 29	6
King of Denmark	Graham	June 19 to July 2	6
Broad Flanders	McDonald	June 20 to July 1	5
Big Crop	Madsen	June 20 to June 29	5
Noble Gaudry	Stokes	June 21 to July 7	8
Winter Ebenezer	Madsen	June 23 to June 30	7
King of Denmark	Madsen	June 23 to July 6	9
Princess Juliana	Stokes	June 23 to July 6	7
Princess Juliana	Rice	June 23 to July 5	8
Victoria	McDonald	June 23 to July 4	5
Princess Juliana	Madsen	June 24 to July 28	11
New Zealand		July 3 to August 28	22

CUCUMBERS—VARIETY EXPERIMENT

Thirteen varieties of cucumbers were under test. The seed was sown on May 25 in hills 6 feet apart each way. Each variety was represented by three hills. The varieties mentioned in the following table are recommended for the district.

Variety	Date of 1st gathering	Date of last gathering	Yield of 3 hills
			doz.
Arctic White	July 1	September 19	13·8
Long Green	July 3	September 18	13·4
Green Prolific	July 5	September 18	12·10
Cumberland	July 5	September 19	11·4
White Spine	July 5	September 20	11·1

PEPPER—VARIETY EXPERIMENT

Five varieties were under test. The seeds were sown in hotbeds on March 25. Each row was 15 feet long.

The results obtained were as follows:—

Variety	Date usable	Yields
		gal.
Earliest Harris	August 13	2½
New Giant	August 14	1½
Long Red Cayenne	Sept. 22	½
Squash or Tomato	Sept. 28	1½
Red Chili	Oct. 6	½

CAULIFLOWER—VARIETY EXPERIMENT

Eight varieties of cauliflowers were sown in hotbeds on April 5, and transplanted in the open on May 18.

The following table shows the results obtained:—

Variety	Date usable	Weight of two cauliflowers	
		lb.	oz.
Early Snowball	July 25	4	8
Dwarf Early Snowball	July 27	4	6
Dwarf Erfurt	July 27	6	—
Dry Weather	July 30	5	10
Danish Perfection	August 1	5	8
Six Weeks	August 1	4	2
Veitch Autumn Giant	August 10	5	2
Large Late Algiers	August 13	6	8

CORN.

Variety Experiment.—Twenty varieties of corn were sown on May 30. Each plot was 66 feet long. The 5 varieties recommended for the district are given in the following table with their results:—

Variety	Date of 1st gathering	Date of last gathering	Number of heads or ears
Pickaninny	August 15	August 29	63
Banting	August 16	September 9	75
Alpha	August 17	September 16	113
Early Malcolm	August 24	September 28	123
Golden Bantam	August 26	September 28	63

The seed of the varieties, Pickaninnny, Banting and Early Malcolm was from the Central Experimental Farm, Ottawa.

Suckering Experiment.—The object of this experiment is to determine the effect on earliness and yield in proceeding as follows:—

A.—All suckers removed.

B.—All suckers left on.

The hills were 3 feet apart each way.

The results were as follows:—

Variety	Suckers removed		Suckers left on	
	Marketable	Crop	Marketable	Crop
		Ears		Ears
Malcolm	August 26	86	August 28	85
Golden Bantam	August 29	76	August 30	70

The results obtained during four years indicate that, for the Malcolm variety, the maturity was 4 days earlier and the yield 10 per cent better when all suckers were removed.

For the Golden Bantam variety in the same case, the maturity was 3½ days earlier and the yield 5 per cent better.

KOHL RABI—VARIETY EXPERIMENT

The seeds of the two varieties of kohl rabi, Purple Vienna and White Vienna, were sown on June 17. On July 24 both varieties were ready for use. The plots were 30 feet long. The two varieties are equally recommended, both for earliness and for yield.

White Vienna gave ten packages of five kohl rabi each and Purple Vienna 9 packages.

WATERMELON—VARIETY EXPERIMENT

Cole Early was the only variety of watermelon tested. It was sown on May 25, in hills 9 feet apart. The yield obtained from 3 hills was 22 melons. They were ready for use on September 27.

BRUSSELS SPROUTS—VARIETY EXPERIMENT

The two following varieties were under test, Paris Market and Improved Dwarf. The seeds were sown on May 10. They gave respectively for one row 30 feet long, 8¼ pounds and 7¾ pounds. The Brussels Sprouts were ready for the market on September 17.

LETTUCE—VARIETY EXPERIMENT

The seeds of twenty-three varieties of lettuce were sown on May 17. The rows were 15 feet long and 18 inches apart.

The varieties mentioned in the table below are recommended for the district.

Variety	Date usable and length of the season	Yield
		bunches
Wayahead "Cabbage Type"	June 22 to July 15	15
New York "Cabbage Type"	June 23 to July 12	19
Big Boston "Cabbage Type"	June 24 to July 12	14
Crisp as ice "Cabbage Type"	June 24 to July 15	18
Grand Rapids "Cabbage Type" (loose leaf)	June 18 to July 12	22
Simpson "Cabbage Type" (loose leaf)	June 19 to July 12	21

MUSKMELON—VARIETY EXPERIMENT

Thirteen varieties of muskmelon were sown in hotbeds on April 5 and transplanted to the open on June 2. The earliest varieties are as follows:—

Varieties	Date usable
Emerald Gem	September 12
Golden Champlain	September 15
Irondequoit	September 18
Oka	September 18
Tip Top	September 22
Hoodoo	September 22

ONIONS

Variety Experiment.—The seeds of seventeen varieties of onions were sown in semi-hotbeds on April 15 and transplanted to the open on June 8. The plants were 2 inches apart. For each variety, the rows were 30 feet long and 15 inches apart. The results obtained are in the following table:—

Variety	Yield per acre	
	1927	Average of 4 years
	lb.	lb.
Giant Prize Taker	57,016	69,696
Yellow Globe Danvers	53,272	58,080
Ailsa Craig	50,336	68,329
South Port Yellow Globe	44,528	56,629

Of all varieties, White Barletta is the earliest but not so productive. The onions of this variety were ripened on July 25, being 20 days before other varieties.

Autumn vs. Spring Sowing.—During four years, the seeds of onion were sown on November 1, and also the following spring as soon as it was possible to work the land. The Large Red Wethersfield variety was used for this experiment. From results obtained, the autumn sowings are not recommended in the district.

Variety	Dates		Yields	
	Sowing	Maturity	1927	4 years
			lb.	lb.
Large Red Wethersfield	May 5	Sept. 18	17	118
Large Red Wethersfield	Nov. 10	Aug. 16	4½	30

Transplanting vs. Sowing.—Yellow Globe Danvers and Large Red Wethersfield are the two varieties used in this experiment. Part of the seed was sown in semi-hotbeds on May 5, and part was sown in the open on May 1. The results obtained were as follows:—

Variety	Yield per acre	
	1927	Average for 4 years
	lb.	lb.
Large Red Wethersfield (Open Ground)	26,136	33,880
Yellow Globe Danvers (Open Ground)	19,360	30,008
Large Red Wethersfield (Hotbeds)	40,656	55,660
Yellow Globe Danvers (Hotbeds)	48,400	58,080

CABBAGE—VARIETY EXPERIMENT

The seeds of thirty-eight varieties were sown in hotbeds on April 5 and transplanted to the open on May 18. The plants were 18 inches apart for early varieties and 20 inches apart for the late varieties.

The recommended varieties are indicated in the following table:—

Variety	Season	Usable	Weight of 2 cabbages
			lb.
Golden Acre	Early	July 15	7¼
Copenhagen	Early	July 18	10½
Enkhuizen Glory	Middle	Aug. 19	13½
Summer Ballhead	Middle	Aug. 20	18
Danish Ballhead	Late	Sept. 20	19
Amager Ballhead	Late	Sept. 20	19½

PARSLEY—VARIETY EXPERIMENT

Two varieties were under test in rows 30 feet long. The seed was sown on May 17. The two varieties indicated in the next table are equally recommended both for yield and for earliness.

Variety	Usable	Yield
		lb.
Triple Curled	July 6	35
Moss Curled	July 6	33

POTATO

Sprouted vs. Unsprouted Seed.—The two varieties, Irish Cobbler and Green Mountain were used for this experiment. The rows were 66 feet long and the plants 12 inches apart.

The results follow:—

Variety	Dates of harvesting and yield										Yield per acre	
	July 16		July 25		July 28		Aug. 4		Aug. 6			
IRISH COBBLER	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	bush.	lb.
Unsprouted, marketable	6	4	17	0	16	0	8	4	10	0	253	0
Unsprouted, unmarketable	1	12	2	6	1	4	1	4	1	4	28	36
Sprouted, marketable	9	4	17	0	17	0	10	0	11	0	282	17
Sprouted, unmarketable	1	12	2	12	3	8	2	8	3	0	59	24
GREEN MOUNTAIN												
Sprouted, marketable	12	8	20	4	16	4	13	8	27	8	424	56
Sprouted, unmarketable	0	12	1	4	1	0	1	8	1	8	26	24
Unsprouted, marketable	5	0	12	4	11	0	8	4	15	12	228	40
Unsprouted, unmarketable	2	0	2	8	2	8	4	0	2	0	55	32

Of four other rows 66 feet long, two were planted with sprouted potatoes and two with unsprouted potatoes. The harvesting was done on the same date. The results follow:—

Quality	Sprouted				Unsprouted			
	Irish Cobbler		Green Mountain		Irish Cobbler		Green Mountain	
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
Marketable	462	00	602	48	365	12	409	12
Unmarketable	162	48	96	48	52	48	74	48
Total	624	48	699	36	418	00	484	00

Dates of Planting.—The object of this experiment is to determine the most suitable date of planting for yield. Five plots 66 feet long were planted with Green Mountain potatoes on the dates given in the following table:—

Dates of planting	Green Mountain				Total yield per acre	
	Marketable		Unmarketable			
	bush.	lb.	bush.	lb.	bush.	lb.
May 6	330	00	57	12	387	12
May 14	440	00	66	00	506	00
May 23	382	48	48	24	431	12
June 4	374	00	88	00	462	00
June 14	237	36	110	00	347	36

Compared Yields from Matured and Immatured Seed.—The object of this experiment is to determine if the grade of maturity of the seed may influence the yield. Potatoes of the Green Mountain variety were sown at different dates in 1926 to produce seed for the following year. Four rows were planted on the same date, May 24, 1927, and gave the following results:—

COMPARED YIELDS FROM MATURED AND IMMATURED SEED

Date of seeding in 1926	Yield per acre 1927				Total	
	Marketable		Unmarketable			
	bush.	lb.	bush.	lb.	bush.	lb.
Green Mountain, May 22nd	440	00	83	36	523	36
Green Mountain, June 10th	418	00	110	00	528	00
Green Mountain, June 21st	550	00	92	24	642	24
Green Mountain, July 2nd	528	00	167	12	695	12

Variety Experiment.—The object of this experiment is to determine the best varieties for the district. Of the twenty-three varieties cultivated at this Station for several years, the following gave good results:—

Variety	Yield per acre				Total	
	Unmarketable		Marketable			
	bush.	lb.	bush.	lb.	bush.	lb.
Green Mountain	118	42	466	24	585	6
Irish Cobbler	110	00	312	24	422	24
Gold Coin	86	20	356	22	443	2
Early Rose	110	00	286	00	396	00
Rochester Rose	66	00	255	12	321	12

TOMATO

Variety Experiment.—The seeds of sixty varieties were sown in hotbeds on March 16 and transplanted to the open on June 9. The plants were 3 feet apart and one stem left by pruning. The yields of ripened fruits for nine good varieties are as follows:—

Variety	Source	Yield per acre
		lb.
Alacrity x Earlibell	Central Experimental Farm	34,364
Bonny Best	Stokes	33,638
Avon Early	Vaughan	33,396
Alacrity	Central Experimental Farm	31,460
Wayahead	Bruce	29,524
Scarlet Skin	Rennie	29,282
Jewel	Langdon	28,556
Self Pruning	Burpee	28,556
Alacrity x Hipper	Central Experimental Farm	28,072

Methods of Pruning.—Two varieties were used for this experiment, Alacrity and Bonny Best. The seeds were sown in hotbeds on March 27 and transplanted to the open on June 9. The rows were 2 feet apart and the plants were 12 inches apart in the row. First, one stem pruning was practised on all plants. Later they were headed back differently.

Methods of pruning	Variety	Yield per acre	
		Ripe	Green
		lb.	lb.
Not headed back	Alacrity	55,357	27,225
Not headed back	Bonny Best	35,375	29,040
Headed back at 1st truss of fruit	Alacrity	56,265	3,630
Headed back at 1st truss of fruit	Bonny Best	41,27½	5,445
Headed back at 2nd truss of fruit	Alacrity	57,172	18,150
Headed back at 2nd truss of fruit	Bonny Best	54,162	18,150
Headed back at 3rd truss of fruit	Alacrity	58,987	21,780
Headed back at 3rd truss of fruit	Bonny Best	63,072	16,335

VEGETABLE SEED—AUTUMN VS. SPRING SOWING

Six varieties of seeds of different vegetables were sown in this experiment. The fall sowing was made on November 12, 1926, and the spring sowing on

May 5, 1927. In both cases, the plots were 15 feet long. The object of this experiment is to determine if autumn sowing is recommendable. The results follow:—

Variety	Autumn seeding		Spring seeding	
	Usable	Yield	Usable	Yield
Beet—Detroit Dark Red	July 21	3 bunches	July 23	10 bunches
Radish—White Tipped	June 13	2 "	June 16	16 "
Onion—Large Wethersfield	Aug. 16	2½ pounds	Sept. 18	17 pounds
Turnips—Purple Top	Nil	Nil	July 20	10 bunches
Carrot—Chantenay	July 19	4 bunches	July 17	12 "
Lettuce—Grand Rapids	June 18	3 "	June 18	17 "

CEREALS

The spring of 1927 opened under normal conditions and fairly early for this district. The land however was difficult to work on account of the wet cold weather of the latter part of April. The month of May was favourable and seeding on drained land was conducted under very good conditions. The rainy weather of the latter part of May and the early days of June contributed to good germination of all seed.

June was unfavourable on account of drought but in July rain was abundant and well distributed. The temperature of August and September was good. There were no bad storms to cause the grain to lodge or to shatter, and the crop was harvested in very good condition giving a good yield and quality grain.

WHEAT

Ten named varieties or strains of common spring wheat were tested on regular plots of $\frac{1}{120}$ of an acre each replicated five times. A border of one foot at each end and one row on each side of the plots were removed prior to harvesting to make the yields more representative of field conditions.

Seeding took place on May 19 while harvesting extended from August 20 to September 5.

COMMON SPRING WHEAT—TEST OF VARIETIES

Three years average

Name	Source of seed	Days to mature	Length of straw	Strength on scale of 10 points	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in per cent of Huron O. 3, check	Average weight per measured bushel
		days	in.		lb.	lb.	%	lb.
Huron O. 3	Ste. Anne	105	41·5	9·9	2,559	2,205	100	61·5
Reward O. 928	Ottawa	98·6	38·1	9·8	2,388	2,330	105·7	62·5
Garnet O. 652	Ottawa	96·0	36·6	9·8	2,616	2,321	105·3	62·2
Pringle's Champlain 307	Macdonald College	106·7	43·3	9·8	2,467	2,319	105·2	61·0
Marquis O. 15	Ottawa	106·0	40·3	10·0	2,520	2,306	104·6	61·5
Huron CR 7	Cap Rouge	105·0	42·0	9·8	2,484	2,195	99·5	61·5
Red Fife	Newpawa Manitoba	111·3	42·0	10·0	2,304	2,124	96·3	60·0
Master O. 520	Ottawa	96·6	36·6	10·0	2,290	2,085	94·5	61·0
Preston	Ste. Anne	107·3	41·8	9·0	2,491	2,047	92·8	60·5
Early Red Fife O. 16	Ottawa	108·3	41·7	9·8	2,328	1,972	89·4	61·0

In the above table are reported the yields obtained in 1927 as well as the average yields for all varieties that have been grown for at least three years. The Huron Ottawa 3, which is the popular variety grown in this district, has been used as the check variety. The other varieties under observation are therefore compared to Huron Ottawa 3 in discussing their relative value or merit.

The varieties Garnet Ottawa 652 and Reward Ottawa 928 are maturing from seven to nine days earlier than Huron, and twelve to fifteen days before Red Fife and Preston. These two varieties are also "hard" spring wheat which is an advantage in their favour. Garnet has a relatively small kernel while Reward is short and plump. From the three averages, it will be noted that these two varieties are heading the list at this Station with a yield over 2,300 pounds per acre, but are closely followed by Pringle's Champlain M.C. 307, Marquis Ottawa 15 and Huron. Both Garnet and Reward have good strength of straw and will, no doubt, be of much value where wheat is grown for flour, particularly in districts where Huron Ottawa 3 does not mature advantageously.

Pringle's Champlain M.C. 307 falls in the Marquis and Huron group for maturity. It is a variety recently introduced by Macdonald College and may become an interesting wheat for some districts.

The two strains of Huron are very similar, both having good strength of straw and being relatively resistant to diseases as well as to adverse weather conditions.

The three other varieties, namely, Early Red Fife, Red Fife and Preston, are inferior in yield, require a longer time to mature, are very susceptible to rust and have a weaker straw than all the late maturing varieties mentioned.

OATS

Eight varieties or strains were tested in the same manner as for wheat. They were sown on May 20 and harvested from August 19 to September 5.

OATS—TEST OF VARIETIES

Name	Source of seed	Days to mature	Length of straw	Strength of straw on scale of 10 points	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in per cent of Banner O. 49, check	Average weight per measured bushel
		days	in.		lb.	lb.	%	lb.
Banner O. 49	Ste. Anne	107·3	43·4	9·6	3,384	2,914	100	37·0
Banner MC 44	Macdonald College	106·0	42·9	9·6	3,672	3,079	105·7	37·5
Gold Rain	Ottawa	101·6	46·0	10·0	3,960	3,069	105·3	40·5
Victory	Ottawa	107·6	42·6	9·3	3,480	3,061	105·0	39·0
Banner CR 31	Cap Rouge	107·3	42·3	9·7	3,648	2,972	102·0	37·0
Longfellow O. 978	Ottawa	102·3	43·6	8·6	3,552	2,828	97·0	37·5
O.A.C. 144	Guelph	106·3	45·1	9·5	3,192	2,751	94·4	34·7
Alaska	Macdonald College	92·3	40·1	9·8	2,856	2,210	75·8	39·0

The strains of Banner under test and reported above are very similar; they mature in the same length of time, have good strength of straw, are less susceptible to diseases or soil or weather conditions than the other varieties reported.

Gold Rain and Victory are good yielding varieties. Gold Rain has a yellowish grain while Victory has a weak straw.

The Longfellow oat is a cluster oat, has a rather coarse straw and has not proven to be as good yielding variety as Banner. O.A.C. 144 is a recent introduction and has not proven to be the equal of Banner in this district.

The Alaska oat is in a class by itself, as it is an early oat and as such its yield cannot or should not be compared with the other varieties as it is an oat to grow where the other varieties will not mature advantageously.

BARLEY

Six varieties of six-rowed and four of two-rowed barley were tested this season on plots of $\frac{1}{120}$ of an acre, replicated five times. The seeding was done on May 20 and the harvest done from August 13 to August 24. The rate of seeding was two bushels, except for the two strains of Duckbill which were sown at the rate of 2·5 bushels to the acre.

BARLEY—TEST OF VARIETIES

Name	Source of seed	Days to mature	Length of straw	Strength on scale of 10 points	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in per cent of O.A.C. 21, check	Average weight per measured bushel
		days	in.		lb.	lb.	%	lb.
O.A.C. 21	Guelph	89·3	36·0	9·5	3,156	2,706	100	49·0
Bearer O. 475	Ottawa	99·3	39·2	9·2	3,492	2,974	109·9	47·1
Charlottetown 80	Charlottetown	98·0	34·4	9·1	3·312	2·760	102·0	51·5
Hannchen	Ottawa	98·0	34·9	8·8	3,288	2,655	98·1	51·0
Chinese O. 60	"	89·6	36·2	9·5	3·060	2,612	96·5	49·0
Duckbill 207 M.C.	Macdonald College	100·6	39·9	9·2	3,000	2,504	92·5	51·5
Manchurian C.R. 14	Cap Rouge	91·0	38·3	9·3	3·312	2,457	90·8	49·7
Duckbill O. 57	Ottawa	100·0	37·4	9·5	3,000	2,392	88·4	51·2
Star	Macdonald College	92·3	29·1	9·7	2,734	2,357	87·1	48·5
Mensury 32MC	"	90·6	38·4	9·2	2,674	2,261	83·5	49·7

The yields of the best six-rowed varieties, it will be noted, are not very different from those of the two-rowed varieties.

Bearer, for the six-rowed, and Charlottetown 80 for the two-rowed group, gave the highest yield and ripened in the same time. Both varieties are well adapted to mix with Banner oats for hay or grain production. A characteristic worthy of mention in favour of the Charlottetown variety is that when grown on clay soil, it sheds most of its beard when getting ripe.

O.A.C. 21 and Chinese Ottawa 60 mature in the same time, but O.A.C. 21 yields a little more. The two strains of Duckbill are very similar and ripen in the same time as do certain varieties of wheat, for which reason they are well adapted to sow with the latter for mixed grain.

PEAS

Four varieties of peas were tested in quadruplicate plots of $\frac{1}{120}$ of an acre. Chancellor and O.A.C. 181, on account of their small seed, were sown at the rate of two bushels to the acre, while Mackay and Prussian Blue, two large grained varieties, were sown at the rate of 3·25 bushels to the acre. All varieties were sown on May 20 and harvested from September 1 to September 12.

PEAS—TEST OF VARIETIES

Name	Source of seed	Days to mature	Length of straw	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in p.c. of check	Average weight per measured bushel
		days	in.	lb.	lb.	%	lb.
Chancellor O. 26	Ottawa	103·5	43·3	3,360	3,068	100·0	64·0
O.A.C. 181	Guelph	110·0	43·3	3,030	3,080	100·4	64·0
Prussian Blue	Ottawa	117·5	44·2	3,360	3,137	102·2	63·2
Mackay	Ottawa	117·5	46·9	3,900	3,053	119·1	63·2

Mackay, a new variety recently introduced by the Central Experimental Farm, has been a consistently heavy yielder in grain and also in straw, which makes it very useful for grain or forage purpose.

Prussian Blue is also good, but owing to its colour is less attractive. Chancellor and O.A.C. 181 are both white and small and well adapted for cooking.

SELECTION OF ARTHUR PEA

In 1923, a few representative pods of the old Arthur pea were selected from our regular test plot with the object of re-establishing this old variety which at that time contained different types. Each one of these pods was seeded in "head rows" in 1924 and each row harvested separately. In the spring of 1925, the seed from each row was again seeded in rows to make easier a careful examination during the summer. In the fall, all the rows, which were considered pure and true to the Arthur type, were harvested together giving 20 pounds of good seed. In 1926, this seed was put in two small multiplication plots 1/240 of an acre each and also in 12 rows 41 feet long 36 inches apart to make easier a second check on the purity of the variety.

This year, we had a quarter of an acre seeded down which gave us 780 pounds corresponding to 52 bushels to the acre. The number of days to mature is 110, and the length of straw 45 inches. This variety also gives a good yield of straw, which makes it very useful for O.P.V. mixture while its grain is popular for cooking purposes.

BEANS

Four varieties were tried on plots consisting of four rows 41 feet long, 28 inches apart and thinned to four inches. The two centre rows only were harvested for yield.

BEANS—TEST OF VARIETIES

Name	Source seed	Days to mature	Length of straw	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in p.c. of check	Average weight per measured bushel
		days	in.	lb.	lb.	%	lb.
Robust	Macdonald College	120 0	12·7	2,052	1,874	103·1	65·0
Navy O. 711	C.E.F.	111·0	12·7	1,766	1,817	100·0	64·0
Large White Ott. 713	C.E.F.	118·0	12·3	1,591	1,649	90·7	63·5
Improved Yellow Eye	Macdonald College	117·3	12·7	1,596	1,538	84·6	61·7

The variety Robust, white pea bean, heads the list and is very attractive for soup or bean purposes.

Navy is a white pea bean, but larger than the latter. It is well adapted also for cooking. Both are preferred to the two others.

FLAX

Four varieties were tested in duplicate plots of 1/120 of an acre sown on May 23. Germination was uniform and a good stand was obtained in each case.

FLAX—TEST OF VARIETIES

Name	Source of seed	Days to mature	Length	Strength	Yield per acre 1927	Average yield per acre 1925, 1926, 1927	Relative yield in p.c. of the check	Average weight per measured bushel
		days	in.		lb.	lb.	%	lb.
Premost	C.E.F. Ott.	110·5	24·1	10·0	1,620	1,400	120·8	57·0
Longstem	C.E.F. Ott.	113·5	28·6	9·5	1,500	1,236	106·6	54·5
Blanc	C.E.F. Ott.	109·0	20·9	10·0	1,320	1,159	100·0	54·7
Kostroma	C.E.F. Ott.	113·0	28·4	9·5	1,020	906·7	78·2	56·0

The two varieties, Blanc and Premost, are very similar except that Premost yields yields a little more. Both are very short in straw and mature in the same length of time.

Longstem and Kostroma do not differ very much. They mature in the same time, have the same length of straw, but Longstem gives a higher yield of seed, while Kostroma has a higher weight per bushel.

ROD ROW WORK

The rod row system of conducting preliminary tests of cereal varieties calls for the use of so called rod-row plots, each consisting of 3 drills, 8 inches apart and 18·5 feet long. Each variety occupies at least four of these plots which are systematically distributed to offset soil variations.

For each variety, a definite weight of seed depending upon the weight per 1,000 kernels and the per cent germination is sown in each drill. The object of this method of seeding, as mentioned in the report of 1924, is to try to sow as early as possible the same number of vital kernels per drill for all varieties.

Since 1924, we have tested 26 varieties of oats, 20 varieties of wheat and 19 of barley by this system.

After four years of this work any variety which may have given yield or other indications that it has merits above any of the present standard or known varieties, will be brought into the regular or larger plots for further consideration or multiplication.

MIXED GRAINS

The seeding of mixed grain being more or less practised in the district, a few plots of different mixtures were sown this year to find out which grains and which proportions give the highest yield when sown in a mixture.

Seven different mixtures were tried this year on single plots 1/120 of an acre.

The results obtained this year were quite interesting and this work will be extended and continued during the coming years.

FORAGE CROPS

The temperature during the growing season of 1927 was very favourable for roots and the results recorded are a fair indication of what might be expected under average climatic conditions. The temperature at the beginning of the season was too cold for corn, causing the germination to be late and the growth slow.

Fortunately the last part of the growing season was better and the results obtained were still of value for our district.

FIELD CORN

Twenty-nine varieties were included this season in the variety test. The seed was sown in hills three feet apart each way, three rows for each variety and replicated 5 times.

Twenty-three varieties were harvested for fodder, the others being grown for grain.

The following table gives the yield for 1927 and also the average for the number of years tested, except for the column of dry matter which gives only the average of three years' tests.

Variety	Source	Height	Yield per acre 1927		Maturity at harvest	Average yield per acre		Number of years tested
			Green weight	Dry matter		Green weight	Dry matter	
		in.	tons lb.	tons lb.		tons lb.	tons lb.	
Gehu	Dakota Imp. Seed				Pasty			3
Quebec 28	Macdonald College				Milky			4
Quebec 28	Dr. Todd				Milky			3
North Western Dent	Brandon		Harvested for grain		Pasty			4
Amber Flint					Early milk			4
Twitchell's Pride	E. F. Fredericton				Early milk			5
North Western Dent	Macdonald College	67	11 1,522	1 1,949	Ears just formed	13 507	2 335	3
Compton Early	Duke	67	13 1,394	1 1,915	Ears forming	14 242	2 545	5
Longfellow	Johnson	60	12 345	1 1,374	Ears forming	14 828	2 252	3
Minnesota 13	Dakota Imp. Seed	70	11 1,813	1 1,617	No ears	14 1,964	2 729	3
Bailey	Bondy	72	11 1,716	1 1,640	No ears	13 199	2 523	3
Wisconsin No. 7	Duke	71	13 233	1 1,437	No ears	14 362	2 553	5
Red Cob	Steele Briggs	69	12 635	1 1,390	Only stalk	17 88	2 847	3
90 days White Dent	Dakota Imp. Seed	71	13 1,443	2 341	Ears forming	14 1,064	2 1,157	4
Yellow Dent	Wimple	73	13 1,782	2 612	Ears forming	13 564	2 1,118	5
Longfellow	Duke	73	13 910	1 1,679	Ears forming	13 343	2 721	5
Longfellow	Dakota Imp. Seed	71	14 1,100	2 4	Ears forming	15 167	2 1,799	4
Golden Glow	Duke	77	12 1,223	2 482	Ears forming	13 156	2 964	5
Hybrid	Wimple	73	16 1,013	2 1,061	Just formed	17 834	2 1,603	4
Leaming	Duke	72	9 1,892	1 1,067	Ears forming	12 1,576	2 308	5
Bailey	Duke	76	11 1,522	1 1,491	Ears forming	12 1,511	2 621	5
North Dakota	Steele Briggs	70	12 539	1 1,521	Just formed	14 284	2 511	5
White Cap Yellow Dent	Steele Briggs	75	12 297	2 578	Ears forming	13 999	2 673	3
Burr Leaming	Carter	79	16 137	2 1,020	Only stalk	17 245	2 37	4
North Western Dent (North Dakota grown)	McKenzie	64	11 215	1 1,514	Milky	12 835	1 1,802	5
Pride Yellow Dent	Dakota Imp. Seed	77	12 1,942	2 26	Ears forming	11 1,896	1 1,832	3
Hybrid Wisconsin and Twitchell's Pride	C. E. F	76	15 1,218	2 998	Just formed	16 1,979	2 1,248	3
North Western Dent (South Dakota)	McKenzie	71	13 523	2 403	Ears forming	13 523	2 403	1
North Western Dent (Crookstown strain)	McKenzie	69	13 1,394	2 386	Early milk	13 1,394	2 386	1
Average						14 372	2 650	

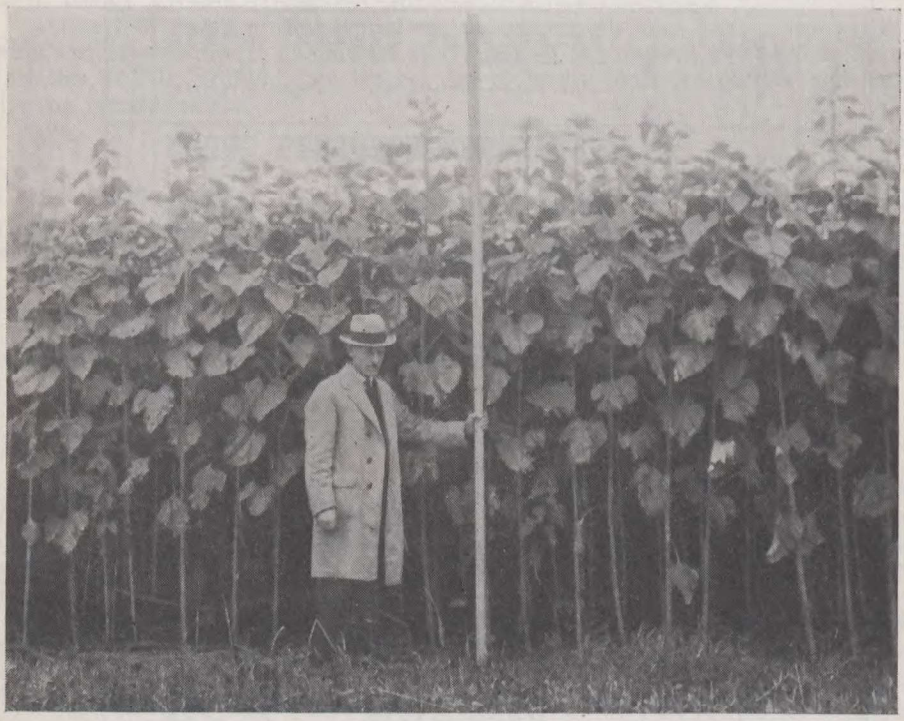
The column of the averages shows that the highest green weight 17 tons 834 pounds is obtained from the variety Hybrid from Wimple, Burr Leaming comes next with 17 tons 245 pounds and Red Cob third with 17 tons 88 pounds.

The highest yield in dry matter was given by the variety Longfellow from Dakota with 2 tons 1,799 pounds followed by Hybrid from Wimple with 2 tons 1,603 pounds.

As indicated in the above table no yield was recorded for the varieties grown for seed; the weather being too cold and the growing season too short. The same varieties being also very short in stalk and harvested later than the others were not weighed for fodder.

SUNFLOWERS

Six varieties were tested in rows 60 feet long and 3 feet apart, replicated 5 times.



Sunflowers always outyield corn at the Ste. Anne Station.

As indicated in the following table the variety Mammoth Russian from Ewing has given the highest green yield and also the highest yield in dry matter. Mammoth Russian from Rosthern is very early and as the late varieties have time to mature greater yields are harvested and are preferable for this district.

SUNFLOWERS—TEST OF VARIETIES

Varieties	Source	Date harvested	Height	Maturity at harvest	Yield per acre 1927		Average per acre		Number of years tested
					Green weight	Dry matter	Green weight	Dry matter	
			in.		tons lb.	tons lb.	tons lb.	tons lb.	
Mammoth Russian	Rosthern	Aug. 26	57	50% in bloom	11 748	1 753	12 1,974	1 950	2
Mammoth Russian	Kenneth McDonald	Sept. 21	81	50% in bloom	20 220	3 45	18 1,641	3 1,576	5
Manchurian	McKenzie	" 12	67	50% in bloom	14 169	2 425	16 702	2 412	4
Mammoth Russian	Ewing	" 21	81	50% in bloom	18 251	3 297	23 1,757	4 101	3
Giant Russian	Dakota Imp. Seed	" 15	70	50% in bloom	17 509	2 193	14 1,306	2 264	3
Ottawa 76	Ottawa	" 12	70	50% in bloom	15 298	2 969	12 769	2 969	2

MANGELS

Thirty-seven varieties were included in the test. They were sown in rows 50 feet long, 28 inches apart, on May 14, and harvested from October 11 to 14. This block is the equivalent of about ½ of an acre.

The yields obtained in 1927 are given in the following table with a column of averages for the number of years tested.

MANGELS—TEST OF VARIETIES, 1927

Varieties	Source	Average yield 1927	Dry matter per acre 1927	Average		Number of years tested	Remarks
				Green weight per acre	Dry matter per acre		
		tons lb.	tons lb.	tons lb.	tons lb.		
Sludstrup Barres	Hartman	31 1,879	3 1,084	23 209	3 260	4	Intermediate yellow, ½ long
Half Sugar Rose Danish	Ste-Anne	22 1,703	3 554	20 262	2 1,870	5	Intermediate
Danish Sludstrup	D. & F	33 916	3 638	20 653	2 1,815	6	Intermediate, a few ½ long
F. Jerristslen Barres	Hartman	27 1,277	3 390	20 845	2 1,805	4	Intermediate yellow in colour
Danish Improved	D. & F	20 916	2 1,708	13 764	2 1,708	4	Half long
Giant White Sugar	Moore	27 379	3 800	23 19	2 1,500	3	½ long, uniform in type and colour
Sludstrup Penticton	Penticton	26 1,632	3 640	21 216	2 1,440	2	Intermediate
Perfection Mammoth Long Red	Rennie	28 399	3 898	17 1,745	2 1,435	5	Half long
Yellow Intermediate	Ottawa	23 1,348	3 300	20 524	2 1,310	6	Intermediate
Stryno Barres	Hartman	31 1,131	2 1,398	20 1,965	2 1,198	4	Intermediate, yellow in colour
Svalop Alpha Red	G. Swedish	22 1,104	2 1,268	20 45	2 1,133	4	Half long
Mammoth Long Red	Sutton	25 1,911	3 320	22 1,852	2 1,110	4	Long, uniform in type and colour
Rosted Barres	Hartman	29 1,092	3 186	22 1,834	2 1,095	4	Intermediate, yellow, ½ long
Yellow Vauriac	Vilmorin	25 1,836	3 18	20 635	2 1,069	4	Intermediate, uniform in colour, ½ long
White Green Top Half Sugar	Hartman	25 565	2 859	20 513	2 1,051	4	Half long, few long
Eclipse	McKenzie	25 1,014	3 420	20 203	2 1,000	2	Tankard
Barres Oval	G. Swedish	27 1,202	2 1,410	21 1,746	2 991	4	Intermediate
Ideal	Rennie	26 60	2 1,472	22 1,753	2 969	4	Tankard
Barres Half Long	G. Swedish	24 695	2 831	21 1,729	2 894	4	Intermediate, 20% ½ long
Improved Mammoth Long Red	D. & F	27 1,277	3 263	20 921	2 884	4	Long
Yaaraje Barres	Hartman	31 84	2 898	23 168	2 842	4	Intermediate, yellow ½ long, tankard
Giant Sugar	Rennie	22 431	2 879	19 1,869	2 791	4	Intermediate, ½ long
Elevathan Mammoth	Hartman	26 510	2 1,456	20 403	2 745	4	Long
Yellow Globe	Sutton	27 978	2 1,500	27 94	2 620	4	Globe
Svalop Alpha White	G. Swedish	25 864	2 334	19 1,180	2 573	4	Half long
White Red Top Half Sugar	Hartman	24 919	2 1,352	19 1,149	2 525	4	Half long
Eckendorffer Red	G. Swedish	32 627	3 10	22 1,337	2 467	4	Tankard

MANGELS—TEST OF VARIETIES, 1927—*Concluded*

Varieties	Source	Average yield 1927		Dry matter per acre 1927		Average				Number of years tested	Remarks
						Green weight per acre		Dry matter per acre			
		tons	lb.	tons	lb.	tons	lb.	tons	lb.		
Improved Tankard Cream	Rennie	25	116	2	1,012	22	319	2	463	4	Half long, 30% intermediate
Golden Tankard	D. & F.	22	805	2	920	19	1,018	2	445	4	Tankard, 30% intermediate
Long Yellow	D. & F.	23	673	2	541	15	707	2	269	4	Long
Eckendorffer Red	Hartman	28	698	2	808	22	692	2	239	4	Tankard
Eckendorffer Yellow	Hartman	33	273	2	1,646	23	488	2	198	4	Tankard
Eckendorffer Yellow	G. Swedish	27	1,202	2	571	22	107	2	193	4	Tankard
Fodersukherul	D. & F.	21	1,608	2	191	21	1,608	2	191	1	Intermediate, pink and ½ long
Yellow Globe	D. & F.	22	207	2	5	23	1,926	2	33	4	Globe
Giant Yellow Globe	Rennie	28	629	1	1,981	22	395	2	25	4	Globe
Golden Tankard	Rennie	21	1,160	2	148	18	87	1	1,693	4	Tankard, 30% intermediate
Average						21	00	2	888		

The above table shows that the variety Yellow Globe from Sutton gives the highest yield which is 27 tons 94 pounds, while the highest yield in dry matter was obtained with the variety Sludstrup from Hartman with 6,260 pounds.

The highest yield obtained in green material, 27 tons 94 pounds, with the variety Yellow Globe from Sutton is 6 tons 94 pounds more than the average and nevertheless this particular variety gives only 4,620 pounds in dry matter which is 1,640 pounds less than the highest yield and 268 pounds less than the average.

One selection of Half Sugar Rose Danish comes next for the dry matter giving 5,870 pounds which is 982 pounds more than the average yield of other varieties.

From the standpoint of average yield of dry matter, the intermediate type stands at the top and is followed by the half long type. However the fact that other types give also a good average yield many varieties would be profitable under suitable soil conditions.

SUGAR BEETS

Nine varieties were sown in the same way as mangels and harvested from October 31 to November 3. The yields obtained as well as the chemical analysis are given in the following tables.

SUGAR BEETS—TEST OF VARIETIES

Varieties	Source	Yield per acre	
		tons	lb.
Dippe	Dominion Sugar Co.	20	820
Horning	Dominion Sugar Co.	20	1,778
Schreiver & Sons	Dominion Sugar Co.	20	1,778
I Ivanovka Rm	Trading Corporation	21	1,857
II Uladovka CYS	Trading Corporation	20	689
III Ivanovka S	Trading Corporation	21	1,758
IV Ivanovka	Trading Corporation	21	966
V Ivanovka	Trading Corporation	21	768
Home Grown	Ottawa	20	95

SUGAR BEETS—CHEMICAL ANALYSIS

Varieties	Laboratory number	Weight per root		Sugar in juice	Coefficient of purity
		lb.	oz.	p.c.	p.c.
Dippe	91654	1	7	20·67	90·55
Schreiver & Sons	91651	1	7	20·66	88·96
II Uladovka CYS	91656	1	8	20·49	91·26
IV Ivanovka	91657	1	5	20·22	90·97
V Ivanovka	91658	1	6	20·03	89·32
Home Grown	91652	1	4	20·01	89·60
III Ivanovka S	91659	1	5	19·82	89·84
I Ivanovka RM	91655	1	7	19·81	92·00
Horning	91653	1	5	19·72	90·35

AVERAGE YIELD OF SUGAR BEETS—1922–1927

Year	Number of varieties	Average yield		Average weight per root		Average sugar in juice	Coefficient of purity
		tons	lb.	lb.	oz.	p.c.	p.c.
1927	9	21	566	1	6	20·16	90·32
1926	8	11	179	1	7	17·74	83·37
1925	7	13	94	1	14	18·52	82·82
1924	8	9	748	1	7	19·92	84·79
1922	6	8	427	1	1	17·69	87·38
Average for 5 years	6 to 9	12	1,203	1	7	18·81	85·74

As indicated in the table of average yield the sugar content and the coefficient of purity of the sugar beet tested are very interesting and compare very favourably with the results obtained in the districts where sugar beets are commercially grown. For that reason it seems that in some districts in the province of Quebec it would certainly be of advantage to undertake this culture on a commercial basis.

SWEDE TURNIPS

Thirty-three varieties of swede turnips were included in the test. They were sown in rows 50 feet long, 28 inches apart and replicated five times. This block is the equivalent of about one-half of an acre.

The following table gives the yields obtained in 1927 and the average of green material as well as of dry matter for the number of years on test and the average of two years for the dry matter.

SWEDE AND FALL TURNIPS—TEST OF VARIETIES, 1927

Varieties	Source	Yield per acre, 1927		Average yield		Number of years tested	Remarks
		Green weight	Dry matter	Green weight	Dry matter		
		tons lb.	tons lb.	tons lb.	tons lb.		
Improved Yellow Swede	General Swedish	24 867	3 876	23 1,927	2 1,917	4	Green top
Good Luck	Ste-Anne	26 1,781	2 1,674	22 255	2 1,335	5	Red top a little elongated
Kangaroo	Dupuy & Ferguson	28 100	3 334	21 1,668	2 1,193	5	Red top a little elongated
Ditmars	R. Ditmars McNutt	28 1,297	2 1,959	24 293	2 1,186	5	Globe green top
Olsgaard Bangholm	Hartman	27 1,800	3 149	20 957	2 1,167	5	Red top very fair
Hall's Westbury	Ewing	30 1,635	3 274	23 1,384	2 1,068	3	Red top fair
Bangholm	Kentville	23 1,124	3 98	19 1,662	2 1,025	2	Red elongated top
Bangholm 8312	McDonald College	24 96	2 1,127	23 378	2 923	3	Red top fair
Invicta	Rennie	28 174	2 1,617	25 1,095	2 922	4	Bronze green top
Magnum Bonum	Rennie	27 1,052	2 1,632	23 1,526	2 918	4	Red top good shape
Improved Lord Derby	Sutton	26 285	2 1,987	26 1,275	2 915	3	Green elongated top
Sutton Champion Purple Top	Dupuy & Ferguson	23 1,498	2 1,287	20 834	2 893	5	Good

SWEDE AND FALL TURNIPS—TEST OF VARIETIES, 1927—*Concluded*

Varieties	Source	Yield per acre, 1927		Average yield		Number of years tested	Remarks
		Green weight	Dry matter	Green weight	Dry matter		
		tons lb.	tons lb.	tons lb.	tons lb.		
Canadian Gem	Rennie	29 568	2 1,763	21 1,799	2 860	4	Globe
Bangholm	General Swedish	24 1,742	2 1,482	22 1,241	2 821	4	Red top
Magnum Bonum	Sutton	27 1,651	2 1,882	23 1,144	2 791	3	Red top fair
Prize Purple Top	Rennie	25 1,612	2 1,502	22 988	2 754	4	Red top
Bangholm	Nappan	21 785	2 1,181	19 255	2 716	4	Bronze green top
Ne Plus Ultra	Dupuy & Ferguson	30 288	2 1,794	22 1,680	2 715	4	Red top good
Elephant	Sutton	26 1,706	2 1,655	21 1,002	2 707	3	Oblong elongated top
Improved Jumbo	Rennie	26 135	2 1,438	20 1,616	2 699	4	Red top good shape
Elephant	Dupuy & Ferguson	28 1,072	2 1,416	21 105	2 669	5	Oblong
Good Luck	Steele Briggs	24 46	2 1,497	21 169	2 650	3	Ohlong, fair
Bangholm	Charlottetown	23 1,348	2 1,436	20 1,609	2 646	4	Red top good shape
Bangholm 8112	McDonald College	23 974	2 622	23 974	2 622	1	Red top
Shepherd's Golden Globe	Hartman	24 1,816	2 1,410	22 772	2 609	4	Elongated green top
Perfection	Dupuy & Ferguson	26 1,257	2 745	21 1,283	2 478	4	Red top good
Kangaroo Bronze Green Top	Rennie	25 340	2 1,230	20 1,490	2 389	4	Green top
Bangholm	Dupuy & Ferguson	21 1,982	2 741	20 935	2 303	5	Red elongated top
Best of All	Rennie	25 938	2 895	20 1,986	2 300	4	Red top fair
Shirwings	Kenneth McDonald	20 1,123	2 162	17 1,054	1 1,934	4	Red top
*Yellow Tankard	Dupuy & Furguson	22 206	.....	24 1,041	2 401	3	Green long root
*Fynch Bartfelder	Dupuy & Ferguson	22 1,013	.....	21 571	1 1,700	3	White long root
*Dales Hybrid	Dupuy & Ferguson	21 1,309	.....	20 318	1 1,575	2	Globe shape green, very fair
Average	.....	.....	.....	22 72	2 721	.....	

*Fall Turnips.—Not taken into consideration in the interpretation of the figures.

From the above table the readers will note the well marked differences between the yielding capacity of the varieties tested in one year. However the column of averages gives a difference of only 4 tons 1,203 pounds between the highest green yield and the average yield and a difference of 1,196 pounds of dry matter between the highest and the average.

Among the highest yielders of dry matter are the following varieties: Improved Yellow Swede from General Swedish with 5,917 pounds, Good Luck, a selection of Ste-Anne with 5,335 pounds, Kangaroo, D. and F., with 5,193 pounds, Ditmars, McNutt with 5,186 pounds, Olsgaard Bangholm of Hartman with 5,167 pounds, Hall's Westbury of Ewing with 5,068 pounds and Bangholm of Kentville with 5,025 pounds. All the 7 are above 5,000 pounds of dry matter per acre.

CARROTS

Eleven varieties were tested in rows 28 inches apart and thinned to 4 inches. The table gives the results obtained in 1927 and an average for the number of years tested.

CARROTS—TEST OF VARIETIES

Varieties	Source	Yield per acre 1927 green weight	Average yield per acre green weight	Number of years tested
		tons lb.	tons lb.	
Large White Vosges	Dupuy & Furguson	15 219	11 1,094	4
Mammoth Short White	Rennie	21 187	15 1,184	4
White Belgian	Dupuy & Furguson	20 675	14 249	5
White Belgian 9008	Trifolium	16 70	14 1,637	4
Large White Belgian	Rennie	18 860	13 1,590	4
White Belgian	Hartman	18 652	13 465	4
Half Long White	General Swedish	13 1,826	11 400	4
Champion	Hartman	13 1,900	11 1,083	4
Danish Champion	Ottawa	16 1,045	11 1,967	5
White Intermediate	Summerland	20 841	17 220	2
Champion	General Swedish	17 915	13 1,207	3

As in previous years the intermediate type appears to be more satisfactory for general adoption. The long types being too hard to pull when grown in clay soil.

LEGUMES AND GRASSES

The experiments with legumes and grasses were temporarily reduced this year on account of shortage of land free from weeds to receive seeds of grasses. Only 20 different mixtures of grasses were sown in duplicate plots of 1/100 of an acre. Some mixtures have alfalfa as a basis, others, red clover, some others orchard grass, or meadow fescue. This fall all these plots were reasonably good and seem in good condition for the winter.

The 2·75 acre blocks sown in 1926 was ploughed in the spring owing to weeds and also because alfalfa and clover were partially destroyed by the winter.

The following table gives the yields obtained from 10 mixtures sown in 1925, which gave the highest yield in dry matter.

YIELD FROM LEGUMES AND GRASS MIXTURES

Mixtures	Rate per acre	Yield per acre 1926		Dry matter	Yield per acre 1927		Dry matter	Average yield per acre		Average dry matter
		Green	Dry		Green	Dry		Green	Dry	
	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.
Timothy	6									
Meadow fescue	2									
Orchard grass	2	5 1,830	2 1,330	2,050	7 750	3 675	2,034	6 1,290	3 2	2,042
White sweet clover	2									
White Dutch	1									
Timothy	6									
Orchard grass	4									
White sweet clover	10	5 615	2 480	1,579	7 950	3 375	1,989	6 782	2 1,417	1,784
White Dutch	1									
Timothy	6									
Orchard grass	2									
Meadow fescue	2									
Red clover	10	6 700	2 500	1,432	6 1,750	3 350	2,120	6 1,225	2 1,425	1,776
Kentucky blue	2									
Red Top	2									
White Dutch	1									
Timothy	6									
Orchard grass	2									
Meadow fescue	2									
Red clover	8	6 830	2 530	1,544	9 312	3 1,156	2,009	7 1,571	2 1,843	1,776
Alsike	2									
Kentucky blue	2									
White Dutch	1									
Red Top	2									
Timothy	8									
Yellow sweet clover	10	4 1,620	1 1,750	1,388	7 1,300	3 500	2,120	6 460	2 1,125	1,754
White Dutch	1									
Timothy	6									
Orchard grass	4									
Yellow sweet clover	10	5 400	1 1,685	1,383	6 1,600	3 750	2,109	6 —	2 1,217	1,746
White Dutch	1									
Timothy	6									
Orchard grass	2									
Meadow fescue	2	6 1,500	1 1,900	1,028	7 200	3 1,200	2,305	6 1,850	2 1,500	1,666
Red clover	10									
White Dutch	1									
Alfalfa	6									
Timothy	6									
Red clover	10	6 515	1 1,800	1,217	6 1,300	3 100	2,079	6 907	2 950	1,648
Alsike	2									
White Dutch	1									
Timothy	6									
Meadow fescue	4									
Red clover	10									
Kentucky blue	2	4 1,275	1 1,830	1,314	5 000	2 1,000	1,855	4 1,637	2 415	1,584
Red Top	2									
White Dutch	1									
Timothy	6									
Orchard grass	4	7 700	2 700	1,189	7 250	3 475	1,979	7 475	2 1,587	1,584
Red clover	8									
Alsike	2									

Hays produced from the above plots were of good quality except from those plots containing sweet clover which were very coarse. Red Top and Kentucky blue are very poor producers here and only few heads were visible, whilst Orchard grass and Meadow fescue both make excellent growths. Tall oat is the grass here giving always a good crop of hay and also of aftermath.

The highest yields in dry matter were obtained from plots containing Orchard grass or Meadow fescue, Sweet clover, Red clover, and Alsike.

ANNUAL HAY CROP

Owing to shortage of land in the field devoted to forage crop experiment all the tests with annual hay for fodder production were sown this year on a new piece of land. The germination was good but the growth was too much affected by the lack of uniformity and also by weeds to mention any yield.

TIMOTHY

The results obtained from the three different strains sown are given in the following table. The figures give the yields in 1926, 1927, and the average.

TIMOTHY—TEST OF VARIETIES

Mixtures	Rate per acre	Yield per acre 1926		Dry matter	Yield per acre 1927		Dry matter	Average yield per acre		Average dry matter
		Green	Dry		Green	Dry		Green	Dry	
	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.
Com. Timothy...	12	4 1,575	1 1,495	1,237	5 1,950	2 1,450	1,931	5 762	2 472	1,584
Timothy Ohio...	12	4 1,390	1 1,265	1,175	6 400	2 925	1,777	5 895	2 95	1,476
Boon Timothy...	12	5 00	2 00	1,359	6 300	2 1,600	1,974	5 1,150	2 800	1,666

Seven-acre field of alfalfa and timothy which yielded 2.8 tons per acre for the first cut.

TEST OF GRASSES

Mixtures	Rate per acre	Yield per acre 1926		Dry matter	Yield per acre 1927		Dry matter	Average yield per acre		Average dry matter
		Green	Dry		Green	Dry		Green	Dry	
	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.	tons lb.	tons lb.	lb.
Orchard grass....	30	5 1,155	1 240	742	7 415	2 1,030	1,780	6 785	1 1,635	1,261
Meadow fescue...	30	5 875	1 1,850	1,253	4 1,750	1 1,875	1,419	5 312	1 1,862	1,336
Awnless brome...	14	5 1,580	2 160	1,387	7 1,450	3 1,000	2,529	6 1,515	2 1,580	1,958
Tall oat grass....	25	4 370	1 510	853	4 1,950	1 1,575	1,328	4 1,160	1 1,042	1,090
Kentucky blue...	20									
Red Top....	20									
Western rye grass	14									

As indicated in the table, Kentucky blue, Red Top and Western rye grass did not give any yield since their introduction. Only a few seeds germinate each year. Awnless brome and Meadow fescue give the highest yield in dry matter. Orchard grass and Tall oat grass yield a little less but the hay produced is of much better quality.

TEST OF ALFALFA

Mixtures	Rate per acre	Yield per acre				Average		Dry matter per acre
		1st plot		2nd plot				
		Green weight	Dry matter	Green weight	Dry matter	Green weight	Dry matter	
	lb.	tons lb.	tons lb.	tons lb.	tons lb.	tons lb.	tons lb.	lb.
Grimm alfalfa.....	20	10 100	3 1,400	7 700	2 1,500	8 1,400	3 450	1,580·25
Variegated alfalfa.....	20	9 1,700	3 1,000	8 1,100	2 1,870	9 400	3 435	1,457·53
Turkestan alfalfa.....	20	9 400	3 500	.....	.....	.....	.....	1,497·60
Medicago Falcata.....	20	11 200	4 4 0	.....	.....	.....	.....	1,030·57

The above table gives the yield obtained in 1927 only. The variety Grimm has the highest yield in dry matter.

POULTRY

The flock kept at this station consists of Barred Plymouth Rocks only. The stock on hand on January 1, 1927, was made up of 252 birds: 62 hens, 146 pullets, 40 cockerels, 4 cock birds.

Incubation was not started before March 28. The first chicks hatched April 18. The spring was not favourable to the raising of chicks and a heavy mortality was recorded.

IMPROVING THE QUALITY OF POULTRY

To improve the quality of poultry in the district served by this station, hatching eggs, cockerels and pullets are sold to farmers at reasonable prices. Forty-one settings of eggs from high-producing strains were therefore sold last spring while 98 pullets and 7 well-bred cockerels were disposed of during the year. The number on hand however was not sufficient to meet the demand.

INCREASING PRODUCTION BY PEDIGREE BREEDING

Layers are trap-nested and each bird's production recorded. Only the best layers are used for breeding. These are mated with males from dams and grand dams with high production records.

The following table shows the total and average yearly production of the 15 best pullets for each year since this work was started:—

Year	Number of birds	Total eggs laid	Average production per bird
1923	15	1,854	123·6
1924	15	2,297	151·3
1925	15	3,036	202·4
1926	15	3,374	224·9
1927	15	3,333	222·2

The increase obtained since 1923 shows the possibility of improving the quality of the farm flock through selection and good breeding methods.

COST OF EGG PRODUCTION

Records of egg production and feed costs are kept at this station to determine what period of the year brings the largest profits. Twenty Barred Plymouth Rock pullets were used for these experiments. The twenty birds were fed a standard home mixed grain and dry mash ration. They had also in hoppers, grit, shell and charcoal and were fed green feed once a day.

Monthly Cost of Eggs.—The following table shows that the profits derived from the poultry flock are quite variable from month to month, depending mostly upon the number of eggs laid and their selling price. The month of December gave the highest profit over the cost of feed as was the case in previous tests. During the month of November eggs were produced at the highest cost due to the fact that most of the pullets did not lay before the end of that month.

Month	Number of birds	Cost of feed	Eggs produced	Cost per dozen	Value	Profit over the cost of feed
		$ cts.		cts.	$ cts.	$ cts.
November	20	3 42	85	48·3	3 54	0 12
December	20	4 25	326	22·5	14 94	10 69
January	20	4 52	242	22·4	10 09	5 57
February	20	4 23	396	12·8	14 85	10 62
March	20	4 56	398	13·7	12 26	7 7
April	20	3 83	229	20·0	5 72	1 89
May	20	2 55	235	13·0	5 87	3 32
Jun	20	2 47	318	9·3	7 95	5 48
July	20	2 30	193	14·3	4 98	2 68
August	20	2 35	120	23·5	3 60	1 25
September	20	2 40	258	11·2	9 67	7 27
October	20	2 32	191	14·6	7 17	4 85
Total for the year	20	39 20	2,991	15·7	100 64	61 44

AVERAGE COST OF EGGS FOR THE ENTIRE YEAR

It may be noted from the preceding table that the 20 birds laid 2,991 eggs or an average of 149·5 eggs per bird. The average cost of feed per dozen of eggs was 15·7 cents and the average value of eggs 40·3 cents per dozen. The average profit per bird was $3.07 over the cost of feed.

COST OF EGGS PER PERIOD

This part of the experiment is to determine and compare the cost of producing eggs during periods of four months, that is from November 1 to February 28, from March 1 to June 30, and from July 1 to October 31.

Period	Number of birds	Cost of feed	Eggs produced	Cost per dozen	Value	Profit over the cost of feed
		$ cts.		cts.	$ cts.	$ cts.
November 1 to February 28..	20	16 42	1,049	18·8	43 42	27 00
March 1 to June 30.....	20	13 41	1,180	13·6	31 80	18 39
July 1 to October 31.....	20	9 37	762	14·7	25 42	16 05

According to the above figures the period of the year which brought most profits was from November to the end of February. This illustrates the advisability of having early pullets and of taking good care of the farm flock, especially during the winter months when the price of eggs is highest.

EGGS REQUIRED TO PAY FOR THE COST OF FEED

Using the preceding figures as a basis of calculation, the number of eggs required to pay for the cost of feeding 20 birds during the winter months was 396, or 19·8 eggs per bird.

The number of eggs required to pay for the year's feed of the same birds was 1,165, or 58·2 eggs per bird.

COST PER BREED

The best pens of each breed in the laying contest were used to determine the most profitable breed to keep. All the birds were given equal care throughout the year and fed a standard ration. Records are kept of feed cost, number and value of eggs produced.

COST PER BREED—1927

Breed	Number of birds	Cost of of feed	Eggs produced	Value	Profit over the cost of feed	Profit per bird
		$ cts.		$ cts.	$ cts.	$ cts.
Barred Plymouth Rocks.....	10	25 74	1,955	78 20	52 46	5 24
White Leghorns.....	10	21 65	1,481	59 24	37 59	3 76
Rhode Island Red.....	10	25 11	1,417	56 68	31 57	3 16

This year's results show an advantage in favour of the Barred Plymouth Rock which stand first for the number of eggs laid and total profit. The White Leghorns were more economical to feed than the other breeds and brought a few dollars more profit than the Rhode Island Red. It should be noted, however, that the comparison was made with 8 pens of Plymouth Rock, 6 pens of Rhode Island Reds and 3 pens of White Leghorns.

A summary of results obtained in previous years with the same breed will be of interest.

BARRED PLYMOUTH ROCKS

Year	Number of birds	Number of pens in contest	Cost of feed	Eggs produced	Value	Profit over the cost of feed	Average profit per bird
			$ cts.		$ cts.	$ cts.	$ cts.
1924	10	6	21 64	1,896	66 77	45 13	4 51
1925	10	8	29 00	2,050	72 24	43 24	4 32
1926	10	6	27 95	2,019	80 76	52 81	5 28
1927	10	8	25 74	1,955	78 20	52 46	5 24
Average of 4 years.	10	7	26 08	1,981	74 49	48 41	4 84

RHODE ISLAND REDS

Year	Number of birds	Number of pens in contest	Cost of feed	Eggs produced	Value	Profit over the cost of feed	Average profit per bird
			$ cts.		$ cts.	$ cts.	$ cts.
1924	10	9	20 65	1,752	62 49	41 84	4 18
1925	10	5	29 55	2,032	76 14	46 59	4 67
1926	10	10	24 98	1,822	72 88	47 90	4 79
1927	10	6	25 11	1,417	56 68	31 57	3 16
Average of 4 years.	10	7·5	25 07	1,756	67 05	41 97	4 20

WHITE LEGHORNS

Year	Number of birds	Number of pens in contest	Cost of feed	Eggs produced	Value	Profit over the cost of feed	Average profit per bird
			$ cts.		$ cts.	$ cts.	$ cts.
1924	10	1	20 34	2,002	61 23	40 89	4 09
1925	10	5	25 39	1,764	64 71	39 32	3 93
1926	10	4	22 09	1,666	66 64	44 55	4 45
1927	10	3	21 65	1,481	59 24	37 59	3 76
Average of 4 years.	10	3·2	22 37	1,728	62 95	40 58	4 06

The summary of results indicates that the three breeds under test have given creditable profits, the Barred Plymouth Rock averaging $4.84 of profit per bird per year followed by the Rhode Island Red, which returned $4.20 per bird or 14 cents more per bird than the White Leghorn, which averaged $4.06 profit per bird over a period of 4 years. It should be noted however that there were not so many pens of White Leghorns as of the other breeds, thus leaving more opportunity for a good performance by the heavy breeds than by the White Leghorns.

QUEBEC EAST EGG-LAYING CONTEST

The fifth egg-laying contest to be conducted at Ste-Anne de la Pocatière was commenced November 1, 1926, and completed October 29, 1927. Nineteen pens entered in this contest and the different breeds were represented as follows: 8 pens Barred Plymouth Rocks, 2 pens White Plymouth Rocks, 6 pens Rhode Island Reds, 3 pens S.C. White Leghorns.

The total number of eggs produced by the 190 birds of the contest during 52 weeks was 27,130 or 142·7 per bird. An epidemic of roup was recorded in December and January, which lowered the average production of the birds. Twenty-eight hens laid 200 eggs and over. Fifteen qualified for registration and 13 were disqualified because their eggs averaged under 24 ounces to the dozen.

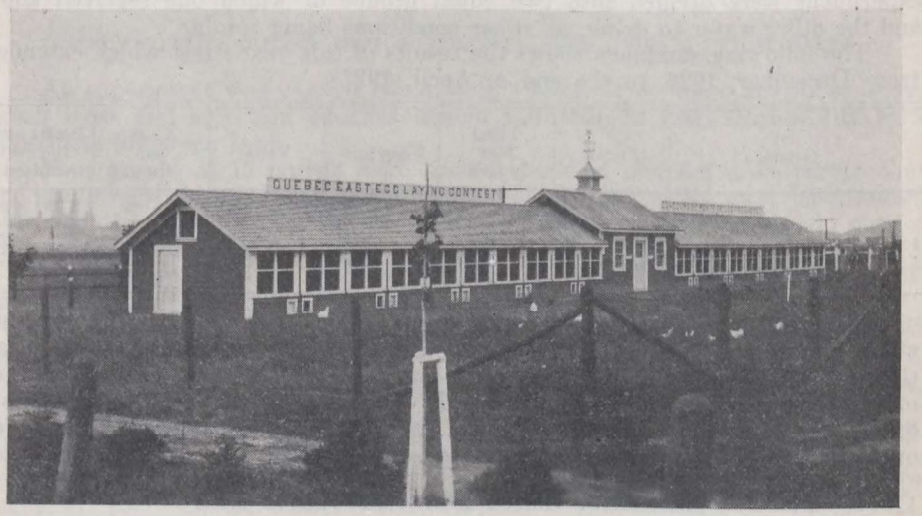
EGG PRODUCTION SINCE BEGINNING OF THE CONTEST

Years	Number of birds	Eggs laid	Average production per bird
1922–23	120	13,506	112·0
1923–24	170	23,473	138·0
1924–25	200	30,927	154·6
1925–26	200	28,998	144·9
1926–27	190	27,130	142·7

During the last two years more eggs have been disqualified because of size, which brings the average production down.

CORN VERSUS BARLEY FOR LAYERS

This experiment is being conducted at this station for the third year with the object of determining if barley is a satisfactory substitute for corn in the grain ration for layers. The birds were in experiment for a period of five months in 1925 and six months in 1926 and 1927.



Egg-laying contest house.

The results of three years' experiment are given in the following summaries:—

CORN-FED GROUP

Year	Number of birds	Total cost of feed	Number eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.		$ cts.	cts.	$ cts.
1925	12	9 53	409	20 16	27·6	10 63
1926	10	15 52	796	27 93	23·4	12 41
1927	10	12 86	885	33 45	17·4	20 59
Total for 3 years	32	37 91	2,090	81 54	21·7	43 63

BARLEY-FED GROUP

Year	Number of birds	Total cost of feed	Number eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.		$ cts.	cts.	$ cts.
1925	12	7 79	442	22 51	20·4	14 72
1926	10	13 54	758	26 14	21·4	12 60
1927	10	11 92	791	28 95	18·0	17 03
Total for 3 years	32	33 25	1,991	77 60	20·0	44 35

According to the above figures, the group of birds fed corn laid 99 more eggs than the group fed barley, but the corn being slightly more expensive than barley, the barley-fed group returned slightly more profit during the three years. The results obtained up to date indicate that barley is an economical substitute for corn in the ration of laying birds on account of its lower cost. This experiment is to be carried out for two years more.

SNOW VS. WATER

The object of this experiment is to determine whether snow is a satisfactory substitute for water as a drink for layers. The twenty pullets used for the experiment were divided into two equal groups of which one received snow and the other water to drink, all other conditions being similar.

The following summary shows the results of this year's test which extended from December, 1926, to the end of April, 1927.

Group	Drink	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.		$ cts.	cts.	$ cts.
1	Snow	9 82	449	16 62	26·2	6 80
2	Water	9 38	619	23 85	18·2	14 47

Group 2 which received water has given much better results than the other group due to the fact that the birds of this group laid many more eggs than those of the other group in December, January and February, when the price of eggs was the highest. There was only a slight difference in the production of the two groups during March and April. This result however being for only one year should not be taken as too conclusive.

SKIM-MILK VERSUS BEEFSCRAP VERSUS MEAT

The object of this experiment is to determine the best means of supplying animal food to poultry. Three lots of 12 pullets were under test for a period of six months, each lot receiving one of the above feeds besides a standard ration, all other conditions being similar.

The following table is a summary of this year's results:—

COMPARISON OF ANIMAL FEED, 1927

Animal feed	Number of birds	Cost of animal feed	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.	$ cts.		$ cts.	cts.	$ cts.
Skim-milk	12	1 47	14 34	949	34 56	18·1	20 22
Beefscrap	12	1 82	13 94	848	30 88	19·7	16 94
Meat	12	1 49	13 77	765	27 35	21·6	13 58

The above figures show that the group fed skim-milk produced more and cheaper eggs than the other groups; this resulted in a greater profit. The group fed meat gave the lowest profit and produced eggs at the highest cost. This, however, has not always been the case, the results of previous years being somewhat variable.

The reader will find below the average results obtained during four years of experiment.

COMPARISON OF ANIMAL FEED, AVERAGE OF 4 YEARS

Animal feed	Number of birds	Cost of animal feed	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.	$ cts.		$ cts.	cts.	$ cts.
Skim-milk.....	12	0 98	14 34	786	31 30	21·9	17 90
Meat.....	12	1 28	13 26	718	29 46	22·1	17 09
Beefscrap.....	12	1 38	13 43	730	28 68	22·3	16 09

The results of four years of experiment at this station indicate that skim-milk is the best form of animal protein to supply to poultry. It seems advisable however to supply meat in addition when it is available on the farm, or can be bought at reasonable cost.

ROOTS VERSUS CLOVER VERSUS SPROUTED OATS VERSUS EPSOM SALTS

An experiment was carried out at this station to compare the three above green feeds and ascertain whether Epsom salts can be used successfully as a substitute for green feed.

Four groups of 12 pullets were housed, handled and fed alike except that one group received roots, one group received clover, one group received sprouted oats and the fourth group Epsom salts (1¼ ounces per twelve birds), once a day, mixed in the mash.

Mangels were valued at 20 cents per 100 pounds chopped clover at $1, sprouted oats at $2 and Epsom salts at $4.50.

The results obtained this year for six months of experiment are tabulated as follows:—

Pen No.	Green Feed	Cost of green feed	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over the cost of feed
		$ cts.	$ cts.		$ cts.	cts.	$ cts.
1	Roots: Mangels.....	1 78	14 80	1,107	40 34	16·0	25 54
2	Clover.....	0 49	12 76	1,024	37 68	14·9	25 12
3	Sprouted Oats.....	1 81	14 57	936	33 53	18·7	18 96
4	Epsom Salts.....	0 60	12 80	983	34 96	15·6	22 16

Mangels and clover gave almost equal profits although the eggs were produced at a cheaper cost when clover was fed as green feed.

Considering the results obtained in the previous tests, chopped clover and mangels seem to be the best green feeds for layers during the winter months.

FATTENING AND FINISHING ROASTERS

With the object of determining the most satisfactory methods of fattening and finishing roasters, thirty-six Barred Rock cockerels were divided into six groups of six birds and fed different rations for a period of three weeks.

Skim-milk was used to prepare the mash for each group in the proportion of 1½ pounds milk for 1 pound of the meal mixture, except for group 3 where water was used instead of milk. Group No. 6 was placed in a fattening pen, all the other groups being in fattening crates.

All birds received charcoal and oyster shell in addition to the following feeds:—

Group 1—Barley meal, 2 parts; oat meal, 2 parts; bran (with milk), 1 part.

Group 2—Barley meal, 1 part; corn meal, 1 part; oat meal, 2 parts; bran (with milk), 1 part.

Group 3—Corn meal, 2 parts; oat meal, 2 parts; bran, 1 part; beefscrap, 2 parts.

Group 4—Corn meal, 2 parts; oat meal, 2 parts; bran (with milk), 1 part.

Group 5—Corn meal, 2 parts; oat meal, 2 parts; bran, 1 part; potatoes (with milk), 1 part.

Group 6—Corn meal, 2 parts; oat meal, 2 parts; bran (with milk), 1 part.

FATTENING COCKERELS

Group No.	Weight per group at beginning	Weight at the end	Gain in weight	Feed consumed		Cost of feed	Initial value of group	Final value of group	Profit per group	Profit per bird
				Mash	Milk					
	lb.	lb.	lb.	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	cts.
1	31·0	39·0	8·0	39	38	0·90	5 27	8 97	3 70	61⅔
2	27·0	35·5	8·5	38	38	0 88	4 59	8 16	3 57	59½
3	25·0	30·5	5·5	36	.....	0 99	4 25	7 01	2 76	46·0
4	27·5	35·5	8·0	42	38	0·91	4 67	8 16	3 49	58·0
5	27·0	36·0	9·0	46	38	1 09	4 59	8 28	3 69	61½
6	30·5	35·0	4·5	30	38	0 67	5 18	8 05	2 87	47⅞

The preceding statement shows that barley (group 1) and corn (group 4) produced equal gains in weight. Corn (group 2) replacing half of the barley (group 1) gave also about the same increase in the weight of the birds.

Potatoes (group 5) added to the ration produced a gain of 9 pounds compared to 8 pounds when the ration was given without potatoes (group 4).

Beefscrap (group 3) was not found to be an equivalent substitute for milk (group 4) in fattening cockerels, the group fed beefscrap showing an increase of only 5½ pounds compared to 8 pounds when milk was added to the ration.

The cockerels fattened in pen (group 6) gained only 4½ pounds compared to 8 pounds when they were fattened in crates (group 4).

APICULTURE

THE SEASON

The spring of 1927 was cold and the bees were unable to fly earlier than the end of May. This resulted in a reduced supply of pollen for the rearing of brood. Although the clover crop was abundant the storing of nectar from that source was not significant before the end of June owing to the fact that the first blooms dried out for lack of rain.

The hours of sunshine and inches of precipitation were recorded as follows:—

	Hours of sunshine	Inches of precipitation
May	141	3·34
June	193	1·40
July	236	4·46
August	238·45	2·16
September	140·40	1·88

The summer was rather cool and cloudy. From June 11 to July 4 only 0·24 inch of rain was recorded, which explains the reduced crop of honey obtained from the first clover blossoms. In August and September the honey crop was extremely light.

The wintering period lasted 157 days. The colonies were taken out from the cellar on April 18. Of the 69 colonies wintered last year, 65 were taken out in good condition.

The 23 colonies in outside wintering-cases were all alive in the spring. After the union of weak or queenless colonies, their total number amounted to 72. Of this number, one was sold.

The total honey crop of the 71 colonies was 3,344 pounds, or an average of 47 pounds per colony.

Ninety-two colonies were placed in winter quarters last fall: 69 in bee-cellar and 23 in wintering-cases. The fall was favourable to bee-life and feeding was carried out under normal conditions.

October was mild and favourable for the preparation of the bees for winter conditions. The wintering period commenced on November 19 for colonies wintering in the bee-cellar and on October 3 for those placed in outside cases.

Besides looking after the experimental work of the apiaries of this Station, our beekeeper is assisting people of this district either by visits to their apiaries or by giving advice to the beemen who visit our apiaries. He has also taken an active part in the beekeepers' convention of this district.

As usual, the "Apiary Reminders" and other literature were distributed to the beekeepers on our mailing list.

CONTROL OF SWARMING BY DEQUEENING AND REQUEENING

Procedure.—At the first appearance of larvæ in the royal cells, the queen was taken from the colony and all the royal cells were destroyed. Nine days after a second visit was made and the larvæ in royal cells were again destroyed. Of the ten colonies treated, young queens were introduced in five colonies after the second inspection and one royal cell was left in the five other colonies.

Of the ten colonies treated, only one swarmed after the treatment. The average yield of honey produced by the ten colonies was 59·8 pounds.

Besides the above honey production, from each of the six colonies which had young queens, when the first inspection was made, two frames covered with brood were taken with the queen and placed into empty hives to form new colonies. In the fall the latter colonies were in good condition for wintering and with the natural swarm made an increase of seven colonies worth at least $7 each or $49 for the total.

CONTROL OF SWARMING BY SEPARATION OF BROOD AND QUEEN

At the first appearance of larvæ, in the queen cells, all the royal cells were destroyed and the frames having brood were placed in an upper super with the exception of one comb with young brood which was left in the brood chamber with the queen and bees.

The balance of the brood chamber was refilled with built combs.

A queen excluder was placed on top of the brood chamber containing the queen and also one between the honey super and the chamber containing the brood. Nine days later, the super chamber containing the brood was visited and all the royal cells were destroyed.

The nine colonies used for this experiment have given an average production of 73 pounds of honey.

In the above group of colonies there were eight, nine, ten and twelve frame colonies. One swarm was given by the eight frame colony, indicating probably a want of space, but as the swarm was returned to its colony, there was no increase from this group and this would appear to be a good method where honey only is wanted.

METHOD OF DETECTING PREPARATIONS FOR SWARMING

Ten frame colonies were chosen for the purpose of this experiment and half-supers were added for additional brood room. This system gives the queen two chambers for brood nest. When the swarming period arrives, examinations of these colonies are made every nine days. This is done by lifting the rear end of the upper super. If any royal cells containing larvæ are found on the frames, they are destroyed, and the upper super is set in its place. If preparation for swarming is found, that is, if royal cells are present, the colony is visited again nine days later.

Of the ten colonies controlled by the above method, all had made preparations for swarming through building royal cells on the frames of the half upper super, and swarming preparations in every colony were easily detected.

WINTERING IN CELLAR

Of the 69 colonies set in the cellar in the fall of 1926, 65 colonies came out in good condition. The average temperature of the bee-cellar was 50°F. No dysentery was observed and the wintering season lasted from November 12 to April 18, a period of 157 days. Two colonies had been set on separate scales. One good representative 10-frame colony consumed during the wintering season 14·4 pounds of honey and the other colony, which had an extra super and was a very strong colony, had consumed 25·8 pounds of honey.

WINTERING IN FOUR-COLONY CASES

Eight colonies were wintered in four-colony cases. The colonies were placed end to end in the cases at the latter part of September and fed as rapidly as possible. Their weight was then taken, after which they were packed. About 5 inches of planer shavings were put beneath the hives and 4 inches on the sides and ends. When the cold weather came, the tops were covered with 10 inches of shavings and the cover set for the winter.

To allow a more satisfactory ventilation, a 1-inch hole was made on each side of the wintering case above the layer of shavings covering the hives.

Of the eight colonies wintered in these four-colony cases, five were in good condition in the spring, two were orphan, and one colony was weak. The average honey production of the colonies thus wintered was 62·4 pounds.

WINTERING IN THREE-COLONY CASES

Nine colonies were wintered in three-colony cases. One case with three colonies was wintered in our apiary and the six others in the apiary at the next parish. These colonies had their entry facing the south and were also packed with shavings.

Of the three colonies wintered in our apiary, two were in good condition in the spring and one was weak and had to be united. The six colonies wintered in the out-apiary at St. Onésime all wintered well. At this particular place the

wintering cases became covered with snow rather early in the winter and it is believed that it gives more protection. The average honey production was 48 pounds per colony.

WINTERING IN TWO-COLONY CASES

Four colonies were wintered in two-colony cases. The colonies had their entry facing the south and were packed with planer shavings in the same way as the four-colony cases.

Of the four colonies, two, owing to their strength, were given a half super placed on top of the hive to assure an ample supply of honey for the wintering season. No remarkable difference could be noted in the conditions of wintering of each colony in the spring and the average honey production per colony was 53·5 pounds.

WINTERING BEES IN SINGLE-COLONY CASES

Two colonies were wintered by this method. One hive was packed with shavings and one with dried maple leaves. Both of these colonies wintered well. The colony packed with dried maple leaves produced 75 pounds of honey and that with shavings 70 pounds.

COMPARISON OF DIFFERENT STORES FOR WINTERING

Four sets of six colonies each had their winter provision made of different kinds of honey and gave the following results:—

Six colonies had clover honey and wintered well.

Six colonies had sugar syrup made of two parts of granulated sugar and one part of water, and all wintered well.

Six colonies had honey plus 10 pounds of syrup and wintered well.

Six colonies had white clover honey and fall-gathered honey, and also wintered well; that is, all were reasonably strong in the spring, had no dysentery, and still had a fair supply of honey when taken out.

TWO-QUEEN SYSTEM

In order to preserve or assure a supply of extra queens for spring needs, three hives were wintered with two queens. This was done by either dividing the brood and stores of a strong colony in two or by uniting two weak colonies in the same hive. This is found to be an advantageous system.

COMMERCIAL APIARY

Ten colonies, selected last spring for the commercial production of honey, produced 744 pounds and 8 ounces. The individual production of each colony was as follows:—

PRODUCTION OF THE COMMERCIAL APIARY

Colony No.	Honey production	Swarming
	lb.	
2	30	
3	70	Divided
8	71	
9	85	
22	95	
72	100	
83	70	
89	49	Divided
79	114·8	
76	60	Divided

Three colonies were divided in the fall and two others were united, one of them being queenless.

COMPARISON OF DIFFERENT SIZES OF HIVES

Tests were made with five different sizes of hives to determine their relative value and their effect on the cost of wintering, on swarming, and on honey production. The following figures show the results obtained this year and the average results of previous years:—

SIZE OF HIVES: RESULTS OF TESTS

Number of hives	Size of hives	1927		Average of three years	
		Average production per colony	Average honey consumed in wintering	Average swarming	Average production of honey per colony
		lb.	lb.	%	lb.
2	8 Frame Langstroth	43½	8	83	34·2
2	9 "	110	9	50	79
2	10 "	78	10½	50	76·5
2	12 "	80	18	16	72·5
2	10 Frame Jumbo	40	13¾	66	35·6

The twelve frame hive has given rather poor wintering results and the population of these two colonies had to be increased in the spring. The colonies wintered in the eight frame hive and ten frame Jumbo showed a marked tendency to swarming. This explains their low production.

VALUE OF STIMULATIVE FEEDING FOR BROOD

Six colonies were set aside for test. Three of them were fed a 50 per cent solution of sugar and water, and the other three were not fed. The average production of the group fed sugar was 60 pounds of honey. Two of these colonies had to be divided. The average production of the group that received no stimulative feeding was 48 pounds and 6 ounces.

SPRING PROTECTION OF BROOD-CHAMBER

Ten colonies were divided in two equal groups. The first group had its hives protected with an outside case as soon as taken out from the cellar and the second group was given no protection.

On June 1 the protected group covered an average of 9⅕ combs with bees and had 6⅕ combs of brood compared to 8 combs of bees and 5⅘ combs of brood for the unprotected group. The average honey production per colony was 54 pounds for the first group and 53 pounds for the second group. Four swarmings were recorded in the protected group and two in the other.

RELATION OF STRENGTH OF COLONY IN BEES AND BROOD TO THE HONEY CROP

Six colonies were used for this experiment. The results of examinations made at regular dates are noted in the following table.

Number of hive	May 14		June 6		June 14		
	Bee frames	Brood frames	Bee frames	Brood frames	Bee frames	Brood frames	Honey crop
							lb.
3	8	5	9	6	14	10	79
9	6	4	10	6	12	10	85
22	8	5	8	6	14	10	95
2	5	3	9	6	10	7	30
26	5	4	7	5	9	6	58
30	5	3	8	5	10	7	49

The strongest colonies in bees and brood stored a heavier crop of honey. Hive No. 3 produced a swarm besides a fair quantity of honey.

RELATION BETWEEN DIVIDED AND UNDIVIDED COLONIES AND HONEY YIELDS

In this experiment a group of hives were divided and compared with an equal group which were left undivided. As it will be noted in the following table, the divided group produced less honey, but owing to the increase in the number of colonies this group brought slightly higher returns.

RELATION BETWEEN DIVIDED AND UNDIVIDED COLONIES

Divided Colonies		Undivided Colonies	
Number of colony	Honey production	Number of colony	Honey production
	lb.		lb.
76	60	70	114·8
3	70	72	100
5	55	71	120
17	54	8	71
43	47	9	85
89	49	32	78
70	44·8	33	70
41	32	34	110
Total production	411·8 lb.	Total production	748·8 lb.
Average production	51·7 "	Average production	93·9 "
Value of honey	$ 65 84	Value of honey	$ 119 76
Increase of 8 colonies at $7.00	56 00		
	$ 121 84		
Average value per colony	$ 15 23	Average value per colony	$ 14 97

FRUIT BLOOM AS SOURCE OF NECTAR

The number of large orchards is limited in this district and most of the nectar and pollen gathered during the blooming period of trees are used in the rearing of brood. The first source of nectar is a great aid in the early building up of colonies. However, no surplus production has been recorded, the cold weather which prevailed at this time of the year not being favourable to the gathering of nectar.

WINTERING BEES IN DOUBLE-HIVES

Ten colonies were wintered in hives with a half super on top of the brood chamber. Of this number four were wintered in cellar and six packed in colony-cases. Only one of these six was found queenless in the spring; the others wintered well and stored an average of 71½ pounds of honey. Of the four colonies wintered in cellar one was without a queen and was robbed by other colonies. The three other colonies produced an average of 48 pounds 5 ounces of honey.

The average quantity of sugar consumed in wintering was 16 pounds per colony. The four colonies wintered in cellar consumed slightly more than the others.

THE OUT APIARY

An apiary is kept in the village of St. Onésime situated about three miles from the main apiary. This country is not very favourable for the production of honey, the soil being dry and gravelly, and clover being scarce. However, the colonies gained rapidly in the early spring owing to the plentiful bloom of wild plants which grow along the nearby woods. In the fall the golden-rods which grow in that district are not sufficient to allow a surplus storage of honey.

The colonies of this apiary were wintered in three-colony cases. The six hives which were placed in these colony-cases in the fall 1926 were found in good condition in the spring. These hives belong to the ten-frame Jumbo type. In the fall the initial number of colonies had increased to nine; one of them being queenless had to be united. Six were again packed in colony-cases last fall and the other two were brought back to the main apiary to be wintered in cellar.

At the end of July and during August, the colonies were strong and in good working condition, but there was almost no nectar to gather in that district. This explains the second period of swarming which was recorded from August 1 to 15. These swarms were returned to their hives. The total production of the apirary was as follows: 185 pounds of extracted honey, 5 sections No. 1, 9 sections No. 2.

FLAX FOR FIBRE

During the past year, which was favourable to flax growing, all the experiments carried out for the first time in 1924 were continued. Nevertheless, owing to the fact that the crop of roots of the preceding year in this particular plot was more or less a failure, there was this year an excessive growth of weeds among the flax which affected nearly all the projects except the range of varieties tests.

Seven different varieties were tested on triplicate plots of 1/120 of an acre sown May 2, and harvested from August 8 to 15.

FLAX—TEST OF VARIETIES, 1927

Varieties	Number of days maturing	Length of straw	Green weight	Weight before breaking	Weight of fibre	Weight of tow	Weight of seed	Weight of fibre per acre	Weight of tow per acre	Weight of seed per acre
		in.	lb.	lb.	oz.	oz.	lb.	lb.	lb.	lb.
Pure Line No. 6	101	31·6	75	15·7	33·3	22·7	3·3	249·8	170·2	396
J. W. Stewart	101	32	84	20·7	45·8	24	3·6	343·5	180	432
White Dutch Blossom	105	25·7	100	18·8	33·7	39·2	7·3	252·7	294	816
829 C	105	31	91·7	16·3	41·8	20	6·3	333·5	150	756
Longstem	105	25·7	100·3	17·3	40	21·8	6	300	163·5	720
Saginaw	101	28	87	16·3	41	29	5·6	307·5	217·5	672
Riga Blue	100	27	74	10·7	24·5	22·3	5·6	183·7	162·2	672

As indicated in the table, J. W. Stewart was first with 343·5 pounds of fibre per acre; 829 C was next with 333·5 pounds per acre followed by Saginaw with 307·5 pounds per acre. The yield is perhaps a little low but all the plots were uniform and the comparison between varieties remains just.

With the object of giving some assistance to farmers of our locality who were interested in growing flax, and to attempt a revival of this industry in the district, several meetings were held in the spring 1924 and flax seed of good quality was distributed freely in co-operation with the Provincial Department of Agriculture. In the fall a scutching unit (one breaker and two knives) was installed here and the first year nearly 400 farmers came to have their flax scutched. An average of 45,000 pounds of flax straw was scutched giving 3,600 pounds of fibre or a yield of 8 per cent. To stimulate the farmers to obtain a better quality and to increase the quantity of fibre produced some remarks were made to them on the retting process which seemed very badly done. In 1925, 35,460 pounds of flax straw yielded 3,546 pounds of fibre or 10 per cent.

In 1926, 42,040 pounds of flax straw were scutched here and gave 5,128·5 pounds or 12·2 per cent of fibre. The yield and also the quality of the fibre has been greatly increased. This year we have entries made for at least 200 farmers and probably we will receive more than in any previous year.

The installation of this scutching unit is certainly responsible for the awaking of interest, not only in our district but also in two other ones. For instance during the present winter a similar plant is being established at Beauceville and probably another one will be established at St-Fidèle in Charlevoix County for the 1928 crop. This industry will continue to receive our best attention and in the near future there will probably be enough flax to justify the installation of a modern spinning mill in one of these districts.

EXPERIMENTS WITH FERTILIZERS

The experiment with manure, fertilizers, lime and ground limestone, commenced in 1924 on a heavy clay loam soil, has been continued. The object of this work is to ascertain the effect of the various elements of plant food on crop yields when applied to the hoed crop of a four year rotation, turnips, barley, clover hay and timothy hay. The experiment was conducted in duplicate on plots one-fortieth of an acre in 1924 (Area "A"), and repeated in 1925 (Area "B"), in 1926 (Area "C"), and 1927 (Area "D").

The results to date are more or less irregular and do not indicate any very marked response to the application of fertilizers except in the case of the turnip crop. With this crop it will be noted that best results were obtained from the treatments which included an application of manure. This work will be continued and further data obtained before a definite statement will be made in regard to the economical employment of fertilizers on the heavy soils of this district.

The following table gives the crop yields obtained during the past year and a summary of the results for the three previous years.

CROP YIELDS IN FERTILIZER EXPERIMENT (AVERAGE OF DUPLICATE PLOTS) IN 1927 AND AVERAGE YIELDS SINCE 1924

Plot No	Fertilizer applied per acre	Yields per acre											
		Turnips				Barley				Clover hay				Timothy hay	
		1927		Average of 4 years		1927		Average of 3 years		1927		Average of 2 years		1927	
		tons	lb.	tons	lb.	bush.	lb.	bush.	lb.	tons	lb.	tons	lb.	tons	lb.
1	Ground limestone—4,000 pounds	16	500	16	536	51	32	44	28	2	630	2	145	2	1480
2	Burnt lime—2,240 pounds	16	1000	16	802	44	8	36	29	1	1840	1	1630	2	1400
3	Basic slag (16 P_2O_5) 750 pounds	16	500	16	1362	42	4	34	35	2	880	2	460	2	1520
4	Check	17	500	17	782	46	12	39	35	2	710	2	445	2	1240
5	Superphosphate—750 pounds	17	1500	19	1457	45	40	38	36	2	730	2	395	3	120
6	Barnyard manure—20 tons	19	1500	21	1284	55	40	47	31	2	1390	2	635	2	1900
7	Manure—20 tons Ground limestone—4,000 pounds	20	500	21	1806	53	16	46	32	2	1450	2	1115	3	140
8	Manure—10 tons Nitrate of soda—100 pounds Sulphate of ammonia—75 pounds Superphosphate—400 pounds Muriate of potash—100 pounds	19	1500	20	1356	44	8	37	11	2	1000	2	580	2	1820
9	Nitrate of soda—100 pounds Sulphate of ammonia—75 pounds Superphosphate—400 pounds Muriate of potash—100 pounds	18	500	20	325	45	40	38	22	2	780	2	800	2	1500
10	Nitrate of soda—100 pounds Sulphate of ammonia—75 pounds Superphosphate—400 pounds	17	1500	17	1882	46	32	37	4	2	530	2	285	2	1340
11	Check	14	0	14	1052	51	32	39	8	2	210	1	1845	2	880
12	Nitrate of soda—100 pounds Sulphate of ammonia—75 pounds Muriate of potash—100 pounds	17	1500	17	117	55	40	43	7	2	290	2	35	2	1180
13	Superphosphate—400 pounds Muriate of potash—100 pounds	19	1500	18	65	54	8	43	36	2	0	1	1950	2	1500

GENERAL NOTES

ILLUSTRATION STATIONS

The Illustration Stations continue to attract more attention in the district where they are located especially if the operator is a progressive farmer and understands the objects aimed at in these agricultural stations. Twenty Illustration Stations were in operation and directed from this Experimental Station in co-operation with the officers of the Illustration Station Division of the Central Experimental Farm, and were visited monthly during the vegetative season by a special officer from this Station. The writer has visited all the Illustration Stations during the year and many special visits were made with reference to the establishment of new Stations. It is needless to add that the expansion of the work at these Illustration Stations is absorbing more of the Superintendent's time each year as well as that of the clerical staff and the special inspector. It may also be stated, that a fair quantity of the Experimental Station production of seed grain is distributed to these stations, with the object of improving the quality, variety or category of seed grain used in the district where an Illustration Station is located. Some attention and assistance from this Station is also given towards the improvement of the various classes of live stock as well as poultry. Four new Stations have been authorized during the year and will start work in the spring 1928.

As many of the readers are already aware, these Stations are established to foster better farming by demonstrating on a representative farm of a given district methods of farming more in keeping with the present day knowledge of the science of agriculture, and they act as a connecting link between the farmers and the Experimental Farms.

AVERAGE RESULTS ON THE ILLUSTRATION STATIONS

Crops	Number of stations	Average yield	Average cost
Swede turnips	15	23 tons	$2 94 per ton.
Corn	4	16·6 tons	3 20 per ton.
Corn and sunflowers mixed	4	17·7 tons	3 01 per ton.
Potatoes	4	233 bushels	0 29 per bushel.
Oat and pea hay	7	3·1 tons	9 05 per ton.
Peas	1	30 bushels	1 33 per bushel.
Barley	3	43·5 bushels	0 65 per bushel.
Oats	12	47 bushels	0 46 per bushel.
Clover	10	2 tons	8 44 per ton.
Timothy	8	1·8 ton	8 30 per ton.

In publishing this summary table the reader's attention is called to the fact that the yields per acre are above the average for ordinary farms. This was obtained by the use of good quality seeds, proper treatment of the soil and better methods of culture. The crops were also generally produced at a reasonable cost considering that the results of some newly established stations were included in this summary.

EXTENSION WORK

During the year 1927, five local fairs were attended with a demonstrative educational agricultural exhibit from this Station, namely: at St.-Michel, Bellechasse County; Montmagny, Montmagny County; Isle-Verte, Temiscouata

County; Rimouski, Rimouski County; and Notre-Dame du Lac, Temiscouata County. These local fairs were patronized by approximately 32,500 persons and it is felt that through these educational exhibits much agricultural information besides special literature is brought to the farmers' attention.

A special field day and a general farmers' day were held and very well attended during the year.

To a greater interest in the breeding of draft horses, an all home-bred graded collection of Percheron horses was shown at the Quebec fair and brought many favourable comments.

The writer also spent a fair share of his time on behalf of the Ayrshire breeders, the Seed Board activities and the organization of the Percheron horse breeders into a provincial Association.

It may be opportune to mention that, besides writing several press articles and supervising the Experimental Station activities, the correspondence is increasing materially from year to year, the staff having received 5,596 and sent out 6,782 letters during the year including 1,000 circular letters sent to beemen and demonstration farms. Egg Laying Contest reports were also sent out, 4,680 being forwarded.

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