DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

STE. ANNE DE LA POCATIERE, QUEBEC

REPORT OF THE SUPERINTENDENT

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

FOR THE YEAR 1925

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EXPERIMENTAL STATION, STE. ANNE DE LA POCATIÈRE, QUEBEC

REPORT OF THE SUPERINTENDENT, J. A. STE-MARIE, B.S.A.

THE SEASON

The winter of 1925 was the severest experienced in this district for a period of years. The thermometer went as low as 29.5 below zero and the equivalent of 7 inches of precipitation came in the form of snow in February. This was followed by a severe earthquake on February 28 which upset sixteen chimneys at the Station, besides causing much damage to the walls of houses and office.

This cold winter was followed by a late spring, the first grain not being sown until early May. However, despite this late start, there was a more even distribution of precipitation and sunshine than in former years throughout the vegetative period, with the result that 1925 was the best crop year to date at this Station.

METEOROLOGICAL RECORDS AT STE. ANNE, QUE., 1925

Month	Temperature F.					Precipitation				Total sunshine	
	Highest	Date	Lowest	Date	Mean	Rainfall	Snowfall	Total Precipitation	Ave. 13 years		
						inches	inches	inches		hrs.	min.
January	33·0	23	−29·5	19	2·62	.....	24·0	2·40	2·35	113	25
February	41·0	7	−11·0	21	17·18	3·43	44·5	7·90	2·90	103	30
March	43·0	26	5·0	3	28·35	0·35	15·0	1·85	2·68	125	50
April	70·0	26	11·0	19	35·30	2·12	.....	2·12	2·78	156	50
May	72·6	30	27·0	26	46·60	2·44	.....	2·44	3·03	170	25
June	82·0	13	26·0	2	61·20	2·01	.....	2·01	3·04	193	20
July	83·0	11	41·0	8	64·20	2·68	.....	2·68	3·02	220	00
August	84·0	5	43·0	28	66·11	1·36	.....	1·36	2·44	232	50
September	81·0	11	29·0	30	52·21	3·47	.....	3·47	3·31	149	10
October	58·0	16	18·0	30	37·90	3·02	8·0	3·77	3·47	105	45
November	52·0	8	−1·0	29	29·26	2·02	10·5	3·07	2·01	95	55
December	43·0	2	−7·0	10	17·11	0·40	13·5	1·43	1·76	63	05
Totals	84·0	.....	−29·5	.....	38·17	23·30	115·5	34·50	.....	1,727	65

NOTE.—Records of precipitation and rainfall over a period of twelve years will be found in the annual report of the Station for 1924.

ANIMAL HUSBANDRY

DAIRY CATTLE

On December 31, 1925, our Ayrshire herd numbered 52 head of registered cattle made up of a senior and a junior bull, 24 cows, 7 two-year-old heifers, 5 one-year-old heifers and 15 bull and heifer calves.

The herd has much improved during the year, both in quality and production. When the cows now calved finish their lactation periods, there will probably not be more than one or two cows that will not be qualified officially for milk production in the Record of Performance. The average production for the cows that have completed their lactation periods on the last day of the year was 9,764.29 pounds of milk and 494.39 pounds of butter. In addition to the average milk and butter production per cow, special mention may be made of one world's record and one Canadian record for the breed, which were established during the year 1925-26.

The Ayrshire cow "Primrose" —78274— was crowned Canadian and living world's champion senior three-year-old on October 31, 1925, winning the silver cup awarded by the Canadian Ayrshire Breeders' Association. Primrose made her record in the 365-day division of the Canadian Record of Performance for pure-bred dairy cattle with 17,406 pounds of milk and 746 pounds of butter-fat. She produced 2,394 pounds of milk and 86 pounds of fat more than her nearest Canadian rival, and 9.78 pounds of butter-fat more than the former American and world's champion, "Glen Foerd Marion Star".

Primrose accomplished her record by good steady work as the following official monthly production will show:—

PRIMROSE—PRODUCTION THROUGHOUT THE YEAR

Months	Pounds milk	Pounds fat	Months	Pounds milk	Pounds fat
January	1,703·2	67·24	July	1,346·4	67·80
February	1,467·1	58·68	August	1,285·2	64·26
March	1,601·5	60·12	September	992·5	49·63
				723·0	36·15
April	1,544·4	55·60	October	25·5	0·97
May	1,668·8	75·02	November	1,647·5	62·61
June	1,599·6	79·53	December	1,801·7	68·46

Production required for registration, 8,712 lb. milk, 331 lb. fat.
Total production, 17,406 lb. milk, 746 lb. fat.
Average per cent of fat, 4·29. No of days in milk, 365.

During the year Beaver Meadow Beauty 6th —74584— established a new Canadian Record in the four-year-old class in the 305-day division with a record of 16,051 pounds of milk and 702 pounds of butter-fat. She leads her nearest rival by 2,041 pounds of milk and 125 pounds of butter-fat. Her official monthly production follows:—

BEAVER MEADOW BEAUTY—RECORD OF PRODUCTION

Months	Pounds milk	Pounds fat	Months	Pounds milk	Pounds fat
January	92·0	4·42	July	1,890·5	84·10
February			August	1,717·7	73·86
March	1,453·5	53·78	September	1,619·3	72·51
April	2,022·7	74·84	October	1,367·8	69·76
May	2,078·8	88·01	November	1,043·9	53·15
June	1,970·1	89·42	December	795·0	38·16

The bulls heading the herd are Ottawa Lord Kyle, —77049— by Overton Lord Kyle (imp.) and out of Hardcroft Dewdrop 3rd, with a record of 11,358 pounds milk and 514 pounds fat; Ottawa Supreme 2nd, —82288— by Shewalton Mains Supreme (imp.) AR 16 Class A.A. and out of Auchlochan Emerald (imp.) with a record of 10,010 pounds of milk and 427 pounds of fat at 10 years. Another bull, a year old, is also in service namely Ottawa Supreme 13th, —94149— by Shewalton Mains Supreme (imp.) A.R. 16 Class A.A. and out of Hardcroft Dewdrop 3rd, (imp.) dam of the senior herd sire. The three bulls are all qualified in the Advanced Registry Class A.

During the past year, fourteen registered Ayrshire bulls have been sold to head herds in various parts of the province.

DAIRY HERD RECORDS

The following table gives records of all cows and heifers which have finished their lactation period during the year 1925.

The feeds have been charged as follows:—

	$ cts.
Pasture per month, per cow	2 00
Meal mixture, per ton	36 00
Hay, per ton	8 00
Roots (cost figures)	2 96
Silage (cost figures)	3 32
Green feed (O.P.V. hay)	8 00

TABLE SHOWING THE 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	9,764·29	494·32

The increasing average production shown in the preceding table is due for the most part, to the observance of fundamental principles of management. These principles are: good feeding for the twelve months of the year; regularity in the hours of milking and feeding; the keeping of milk, fat, and feed records; gradual elimination of the poor cows and the replacement of the latter either through the rearing of heifers from record sires and dams or through purchase at an opportune time.

Poor cows destroy the profits that good ones make. The logical way to get rid of the scrub cows is to weigh the milk produced, test it for butter-fat, and keep records of the milk and butter-fat produced and of feed eaten, and then cull out the animals that do not come up to a profitable standard.

Name of cow	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 40 cents per pound	Value of skim-milk at 20 cents per 100 lb.	Total value of products	Amount of meal eaten at $0·018 per lb.	Amount of roots and silage; roots $2.98, silage $3·32 per ton	Amount of hay eaten at $8 per ton	Amount of green feed eaten at $3 per ton	Months on pasture at $2 per month	Total cost of feed for period	Cost to produce 100 lb. of milk	Cost to produce 1 lb. butter, skim-milk neglected	Profit on 1 lb. of butter, skim-milk neglected	Profit on cow during period, labour and calf neglected
			lb.	lb.		lb.	$ c.	$ c.	$ c.	lb.	lb.	lb.	lb.		$ c.	$ c.	$ c.	$ c.	$ c.
Primrose	Oct. 31, 1924	376	17,616·7	46·59	4·42	911·06	364 42	33 68	398 10	5,097	14,323	2,362	1,330	4	137 01	0 78	15	25	261 09
Beaver Mea. B. 6	Mar. 6, 1925	305	16,051·3	52·62	4·34	839·66	335 86	30 67	366 53	4,703	11,786	2,240	1,310	4	125 35	0 78	15	25	241 18
Alisette du Lac	Mar. 10, 1925	263	10,526·5	40·03	4·81	593·42	237 37	20 04	257 41	3,373	12,330	2,290	1,680	4	103 95	0 99	18	22	153 46
Len. Doreen 2nd	Dec. 7, 1924	365	12,154·7	33·43	3·86	548·73	219 49	23 37	242 86	3,744	11,771	2,391	1,300	4	108 63	0 89	20	20	134 23
Lady Riverside	Sept. 9, 1924	447	9,157·2	20·50	4·80	514·84	205 94	17 43	223 37	2,615	10,347	2,225	1,610	5½	89 65	0 98	17	23	133 72
Lawndale Daisy	Nov. 13, 1923	314	10,915·9	34·76	4·18	534·78	213 91	20 92	234 83	3,532	11,919	2,007	1,010	4	102 36	0 94	19	21	132 47
Suzette	April 17, 1925	259	9,256·2	35·70	4·54	491·94	196 78	17 67	214 45	2,620	9,360	1,880	1,530	4	83 50	0 90	17	23	130 95
Sp. Lovely Star	Feb. 15, 1925	287	8,548·6	29·89	4·4	439·97	175 99	16 35	192 34	2,365	10,070	1,780	1,030	4	77 21	0 90	18	22	115 13
Florida Ste. A. 2	Jan. 23, 1925	293	6,924·4	23·63	4·37	353·39	141 36	13 24	154 60	2,187	10,210	2,320	970	4	76 11	1 10	21	19	78 49
Palida de Ste. A. 2	Sept. 14, 1924	341	7,108·7	20·85	4·08	339·32	135 73	13 64	149 37	2,156	7,606	1,827	1,240	5½	74 02	1 04	22	18	75 35
Oakland Ste. A. 2	Feb. 23, 1925	288	6,393·3	22·20	3·92	293·39	117 36	12 29	129 65	1,768	7,730	1,492	1,102	4	62 34	0 98	21	19	67 31
Fadette	Nov. 11, 1924	268	6,124·6	22·85	3·97	284·94	113 98	11 76	125 74	2,115	7,684	2,202	630	4	69 46	1 13	24	16	56 28
Lennox. Mary 2nd	Nov. 24, 1924	243	6,257·7	25·75	3·85	281·92	112 77	12 03	124 80	2,082	7,634	1,902	920	4	68 76	1 10	24	16	56 04
Total for herd (13)		4,049	126,935·8			6,427·16	2,570 96	243 09	2,814 05	38,357	132,770	26,918	15,662	59	1,178 35	12 41	2 51	2 69	1,635 70
Average for herd		311·46	9,764·29	31·44	4·34	494·39	197 76	18 69	216 46	2,950	10,213	2,070	1,204	4	90 64	0 95	19	20	125 82
Average for the 5 best cows		324·6	13,453·0	41·48	4·33	685·53	274 21	25 73	299 94	4,089	12,427	2,278	1,322	4	115 46	0 87	17	22	184 48

OFFICIAL RECORDS

All the cows at this Station are entered in the Canadian Record of Performance for pure-bred dairy cattle conducted by the Live Stock Branch of the Department of Agriculture.

The following table gives the list of cows which qualified during the year:—

CANADIAN RECORD OF PERFORMANCE FOR 1925

Name and number of cows	Age at commencement of test	Number of days milking	Pounds of milk produced	Pounds of fat produced	Average per cent. fat
Primrose (78274)	3	365	17,406	746	4·29
Beaver Meadow Beauty 6th (74584)	4	305	16,051	702	4·37
Lennoxville Doreen 2 (66096)	5	365	12,142	469	3·86
Lawndale Daisy (83184)	3	319	10,916	455	4·17
Alisette du Lac (48622)	9	263	10,527	472	4·48
Springburn Lovely Star (75964)	3	287	8,549	353	4·13
Queenie of Lawndale (82120)	2	365	7,306	301	4·12
Oakland of Ste. Anne 2nd (80550)	2	286	6,393	246	3·88
Suzette (42813)	11	259	9,256	424	4·58
Total	.....	2,814	98,546	4,168	.....
Average for 9 cows	.....	312·6	10,949·5	469·1	4·22

OATS, PEAS AND VETCH HAY VS. SILAGE

For three years an experiment has been under way to determine the economy of feeding O.P.V. hay (oats, peas and vetches mixture) to dairy cows to replace silage.

Four cows were used for this experiment and were fed during three periods of three weeks each. The two last weeks of each period were taken for the purposes of comparison. The average of the first and third periods is compared with the second period, as this eliminates the natural decline in milk flow.

Period one: The cows received a ration of hay, corn and sunflower silage and grain mixture.

Period two: Silage was replaced by oats, peas and vetch hay.

Period three: Same as for the first period.

The meal mixture was composed of wheat bran, one part; corn, one part; oats, one part; barley, one part; distillers grain, two parts; linseed meal, one part.

The prices put upon the feeds at the time the experiment was made, were as follows:—

	$ cts.	
Meal mixture	37 60	per ton
Hay	11 00	"
O.P.V. hay	8 82	"
Silage	4 02	"

OATS, PEAS, VETCH HAY VS. SILAGE

—		Period 1	Period 2	Period 3	Average periods
		Silage	O.P.V.	Silage	1 and 3
Number of cows in test		4	4	4	4
Pounds of milk produced		1,610·2	1,567·3	1,329·6	1,469·9
Average milk per cow per day	lb.	28·75	27·98	23·74	26·24
Total ensilage consumed	"	1,980	.....	1,980	1,980
Total O.P.V. consumed	"	.....	675	.....	.....
Total hay consumed	"	660	660	660	660
Total meal consumed	"	539	524	440	490
Silage consumed per 100 lb. milk	"	122·96	.....	148·91	134·70
O.P.V. " "	"	.....	43·06	.....	.....
Meal " "	"	33·47	33·43	33·09	33·33
Cost of silage consumed	$	3 98	.....	3 98	3 98
" O.P.V. "	"	.....	2·98	.....	.....
" hay "	"	3 63	3 63	3 63	3 63
" meal "	"	10 14	9 85	8 27	9 21
Total cost of feed	"	17 75	16 46	15 88	16 82
Cost of feed to produce 100 lb. milk	$	1 10	1 05	1 19	1 14½

From the table, it will be seen that milk can be produced to advantage with O.P.V. hay. This year's experiment shows it to be 9½ cents cheaper than silage in producing 100 pounds of milk. O.P.V. hay is a very successful crop in this district where corn, as a rule, cannot be harvested in a sufficiently mature stage, the season being too short.

The following table gives figures for three years' trial, in cost of producing milk:—

Year	Cost of producing 100 lb. milk	
	Silage	O.P.V. hay
	$ cts.	$ cts.
1923	1 19	1 27
1924	1 40½	1 35
1925	1 14½	1 05
Total	3 74	3 67
Average	1·24 6	1·223

For the year 1923, O.P.V. hay was charged $15 per ton, which was the market price of clover hay, instead of cost figures as used for the season 1924 and 1925.

As most of the farmers in this district have no silo or are unable to grow roots, it would be a very good thing for them to try this crop as a silage substitute, for it should increase the milk yields of their cows. (Project No. A 260).

SILAGE VS. ROOTS

In this experiment, corn and sunflower silages are compared with roots to determine if there is advantage in the farmer feeding roots instead of silage, which is more or less an unsafe and expensive crop to grow in this district. The same procedure has been followed as for the experiment with O.P.V. hay. Roots

have been charged $3.42 per ton, the average cost of growing roots on the Farm in 1924. Results are given in the next table:—

SILAGE VS. ROOTS

—		Period 1	Period 2	Period 3	Average periods 1 and 3
		Silage	Roots	Silage	Roots
Number of cows in test		5	5	5	5
Pounds of milk produced		1,770·1	1,696·9	1,506·9	1,638·5
Average milk per cow per day	lb.	26·7	24·2	21·5	23·4
Total ensilage consumed	"	2,268	.....	2,268	2,268
Total roots consumed	"	.....	2,646	.....	.....
Total hay consumed	"	756	756	756	756
Total meal consumed	"	586	566	504	545
Silage consumed per 100 lb. milk	"	128·1	.....	150·9	138·4
Roots " " "	"	.....	155·9	.....	.....
Meal " " "	"	33·10	33·35	33·44	33·26
Cost of silage consumed	$	5 06	.....	5 06	5 06
" roots "	$	.....	4 52	.....	.....
" hay "	$	4 16	4 16	4 16	4 16
" meal "	$	10 02	10 64	9 48	9 75
Total cost of feed	$	19 24	19 32	18 70	18 97
Cost of feed to produce 100 lb. milk	$	1 09	1 14	1 24	1 16½

From the preceding table it will be noticed, that 100 pounds of milk were produced at 2½ cents less cost with roots. The following table shows the same experiment for 1923-24-25 and the average for the three years.

THREE YEARS' TRIAL IN THE COST OF PRODUCING MILK WITH SILAGE AND ROOTS

Year	Cost of producing 100 pounds milk	
	Silage	Roots
	$ cts.	$ cts.
1923	1 35½	1 37
1924	1 43	1 42
1925	1 16½	1 14
Total	3 95	3 93
Average	1 32	1 31

It is to be noted, that the silage grown in this district and used in these experiments contained only 14 to 15 per cent dry matter instead of the usual 22 and 23 per cent, while on the other hand, the roots were a fairly normal crop. Under these conditions, roots have made the best showing. It must be kept in mind, however, that these figures are for this district only.

SWINE

The Yorkshire breed of swine is the only one kept at this Station. The herd was composed of one boar, four old sows which were sold for pork during the summer, four two-year-old and three one-year-old sows that are kept for breeding.

Ten of these sows gave birth to 137 young pigs, of which 113 were raised. During the year, 27 were sold for breeding, 23 others were sold to farmers at six weeks of age, and the balance raised, fattened and sold for pork.

During the summer the brood sows are kept in open range, where they have shade, water, and a little pasture. A mixture of meal and green feed is given twice a day. In winter they are kept in colony-houses with an open yard.

COST OF FATTENING WITH CORN, BARLEY AND OAT

The object of experiment was to determine the value of corn, barley and oat in feeding pigs.

Nine pigs about the same weight were divided into three lots of three each. Each lot received the same basic meal, but in addition, the first lot received corn meal, the second, barley meal, and the third, ground oats. The experiment was carried out in the spring.

Price Charges for Feed

	$ cts.
Corn meal	40 00 per ton
Barley meal	38 00 "
Ground oat	35 00 "
Midding	38 50 "
Shorts	31 00 "
Oil-meal	50 40 "
Clover hay	10 00 "
Turnip	2 00 "
Skim-milk	0 20 100 lb.

Corn vs. Barley vs. Oat

March to June		Corn	Barley	Oat
Number of pigs		3	3	3
Initial weight gross	lb.	185·8	180·0	172·1
Initial weight average	"	61·8	60·0	57·4
Finished weight gross	"	645·0	626·0	606·0
Finished weight average	"	215·0	208·7	202·0
Number of days in experiment	days	96·0	96	96
Total gain for period	lb.	459·5	446·0	433·9
Average gain per animal	"	153·2	148·7	144·6
Corn meal eaten by group	"	723·0	.....	.....
Barley meal eaten by group	"	.....	723·0	.....
Ground oat eaten by group	"	.....	.....	723·0
Middling eaten by group	"	723·0	723·0	723·0
Hay eaten by group	"	60·0	60·0	60·0
Swede turnip eaten by group	"	50·0	50·0	50·0
Skim-milk eaten by group	"	1,015·0	1,015·0	1,015·0
Quantity of meal eaten per pound gain		3·15	3·24	3·33
Quantity of skim-milk eaten per pound gain		2·21	2·27	2·34
Total cost of feed	$	30 76	30 04	28 95
Cost of feed per head	$	10 25	10 01	9 65
Feed cost to produce 1 pound gain	$	0 067	0 067	0 066

Corn vs. Barley vs. Oat

July to October		Corn	Barley	Oat
Number of pigs		5	5	5
Initial weight gross	lb.	419	416	427
Initial weight average	"	83·8	83·2	85·4
Finish weight gross	"	1,222·5	1,180·0	1,166·0
Finish weight average	"	244·5	236·0	233·2
Number of days in experiment	days	109	109	109
Total gain for period	lb.	803·5	764·0	739·0
Average gain per animal	"	160·7	152·8	147·8
Corn meal eaten by group	"	820·0	.....	.....
Barley meal eaten by group	"	.....	820·0	.....
Ground oat eaten by group	"	.....	.....	820·0
Shorts	"	440·0	440·0	440·0
Middling	"	660·0	660·0	660·0
Milk	"	1,920·0	1,920·0	1,920·0
Roots	"	500·0	500·0	500·0
Meal eaten for one pound gain	"	2·38	2·51	2·59
Skim-milk eaten for one pound gain	"	2·38	2·51	2·59
Total cost of feed	$	40 26	39 44	38 21
Total cost of feed per head	$	8 05	7 89	7 64
Feed cost to produce one pound gain	$	0 05	0 052	0 052

From the two tables it will be noted that there is no evident difference in the feeding value of corn or barley meals when used to fatten hogs when cost of production is considered, but there is the same difference in the quality of the pork produced and the type of the finished hogs. It took about the same amount of meal to produce one pound gain, which cost about the same price. It was also found, in studying the tables, that pork can be developed and fattened as well with oat or barley meal as with corn meal. The group fed with oat produced the highest quality bacon, followed by the group fed with barley and then the group on corn. The fact that corn cannot be grown here and is sometimes difficult to obtain would therefore appear to be less of a disadvantage than is sometimes thought by many hog-feeders since these tests indicate it to be advantageous to feed more barley and oats as substitutes for corn. (Project No. A. 135-422-534).

MINERALS AND IODINE FOR SOWS

Six brood sows were divided in three groups of two each: group 1 was fed with minerals; group 2 was fed with iodine and meat by-products; group 3 was used as check (Project No. A 114).

—		Mineral	Check	Iodine
Number of sows		2	2	2
Number of pigs from sows		25	23	14
Number of pigs raised		25	12	11
Average weight of pigs at birth	lb.	2·43	2·09	2·91
Condition of pigs at birth		Uniform and strong	Small and weak	Rather good
Average weight of pigs at weaning time	lb.	(6 weeks) 15·0	(8 weeks) 14·3	(6 weeks) 20·8

It may be noted from the figures in the table that there is considerable advantage to be derived in feeding minerals or iodine in the ration of brood sows. As indicated, the young pigs were much more uniform and very vigorous and the greater number raised from sows fed minerals or iodine compared with the smaller number raised from the check sows indicate the value of supplying these materials in the ration of the sow during the gestation period. (Project No. A 114).

ONE VS. TWO LITTERS A YEAR

One group of sows were used to raise one litter and an other group to raise two litters.

ONE VS. TWO LITTERS A YEAR

—		One litter	Two litters
Number of sows		4	3
Number of pigs in litter		33	70
Number of pigs raised		26·0	68·0
Bran ration	lb.	363·0	923·0
Shorts	"	2,852·0	2,378·0
Corn meal	"	182	205
Barley meal	"	387·3	474·0
Ground oat	"	383·0	903·0
Middling	"	1,328·5	1,638·5
Oil-meal	"	135	115
Skim-milk	"	1,215·0	2,300·0
Hay	"	985	802
Roots	"	2,315·0	3,384·0
Average feed cost of one pig at six weeks	$	4 25	1 86
Average cost of feed per sow	$	26 39	41 70
Average value at six weeks	$	6 00	6 00
Average profit over feed for one pig at six weeks	$	1 75	4 14
Average profit over feed from litters	$	45 50	281 52

From the table, it will be noted that two litters a year gave greater profits. When only one litter is raised the expenses of maintaining the brood sow for an entire year must be charged against a single litter, which increases the cost per pig.

It took more feed and special care for the fall litters, but with skim-milk or other dairy by-products available for feeding the young pigs at weaning time, and with the addition of succulent green food later to supplement the ration of grain, the problem is solved. (Project A 423).

FINANCIAL STATEMENT FOR SEVEN YORKSHIRE BROOD SOWS

Name	Feed feed	Pounds of feed consumed	Price cost pe ton	Value of feed consumed	Date farrowed	No. of pigs in litter	Number raised	Percentage raised	Cost of litter-farrowing to six weeks	Actual average feed-cost of one pig at six weeks
		lb.	$ cts.	$ cts.					$ cts.	$ cts.
Ste. Anne Brillante 3.	Bran	414·0	28·00	5 79	Mar. 9	13	13	100	11 76	1 65
	Shorts	606·0	31 00	9 39						
	Oil-meal	70·0	50 40	1 76						
	Corn meal	81·0	40 00	1 62						
	Barley meal	100·5	38 00	1 91						
	Ground oat	300·0	35 00	5 25						
	Middlings	527·5	38 50	10 15						
	Skim-milk	1,515·0	0 20	3 03	Aug. 21	12	12	100	12 81	
	Hay	227·0	10 00	1 13						
	Roots	1.260·0	2 00	1 26						
Ste. Anne Brillante 4.	Bran	127·0	28 00	1 78	May 12	12	12	100	9 68	
	Shorts	831·0	31 00	12 88						
	Oil-meal	25·0	50 40	0 63						
	Corn meal	39·0	40 00	0 78						1 82
	Barley meal	201·0	38 00	3 82						
	Ground oat	468·0	35 00	8 19						
	Middlings	656·0	38 50	12 63						
	Skim-milk	315·0	0 20	0 63	Dec. 10	12	12	100	14 30	
	Hay	275·0	10 00	1 37						
	Roots	1.070·0	2 00	1 07						
Ste. Anne Brillante 5.	Bran	87·0	28 00	1 22	May 8	11	7	63·6	11 81	
	Shorts	846·0	31 00	13 11						
	Oil-meal	25·0	50 40	0 63						
	Corn meal	39·0	40 00	0 78						4 44
	Barley meal	101·0	38 00	1 92						
	Ground oat	118·0	35 00	2 06						
	Middlings	430 0	38 50	8 27						
	Skim-milk	280·0	0 20	0 56						
	Hat	345·0	10 00	1 72						
	Roots	850·0	2 00	0 85						
Duchesse 9	Bran	383·0	28 00	5 35	Jan. 19	13	12	92·3	9 39	
	Shorts	941·0	31 00	14 58						
	Oil-meal	20·0	50 40	0 50						
	Corn meal	85·0	40 00	1 70						
	Barley meal	172·5	38 00	3 27						2 11
	Ground oat	135·0	35 00	2 36						
	Middlings	455·0	38 50	8 75						
	Skim-milk	490·0	0 20	0 98						
	Hay	300·0	10 00	1 50	June 28	8	7	87·5	9 40	
	Roots	1,054·0	2 00	1 05						
Ste. Anne Blanche.	Bran	134·0	28 00	1 87						
	Shorts	645·5	31 00	10 00						
	Oil-meal		50 40		Mar. 30	6	6	100	6 40	
	Corn meal	62·0	40 00	1 24						
	Barley meal	102·5	38 00	1 94						4 04
	Ground oat	114·5	35 00	2 00						
	Middlings	255·5	38 50	4 92						
	Hay	235·0	10 00	1 17						
	Skim-milk	295·0	0 20	0 59						
	Roots	550·0	2 00	0 55						

Name	Feed fed	Pounds of feed consumed	Price cost per ton	Value of feed consumed	Date farrowed	No. of pigs in litter	Number raised	Percentage raised	Cost of litter-farrowing to six weeks	Actual average feed-cost of one pig at six weeks
		lb.	$ cts.	$ cts.					$ cts.	$ cts.
St. Anne Blanche 2.	Shorts	582·0	31 00	9 03						
	Corn meal	17·5	40 00	0 35	June 29	8	8	100	8 20	2 51
	Barley meal	82·3	38 00	1 55						
	Ground oat	37·5	35 00	0 65						
	Middlings	342·5	38 50	6 60						
	Skim-milk	340·0	0 20	0 68						
	Hay	195·0	10 00	0 97						
	Roots	210·0	2 00	0 21						
St. Anne Blanche 3.	Bran	142·0	28 00	1 98						
	Shorts	778·0	31 00	12 05	Mar. 27	8	5	62·5	6 90	6 02
	Oil-meal	110·0	50 40	2 77						
	Corn meal	63·5	40 00	1 27						
	Barley meal	101·5	38 00	1 93						
	Ground oat	113·0	35 00	1 97						
	Middlings	300·5	38 50	5 78						
	Skim-milk	300·0	0 20	0 60						
	Hay	210·0	10 00	1 05						
	Roots	700·0	2 00	0 70						

Average cost of meal mixture per ton	Average total cost of feed for one sow	Average number of pigs farrowed per litter	Average number of pigs raised per litter	Average per cent raised	Average feed-cost of litter at six weeks	Actual average feed-cost of one pig at six weeks
$ cts.	$ cts.				$ cts.	$ cts.
37 27	32 95	10·3	9·4	91%	14 38	3 23

	$ cts.
Average value per pig at six weeks	6 00
Average profit per pig over feed cost	2 77
Average profit per sow	26 04
Profit over feed cost from seven sows	182 28

Financial Statement—Swine

Initial Investment:—		
3 brood sows (old) at $4 each		$ 120 00
4 brood sows at $50 each		200 00
4 brood sows at $40 each (young)		160 00
1 pure-bred boar		100 00
1 piggery, 6 cabins and land		2,500 00
Working equipment		50 00
Total		$ 3,130 00
Dr.:		
38,426 lb. meal at $37.27 per ton	$ 716 06	
1,120 lb. oat at 65 cents per bushel	21 41	
2,615 lb. hay at $10 per ton	13 07	
14,047 lb. turnips at $2 per ton	14 05	
23,411 lb. skim-milk at 20 cents	46 82	
6 tons of straw	36 00	
1,200 hours of work at 31 cents	372 00	
6 cords of wood at $7	42 00	
	$ 1,261 41	
To balance	644 90	
		$ 1,906 31

FINANCIAL STATEMENT—SWINE—*Concluded*

Cr.:		
17 registered sows and boars at $10	$ 170 00	
5 registered sows and boars at $12	60 00	
3 registered sows and boars at $11	33 00	
1 registered sow	20 00	
1 registered sow	18 00	
4 young pigs for pork at $10	40 00	
5 young pigs for pork at $9	45 00	
5 young pigs for pork at $8	40 00	
1 young pig for pork at $7	7 00	
6 young pigs for pork at $6	36 00	
2 young pigs for pork at $6.50	13 00	
213 lb. (live weight) pork at 10½ cents	22 36	
630 lb. (live weight) pork at 5 cents	31 50	
500 lb. (live weight) pork at 7 cents	35 00	
1,150 lb. dressed pork at 15¼ cents	175 37	
470 lb. dressed pork at 13 cents	61 10	
291 lb. dressed pork at 18½ cents	53 83	
1,995 lb. (live weight) pork at 9 cents	179 55	
1,226 lb. (live weight) pork at 12 cents	147 12	
2,247 lb. dressed pork at 15 cents	337 05	
689 lb. dressed pork at 15¼ cents	105 07	
1,441 lb. dressed pork at 15½ cents	223 35	
342 lb. dressed pork at 15½ cents	53 01	
		$ 1,906 31

SHEEP

Leicester sheep only are kept at this Station. The flock is composed of fifty-one head—forty breeding ewes, nine ewe lambs, one imported Leicester ram and one Shropshire ram for a crossing experiment.

Owing to the advantageous temperature that was experienced the last summer, the pasture was better than usual and the sheep were allowed to run outside later in the year without any grain as supplementary food.

Of the twenty-five ewes, twenty-one gave birth to thirty-two lambs of which twenty-nine were raised. All the very good ram lambs were sold for breeding as well as two females. Nine other young females were kept at the Station to replace some old ewes and the others were sold for mutton.

CROSS-BRED VS. PURE-BRED LAMBS

The object of this experiment is to determine the advantage of cross-breeding for the production of market lambs.

Fifteen pure-bred ewes were bred to a Shropshire ram and fifteen pure-bred ewes to a pure-bred Leicester ram.

CROSS-BRED VS. PURE-BRED LAMBS

—		Cross-bred	Pure-bred
Number of ewes	No.	15	15
Number of normal lambs at birth	"	19	19
Average weight of normal lambs at birth	lb.	7·8	6·8
Number of lambs raised	No.	17	16
Average weight of lambs at 6 months	lb.	65·8	69·3
Average gain per lamb	"	58·01	62·5

From the table it will be noted that the same number of lambs were raised from both groups, but the weight at birth of the cross-bred lambs was the heavier.

At the age of six months, the cross-bred lambs weighed an average of 4.2 pounds less than the pure-bred lambs. They, however, were more even in size and their low set and blocky appearance made them more acceptable to the buyers. (Project No. A 312).

COST OF KEEPING THE BREEDING FLOCK

Number of ewes		49
Number of rams		2
Value of 25 ewes at $20 each	$ 500 00	
Value of 9 ewe lambs at $15 each	135 00	
Value of 15 old ewes at $10 each	150 00	
Value of 1 Leicester ram	75 00	
Value of 1 Shropshire ram	25 00	
Total value of flock		$ 885 00
17,638 lb. of hay at $10 per ton	$ 88 19	
3,025 lb. of oats at 65 cents per bushel	57 83	
3,025 lb. of bran at $28 per ton	42 35	
6 months pasture, 51 head at 20 cents per head per month	61 20	
Total cost of feed		$ 249 57
Depreciation, 10 per cent of $750		75 00
Interest on investment, 6 per cent of $885		53 10
Total charge		$ 377 67
Average charge per head		7 40
Value of fleece per head (average)		2 40
Average cost of maintenance per head		5 00
Average cost of feed per head		4 89

It may be noted from the preceding table, that it actually cost $377.67 to maintain the flock. The charge per head is $7.40 and the cost of keeping one head, $5 per year with the value of the fleece deducted. It will be noted that depreciation was estimated on $750 instead of $885, as the nine ewe lambs are valued lower than their actual worth.

COST OF RAISING LAMBS TO MARKET AGE

Number of lambs from 25 ewes	No.	32
Average number of lambs per ewe	"	1·28
Average weight of lamb at birth	lb.	7·7
Average weight of lamb September 10	"	72·1
Average value of lamb at 8½ cents	$	6 13
Cost of keeping 25 ewes (less value of fleece)	$	75 00
Pasture 3 months, 28 lambs at 20 cents per head	$	16 80
Cost of keeping ram	$	6 00
Cost of extra labour	$	10 00
Total cost	$	107 80
Cost for one lamb	$	3 37

From the preceding table, it will be noted that it actually cost $3.37 to raise a lamb to market age. The production per ewe being 1.28 lambs, the profit made per ewe is then $4.31. It should also be noted by the reader in the interpretation of the above results, that the pastures where the sheep are kept are exceedingly poor; therefore, the sheep and lambs have to be fed more grain than if the pastures were of better quality.

FINANCIAL STATEMENT—SHEEP

Initial Investment—		
25 pure-bred ewes at $20 each		$ 500 00
9 pure-bred ewe lambs at $15 each		135 00
15 commercial cross-bred ewes at $10 each		150 00
1 pure-bred Leicester ram		75 00
1 pure-bred Shropshire ram		25 00
1 sheep barn		500 00
Total investment		$ 1,385 00
Dr.:		
17,683 lb. of hay at $10 per ton	$ 88 41	
3,025 lb. of oats at 65 cents per bushel	57 83	
3,025 lb. of bran at $28 per ton	42 35	
Pasture 6 months at 20 cents per head per month	61 20	
Interest on investment at 6 per cent	83 10	
600 hours of work at 31 cents	186 00	
Total charge		$ 518 89
Cr.: By sale of—		
7 lambs for breeding at $20 each	$ 140 00	
1 lamb for breeding at $15	15 00	
1 lamb for breeding at $10	10 00	
1,474 lb. mutton at 8½ cents	125 29	
254 lb. mutton at 8½ cents	21 59	
505 lb. mutton at 4 cents	20 20	
10 old ewes, at $5 each	50 00	
50 tons of manure at $1 per ton	50 00	
306 lb. of wool at 40 cents	122 40	
Total		$ 554 48
Balance		35 59

HORSES

The horses kept at this Station are all of the Percheron breed. The total number is twenty made up of:—

12 females, three years old and over.
3 females, two and a half years old.
1 female, one and a half years old.
3 males, 8 months old.
1 female, 4 months old.

Of the six mares bred, three have had foals in spring and another one gave a foal in autumn.

The following values were used in preparing the tables that follow:—

Hay, $10 a ton.
Bran, $28 a ton.
Oats, $0.55 a bushel.
Pasture, $2 a month.

FEED CONSUMED BY DRAUGHT HORSES AND COST OF HORSE LABOUR

Name	Age	Weight	Feed consumed			Pasture	Total feed cost	Hours of work	Cost of work per hour	Months of work
			Hay	Oats	Bran					
		lb.	lb.	lb.	lb.	mos.	$ cts.		cts.	mos.
Mela	13	1,500	5,380	4,924	720	.....	131 11	1,838	7·1	10
Minette	8	1,800	4,200	3,624	550	3	103 98	943	10·0	10
Belle	9	1,625	5,800	4,944	720	.....	133 59	1,949	6·8	12
Julia	16	1,600	5,250	4,674	700	.....	127 40	1,728	7·3	12
Melina	7	1,625	5,040	5,284	710	.....	136 15	2,203	6·2	12
Fanchette	7	1,500	5,400	4,944	720	.....	131 59	1,796	7·3	12
Juliette	5	1,900	3,520	2,994	460	4	89 28	776	11·0	8
Mathilda	5	1,650	4,200	3,624	550	3	103 98	838	12·0	10
Joconde	5	1,825	5,440	5,014	720	.....	133 13	2,201	6·0	12
Mela 3	3	1,550	4,930	4,414	720	.....	119 11	1,368	8·7	10
Jeannette 3	3	1,750	3,436	4,324	720	.....	109 33	1,403	7·8	10
Jessie	9	1,050	3,610	3,950	360	.....	98 60	1,519	6·4	12

The table shows that horse labour cost an average of 8 cents per hour.

This perhaps seems too high, but it should be noted that the number of working hours is rather low. The last column gives the total number of months in which the horses worked. The price charged for feed is also higher than it was the previous year. By leaving aside the three mares that had colts, an average cost for horse labour of 7 cents per hour is shown.

COST OF RAISING COLTS FROM BIRTH TO 2½ YEARS OF AGE

Name	Age	Weight at birth	Feed consumed			Months of pasture	Total feed cost	Weight at 2½ years
			Hay	Oats	Bran			
		lb.	lb.	lb.	lb.		$ cts.	lb.
Ste. Anne Minette 2	2½	210	4,104	2,940	900	9	98 67	1,425
Ste. Anne Mela 4	2½	200	4,696	3,275	954	9	107 80	1,500
Ste. Anne Julia 3	2½	190	4,452	3,126	878	9	103 09	1,350

The total cost of feed to raise three colts to 2½ years of age, is $309.56, making an average of $103.15 per colt. The average cost for a period of three years is $114.24.

FIELD HUSBANDRY

The year 1925 was particularly good for the growing of crops. The experimental work was conducted during the past year on fields with fairly uniform soil conditions. The land is a heavy clay loam with a blue clay subsoil. Part of it is tile-drained.

The immediate supervision of the work of the field husbandry and chemistry divisions has been under Mr. R. P. Charbonneau, assistant.

The figures and observations have been kept for all the crops grown on each of three rotations, which are of three-year, four-year and five-year duration.

COST FACTORS

In order to compile the items of expenses against each crop it is important to explain how the manure is applied on each rotation, the value and the cost of applying each ton, and the distribution of the manure cost to the various crops of the rotations.

The manure is charged at $2 per ton. This charge included $1 for the cost of applying the manure to the land and $1 for the net value of the manure itself.

The following table gives the number of tons applied to the first year's crop of each rotation and the percentage value of the amount which is received by each crop.

APPLICATION OF MANURE TO ROTATIONS

Rotation	Year crop	Number of tons of manure per acre	Percentage of value of the manure for each crop
Three-year	1 year	12 tons	50 per cent
	2 year		30 "
	3 year		20 "
Four-year	1 year	15 tons	40 per cent
	2 year		30 "
	3 year		20 "
	4 year		10 "
Five-year	1 year	20 tons	40 per cent
	2 year		25 "
	3 year		20 "
	4 year		10 "
	5 year		5 "

COST FACTORS PRODUCING FARM CROPS

Rent of land (including taxes), $125 per acre at 5 per cent.
Use of machinery, $3 per acre.
Manual, labour and teamster, 26 and 27 cents per hour.
Horse labour, 10 cents per hour.
Threshing: Wheat 9 cents, oats 5 cents, barley 5 cents, peas and vetches 9 cents per bushel.
Ensilage, $1.12 per ton (including cutting, hauling, ensiling, gas, depreciation of machinery, man labour.)
Twine, 15 cents per pound.
Seed:—
Oats, 90 cents per bushel.
Wheat, $2 per bushel.
Barley, $1.85 per bushel.
Peas, $2.75 per bushel.
Vetches, $2.50 per bushel.
Corn, $2.75 per bushel (average price of all varieties).
Sunflowers, 10 cents per pound.
Turnips, 55 cents per pound.
Mangels, 40 cents per pound.
Clover, alsike, 14 cents per pound.
Clover, red, 25 cents per pound.
Clover, timothy, 14 cents per pound.

COST OF PRODUCING CROPS

A detailed statement of the cost of production of the different farm crops with their presented yields is embodied in the following table. All crops have been grown on a drained four-year rotation, except, mangels and barley, which were grown in three- and five-year rotations on undrained land.

COST OF PRODUCING CROPS PER ACRE

Cost factors	Corn	Sunflower	Turnips	Mangels	Wheat	Oats	Barley	Clover	Timothy
Rent and taxes	$ 6 25	$ 6 25	$ 6 25	$ 6 25	$ 6 25	$ 6 25	$ 6 25	$ 6 25	$ 6 25
Share of cost of manure	12 80	12 80	12 80	12 00	9 60	9 60	10 00	6 40	3 20
Seed	1 38	1 00	1 10	2 40	3 00	2 25	3 70	1 84	1 84
Manual labour, teamster operator	9 33	9 85	30 07	39 30	5 37	4 86	5 64	7 35	4 74
Horse labour	4 60	4 60	7 00	7 80	3 40	3 60	3 50	1 40	1 10
Ensiling	18 10	24 82	.....	.....	.....	.....	.....	.....	.....
Threshing	.....	.....	.....	.....	2 16	3 47	1 57	.....	.....
Machinery	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00	3 00
Twine	.....	.....	.....	.....	0 32	0 51	0 40	.....	.....
Total cost	$55 46	$62 36	$60 22	$70 75	$33 10	$33 54	$34 06	$26 24	$20 13
Yield per acre	16·16	22·16	23·15	24·65	24·0	69·4	31·4	3·40	2·35
Cost per ton	$3 43	$2 81	$2 60	$2 88	.....	.....	.....	$7 72	$8 56
Cost per bushel (considering value of straw)	.....	.....	.....	.....	$1 28	$0·364	$0 92	.....	.....

It should be noted that the yields for all the crops mentioned in the preceding table are very much larger than the average yields for our district. This is due to the observance of the factors which are conducive to better success. These factors are always the same; namely, the rotation of crops, good cultural methods, good seed, and the application of proper amounts of manure or fertilizers. (Project No. F. 91).

On most of the farms, besides the crops already mentioned, there are some other crops which are grown, as it is believed a good thing to raise all possible forage and grain crops for the feeding of the live stock on the farm.

These crops are peas, vetches, alfalfa and a mixture of oats, peas and vetches. The mixture of oats, peas and vetches can be grown for green feed, ensilage or hay. This crop in particular is gaining much favour in the district, it helps to solve the problem of securing a good succulent feed for the dairy cows.

The following table gives a detailed statement of the various items of expenses incurred in growing those crops.

COST OF PRODUCING CROPS PER ACRE

Cost factors	Oats, peas and vetches hay	Peas	Vetches	Alfalfa
Rent and taxes	$6 25	$6 25	$6 25	$6 25
Share of cost of manure	2 00	4 80	4 80	6 40
Seed	5 85	0 50	2 50	2 25
Manual labour and teamster operator	8 81	14 60	11 37	4 68
Horse labour	4 50	5 60	4 40	1 40
Threshing	.....	6 37	3 84	.....
Machinery	3 00	3 00	3 00	3 00
Total cost	$30 41	$46 17	$36 16	$23 98
Yield per acre	2·98	70·8	42·7	3·10
Cost per ton	$10 20	.....	.....	$7 74
Cost per bushel	.....	$0 65	$0 35	.....

Oats, peas and vetches mixture for hay have been grown on a five-year rotation, the peas and vetches on three-year rotation, and alfalfa on a four-year rotation. Alfalfa has been sown in an ordinary mixture of clover and timothy. The first cut, was half clover and half alfalfa, the second cut was all alfalfa. This particular success with alfalfa should be of interest to the farmers in this locality. (Project F. 91.)

TILE DRAINED VS. UNDRAINED LAND

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

The following table gives the average yield of four years, and for the year 1925, for both tile-drained vs. undrained land. It is too early yet to draw any conclusion. (Project F. 72.)

FOUR-YEAR ROTATION—TILE-DRAINED LAND VS. UNDRAINED

Crop	Drained		Undrained	
	Average for four years	1925	Average for four years	1925
Corn	10·81 tons	16·16 tons	8·06 tons	15·11 tons
Sunflowers	12·84 "	22·16 "	15·82 "	19·42 "
Turnips	15·31 "	23·15 "	13·88 "	20·66 "
Wheat	30·9 bush.	24·0 bush.	27·7 bush.	17·5 bush.
Clover	2·54 tons	3·40 tons	2·55 tons	3·16 tons
Timothy	2·01 "	2·35 "	1·89 "	2·36 "

ROTATION EXPERIMENTS

Different rotation systems have been established in order to determine, under similar conditions, the yield of various crops and the effect of different sequences of crops. It is also desired to determine the cost of production of each crop of the rotation. (Project F. No. 5).

THREE-YEAR ROTATION—YIELD AND COST OF PRODUCTION PER ACRE

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

Crop	Year in rotation	Average yield 3 years	Yield in 1925	Cost of production in 1925	Cost per ton or bushel
				$ cts.	$ cts.
Sunflower	1st year	16·25 tons	18·75 tons	57 70	3 07
Corn:—					
Wisconsin 7	"		14·02 tons	52 26	3 73
Longfellow	"	13·51 tons	11·42 tons	49 35	4 41
Wheat	2nd year	29·0 bush.	24·9 bush.	31 53	1 15
Clover hay	3rd year	2·83 tons	2·58 tons	26 22	10 16

FOUR-YEAR ROTATION—YIELD AND COST OF PRODUCTION PER ACRE
(Tile-drained land)

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

Crop	Year in rotation	Average yield 4 years	Yield in 1925	Cost of production in 1925	Cost per ton or bushel
				$ cts.	$ cts.
Turnips	1st year	15·31 tons	23·15 tons	60 22	2 60
Corn	1st year	10·81 "	16·16 "	55 46	3 43
Sunflowers	1st year	12·84 "	22·16 "	24 82	2 81
Wheat	2nd year	30·9 bush.	24·0 bush.	33 10	1 28
Clover hay	3rd year	2·54 tons	3·40 tons	26 24	7 72
Timothy hay	4th year	2·01 "	2·35 "	20 13	8 56

NOTE.—The land for this rotation is ploughed as soon as the timothy hay is off, disked and harrowed till the fall and then manured and re-ploughed. (Project F. 16).

FOUR-YEAR ROTATION—YIELDS AND COST OF PRODUCTION PER ACRE*
(Undrained land)

Crop	Year in rotation	Average yield 4 years	Yield in 1925	Cost of production in 1925	Cost per ton or bushel
				$ cts.	$ cts.
Turnips	1st year	13·88 tons	20·66 tons	59 48	2 88
Corn	1st year	8·06 "	15·11 "	54 28	3 59
Sunflowers	1st year	15·82 "	19·42 "	59 25	3 05
Wheat	2nd year	27·7 bush.	17·5 bush.	32 44	1 75
Clover hay	3rd year	2·55 tons	3·6 tons	28 07	8 88
Timothy	4th year	1·85 "	2·36 "	20 13	8 53

*The rotation is similar to that conducted on tile-drained land.

FIVE-YEAR ROTATION—YIELD AND COST OF PRODUCTION PER ACRE

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

Crop	Year in rotation	Yield in 1925	Cost of production	Cost per ton or bushel
			$ cts.	$ cts.
Turnips	1st year	17·44 tons	59 88	3 43
Barley	2nd year	31·4 bush.	34 06	1 03
Clover hay	3rd year	3·79 tons	30 34	8 00
Timothy hay	4th year	2·19 "	21 71	9 91
O.P.V. hay	5th year	2·98 "	30 41	10 20

NOTE.—Due to the scarcity of land, we had to replace, for this year only, the wheat crop by a barley crop, in order to find out the cost of production for the latter.

MANURE AND COMMERCIAL FERTILIZERS

Several experiments are under way to ascertain the effect of varying amounts and mixtures of commercial fertilizers and manure on various crops and rotations. These have not been in progress a sufficient number of years to allow of deductions being made, but will be reported upon in future reports.

HORTICULTURE

The progress with our orchard in 1925, was very satisfactory. During the winter, the trees suffered little damage from the snow or cold, and the metallic or paper protectors that are placed for protection against field mice are proving effective, as not a single tree was lost although many field mice were present in the orchard.

The growth made during the year was excellent and the bloom and crop with the exception of the cherries was above the average.

TREE FRUITS

APPLE, VARIETY EXPERIMENT

To determine what varieties of apples will do best in this district, 900 trees including over 300 varieties are planted in rows 25 feet apart and 30 feet apart in the rows. These trees are planted in a fairly well-drained clay soil with a northern slope.

One hundred and thirty-two trees did not bear fruit in 1925, and the balance gave a total crop of 512 barrels, or an average of two bushels per tree.

As this orchard was only planted in 1913 and 1915 it is yet to soon to pass any definite judgment on particular varieties, but several standard and a certain number of less known varieties have done very well for a few years. Some of the recommended standard apple varieties are: Lowland, Duchess, Crimson Beauty, Wealthy, Alexander, Fameuse, McIntosh, and Milwaukee; apple varieties of recent origin: Melba, Lobo, Sandow, and Brisco; unnamed varieties: Swayzie Seedling 0.864, Wealthy Seedling 0.844, Winter St. Lawrence Seedling 0.381, and Langford Beauty Seedling 0.1139. (Project H-33).

APPLE, THINNING EXPERIMENT

During 1925, we started a thinning experiment to determine the effect of this treatment on size, quality and colour. Each tree under observation is thinned to one apple on a spur, while a tree of the same variety, and having approximately the same crop, is left unthinned for check.

The results for this first year follow. (Project H. 413).

THINNED TREES

Variety	Fruits taken out	Quality		Colour	Yield
		No. 1	No. 2		
		Gals.	Gals.		Gals.
Yellow Transparent	402	16	6	Good	22
Fameuse	125	10	6	"	16
Duchess	212	12	2	"	14
Wealthy	139	20	2	"	22
Wolf River	28	26	1½	"	36
Alexander	59	34	12	"	46

UNTHINNED TREES

Variety	Quality		Colour	Yield
	No. 1	No. 2		
	Gals.	Gals.		Gals.
Transparent	8	16	Medium	24
Fameuse	12	8	"	20
Duchess	12	6	"	18
Wealthy	14	16	"	30
Wolf River	16	4	"	20
Alexander	32	16	"	48

CHERRY, VARIETY EXPERIMENT

For the last two years the cherry bloom and crop have been light at this Station.

The variety Cherry of France has been the most productive and is followed by the Fouche Morello 1650 of Ottawa, and English Morello.

The varieties Orel, Herzformige and Brusseler Braun did not withstand our climate.

The variety Cherry of France was ripe on July 24. Fouche Morello on August 1 and English Morello on August 6. (Project H 35).

PEAR, VARIETY EXPERIMENT

To determine the possibility of producing pears in this district, 18 pear trees including three varieties were planted in 1919. Of these, two trees of the Clapp Favourite variety produced flowers in 1925 but bore no fruit. A few pears were harvested on October 15 from the Flemish Beauty. The Bartlett variety has not yet produced any flowers. (Project H. 44).

PLUM, VARIETY EXPERIMENT

Nineteen varieties are under observation. The trees are planted in the same block of land as the apple trees.

The average yield for one tree is listed in a table following, but the varieties giving the best results in this district, taking quality and yield into consideration, are the Damson, Rene Claude de Montmorency, Bradshaw, Lombard, Imperial Green Gage, Washington, and Hudson River. (Project H 48).

PLUM—VARIETY TEST

Variety	Date		Yield
	Planted	Ripe	
			Gals.
Smith Orleans	1914	Sept. 30	19
John A	1914	Oct. 14	17
Imp. Green Gage	1914	Sept. 18	14½
Reine Claude de Montmorency	1913	Sept. 24	14
Saunders	1914	Sept. 26	12
Lombard	1913	Sept. 25	11
Hudson River	1914	Sept. 29	10
Bradshaw	1914	Sept. 13	8½
Damson	1915	Sept. 26	6½
Shipper Pride	1913	Sept. 25	5½

SMALL FRUITS

CURRANT—VARIETY EXPERIMENT

The plants are set in rows six feet apart and three feet in the rows. The yield obtained follows. (Project H. 2).

BLACK CURRANT—VARIETY TEST	Yield per acre lb.
Kerry	3,385
Magnus	3,297
Ontario	2,692
Topsy	2,601
Saunders	2,541
Eagle	2,358
Buddenborg	2,152

Red Currant—Variety Test	Yield per acre lb.
Cumberland	6,055
London	3,962
Knight	3,688
Long Bunch Holland	3,358
Red Grape	3,236
Red Dutch	2,722

White Currants—Variety Test	Yield per acre lb.
White Cherry	5,808
White Dutch	4,930

GOOSEBERRY—VARIETY EXPERIMENT

Like the other small fruits, the plants are set in rows six feet apart and three feet in the rows. The four varieties under test have given the following yield per acre: Rideau, 1,331 pounds; Industry, 1,210 pounds; Smith Improved, 1,148 pounds; Mabel, 968 pounds.

Of these Industry and Smith Improved varieties are the most desirable. (Project H. 6).

RASPBERRY—VARIETY EXPERIMENT

Seventeen varieties are under observation and are planted in rows six feet apart and three feet in the rows.

Raspberry—Variety Experiment

Variety	Yield per acre	
	1925	Two-year average
	lb.	lb.
Newman No. 23	6,710	5,390
Superlative	5,390	5,225
Newman No. 24	4,840	5,170
Sir John	4,070	5,115
Count	4,070	4,840
Brighton	3,960	3,755
Latham	3,410	3,960
Shinn	2,860	4,180
Louboro	2,640	2,640
Herbert	1,760	1,800
Golden Queen (1st year)	1,770	.....
Cuthbert (1st year)	440	.....

Of these varieties, the Newman 23, Latham and Brighton have given the most satisfaction. The Latham is not as high a yielder as the others, but the quality of its fruit as well as its firmness make it a desirable variety. (Project H. 11).

STRAWBERRY—VARIETY EXPERIMENT

Four varieties are under test. They are planted in rows 42 inches apart and 18 inches apart in the rows. (Project H. 21).

STRAWBERRY—VARIETY EXPERIMENT

Variety	Yield		Average yield per acre
	1924	1925	
	lb.	lb.	lb.
Portia	17½	30	9,856
Cassandra	19	27	8,545
Hermia	8	6½	3,008
Lavinia	5½	6	2,386

The varieties Portia and Cassandra have better resisted disease and have given much the most satisfactory yields. (Project H. 21).

FLOWERS

To determine the most desirable varieties of flowers to grow for home-beautification, nearly 200 varieties were sown, either in hotbeds or in the garden and planted in small plots for observation. Some varieties of easy culture and which are giving effective results are listed here according to their date of flowering and time in bloom. (Project H. 261).

ASTER.—The seed is sown in hotbeds. The plants are set out later, when the weather is favourable. Of the varieties tried, the following are very attractive: the family of the "Giant Crego Aster", the "Ostrich Quill", Giant Anemone, pink and salmon-pink. (Project H. 263).

NARCISSUS.—These are produced from bulbs which are planted in October—spaced 4 to 8 inches. They are covered with 4 or 5 inches of soil and with straw when the ground has frozen, if the land is so exposed as to be bare of snow in the winter.

The first varieties to bloom in the spring were: Van Sion, a double flower, on May 20; Sir Watkin, May 21; Grand Soleil d'Or, May 21; Golden Spur, May 22. (Project H. 278).

TULIPS.—The bulbs were planted in rows 12 inches apart, 8 inches between the plants, on October 25. The varieties under observation are listed here. (Project H. 290).

TULIPS—VARIETIES

Variety	Colour	Flowering	
		Date	Number of days in bloom
			days
Imperator Rubrorum	Scarlet	May 27	16
Couronne d'or	Yellow	" 28	14
Murillo	Pink	" 29	15
Vuurbaak	Vermillion	" 30	15
Europe	Salmon-scarlet	June 5	18
Philippe Commines	Velvety-black	" 5	17
Pride of Haarlem	Carmine-pink	" 10	14
Princess Elizabeth	Pink	" 10	15
Fairy Queen	Heliotrope	" 6	17
La Candeur	White	" 6	13
The Fawn	Fawn	" 6	14
Cramoisie Brilliant	Carmine	" 12	16
Lutea Major	Yellow	" 12	13

ANNUAL FLOWERS

Variety	Height	Date		Flowers fallen
		Sown	Bloomed	
	inches			
Aster	20	April 1	Aug. 25	Oct. 10
Balsamine	15	May 13	July 26	Sept. 30
Acroclinium	14	" 13	" 7	" 28
Cosmos	36	" 13	Aug. 8	Oct. 8
Clarkia	14	" 13	July 10	Aug. 15
Celosia Plumosa	11	" 13	Aug. 2	Sept. 20
Dimorphotheca	14	" 13	July 20	Oct. 2
Stocks	13	April 1	" 24	Sept. 30
Lupinus	30	May 13	" 8	Aug. 20
Larkspur	24	" 13	" 1	Sept. 30
Petunia	20	April 1	" 13	Oct. 1
Tagetes	11	May 13	" 24	Oct. 2
Scabiosa	36	" 13	Aug. 2	Oct. 5
Phlox	15	" 13	July 19	Sept. 28
Portulaca	9	" 13	" 24	" 30
Helichrysum	42	" 13	" 20	Oct. 3
Convolvulus	120	" 4	Aug. 5	Sept. 30
Eschscholtzia	9	" 13	July 7	Oct. 2
Thlaspi	12	" 13	" 7	Sept. 5
Malope	28	" 13	" 27	Oct. 2
Linaria	8	" 13	" 7	Sept. 20
Zinnia	18	" 13	" 18	" 25

VEGETABLES

BEET

DATES OF SOWING.—The object of this experiment is to find out the best date and the latest date beets can be successfully sown. First seeding was made on April 29 with the variety Detroit Dark Red and other sowings were made every ten days up to June 6. The seeding made on May 10 gave the best yield. The second highest yield was obtained from the seeding made on June 6. (Project H. 65).

VARIETY EXPERIMENT.—Eight varieties of beet have produced on a 30-foot row the following yields. (Project H. 68).

Variety	Yield
	Lb.
Crosby Egyptian	170
Crimson Globe	150
Detroit, Half Long	144
Early Wonder	139
Detroit Dark Red	134
Eclipse	125
Half Long Blood Red	99
Black Red Ball	89

CARROT

DATES OF SOWING.—Seed of the Chantenay variety was sown at four different dates. The first seeding was made on April 29 and the last one on June 12.

For two years the best results have been obtained from the seeding made the last days of May, which yielded, on a 30-foot row, 25 bunches of usable carrots against an average of 16 bunches obtained from the seeding made between the 10th or 12th of June. The lowest yields were given by the last June seeding. (Project H. 79).

VARIETY EXPERIMENT.—As with the parsnip, the damages caused by the larvae of the carrot fly affected considerably the yields of the seven varieties of carrot. Although a few new varieties are under test, none have given, so far, as much satisfaction as the Chantenay. (Project H. 83).

LEEK

VARIETY EXPERIMENT.—The two varieties under test were Carantan and Broad London Flag. They are of equal worth in precocity and quality. Yields on a row 30 feet long were, for the Broad London Flag variety, 120 leeks, and for the Carantan variety, 116 leeks. (Project H. 112).

ONIONS

AUTUMN VS. SPRING SOWING.—In order to determine whether it is more advantageous to sow onion seed in the fall rather than in the spring, two rows 30 feet long were sown with the Large Red Wethersfield variety. One row was sown on November 13, 1924 and the other on April 29. The results are as follows:—

Variety	Date of maturing	Yield
		lb.
Large Wethersfield, Spring-sown	Oct. 10	45
Large Wethersfield, Autumn-sown	Sept. 4	11

(Project H. 127).

TRANSPLANTING VS. SOWING IN THE OPEN.—The seeds of the two varieties of onions, Wethersfield and Yellow Prize Taker were sown part in hotbeds on April 2 and set in the open on April 29. Following are the results from a 30-foot row:—

Variety	Hotbeds	Open
	lb.	lb.
Wethersfield	48	38
Yellow Prize Taker	70	48

(Project H. 137).

VARIETY EXPERIMENT.—The average yield for two succeeding years of seven varieties of onions under test is given in the table following:—

Variety	Yield per acre
	lb.
Giant Yellow Prize Taker Globe	73,084
Ailsa Craig	72,600
Southport Yellow Globe	66,792
Select Wethersfield	59,048
Southport Red Globe	58,080
Southport White Globe	47,432
Mammoth Silver King	46,420

(Project H. 138).

PARSNIP

DATES OF SOWING.—Five seedings were made at different dates. The first one on April 29 and the last one on June 12. For two following years the lowest yield was obtained with the last seeding, made after June 10. (Project H. 142).

VARIETY EXPERIMENT.—Two varieties were under test. Almost 30 per cent of the parsnips were badly attacked by the carrot-fly, hence the yields were affected. The best crop was obtained with the Hollow Crown variety. The seed was supplied by the Central Experimental Farm, Ottawa, and the yield was 45 pounds for a thirty-foot row. (Project H. 145.)

SALSIFY

VARIETY EXPERIMENT.—The two varieties under test were Long White and Mammoth Sandwich Island. As to quality, both varieties seem equal. The yield for a thirty-foot row is: Long White 35 pounds; Mammoth Sandwich, 25 pounds. (Project H. 197.)

PARSLEY

The triple curled and Moss curled can be considered as two good varieties. The latter seems hardier and is preferable for a main crop. (Project H. 140).

PEPPER

The seeds of four varieties of pepper were sown in hotbeds on March 24. The variety Early Harris was the most precocious. The Pepper was usable on August 6; Long Cayenne on August 20; Red Lepili on August 24. The pepper squash variety did not give usable fruits. (Project H. 157).

TURNIP

Amongst the four varieties under test, three gave usable vegetables on July 4, Extra Early, Purple Milan, Red Top and Early Snowfall. The Golden Ball variety was ready on July 9. The seeding was made on April 29. (Project H. 214.)

KOHL RABI

The two varieties under test, White Vienna and Purple Vienna seem of equal value. They were sown on April 29 and were ready on July 17. The yields from a 30-foot row were: White Vienna, 130 pounds; Purple Vienna, 139 pounds. (Project H. 110).

BRUSSEL SPROUTS

The Brussel Sprouts were harvested on October 13. Two varieties were under test and yielded as follows on a 30-foot row: Paris Marvel, 7 pounds; Improved Dwarf 8¼ pounds. (Project H. 70).

CABBAGE

HOTBED VS. SOWN IN THE OPEN.—Seed of two varieties was sown in the open on May 1, and in hotbeds on April 5. The results follow. (Project H. 74).

Variety	Hotbed		Open	
	Date usable	Yield*	Date usable	Yield*
		lb.		lb.
Copenhagen Market	July 12	128	July 26	110
Danish Ballhead	Aug. 20	91	Aug. 24	72

*The weights given above are for twenty cabbages.

VARIETY EXPERIMENT.—Twenty-six varieties of cabbage were sown in hot-beds on April 8. Among the good varieties under test, the ten following are quite recommendable. (Project H. 77).

CABBAGE—VARIETY EXPERIMENT

Variety	Season	Weight of 4 cabbages	
		lb.	oz.
Golden acre	Early	13	8
Early Jersey Wakefield	"	16	..
Copenhagen Market	"	18	..
Enkhuizen Glory	Middle	45	8
All Season	"	41	..
Kildonan	"	43	..
Early all head	"	42	10
Dala	Late	44	..
Flat Dutch	"	48	..
Danish Ballhead	"	32	..

CAULIFLOWER

Among the seven varieties under test, the Early Snowball has given the first cauliflowers—on August 1; the Six Weeks and the Early Dwarf Erfurt on August 2. These three varieties are about of the same quality. (Project H. 88).

CELERY

Fifteen varieties of celery were under test and the best results were obtained with the following ones: Golden Self Blanching, Fordhook, White Plume, Rose Ribbed and French Success. (Project H. 94).

LETTUCE

Twenty varieties of lettuce were under test. The best among the non-head-forming ones are: Black Seeded Simpson and Grand Rapids. The preferred and earliest head-forming varieties are: Wayahead, Big Boston and Crisp as Ice. For later varieties, Trianon and Paris White Cos. (Project H. 116).

SPINACH

The five varieties of spinach sown on May 1, were cropped on the following dates. (Project H. 199).

Variety	Date of crop	
	First crop	Last crop
King of Denmark	June 7	June 26
Broad Flanders	" 8	" 24
Long Standing	" 9	" 24
Victoria	" 9	" 20
New Zealand	July 11	Aug. 12

SWISS CHARD

One variety only has been under test for two years: the Ludullus. Two other varieties were added this year: Silver Leaf and Fordhook Giant. The seed was sown on April 29 for the three varieties, and the leaves were usable on June 20. The Lucullus variety seems most in favour. (Project H. 203).

CUCUMBER

The highest yield was obtained with the variety Jersey Pickling. Four hills with four plants each gave 110 cucumbers. The Boston Pickling was the most precocious and gave 105 cucumbers. The West Indian Gherkin variety is good for pickling. (Project H. 106).

EGG PLANT

Three of the four varieties under test gave ripe fruits. The fruits of Extra Early Dwarf were usable on August 31: Black Beauty and New York Purple on September 17. The seed was sown in hotbeds on March 24. (Project H. 107)

MUSK MELON

Ten varieties of melons were under test; every one has given a satisfactory crop. Considering the results for the three last years, the variety Emerald Gem seems to be the best. Iron de Quoit and Lake Champlain are also two early varieties. (Project H. 122).

WATER MELON

The variety Cole Early is advisable for its precocity and its good yields. Sown on June 4, the fruits were usable on September 8. The flesh is red, tender and juicy. (Project H. 125).

PUMPKIN

The five varieties under test are mentioned according to their merit: Small Sugar, Large Cheese, Winter Luxury, Connecticut Field and Mammoth King. This last variety has produced the largest pumpkins, and Small Sugar the smallest ones. (Project H. 188).

SQUASH

To the seven varieties under test for five years, four other varieties have been added: New Acorn, Perfect Gem, Kitchenette and Table Queen.

The four varieties are of good quality and are suitable for those who desire medium or small squash. (Project H. 201).

TOMATO

METHODS OF TRAINING.—For this experiment the plants were trimmed at four different times.

(*a*) Twelve plants were trimmed when the first flower bud was forming.
(*b*) Twelve plants were trimmed when the second flower buds was forming.
(*c*) Twelve plants were trimmed when the third bud was forming.
(*d*) Twelve plants were trimmed to a single stalk.

The results were as follows: (Project H. 207.)

TOMATOES—METHOD OF PRUNING

Method of Pruning	Variety Alacrity				Variety Bonny Best			
	1st gathering		Pounds of fruits		1st gathering		Pounds of fruits	
			Maturity	Green			Maturity	Green
	Aug.	lb.	lb.	lb.	Aug.	lb.	lb.	lb.
Stopped at 1st truss of fruit	12	2½	27¼	6	17	1	24	7½
Stopped at 2nd truss of fruit	12	2	33¼	21	17	1¼	32	32
Stopped at 3rd truss of fruit	12	1½	30½	35	17	½	36	34
Not headed back	17	2	32	38	24	1	31½	40

VARIETY EXPERIMENT.—Seed of fifty varieties of tomatoes was sown in hotbeds on March 24. The plants were transplanted to the field on June 1 and trimmed to one stalk only. The yield of five plants of each of the five earliest and most productive varieties are given below. (Project H. 211.)

YIELD FROM EARLIEST VARIETIES

Variety	Gathering		Yield at maturity
	First	Last	
			lb.
Danish Export, Ste. Anne	Aug. 12	Sept. 30	31½
Alacrity x Hipper, Ottawa	" 13	" 30	24½
Early Detroit, Ferry	" 13	" 30	26¼
Scarlet Skin, Rennie	" 13	" 30	26¼
North Dakota, Wedge	" 13	" 30	21½

YIELD FROM HIGHEST-YIELDING VARIETIES

Variety	Gathering		Yield at maturity
	First	Last	
			lb.
Danish Export, Wiboltt	Aug. 18	Sept. 30	32½
Monumental, Bolgiano	" 19	" 30	28½
Gulf State Mkt., Ferry	" 22	" 30	28½
Alacrity	" 17	" 30	28
Bonny Best	" 23	" 30	27¼

BEANS

DISTANCES OF PLANTING.—The object of this experiment is to determine whether it is more profitable to sow the beans at 2 inches, 4 inches or 6 inches, considering earliness and the yield. The results from a 30-foot row are: Project H. 58.)

Distance apart of planting	Round Pod		Stringless	
	1st gathering	Total	1st gathering	Total
		gal.		gal.
2 inches	July 20	7¾	July 22	9
4 inches	" 22	6¾	" 23	7½
6 inches	" 21	6¼	" 21	8¼

VARIETY EXPERIMENT.—Twenty-seven varieties of beans were sown on May 9. Lack of moisture delayed germination considerably and low yields resulted. The best yields were obtained with the following varieties:—

Variety	Date of first gathering	Yield
		gal.
Masterpiece	July 22	11¾
Refugee or 1,000 to 1	Aug. 10	11½
Davis White Wax	July 18	11¼
Currie Rustless	" 28	10¾
Henderson Bountiful	" 22	10½
Round Pod Kidney Wax	" 22	10
Canadian Wonder	" 31	9½
Interlopper	" 22	9
Scarlet Flageolet	" 22	9

PEAS

DISTANCES OF PLANTING.—The yields are given in gallons for a thirty-foot row. (Project H. 148.)

Distance apart	Varieties		
	Laxton	English Wonder	Stratagem
	gal.	gal.	gal.
1 inch	4½	5	4⅛
2 inches	3	5	3½
3 inches	3½	4½	2¼

VARIETY EXPERIMENT.—Twenty-seven varieties were under test. The highest yields were obtained with the varieties Seedling No. 2 and Seedling No. 3, which were procured from the Experimental Station, Invermere, B.C. On a thirty-foot row, the Seedling No. 2, gave 7¾ gallons and Seedling No. 3, 7 gallons of peas in pods. The length of the stalks were respectively 48 inches and 54 inches. (Project H. 153.)

CORN

SUCKERING EXPERIMENT.—Two rows 100 feet long were sown with the variety Early Malcolm and two other rows with the variety Golden Bantam.

In order to find out if maturity would be earlier and the yield higher, the shoots were taken off of one row of each variety, as soon as possible, and the two other rows were left as they grew. (Project H. 101.)

Variety	Suckers removed		Suckers left on	
	Marketable	Crop	Marketable	Crop
Early Malcolm	Aug. 19	54 ears	Aug. 21	49 ears
Golden Bantam	" 27	58 "	" 28	55 "

VARIETY EXPERIMENT.—Nineteen varieties were sown in the open on May 27. The three earliest varieties were usable on August 11. These are: Banting, Alpha and Sixty Days.

The Early Malcolm variety was ready on August 18. The highest yield was obtained with the variety Buttercup. (Project H. 102.)

POTATOES

DATES OF PLANTING TO OBTAIN BEST YIELD.—The yields per acre are given in bushels and pounds. (Project H. 161.)

Date of planting	Irish Cobbler						Green Mountain					
	Large		Small		Total		Large		Small		Total	
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
April 29	158	24	52	48	211	12	233	12	73	24	303	36
May 27	220	..	80	48	300	48	198	..	76	40	274	40
May 15	316	·48	154	56	471	44	330	..	88	..	418	..
May 29	255	12	140	48	396	58	255	12	99	32	354	44

SPROUTED VS. UNSPROUTED POTATOES.—Four rows 66 feet long were planted on May 7 with tubers of the Irish Cobbler variety. Two rows were planted with sprouted tubers and the two others with unsprouted. The crop of two rows was taken up at five different dates, and gave the following results per row 66 feet long. (Project H. 183.)

Name of Variety	Dates of harvesting and yield										Yield per acre	
	July 20		July 28		Aug. 4		Aug. 10		Aug. 24			
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	bush.	lb.
Irish Cobbler, sprouted, marketable	3	2	3	..	8	..	11	2		34	261	12
Irish Cobbler sprouted, unmarketable	..	7	..	9	1	3	1	5		24	119	10
Irish Cobbler unsprouted, marketable	3	6	2	12	7	..	7	6		36	248	36
Irish Cobbler unsprouted, unmarketable	..	8	1	..	..	12	1	..		12	67	6

VARIETY EXPERIMENT.—The tubers of each variety of potatoes under test were planted 12 inches apart on a row 66 feet long. The yields obtained were as follows: (Project H. 186.)

Variety	Yield per acre	
	bush.	lb.
Gold Coin	501	36
Irish Cobbler	488	24
Green Mountain	470	48
Early Rose	391	36
Rochester Rose	184	48

CEREALS

The experimental work with cereals was continued this year on the same basis as the previous years and under the immediate supervision of E. L. Raynauld, assistant.

The land is divided in plots of $\frac{1}{120}$ of an acre. The total number of cereal plots in 1925 was 168: ten plots of wheat, nine of oats, eleven of barley, four of peas, four of flax and four of beans, each one being replicated four times. There were also 272 small plots called rod-row plots, three rows each one rod in length sown with wheat, oat and barley. There were 23 varieties of wheat, 19 of barley and 29 of oat in these plots. The object of these rod-row plots is to make it possible to compare more varieties on less land. The varieties which do well on those small plots are to be tested later in larger plots.

The first seeding was made on May 9. The land was in such condition that it worked up well and contained a good percentage of moisture. From May 9, the date of first seeding, the weather was perhaps a little cold, but being also dry, no damage was recorded from the few days of low temperature. The month of June was also very good for the growth of the plants; rain was not abundant, but it was well distributed over the whole month and July was fair without any bad storms to do serious damage to the crop. August was rather dry and this allowed the harvesting of the grain crop in very good condition.

As it will be noted in the tables the weather was such in 1925 that an almost ideal grain crop was harvested. There was enough moisture, evenly distributed, for a high yield; there were no bad storms to cause the grain to lodge; and the crop was the freest from disease of any we have ever harvested.

SPRING WHEAT—VARIETY TEST

Nine varieties were sown on May 9 on quadruplicate plots of 1/120 of an acre each. Three varieties were sown five days later. The results are tabulated.

SPRING WHEAT

Name of Variety	Where seed was obtained	Date of sowing	Number of days maturing	Aver. length of straw including head	Strength of straw on scale of 10 points	Condition of stand (thin, normal, thick, patchy)	Yield of grain per acre
				inches	%		lb.
Huron, Ottawa 3	Ste. Anne	May 9	107	41·6	9·8	Normal	2,310
Huron Cap Rouge 7	Cap Rouge	" 9	107	42·2	9·5	"	2,112
Pringle's Champlain M.C. 307	Macdonald Col.	9	111	42·2	10·0	"	2,286
Red Fife, Man	Neepawa	9	111	44·0	10·0	"	2,178
Early R.F., Ott. 16	Ottawa	" 9	109	41·8	9·5	"	1,704
Marquis, Ott. 15	"	" 9	108	39·4	10·0	"	2,232
Preston, Ott. 4	Locally	" 9	108	40·6	9·0	"	1,848
Master Ott. 520	Ottawa	14	101	35·0	10·0	"	2,040
Garnet Ott. 652	"	" 14	101	34·6	9·5	"	1,998
Reward Ott. 928	"	" 14	103	34·6	9·5	"	2,100

The Huron Ottawa 3 heads the list. This variety seems to be the best yielder, the most resistant to disease and to possess particularly strong straw. Master, Garnet, Reward and Pringle's Champlain being sown for the first time here, we cannot draw any decisive conclusion at to their relative worth.

OATS—TEST OF VARIETIES

Eight varieties were tested. They were sown on May 11 in the same manner as the wheat.

It will be noted that there are three strains of Banner. These are being compared with a view to determining whether or not there is any essential difference between them.

OATS—VARIETY TEST

Name of Varieties	Where obtained	Date of sowing	Number of days maturing	Aver. length of straw including head	Strength of straw on scale of 10 points	Condition of stand (thin, normal, thick)	Yield of grain per acre
				inches	%		lb.
Banner, 44 MC	Macdonald Col.	May 11	106	42·6	9·5	Normal	2,808·4
Banner, Ott. 49	Ste. Anne Stn.	" 11	106	42·4	9·5	"	2,495·6
Banner, C.R. 31	Cap Rouge Stn.	" 11	106	40·4	9·5	"	2,594·2
Victory (Sv.)	C.E.F.	" 11	105	40·0	9·0	"	2,873·0
O.A.C. 144	O.A.C.	" 11	104	44·6	9·5	"	2,539·8
Banner 44 M.C.	Macdonald Col.	" 11	106	42·0	9·5	"	2,883·2
Longfellow, Ott. 478	Ottawa	" 11	107	41·0	8·5	"	2,543·2
Alaska (G.)	Macdonald Col.	" 11	92	37·6	10·0	"	1,944·8
Gold Rain (Sv.)	C.E.F.	" 11	102	42·0	10·0	"	2,978·4

BARLEY—TEST OF VARIETIES

Eleven varieties were under test. The test was divided into two sections: one group of six-rowed varieties and a second group of two-rowed varieties. All varieties were sown May 12.

BARLEY—VARIETY TEST

Name of Varieties	Number of days maturing	Aver. length of straw including head	Strength of straw on scale of 10 points	Condition of stand (thin, normal, thick)	Yield of grain per acre
		inches	%		lb.
O.A.C. 21	92	38·4	9·5	Normal	2,592
Mensury 3207 M.C	92	39·4	9·0	"	2,126·4
Chinese, Ott. 60	92	37·2	9·5	"	2,280
Star (Sv.)	93	29·8	9·5	"	2,424
Bearer, Ott. 475	98	39·4	9·5	"	2,592
Manchurian, C.R. 4	93	40·0	9·5	"	1,944
O.A.C. 21	92	38·6	9·5	"	2,496
Duckbill, 207 M.C	100	42·2	9·0	"	2,332·8
Duckbill, Ott. 57	98	35·6	9·0	"	2,392
Hannchen (Sv.)	98	35·5	8·5	"	2,184
Charlottetown 80	98	34·0	9·0	"	2,616

Charlottetown 80 gave the highest yield in 1925. O.A.C. 21 and Bearer following closely. These two varieties are very similar except that Bearer ripens a few days later. The two strains of Duckbill are very similar.

PEAS—TEST OF VARIETIES

(Sown May 13)

Name of Varieties	Number of days maturing	Average length of plant	Actual Yield of seed per acre	Length of pod	Stand
		inches	lb.	inches	%
Chancellor	110	39	2,892	2·0	10
Mackay Ott. 25	117	47·6	3,780	2·3	10
O.A.C. 181	110	37·2	3,216	2·5	10
Prussian Blue	117	48	3,420	2·3	10

NOTE.—All the four varieties are good.

BEANS—TEST OF VARIETIES

(Sown May 30)

Name of Variety	Number of days maturing	Length of straw	Length of pod	Stand	Actual yield of seed per acre
		inches	inches	%	lb.
Navy, Ott. 711	108	12	4	9·5	2,172
Robust	115	12	3·8	9·5	2,262
Yellow Eye	116	12	4·6	9·0	1,704
Large white No. 3	118	11	4·6	9·5	2,118

NOTE.—For this test each plot is composed of four rows 41 feet long, 28 inches apart, with the plants thinned to 4 inches in the row. Yield is taken from the two centre rows only.

FLAX VARIETIES—FOR SEED*

Name of Variety	Number of days maturing	Average length of plants	Strength of straw on a scale of 10 pts.	Actual yield of seed per acre	Stand
		inches	%	lb.	%
Blanc	102	20·2	10	1,010	9
Premost	107	25·4	10	1,020	9
Kostroma	102	27·8	9·5	828	9
Longstem Ott. 52	109	28·0	9·5	996	9

*Plots $\frac{1}{110}$ acre in size. Seeding on May 11.

FORAGE CROPS

The experimental work with clover, grasses and other forage crops started last year, was continued this year under the supervision of E. L. Raynauld.

With the exception of a few plots of clover and some of the annual hay crops, the results have been satisfactory.

Variety tests with corn, sunflowers, mangels, sugar beet, swede turnips and carrots were also carried out. All these crops, excepting carrots, which did not germinate well, have given good results.

The temperature during the growing season was more favourable than the previous year. Spring and early summer were fairly warm, but the latter part of the summer and the greater part of the autumn were rainy and cold.

CORN—TEST OF VARIETIES

Twenty-eight varieties were tested in rows 60 feet long, 36 inches apart, thinned to 10 inches and replicated four times. They were sown on June 5 and harvested on September 27. Five varieties were harvested a few days later for seed only. With the exception of these five varieties, the yield per acre is given in the form of dry matter and green weight. (Project A.G. 1).

CORN VARIETIES

Varieties	Source	Height	Yield per acre	Dry matter per acre	Maturity of harvest
		in.	bush.	tons	
Gehu	Dakota Imp. Seed Co.	.....	21·6	.....	Glazed.
Quebec 28	Macdonald College	.....	25·9	.....	Ripe.
North West. Dent	Brandon	.....	32·4	.....	Ripe.
Twitchell's Pride	Fredericton	.....	36·7	.....	Ripe.
Amber Flint	Wimple	.....	25·9	.....	Ripe—glazed.
			Green yield per acre tons		
North West. Dent	Macdonald College	78	15·60	2·82	Pasty.
Compton Early	Duke	88	21·05	3·23	Milk.
Longfellow	R. J. Johnson	82	19·02	3·12	Late milk.
Minnesota 13	Dakota Imp. Seed Co.	83	20·74	3·55	Late milk.
Bailey	Bondy	88	18·14	3·30	Milk.
Wisconsin No. 7	Duke	90	19·20	3·29	Early milk.
Red Cob	Steele-Briggs	94	23·53	3·77	Stalks only.
90 days W. Dent	Dakota Imp. Seed Co.	78	18·93	3·52	Milk.
North West. R. D. (N. Dak. grown).	McKenzie	80	16·15	2·86	Pasty.
Yellow Dent	Wimple	82	18·51	3·36	Ears formed.
North Western Dent (Neb. grown)	McKenzie	82	20·38	3·73	Ears formed.
Longfellow	Duke	80	19·20	3·17	Milk.
Longfellow	Dakota Imp. Seed Co.	82	19·41	4·60	Late milk.
Golden Glow	Duke	88	19·32	3·48	Milk.
Hybrid	Wimple	85	22·32	3·60	Late milk.
Hybrid	Harrow	83	20·72	3·38	Pasty.
Leaming	Duke	85	17·36	2·95	Milk.
Leaming	Parks	90	21·44	3·23	Milk.
Bailey	Duke	85	18·62	3·19	Milk.
Wisconsin No. 7	Parks	90	20·25	3·62	Ears forming.
North Dakota	Steele-Briggs	86	21·20	3·17	Ears forming.
White C. Yellow Dent	Steele-Briggs	85	16·45	3·03	Early milk.
Burr Leaming	Carter	86	21·29	1·25	Ears forming.

SUNFLOWERS—TEST OF VARIETIES

Ten varieties were sown on June 5 and harvested when the plots were about in the right stage of maturity to have best quality silage. A column gives the type of growth, for each variety. An analysis of a sample of each variety for dry matter determination has also been made and the yield is given in absolute dry matter.

SUNFLOWER VARIETIES

Varieties	Source	Date harvested	Height at harvest	Maturity at harvest	Type of growth	Average yield	Dry matter per acre
			in.			tons	tons
Mammoth Russian	Ewing	Sept. 18	100	60% in bloom.	¾ single, ¼ branching	31·31	4·92
Mammoth Russian	K. McDonald	" 18	98	65% "	¾ single, ¼ branching	24·18	3·82
Manteca	C.P.R.	Aug. 29	80	65% "	Branching	21·44	3·24
Mammoth Russian	C.P.R.	" 21	76	50% "	Single	20·05	2·35
Black	C.P.R.	" 21	70	50% "	Single	19·51	2·47
Manchuruan	C.P.R.	" 21	74	50% "	¾ Single, ¼ branching	18·66	2·49
Manchurian	McKenzie	" 21	72·5	55% "	All branching	18·05	2·40
Mammoth Russian	Ste. Anne	" 21	75	5% "	Single	17·72	2·18
Mixed Mennonite	C.P.R.	" 21	70	40% "	¾ single, ¼ branching	17·33	2·17
Mennonite	Rosthern	" 21	55	50% "	¾ single, ¼ branching	15·66	1·91

It will be noticed from the table that there is a notable difference between Mammoth Russian from Ewing, K. McDonald and C.P.R.

Only one variety from C.P.R. seemed to be relatively pure. One Mammoth Russian strain from Ste. Anne had a low yield but the variety seemed to be pure. This is a selection from a commercial variety of Mammoth Russian. (Project AG. 76).

MANGELS—TEST OF VARIETIES

Thirty-eight varieties were tested in rows 30 inches apart, and thinned to 7 inches in the rows, the plots being replicated four times. They were sown on May 16 and harvested on October 15 and 16.

MANGELS, TEST OF VARIETIES

Tests	Source	Yield
		tons
Stryno Barres	Hartmann	27·18
Ferritslev Barres	"	24·66
Rosted Barres	"	29·35
Sludstrup Barres	"	23·55
Taaraje Barres	"	25·28
White Red Top Half Sugar	"	24·11
White Green Top Half Sugar	"	21·63
Giant White Sugar	Moore	26·64
Giant Half Sugar	K. McDonald	28·68
Géant Jaune Vauriac	Bois	25·59
Half Sugar Rose Danish	Ste. Anne	26·85
Yellow Intermediate	Ottawa	28·21
Svalof Alpha	G. Swedish	20·70
Svalof Rubra	"	22·93
Yellow Leviathan	Bruce	31·75
Half Sugar White	D. & F.	25·72
Danish Sludstrup	"	23·49
Danish Improved	"	13·85
Giant Sugar	Rennie	25·00

MANGELS, TEST OF VARIETIES—*Concluded*

Tests	Source	Yield
		tons
Eckendorfer Yellow	Hartmann	28·56
Eckendorfer Red	"	25·43
Golden Tankard	Sutton	28·65
Improved Tankard Cream	Rennie	29·02
Ideal	"	29·37
Golden Tankard	"	24·99
Golden Tankard	D. & F.	25·33
Eckendorfer Yellow	G. Swedish	26·16
Eckendorfer Red	"	24·22
Mammoth Long Red	Sutton	27·80
Perfection Mammoth Long Red	Rennie	25·52
Elevethan Mammoth	Hartmann	23·33
Improved Mammoth Long	D. & F.	23·27
Long Yellow	"	22·45
Giant Yellow Globe	Rennie	25·16
Prize Winner Yellow Globe	Sutton	27·75
Yellow Globe	D. & F.	30·84
Barres Oval	G. Swedish	25·15
Barres Half Long	"	23·90

SUGAR BEETS—TEST OF VARIETIES

Seven varieties were tested in the same way as mangels. The results follow: (Project 66.)

Varieties	Source	Yield per acre	
		tons	lb
Home Grown	Dominion Sugar Co.	13	1,878
Dippe	" "	12	103
Henning & Harving	" "	13	1,079
Horning	" "	12	1,990
Schreiber & Sons	" "	12	1,410
Dr. Bergman	" "	12	756
Vilmorin's Improved	Vilmorin	13	1,442

At the harvest 10 roots of each variety were sent to Ottawa to have the analysis made for sugar content. The results are given in the following table:

CHEMICAL ANALYSIS

Varieties	Laboratory No.	Weight per root		Sugar in juice	Coefficient of purity
		lb.	oz.		
Home Grown	82412	1	10	19·73	80·79
Henning & Harving	13	1	9	19·37	80·07
Horning	14	1	11	19·72	83·13
Schreiber & Sons	15	1	9	10·05	81·55
Dr. Bergman	16	1	8	19·88	84·37
Vilmorin's Improved	17	1	9	19·86	84·61
Dippe	18	1	4	21·05	85·23

SWEDE TURNIPS—TEST OF VARIETIES

Thirty-two varieties sown May 16 were harvested on October 23-24. Like the mangels, they were sown in rows 60 feet long, replicated four times, 30 inches between rows and thinned to 8 inches between plants.

As it will be seen in the following table, all varieties have given a good yield. The average yield being 25.45 tons per acre, (Project AG51.)

SWEDE TURNIPS—VARIETIES

Varieties	Source	Yield per acre
		tons
Canadian Gem	Steele-Briggs	24·84
Perfection	D. & F.	24·74
Ne Plus Ultra	"	24·57
Elephant	"	22·46
Sutton Champion Purple Top	"	22·70
Kangaroo	"	25·50
Kangaroo Bronze Green Top	Rennie	25·53
Improved Jumbo	"	24·61
Canadian Gem	"	24·22
Magnum Bonum	"	28·65
Prize Purple Top	"	25·61
Invicta	"	32·88
Best of All	"	23·52
Bangholm Purple Top	"	25·86
Bangholm	Nappan	20·79
Bangholm	G. Swedish	28·82
Olsgaard Bangholm	Hartmann	24·02
Bangholm	D. & F.	29·30
Shepherd's	Trifolium	26·69
Shepherd's Golden Globe	Hartmann	24·48
Yellow (Improved) Swede	G. Swedish	28·04
Ditmars	McNutt	26·66
Skirvings	K. McDonald	21·37
Good Luck	Ste. Anne Station	30·53
Bangholm	Trifolium	26·26
Bangholm	Charlottetown	22·14
Hall's Westbury	Burrows	25·64
Elephant	Sutton	19·35
Good Luck	Steele-Briggs	20·53
Improved Lord Derby	Sutton	35·17
Magnun Bonum	"	24·59
Bangholm	Macdonald College	24·24

CARROTS—TEST OF VARIETIES

Eleven varieties were sown May 16 in rows 60 feet long, 30 inches apart and thinned to 4 inches between plants. The germination was very poor. Harvesting was on October 26.

Name	Source	Yield
		tons
Large White Vosges	D. & F.	8·44
Improved Intermediate White	"	11·22
Mammoth Short White	Rennie	10·86
White Belgian	D. & F.	9·38
White Belgian 9008	Trifolium	15·38
Champion 1535	"	7·21
Large White Belgian	Rennie	9·34
White Belgian	Hartmann	11·48
Half Long White	G. Swedish	7·51
Champion	Hartmann	8·66
Danish Champion	C.E.F. Ottawa	7·91

LEGUMES AND GRASSES

The experiments conducted under this section are on heavy clay drained soil where a crop of roots was harvested the preceding year.

The seed for the clovers and grasses was broadcast in the spring of 1924 on duplicate plots of 1/100 of an acre. Banner oats at the rate of one bushel per acre were also sown broadcast as a nurse-crop.

MILLETS—ANNUAL HAY CROP

Four varieties of millets were tested in duplicate on 1/100-acre plots on land which had grown the previous year a mixture of oats, peas and vetch as a green crop. All varieties were sown broadcast June 9 and harvested when they were well headed. The yields are given in green weight, air-dry weight, and absolute dry matter. (Project AG 251.)

MILLETS FOR ANNUAL HAY

Hay	Rate per acre	Yield per acre		Absolute dry matter per acre
		Green	Air-dry	
	lb.			lb.
Golden millet	30	11·6	5·6	No sample.
Japanese millet	30	9·9	4·9	2,760
Hog millet	30	6·6	3·2	1,974·40
Sudan grass	30	7·5	3·3	1,826·54

MIXTURE FOR ANNUAL HAY

Five different mixtures and four sown singly were tested in duplicate plots of 1/100 of an acre on the same land as used for millets.

All the plots were sown broadcast on June 9 and harvested in a very good condition, when the grain was about in the late milk stage. This is to determine the best mixture for hay production.

ANNUAL HAY MIXTURES

Hay	Rate per acre	Yield per acre		Absolute dry matter per acre
		Green	Air-dry	
	bush.	tons	tons	lb.
Longfellow oats	2½	6·05	2·8	No sample.
Banner oats	2½	7·1	4·3	2,420
Barley	2	5·2	2·1	1,160·46
Rye	1¾	2·6	0·85	697·17
Banner oats	1½			
Peas	1	8·5	3·7	2,000
Lentils	½			
Longfellow oats	1½			
Peas	1	8·4	3·4	1,606·84
Vetches	½			
Banner oats	1¼	7·4	3·4	1,640·1
Peas	¼			
Banner oats	½	7·5	3·3	1,746·36
Barley	½			
Banner oats	¾			
Barley	½	7·6	3·2	1,824·64
Peas	¼			

Definite conclusions should not be drawn from one year's results, but the yield would indicate that the variety, as well as the mixture, should be selected with care if satisfactory yields are to be expected. (Project A.G. 249.)

TIMOTHY—TEST OF VARIETIES

Three strains of timothy were sown in duplicate plots one one-hundredth of an acre. Plots were all planted in 1924, at the same rate and under similar conditions. (Project AG. 201.)

TIMOTHY—VARIETIES AND STRAINS

Timothy	Rate per acre	Yield per acre				Average		Dry matter per acre	Remarks
		First plot		Second plot					
		Green	Dry	Green	Dry	Green	Dry		
	lb.	tons	tons	tons	tons	tons	tons	lb.	
Boon Timothy	12	3·05	1·2	3·00	1·3	3·02	1·25	834·75	Poor stand.
Com. Timothy	12	3·5	1·5	3·00	1·3	3·25	1·4	992·32	Good stand.
Timothy 9327	12	3·9	1·5	3·8	1·8	3·85	1·65	1,111·77	"

TEST OF GRASSES

Seven different grasses were tested: Orchard grass, meadow fescue, Kentucky blue, red top, awnless brome, tall oat and western rye. (Project AG. 248.)

GRASSES

Grasses	Rate per acre	Yield per acre				Average		Dry matter per acre	Remarks
		First plot		Second plot					
		Green	Dry	Green	Dry	Green	Dry		
	lb.	tons	tons	tons	tons	tons	tons	lb.	
Orchard grass	30	.....	.....	3·4	1·05	3·4	1·05	594·72	Poor stand.
Meadow fescue	30	3·4	1·7	3·7	1·4	3·55	1·55	1,053·38	Good stand.
Tall oat grass	25	3·9	1·4	3·5	1·3	3·7	1·35	891·0	Very good stand
Kentucky blue	.....	.....	.....	.....	.....	.....	.....	.....	Only a few heads
Red top	.....	.....	.....	.....	.....	.....	.....	.....	Nil.
Awnless brome	.....	.....	.....	.....	.....	.....	.....	.....	Only a fewheads
Western rye	.....	.....	.....	.....	.....	.....	.....	.....	" "

TEST OF ALFALFA

Four varieties were tested: Grimm, Variegated, Turkestan and *Medicago falcata*. They were sown in the spring of 1924 on plots of one one-hundredth of an acre, and harvested for the first time this year. The germination was good enough but the growth was so short that no yield was recorded. (Project AG. 126.)

TEST OF RED CLOVERS

Eight lots of clover seed from different places of production were tested in plots of one one-hundredth of an acre in duplicate. They were sown in the spring of 1924 and harvested for the first time this year. The yields are good. The results follow: (Project AG. 146.)

RED CLOVERS

Varieties	Rate per acre	Yield per acre				Average		Dry matter per acre	Cuts	Remarks
		First plot		Second plot						
		Green	Dry	Green	Dry	Green	Dry			
	lb.	tons	tons	tons	tons	tons	tons	lb.		
Red Clover Arctic	12	13·5	2·6	15·0	2·1	14·25	2·35	1,128·94	2	Very good stand.
Red Clover Kenora	12	13·2	3·4	15·1	4·05	14·15	4·72	1,765·51	2	"
Red Clover Besner (St. Clet)	....	13·05	3·0	13·1	3·3	13·07	2·15	936·11	2	Medium stand
Red Clover Ste. Rosalie	12	14·1	3·5	14·4	3·4	14·25	3·45	1,664·28	2	Very good stand.
Altaswede	12	13·05	3·1	12·7	3·4	12·87	3·25	1,205·75	1	"
Late Swedish	12	13·5	3·3	11·9	3·1	12·7	3·2	1,386·88	1	"
Early Swedish	12	12·3	2·9	12·00	3·1	12·15	3·0	1,388·40	1	"
Medium-late Swedish	12	18·5	3·7	12·7	3·4	15·6	3·55	1,400·12	2	"

TEST OF ALSIKE CLOVER

Only one variety of commercial seed of alsike was tested, in duplicate plots of one one-hundredth of an acre. (Project AG. 178.)

ALSIKE CLOVER

Variety	Rate per acre	Yield per acre				Average		Dry matter per acre	Remarks
		First plot		Second plot					
		Green	Dry	Green	Dry	Green	Dry		
	lb.	tons	tons	tons	tons	tons	tons	lb.	
Alsike.....	4	.....	.....	6·1	1·5	6·1	1·5	673·80	Medium stand.

TEST OF WHITE DUTCH CLOVERS

Four varieties of white Dutch clovers were tested in duplicate plots of one one-hundredth of an acre. (Project AG. 231.)

WHITE DUTCH CLOVERS

Varieties	Rate per acre	Length of plants	Per cent stand on scale of 10 points	Remarks
	lb.	in.		
Commercial white Dutch clover.....	4	8	8	Good.
White Dutch clover, Stryno.....	4	8	8	"
Wild white Dutch clover, Scotish.....	4	6	8	"
White Dutch clover, Ladino.....	4	8	7	Medium.

HAY AND PASTURE MIXTURES

Twenty-eight different mixtures were sown in duplicate plots of one one-hundredth of an acre.

All the mixtures containing red clover were good. Timothy alone with clover is very good for one cut of hay, but a very poor aftermath producer. Meadow fescue and orchard grass made excellent growth and for this reason, a little quantity of seed may be added to the regular mixture for short rotations used for hay or pasture, Red top and Kentucky blue are not very good for the production of hay, but have value when added for pasture.

The following table gives the mixture sown, the green- and dry-matter yield, and the yield of absolute-dry-matter per acre. The hay produced was of a good quality. (Project AG. 258.)

MIXTURES OF GRASSES AND CLOVERS

Mixtures	—	Yield per acre				Average		Dry matter per acre	Cuts	Remarks
		1st plot		2nd plot						
		Green	Dry	Green	Dry	Green	Dry			
	lb.	tons	tons	tons	tons	tons	tons	lb.		
Timothy	6									
Orchard grass	2									
Meadow fescue	2	11·6	3·5	10·05	3·05	10·82	3·27	1,825·97	2	Very good stand.
Red clover	8									
Alsike	2									
White Dutch	1									
Timothy	6									
Orchard grass	2									
Meadow fescue	2									No Kentucky.
Red clover	8	12·7	3·7	10·3	3·2	11·5	3·45	1,650·48	2	No Red Top.
Alsike	2									Good stand.
Kentucky blue	2									
White Dutch	1									
Red top	2									
Timothy	8									
White sweet clover	10	3·5	1·3	3·4	1·4	3·45	1·35	946·35	1	Poor stand; only a few heads of sweet clover.
White Dutch	1									
Timothy	6									
Orchard grass	4									
White sweet clover	10	3·1	1·1	3·6	1·5	3·35	1·3	870·74	1	Poor stand.
White Dutch	1									
Timothy	6									
Meadow fescue	4									
White sweet clover	10	4·0	1·7	3·2	1·1	3·6	1·4	918·68	1	Medium stand.
White Dutch	1									
Timothy	6									
Meadow fescue	2									
Orchard grass	2	3·2	1·2	3·2	1·4	3·2	1·3	824·98	1	Medium stand.
White sweet clover	2									
White Dutch	1									
Timothy	8									
Yellow sweet clover	10	3·2	1·3	3·6	1·1	2·26	1·2	726·48	1	Poor stand.
White Dutch	1									
Timothy	6									
Orchard grass	4									
Yellow sweet clover	10	3·3	1·3	3·2	1·05	3·25	1·4	757·40	1	Medium stand.
White Dutch	1									
Timothy	6									
Meadow fescue	4									
Yellow sweet clover	10	4·4	1·8	3·6	1·3	4·00	1·55	850·64	1	Good stand.
White Dutch	1									
Timothy	6									
Meadow fescue	2									
Orchard grass	2	4·2	1·8	4·0	1·3	4·1	1·55	1,014·01	1	Good stand.
Yellow sweet clover	10									
White Dutch	1									
Timothy	6									
Meadow fescue	4									
Red clover	8	10·4	3·0	11·9	3·7	11·15	3·55	1,864·61	2	Very good stand.
Alsike	2									
White Dutch	1									

MIXTURES OF GRASSES AND CLOVER—*Continued*

Mixtures	—	Yield per acre				Average		Dry matter per acre	Cuts	Remarks
		1st plot		2nd plot						
		Green	Dry	Green	Dry	Green	Dry			
	lb.	tons	tons	tons	tons	tons	tons	lb.		
Timothy	6									
Meadow fescue	4									Very good stand.
Red clover	8									
Alsike	2	9·3	2·9	10·6	3·4	9·95	3·15	1,789·83	2	No Kentucky.
White Dutch	1									No Red Top.
Kentucky blue	2									
Red top	2									
Timothy	6									
Orchard grass	4	8·5	2·6	10·9	3·4	9·7	3·0	1,611·0	2	Good stand.
Red clover	10									
White Dutch	1									
Timothy	6									
Orchard grass	4									
Red clover	10	10·0	3·3	11·9	3·8	10·95	3·55	1,926·94	2	Good stand.
Kentucky blue	2									No Kentucky.
Red top	2									No red top.
White Dutch	1									
Timothy	6									
Orchard grass	4									
Red clover	8	9·8	2·9	11·6	3·6	10·7	3·25	1,580·15	2	Very good stand.
Alsike	2									
White Dutch	1									
Timothy	6									
Orchard grass	4									Very good stand.
Red clover	8									
Alsike	2	8·8	2·7	11·1	3·7	9·95	3·2	1,649·92	2	No Kentucky.
Kentucky blue	2									
Red top	2									No red top.
White Dutch	1									
Timothy	6									
Orchard grass	2									
Meadow fescue	2	9·5	3·3	12·6	3·9	11·05	3·6	1,841·76	2	Very good stand.
Red clover	10									
White Dutch	1									
Timothy	6									
Orchard grass	2									Very good stand.
Meadow fescue	2									
Red clover	10	10·7	3·5	12·5	3·6	11·6	3·55	1,802·69	2	No Kentucky.
Kentucky blue	2									
Red top	2									No red top.
White Dutch	1									
Alfalfa	6									
Timothy	6									
Red clover	10	11·2	3·4	13·5	4·1	12·3	3·75	1,984·5	2	Very good stand.
Alsike	2									
White Dutch	1									
Alfalfa	3									
Timothy	6	5·4	1·7	12·1	3·6	8·75	2·65	1,288·43	2	Very good stand for the second plot.
Red clover	5									
White Dutch	1									
Timothy	8									
Red clover	10	7·0	2·2	15·0	4·2	11·0	3·2	1,524·48	2	Very good stand for the second plot.
White Dutch	1									
Timothy	8									
Red clover	10									
Kentucky blue	2	8·1	2·6	13·6	4·0	10·85	3·3	1,650·0	2	Very good stand for the second plot.
Red top	2									
White Dutch	1									

MIXTURES OF GRASSES AND CLOVERS—*Concluded*

Mixtures	—	Yield per acre				Average		Dry matter per acre	Cuts	Remarks
		1st plot		2nd plot						
		Green	Dry	Green	Dry	Green	Dry			
	lb.	tons	tons	tons	tons	tons	tons	lb.		
Timothy	8	8·6	2·6	14·5	4·0	11·55	3·3	1,560·90	2	Very good stand for the second plot.
Red clover	8									
Alsike	2									
White Dutch	2									
Timothy	8	10·2	3·0	12·9	3·6	11·7	3·3	1,752·96	2	Good stand.
Red clover	8									
Alsike	2									
Kentucky blue	2									
Red top	2									
White Dutch	1									
Timothy	8	7·2	2·1	5·9	2·1	6·55	2·1	1,008·84	2	Medium stand.
Alsike	4									
White Dutch	1									
Timothy	8	6·2	2·0	6·5	2·3	6·35	2·15	1,289·14	2	No Kentucky; no red top, good stand.
Alsike	4									
Kentucky blue	2									
Red top	2									
White Dutch	1									
Timothy	6	11·1	3·4	11·1	4·05	11·1	3·7	1,777·48	2	Very good stand.
Meadow fescue	4									
Red clover	10									
White Dutch	1									
Timothy	6	11·3	3·4	11·2	3·5	11·25	3·45	1,859·55	2	Very good stand.
Meadow fescue	4									
Red clover	10									
Kentucky blue	2									
Red top	2									
White Dutch	1									

TESTS WITH FERTILIZERS

In 1924 an experiment with fertilizers lime and ground limestone was started to ascertain what response may be expected from applications of various elements of plant food to roots (swede turnips) and succeeding crops.

The field area was divided into four sections: "A", "B", "C" and "D", and the following rotation used:—

First year, peas and oats.
Second year, turnips.
Third year, barley.
Fourth year, clover hay.

Section "A" was the only section laid out in 1924, (sown in 1923 with peas and oats) to receive fertilizer treatment for turnips. Applications of elements, singly and in combination, were made to duplicate plots of one-fortieth of an acre. Tables following show the amounts applied and the yields from the plots.

AMOUNT OF FERTILIZERS PER ACRE, APPLIED TO THE TURNIP CROP—SECTION A

Plot No.	Fertilizer	Amount per acre
1	Ground limestone	4,000 lb.
2	Burnt lime	2,240 "
3	Basic slag (16% P_2O_5)	750 "
4	Check	
5	Superphosphate	750 "
6	Barnyard manure	20 tons
7	Manure	20 "
	Ground limestone	4,000 lb.
8	Manure	10 tons
	Nitrate of soda	100 lb.
	Sulphate of ammonia	75 "
	Superphosphate	400 "
	Muriate of potash	100 "
9	Nitrate of soda	100 "
	Sulphate of ammonia	75 "
	Superphosphate	400 "
	Muriate of potash	100 "
10	Nitrate of soda	100 "
	Sulphate of ammonia	75 "
	Superphosphate	400 "
11	Check	
12	Nitrate of soda	100 "
	Sulphate of ammonia	75 "
	Muriate of potash	100 "
13	Superphosphate	400 "
	Muriate of potash	100 "

YIELDS FROM PLOTS IN SECTION A, 1924—FERTILIZER TEST

Number of the plot	Yield of turnips per plot	Yield of turnips per acre	Average yield duplicate	Remarks
	lb.	tons	tons	
1	775	15·5	19·0	
2	875	17·5	18·75	Plots Nos. 1, 2, 3, 11a, 12a and 13a have been flooded in the spring and once during the summer. According to our observations, the factor mentioned above has influenced the yields of those particular plots.
3	875	17·5	18·75	
4	1,000	20·0	20·0	
5	1,250	25·0	26·0	
6	1,250	25·0	26·25	
7	1,300	26·0	26·0	
8	1,225	24·5	23·75	
9	1,125	22·5	22·50	
10	1,025	20·5	20·25	
11	875	17·5	16·75	
12	1,200	24·0	19·50	
13	1,325	26·5	19·75	
1a	1,125	22·5		
2a	1,000	20·0		
3a	1,000	20·0		
4a	1,000	20·0		
5a	1,350	27·0		
6a	1,375	27·5		
7a	1,300	26·0		
8a	1,150	23·0		
9a	1,125	22·5		
10a	1,000	20·0		
11a	750	16·0		
12a	750	15·0		
13a	650	13·0		

In 1925, Section "B" was treated as was Section "A" in 1924, and sown with turnips while Section "A" was sown with barley.

YIELDS FROM SECTION B, 1925—FERTILIZER TEST

Number of the plot	Yield of turnips per plot	Yield per acre	Average yield per acre, 1925	Average yields per acre of 1924–25
	lb.	tons	tons	tons
1	850	17·0	21·5	20·25
2	975	19·5	21·75	20·25
3	925	18·5	22·25	20·50
4	1,025	20·5	23·75	21·88
5	1,225	24·5	23·75	24·88
6	1,375	27·5	27·75	27·0
7	1,375	27·5	29·25	27·63
8	1,275	25·5	27·50	25·63
9	1,225	24·5	25·75	24·18
10	1,225	24·5	23·25	21·75
11	1,175	23·5	18·50	17·63
12	1,300	26·0	22·75	21·13
13	1,350	27·0	22·75	21·25
1a	1,300	26·0		
2a	1,200	24·0		
3a	1,300	26·0		
4a	1,350	27·0		
5a	1,150	23·0		
6a	1,400	28·0		
7a	1,550	31·0		
8a	1,475	29·5		
9a	1,350	27·0		
10a	1,100	22·0		
11a	675	13·5		
12a	975	19·5		
13a	925	18·5		

SECTION A, 1925—YIELDS OF BARLEY—FERTILIZER TEST

Number of the plot	Yield of barley per plot	Yield per acre		Average yield per acre for 1925	Remarks
	lb.	lb.	bush.	bush.	
1	42	1,680	35·0	38·75	
2	38	1,520	31·7	31·70	The four plots Nos. 10a, 11a, 12a and 13a were flooded in spring, which has influenced the yield of these plots considerably.
3	36	1,440	30·0	30·0	
4	39	1,560	32·5	32·5	
5	46	1,840	38·3	37·9	
6	50	2,000	41·7	41·25	
7	47	1,880	39·2	39·6	
8	38	1,520	31·7	32·1	
9	43	1,720	35·8	33·3	
10	44	1,760	36·7	32·5	
11	45	1,800	37·5	32·9	
12	52	2,080	43·3	34·05	
13	54	2,160	45·0	35·85	
1a	51	2,040	42·5		
2a	38	1,520	31·7		
3a	36	1,440	30·0		
4a	39	1,560	32·5		
5a	45	1,800	37·5		
6a	49	1,960	40·8		
7a	48	1,920	40·0		
8a	39	1,560	32·5		
9a	37	1,480	30·8		
10a	34	1,360	28·3		
11a	34	1,360	28·3		
12a	31	1,240	25·8		
13a	32	1,280	26·7		

POULTRY

Good progress is being made with the poultry flock. The amount of experimental work conducted is increasing every year, and the breeding work is demonstrating its value by increased production and the ability of pedigreed stock to reproduce good producers.

The young stock are given range during the growing period, the size and stamina of the birds thus being maintained, and in some cases increased. By careful mating, and selection, production has been increased and the egg size retained.

All the birds are trap-nested throughout the year and only those giving a high production are carried over for breeding purposes. Male birds raised at this Station, from a high-producing strain only, are sold to poultry-breeders and predigreed males with high records are being used in our breeding work.

The stock on hand at the end of the year consisted of the following: 215 Barred Rock pullets, 58 yearly hens, 35 cockerels, 2 old males, or a total of 310 birds.

The first chicks were hatched on March 27 and the last on June 3, the incubators used being the 1,200-egg Candee and the 240-egg Prairie State.

INCUBATION

The average fertility was 80.7 per cent; the number of chicks hatched was 38.6 per cent of the total eggs, or 45.9 per cent of the fertile eggs. Of the chicks hatched 80.1 per cent were alive when wing-banded

HATCHING EGGS AND BREEDING STOCK SOLD

Forty-four settings of Barred Rock eggs were sold for hatching to farmers but it was impossible to meet the demand for Barred Rock day-old chicks. We also sold 135 Barred Rock pullets for egg production and 35 Barred Rock cockerels for breeding purposes.

PEDIGREE BREEDING

All breeding stock is pedigreed; all hens are trap-nested and accurate egg-records kept of each individual bird. By this means and careful selection, with rigid adherence to standard type birds are maintained typical of the breed they represent and conforming to a high standard of egg production.

The breeding stock consists largely of hens that have laid 180 eggs and over in their pullet year.

REGISTRATION

Of the Barred Plymouth Rock hens entered in the Quebec East Egg-Laying Contest, seven laid 200 eggs and over, and three qualified for registration.

BEST TYPE AND MAKE OF INCUBATOR

In a comparison of hatching results from different makes of incubators, the 1,200-egg Candee and the 240-egg Prairie State were used for the purpose and the following table is a summary of three years' experiments at this Station. (Project P. 1).

Incubators	Year	Total eggs set	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Per cent chicks alive when wing-banded	Total eggs required for one chick hatched	Total fertile eggs for one chick hatched
Candee	1923	1,872	79·0	713	38·08	48·2	47·5	2·6	2·7
	1924	2,124	82·07	833	39·2	47·7	45·8	2·5	2·9
	1925	2,414	81·5	872	36·1	43·3	79·3	2·7	2·9
		6,410	80·85	2,418	37·8	46·4	57·4	2·6	2·6
Prairie State	1923	314	73·2	108	34·3	46·9	56·4	2·9	2·1
	1924	311	80·06	133	42·7	53·4	55·6	2·3	1·8
	1925	429	89·2	203	47·3	53·0	81·2	2·1	1·8
		1,054	80·82	444	42·1	51·1	64·4	2·4	1·9

Best results were obtained from our 240-egg Prairie State incubator, for fertility, hatchability and vitality.

HENS VS. PULLETS FOR REPRODUCTION

The table following is a summary of three years' experimental results comparing hatching eggs from hens and pullets with regard to fertility, hatchability and viability, the eggs being hatched during different months in the spring. (Project P. 2).

HENS VS PULLETS FOR REPRODUCTION

—	Year	Total eggs set	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Chicks alive when wing-banded	Total eggs required for one chick hatched	Total fertile eggs required for one chick hatched
Hen	1923	903	86·2	376	41·6	48·1	29·5	2·4	2·07
	1924	1,538	85·6	716	46·5	54·3	52·2	2·1	1·8
	1925	1,017	88·7	427	41·8	47·2	82·6	2·14	2·1
Total	.....	3,458	86·8	1,519	43·9	47·86	54·7	2·2	1·9
Pullets	1923	1,283	72·4	445	34·6	47·8	64·9	2·8	2·08
	1924	897	75·2	250	27·8	27·03	32·8	3·5	2·7
	1925	1,826	79·2	648	35·4	44·7	77·6	2·8	2·2
Total	.....	4,006	75·6	1,343	33·5	39·84	58·4	3·03	2·3

These figures show that from hen eggs an average of 47.86 per cent of the fertile eggs hatched and 43.9 per cent of the total eggs hatched, while from pullets 39.84 per cent of the fertile eggs hatched and 33.5 per cent of the total eggs hatched. The average fertility of all eggs set from hens was 86.8 per cent as compared with 75.6 per cent fertility from all eggs set from pullets. Chicks were also much stronger from the hen eggs than from pullet eggs. It should also be noted that it required an average of 2.2 eggs to hatch one chick from the matured hens' eggs and 3.03 from pullets' eggs over a period of three years. (Project P. 2).

BEST DATE FOR INCUBATION

The following table indicates the best month for incubation with regard to fertility, hatchability and vitality for this district.

Month	Total eggs set	Number fertile	Per cent fertile	Number chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Number chicks alive when wing-banded	Per cent chicks hatched alive when wing-banded	Total eggs required for one chick hatched	Total fertile eggs required for one chick hatched	Total eggs required for one chick hatched when wing-banded
March	707	601	86·7	212	29·9	35·2	108	62·7	3·3	2·2	5·3
April	1,361	1,090	80·0	513	37·6	47·06	386	80·1	2·1	2·6	3·3
May	775	660	85·1	300	45·1	53·03	295	88·6	2·2	1·8	2·5

The best results were obtained with the eggs hatched in May. The fertility of the eggs and viability of the chicks was much greater in that month than in April or March. (Project P. 3).

RATE AND COST OF GROWTH IN REARING CHICKS

From hatching until they are placed in winter quarters, the chicks were weighed periodically, and the cost of the feed consumed was recorded. At the end of the experiment, 102 chicks were still alive. The feed consumed consisted of home-mixed grains, dry mash, rolled oats, eggs, skim-milk, charcoal, grit, oyster-shell, cod-liver oil and green clover, all of which were kept continuously before the birds. Infertile eggs taken from the incubator were boiled and fed each week at the rate of one egg per pound of mash composed of equal parts of corn meal, shorts, sifted oat meal and meat meal. The home-mixed grains were fed in the litter and consisted of equal parts wheat, cracked corn, and oats.

This experiment was carried from June 3 to October 2, a period of 16 weeks. At birth the chicks weighed an average of two ounces each; at the end of the first month, ½ pound each; at the end of two months, 1¼ pounds; at the end of three months 2¼ pounds; and at the end of the entire period, 3¼ pounds each. The total detailed cost of bringing them to the 16th week is stated in the following table. (Project P. 4).

Cost of Raising Chicks

Feed	Quantity consumed	Cost	Total cost
		$ cts.	$ cts.
Grain	1,175 lb.	2 25 per 100 lb.	26 44
Meal	1,050 "	2 25 " ...	23 60
Bran	40 "	1 65 " ...	0 66
Rolled oats	40 "	6 50 " ...	2 60
Clover	125 "	10 00 per 2,000 lb...	0 63
Grit	7 "	1 00 per 100 lb. ..	0 07
Oyster-shell	7 "	1 50 " ...	0 11
Charcoal	4 "	5 50 " ...	0 22
Milk	1,250 "	0 40 " ...	5 00
Eggs	4 doz.	0 20 per doz.....	0 80
Cod-liver oil	8 lb.	1 10 per gallon....	0 88

Weight at birth	13¾ pounds
Number of chicks at end of experiment	102 chicks
Total weight at end of experiment	340 pounds
Average weight at end of experiment	3¼ "
Total cost of feed	$ 60 91
Cost of rearing chicks at the end of the period (4 months)	59 71

FATTENING AND FINISHING ROASTERS

For this experiment, fifty-six Barred Rock cockerels were divided into seven groups of eight birds each. Out of this number, six groups were placed in fattening-crates and one in a fattening-pen. The experiment lasted from October 20 until November 10, covering a period of three weeks. The cockerels were fed three times a day for the first two weeks and twice a day during the third week. All birds received, in addition to the feed, charcoal and oyster-shell.

Group 1 was fed with home-mixed mash mixed with water and composed as follows: one part oat meal, one part of corn meal and three-quarters part of beef scrap.

Group 2 was fed on home-mixed mash with water and composed as follows: one part oat meal, one part corn meal and three-quarters part of tankage.

Group 3 was fed on home-mixed mash with skim-milk, at the rate of two pounds of milk per pound of meal, the meal consisting of one part oat meal, one part corn meal, and one part barley meal.

Group 4 was fed on home-made mash mixed with skim-milk, the mash being composed as follows: one part oat meal, one part barley meal.

Group 5 was fed on home-made mash mixed with skim-milk, the mash consisting of one part of oat meal and one part corn meal.

Group 6 was fed on home-made mash mixed with skim-milk, the mash consisting of one part of oat meal, one part corn meal, one and one-half parts of mashed potatoes.

Group 7 was fed on home-made mash mixed with skim-milk, the mash being one part of oat meal and one part of corn meal.

The group in the fattening-pen is to be compared with group 5, which received the same feed, but was fed in a fattening-crate.

FATTENING COCKERELS

Group	Number of birds	Weight per group at beginning	Weight at the end	Feed consumed		Cost of feed	Gain in weight	Initial value of bird per group	Final value per bird	Total profit per bird
				Mash	Milk					
		lb.	lb.	lb.	lb.	$ cts.	lb.	cts.	$ cts.	cts.
1	8	29	40	55	.....	1 70	11	72·5	1 05	32·5
2	8	29	40	54	.....	1 67	11	72·5	1 00	27·5
3	8	29	42	49	80	1 40	13	72·5	1 15	43·0
4	8	29	46	52	80	1 46	17	72·5	1 32	59·5
5	8	29	48	53	80	1 48	19	72·5	1 38	65·5
6	8	29	49	33	80	1 58	20	72·5	1 40	67·5
7	8	29	41	50	80	1 42	12	72·5	1 12½	40·3

INCREASING PRODUCTION BY PEDIGREE BREEDING.

In order to obtain some information from this experiment, all the birds were trap-nested and the best layers were mated with male birds having dams and grand dams with high egg production records.

The following table shows the result of three years of experiment. (Project P. 56).

Year	Number of birds	Total eggs laid	Average eggs per bird
1923	15	1,854	123·6
1924	15	2,297	153·1
1925	15	3,036	202·4

An increase of 29.5 eggs per bird was obtained from 1923 to 1924 an increase of 49.3 from 1924 to 1925 or an increase of 78.8 eggs per bird in the course of three years.

Poultry breeders who will follow the pedigree system will soon appreciate the advantages in purchasing and using a pedigree bird of quality to mate with their best layers. (Project P. 56).

PULLETS VS HENS FOR EGG PRODUCTION

The main object of this experiment is to determine and compare the value of pullets and hens for the production of eggs.

Two groups of forty-eight birds each were used and the cost of feed and value of eggs sold are as follows:—

Group	Number birds	Cost of feed	Total eggs laid	Value	Profit
		$ cts.		$ cts.	$ cts.
1	48 hens	54 97	2,150	82 18	27 21
2	48 pullets	67 72	4,228	173 37	105 65

COST OF EGG PRODUCTION

This experiment is to determine what is the best period of the year to produce eggs. Forty-eight well-bred Barred Rock pullets were used. The 48 birds were fed a standard home-mixed grain and dry mash ration, the grain ration was composed of equal parts of oat, wheat and corn; the mash was composed of equal parts of bran, oat meal, corn meal and 15 to 18 per cent of beef scrap. They had also in hoppers, grit, shell and charcoal with green feed in the form of mangels or sprouted oats once a day.

Eggs were sold at the average price of 64 cents per dozen, for the first period, 37.5 cents per dozen for the second period and 35 cents per dozen for the third period.

The following table shows the results obtained:—

Period	Number of birds	Cost of feed	Eggs produced	Value	Profit over cost of feed	Profit per bird
		$ cts.		$ cts.	$ cts.	$ cts.
November 1 to February 29	48	35 48	1,896	99 81	64 33	1 34
March 1 to June 30	48	32 24	2,332	72 81	40 57	0 84
July 1 to October 31	48	27 25	1,366	39 90	12 65	0 28

The first period indicates that reasonable profit over cost of feed can be made, provided the birds lay well. By increasing the winter egg production in a flock, a greater profit for the year is made. For the first period the average production per bird was 39.5 eggs at an average cost of 22.4 cents per dozen giving an average profit of $1.34 per bird over the cost of feed.

For the second period, the average production per bird was 48.6 eggs at an average cost of 13.8 cents per dozen, giving an average profit of 84.5 cents per bird over cost of feed.

For the third period, the average production per bird was 28.4 eggs at an average cost of 24.4 cents per dozen, giving an average profit of 28.4 cents per bird over cost of feed. (Project P. 62.)

WINTER EGGS.—This part of this experiment is to determine what period of the winter months returns the highest profits. The cost of feed, the number of eggs laid and the selling price are recorded. The forty-eight birds used for this experiment were fed a standard ration.

Month	Number of birds	Feed cost	Eggs produced	Value	Profit over cost of feed	Cost per dozen
		$ cts.		$ cts.	$ cts.	$ cts.
November	48	8 47	539	24 70	16 23	18·8
December	48	8 63	585	34 12	25 49	17·7
January	48	9 58	287	16 74	7 16	39·5
February	48	8 80	485	24 25	15 45	21·7

The table shows that the best profit was made in December, a profit over cost of feed of $25.49 or 53 cents per bird. The lowest profit was made in January, giving a profit of $7.16 over cost of feed or 15 cents per bird. This experiment also demonstrates the importance of hatching the pullets early in order to be able to have the birds laying in November and December, when eggs obtain a high price on the market. (Project P. 62B.)

COSTS BY MONTH.—This part of the experiment is to determine the cost of egg production during a whole year. Record has been kept of the feed cost, eggs produced, and their value. The figures are found in the following table:—

Month	Number of birds	Cost of feed	Eggs produced	Value
		$ cts.		$ cts.
November	48	8 47	539	24 70
December	48	8 63	585	34 12
January	48	9 58	287	16 74
February	48	8 80	485	24 25
March	48	8 50	586	24 42
April	48	8 66	547	20 49
May	48	8 15	745	24 83
June	48	6 93	454	15 12
July	48	6 73	424	12 38
August	48	6 81	404	11 82
September	48	6 63	357	10 41
October	48	7 08	181	5 29

The figures show again that the best time for egg production is during the month of December when returns realized $34.12.

COSTS BY BREEDS.—This part of the experiment is to determine what breed of poultry is the most economical to keep. For this purpose, four groups of ten birds were selected from four different breeds: Rhode Island Red, Barred Plymouth Rock, Leghorn and Chanticleer. For a twelve-month period records were kept of the feed cost, the eggs produced and their value. Each group was fed a standard ration and given every possible care throughout the year.

The following table shows the results obtained:—

Breed	Number of birds	Cost of feed	Eggs produced	Value	Profit over cost of feed	Profit per bird
		$ cts.		$ cts.	$ cts.	$ cts.
R.I.R.	10	29 55	2,032	76 14	46 79	4 67
B.P.R.	10	29 00	2,050	72 24	45 23	4 52
W. L.	10	25 39	1,764	64 71	39 21	3 93
Chanticleer	10	26 13	1,265	46 18	20 05	2 00

While the Barred Plymouth Rock have laid the largest number of eggs, they stand in the second place, giving $4.52 profit per bird, compared with a profit of $4.67 for the Rhode Island Red group. This is explained by the fact that the Rhode Island Red have laid more eggs during the winter months, when the market for eggs is the best. However, as this is the first year that this experiment has been conducted, no definite conclusion should be drawn. (Project P. 62 D.)

NUMBER OF EGGS REQUIRED TO MEET WINTER FEED COST.—This part of the experiment is to determine the number of eggs required to pay for the winter's feed.

A group of forty-eight Barred Plymouth Rock was used and the records are tabulated in the following table:—

Month	Number of birds	Cost of feed	Eggs produced	Value	Cost per dozen
		$ cts.		$ cts.	cts.
November	48	8 47	539	24 70	18·8
December	48	8 63	585	34 12	17·7
January	48	9 58	287	16 74	39·5
February	48	8 80	485	24 25	21·7
Total	48	35 48	1,896	99 81	22·4

The number of eggs required, to pay for the feed for forty-eight birds during the winter months is 673 or 14.02 per bird. (Project P. 62E.)

NUMBER OF EGGS TO PAY FOR YEAR'S FEED.—This part of the experiment is to determine what is the number of eggs required to pay a year's feed, forty-eight Barred Plymouth Rock birds were used and were fed a standard ration for a whole year. The following table gives information concerning the results obtained. (Project P. 63F.)

Month	Number of birds	Cost of feed	Eggs produced	Value	Cost per dozen
		$ cts.		$ cts.	cts.
November	48	8 47	539	24 70	18·8
December	48	8 63	585	34 12	17·7
January	48	9 58	287	16 74	39·5
February	48	8 80	485	24 25	21·7
March	48	8 50	586	24 42	12·4
April	48	8 66	547	20 49	12·6
May	48	8 15	745	24 83	12·0
June	48	6 93	454	15 12	18·0
July	48	6 73	424	12 38	18·7
August	48	6 81	404	11 82	19·2
September	48	6 63	357	10 41	21·6
October	48	7 08	181	5 29	45·6
Total	48	94 97	5,594	224 57	20·2

The total cost of feed for the forty-eight laying birds during the entire year was $94.97; the egg production was 5,594, valued at $224.57; and the required number of eggs a bird should produce to cover the feed cost was 52.1 during the year. (Project P. 63F.)

QUEBEC EAST EGG-LAYING CONTEST

The third egg-laying contest to be conducted at the Ste. Anne de la Pocatière Station was commenced on November 1, 1924, and was completed on October 29, 1925. This annual contest is very useful in stimulating interest in improved poulty breeding in eastern Quebec. It furnishes a standard by which many in the province compare their egg production. The registration of hens has greatly inceased the usefulness of this work. When registered males are available, a much greater interest will no doubt be shown and the demand for better male birds will be rapidly increased.

The total number of eggs produced during the fifty-two weeks of the contest was 30,927 compared with 23,473 produced during the fifty-two weeks last year.

The twenty pens entered in 1924-25 were made up of the following breeds: 2 pens Chanticleer, 5 White Leghorn S.C., 5 Rhode Island Red, and 8 Barred Plymouth Rock. Forty-six hens laid 200 eggs or over during the fifty-two weeks and out of this number, 19 were disqualified because their eggs averaged under 24 ounces to the dozen. Twenty-seven birds qualified and were registered by the Canadian Poultry Record Association. The highest hen No. F. 88, a Barred Plymouth Rock ownd by Mr. W. A. Carr, Ste. Agathe des Monts, Que., laid 278 eggs. The average number of eggs laid by hens was 154.6 during the year. This was a gain of over 17 per hen over last year's contest, and 42 eggs per hen over the first contest held here at Ste. Anne.

The methods of feeding were similar to those of previous years. The home-mixed scratch feed was scattered in the litter morning and evening, and consisted of equal parts cracked corn and wheat, and one-half part of oats. The dry mash that was always before the birds in a hopper was made by mixing 100 pounds of corn, 100 pounds middlings, 100 pounds cornmeal, 100 pounds oat meal and from 15 to 20 per cent of beef scrap.

Grit, shell, charcoal and fresh water were provided regularly. Sprouted oats and mangels were used for green feed during the winter and green clover during the summer months.

The following table shows the average production of eggs per bird.

Year	Number of birds	Eggs laid	Net profit over cost of feed	Cost per dozen
			$ cts.	cts.
1922–23	120	13,506	137 16	22·5
1923–24	170	23,473	452 61	17·3
1924–25	200	30,927	586 16	21·3

Average egg production per bird in 1922–23	112·0
" " 1923–24	138·0
" " 1924–25	154·6
Increase in egg production per bird in 1924–25	16·6
" " 1922–1925	42·6

CORN VS. BARLEY

Tihs experiment is to determine whether barley is a satisfactory substitute for corn in grain rations for layers.

Two pens of twelve pullets each were housed and fed alike except that cracked corn in the scratch mixture and corn meal in the mash were fed to one pen, and barley and barley meal in the other pen.

Cost of scatch grain and dry mash, total cost of feed, eggs produced and value are shown in the following tables.

CORN-FED GROUP

Month	Number of birds	Cost of feed consumed	Eggs laid	Valued	Cost per doz.	Profit over cost of feed	Cost of grain and mash per 200 lbs.
		$ cts.		$ cts.		$ cts.	
November	12	1 56	9	0 42	20·7	1 14	.....
December	12	2 19	98	5 71	26·4	3 52	.....
January	12	1 90	78	4 55	28·8	2 65	.....
February	12	1 89	86	4 30	25·2	2 41	.....
March	12	1 99	138	5 18	16·8	3 19	
	12	9 53	409	20 16	27·6	10 63	2 25

BARLEY-FED GROUP

Month	Number of birds	Cost of feed consumed	Eggs laid	Valued	Cost per doz.	Profit over cost of feed	Cost of grain and mash per 200 lb.
		$ cts.		$ cts.	$ cts.	$ cts.	$ cts.
November	12	1 44	9	0 42	1 92	1 02	.....
December	12	1 55	125	7 28	0 14	5 73	.....
January	12	1 41	82	4 79	0 20	3 38	.....
February	12	1 65	123	6 15	0 15	4 50	.....
March	12	1 74	103	3 87	0 20	2 13	.....
	12	7 79	442	22 51	20·4	14 72	1 87

Eggs brought an average price of 58.8 cents for the corn-fed group and 61 cents for the barley-fed group. This trial lasted for a period of five months.

Slightly higher production and profit were obtained from the group fed on barley, but it will be necessary to take note that it cost $2.25 for the average price per 100 pounds of corn and corn meal, while the barley and barley meal cost $1.87 per 100 pounds.

This experiment is to be carried on for a five-year period. (Project P. 78A.)

ROOTS VS. CLOVER VS. SPROUTED OAT

This experiment is to compare roots, clover and sprouted oats as green feeds. Three groups of 12 Barred Plymouth Rock pullets were housed, handled and fed alike, except that one group received clover and sprouted oats and the other mangles.

The experiment covered a period of five winter months. Eggs were sold at an average price of 57.6 cents per dozen.

Pen	Green feed	Cost of green feed	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over cost of feed
		cts.	$ cts.		$ cts.	cts.	$ cts.
1	Mangels	26	11 18	586	27 44	22·8	18·26
2	Sprouted oats	35	11 10	646	31 96	20 4	20 86
3	Clover	21	12 66	696	33 86	21·6	23 10

Clover gave the best results, which accords with previous tests, and birds in the pen fed this form of green feed were always in good condition. There is practically no difference in total feed cost between pens 1 and 2, but the production of eggs for the period was 66 eggs more than the pen fed on mangels. (Project P. 95.)

SKIM-MILK VS. BEEF SCRAP VS. MEAT

To determine the relative value of these three feeds as sources of animal protein, three groups of 12 Barred Plymouth Rock pullets were housed, handled and fed alike, excepting that one group received skim-milk and mash containing no beef scrap, one group received beef scrap in mash or in hoppers; and the third group received meat (horse-flesh, etc.,) raw or cooked. This experiment lasted for a period of five months, from November 1 to March 31.

Skim-milk was valued at 4 cents a gallon. Beef scrap was valued at $5.40 per 100 pounds, and horse-meat at 2½ cents per pound. Eggs were sold at an average price of 58.8 cents per dozen. The results are tabulated:

Number of birds	Animal protein	Cost of animal protein	Total cost of feed	Eggs laid	Value	Cost per dozen	Profit over cost
		$ cts.	$ cts.		$ cts.	cts.	$ cts.
12	Beef scrap	1 25	11 18	542	26 66	24	15 48
12	Horse-meat	0 88	11 41	619	30 86	21	19 45
12	Milk	0 65	11 15	579	28 73	22	17 58

For production and profit, horse-meat gave the best results and beef scrap the poorest. The figures show that horse-meat as a source of animal protein is more economical for winter egg production than either beef scrap or milk. (Project P. 83.)

APICULTURE

THE SEASON

The season of 1925 for honey production was only medium, although there was clover in abundance early in the summer and late in the fall. The spring was late and this had its effect on the development of brood. In our locality, the summer was rather dry. The precipitation recorded was: May 2.74 inches; June 2.01 inches; July 2.68 inches; and August 1.30 inches. The summer was rather cloudy and on July 27 the honey crop was finished. From that date until September the bees just gathered enough honey for their maintenance.

The bees were taken out on April 24, and of the sixty-six colonies placed in winter quarters, sixty-five were living in the spring. At the beginning of May, five colonies had to be united which left us sixty colonies by the first of June plus three Carniolan colonies received from the Experimental Farm, Ottawa. At the close of the 1925 season, ninety-one colonies were placed in their winter quarters on November 10. Of this number, twenty-three colonies are wintering outside in cases and the balance in the bee-cellar. The total honey crop produced was 3,500 pounds, an average of 55.5 pounds per colony. The highest yield for one colony was 173 pounds.

The honey crop was harvested from white Dutch and alsike clover and owing to the rather dry summer, the fall flow has just given enough honey to supply the daily needs of the bees.

Throughout the year many beekeepers visited the apiary at the Station, and on June 20, a special bee-day was attended by over 80 beekeepers.

In connection with the bee-keeping promotion work, our bee-man, Mr. Victor Chercuitte has visited many apiaries in the district. He is also secretary of the Quebec Beekeepers' Association.

Several hundred "bee-keeping reminders" letters were distributed from the office.

CONTROL OF SWARMING BY DEQUEENING AND REQUEENING

At the first appearance of eggs in the royal cells, the queen and all the royal cells are destroyed. Nine days after, the royal cells formed were again destroyed with the exception of one, as there was not an available queen. Of three colonies, one only swarmed.

The average honey production for the three colonies was 54 pounds. (Project A. 1.)

CONTROL OF SWARMING BY SEPARATION OF BROOD AND QUEEN

At the first appearance of larvæ in queen-cells all the brood from the brood-chamber was moved to an upper super. The queen was left below in the hive with a full set of drawn empty frames. Bees from the moved section or frame were shaken in front of the old hive. A queen-excluder was placed between the hive and super, and another queen-excluder placed between the super containing the brood and that containing the honey.

Two colonies were treated this way, and besides giving an extra colony, they produced an average of 55 pounds of honey each. (Project A. 2.)

CONTROL OF SWARMING BY ARTIFICIAL SWARMING

At the first appearance of royal cells, the queen with two frames covered with brood and adhering bees were placed in a new hive, with additional empty frames to form a new colony. All the royal cells in the old hive were destroyed; nine days later a second inspection was made and all the royal cells with the exception of one were again destroyed.

Two colonies were treated this way and did not produce natural swarms. The average production of honey was 62.5 pounds. (Project A. 4.)

METHODS OF DETECTING PREPARATIONS FOR SWARMING

For the purpose of this experiment, we have used ten-frame hives to which half supers were added in order to allow the queen two chambers for brood-nest. Upon the arrival of the swarming period the hives were examined every nine days. This was done by lifting the upper super at the rear of the hive. If any royal cells containing eggs or larvæ were found on the lower part of the frames, they were destroyed, and the super dropped in its place, but if no royal cells were found on the lower part of the frames of the upper super, the brood-chamber of the hive was then examined.

Of the sixteen hives that had made preparation for swarming, detection and control of swarming was successful in ten and six hives swarmed.

The table following gives the number of royal cells destroyed in the upper super; the royal cells found in the brood-chamber of the hive as well as the production of honey for each hive. (Project A. 5.)

DETECTION OF QUEEN-CELLS

Number of hives	Number of royal cells in the super	Number of royal cells in the brood chamber	Hives that swarmed	Honey crop
				lb.
40	7	3	Swarmed	78
52	4	.....	Swarmed	67½
17	5	.....	.....	70
34	9	.....	.....	75
56	23	.....	Swarmed	36
53	13	.....	Swarmed	54
26	2	.....	.....	161
21	4	.....	.....	150
37	16	.....	.....	85½
47	14	.....	Swarmed	60
18	11	.....	.....	106
23	5	.....	.....	82
41	3	.....	.....	106½
60	4	.....	.....	169
16	6	.....	.....	90
33	4	6	Swarmed	18

COMPARING DIFFERENT METHODS OF HANDLING NATURAL SWARMS

To study the effectiveness of hiving a swarm on the old stand, the wings of the queen are clipped during the fruit bloom season. When the colony swarms, the old hive is moved to a new stand at some distance and a new hive placed on the old stand, to receive the returning swarm.

Another similar method tried, is that in which the old hive instead of being placed at some distance to receive the new swarm is placed close to the old stand with the entry at the opposite direction. Each day the old hive on the new stand is turned slightly until it is parallel to the new hive. At the end of the ninth day, it is transported to a new platform. With the last method, the old hive remains stronger. (Project A. 6.)

WINTERING IN CELLAR

The cellar where our bees are wintered is located beneath the bee-man's house and has no system of ventilation. The part where the bees are kept has a wooden partition on one side with a door connecting with the main cellar. Once a week the door is opened for a short time when it is dark, to freshen the air. A temperature of 48° to 50° F. was maintained with an average humidity of 36 degrees. Our bees have wintered well. Only one hive suffered from dysentery, and from a total of fifty-two hives, only one was lost.

The average honey consumption for the fifty-two hives was 11.6 pounds. (Project A. 7.)

WINTERING IN FOUR-COLONY CASES

Eight colonies were wintered in four-colony cases. The colonies are placed end to end in the cases at the latter part of September and fed as rapidly as possible. Their weight is then taken, after which they are packed. About five inches of planer shavings are put beneath the hives and four inches on the sides and ends. When the cold weather comes, the tops are covered with ten inches of shavings and the cover set for the winter. Of the eight colonies wintered by this method, seven wintered well. These hives gave an average honey production of 71.1 pounds per hive. (Project A. 8.)

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 like the four-colony cases.

Three colonies wintered well and one came out in the spring rather weak. The average honey production was 82.5 pounds per hive. (Project A. 9.)

WINTERING BEES IN SINGLE-COLONY CASES

Two colonies were wintered by the above method. One hive was packed with shavings and one with dried maple leaves. Both colonies wintered well and produced an average of 65 pounds of honey per hive. (Project A. 10.)

COMPARISON OF DIFFERENT STORES FOR WINTERING

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

Two colonies wintered well on sugar syrup, made of two parts of granulated sugar and one part water.

Two colonies had white clover, plus 10 pounds of white clover honey syrup, and wintered well.

Two other colonies were wintered on white clover and fall-made honey only. One had dysentery in February and the other in March. (Project A. 11.)

TWO-QUEEN SYSTEM

To save as many queens as possible for spring needs, either for orphan colonies or for replacement of queens producing drones, or for strong colonies that can be divided, three hives with two queens each were wintered experimentally. Instead of uniting two weak colonies in the fall, which means destruction of one queen, they are brought into one hive and separated by a division-board.

This system was very successful and gave us the extra queens for our spring need. (Project A. 12.)

RETURNS FROM APIARIES

To discover the annual average honey yield, value of honey and bees per colony, sixteen colonies were wintered over for this purpose, of which fourteen were in good condition in the spring and gave the following results. (Project A. 20.)

REVENUE:—		
1,182·5 pounds honey at $0.16	$189 40	
2 colonies (increase) at $7	14 00	
5 pounds wax at $0.35	1 75	
Total		$205 15
EXPENSES:—		
Interest at 6% on 16 hives valued at $7 each	$ 22 50	
120 hours of labour at $0.35	42 00	
84·4 pounds honey consumed at $0.16	13 50	
131·5 pounds sugar at 7·4 cts	9 23	
Total		87 23
Total profit		117 92
Profit per colony		8 34

COMPARISON OF DIFFERENT SIZES OF HIVES

To determine the relative value of different hives and their effect on the production of brood, swarming, wintering and honey production, tests are made with two hives each of five different sizes.

The production of honey was as follows:—

SIZE OF HIVE

Number of hives	Number of frames	Average production of honey per colony
		lb.
2	8	39·5
2	9	65·0
2	10	38·0
2	10 (Jumbo)	33·0
2	12	65·5

No definite conclusion can be drawn from this year's trial, but the size of hive did not seem to have much influence on the production of brood and swarming. There is a notable difference on the production of honey with the different hives, but it can not be attributed this year to the size of the hives. The bees wintered well in 1924-25 in all the hives. (Project A. 21.)

VALUE OF STIMULATIVE FEEDING FOR BROOD

To test the value of stimulative feeding on the production of early brood, ten colonies of equal strength were set aside for test. Five colonies were not given any extra food (they had, however, enough honey to carry them to the coming of the honey crop) and the five other colonies were fed at the rate of one-quarter pound of syrup daily, made of half white sugar and water by weight.

The colonies given stimulative feeding grew stronger much earlier in the season and gave the highest returns. The yields this year gave an average of 54 pounds for the group receiving no stimulating feeding, and 76 pounds for the other group. (Project A. 25).

STUDY OF HONEY FLOWS

For the purpose of this experiment two average colonies were set each on an independent scale, and the weight of the colonies was taken every hour from 6 a.m. to 8 p.m. from the beginning to the end of the honey flow. The temperature, the direction of the wind, and weather conditions were also recorded.

It was observed that there is practically no increase from morning till 2 p.m. From 2 to 6 p.m. the nectar is brought in, and in a greater quantity during the clear, calm and warm weather. (Project A. 28).

COMPARISON OF DIFFERENT FEEDERS

Four types of feeders were tried: the Miller, Alexander, Doolittle, and the perforated five-and ten-pounds honey-pails. The cover of the honey-pail is perforated with small finishing nails at five places and the pail with syrup is inverted on a super.

For spring feeding, the honey-pails have given the most satisfaction, while for fall feeding the Miller feeder seems the most convenient. (Project A. 29).

OUTDOOR VERSUS CELLAR WINTERING

Two groups of four average colonies each were used for this trial.

Group I was wintered in a four-colony case packed with shavings and group II in the bee-cellar.

In the spring, group I had an orphan colony to be united. The three other colonies wintered well. In group II three colonies wintered well, the other colony was a drone-producer and was united.

Group I had much more brood than group II and produced more honey. It had also a greater tendency to swarm than group II.

The average honey production was 90 pounds for group I and 78 pounds for group II. (Project A. 30).

SPRING PROTECTION OF BROOD-CHAMBER

Twelve colonies were divided in two groups. The first group had its hives protected with an outside case as soon as taken out of the cellar until the warm weather arrived, and the second group was given no protection.

The average honey production per hive for the first group was 71.4 pounds against 61 pounds for the unprotected group.

As these protecting cases can be made at home cheaply it would appear advisable to protect colonies from the cold spring winds and temperature. (Project A. 32).

QUEEN REARING

The rearing of queens from acclimated high-quality queens with the least tendency to swarming was continued this year and sixty queens were reared for our own apiary.

The Perret and Maisonneuve systems were followed. One system comprises the grafting of a larval cell in a wooden capsule, and the other the grafting with wax of the natural royal cell. The system of grafting larvæ in the wooden capsules has given us the greatest success.

Eight-frame hives used for this purpose, are divided with two partition boards into three compartments, and have entries placed on different sides. (Project A. 34).

PRODUCTION OF COMB-HONEY VERSUS EXTRACTED

Two colonies were used for this purpose. This experiment has now been repeated for three years, but due to the very short season that honey is produced, it has been impossible to obtain to date satisfactory results in the production of comb-honey. (Project A. 35).

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

As would be expected, it is the colonies that are strong with bees and brood in the early summer that produce the most honey, and this is the result that we have obtained. (Project A. 36).

STRENGTH OF COLONY AND HONEY PRODUCTION

Number of hives	June 1		June 9		June 19		Honey crop
	Brood frames	Bee-frames	Brood frames	Bee-frames	Brood frames	Bee-frames	
							lb.
21	6	10	9	12	10	19	150
26	7	10	9	11	10	14	141
1	4	6	6	8	8	11	66
36	6	9	8	11	9	12	70

METHODS OF INTRODUCING QUEENS

In order to test methods, queen-introductions were made with the Benton, Canadian and Miller cages. Two queens were also introduced with the smoking system. Although succesful introduction was obtained with all the systems, the Canadian cage seem to be most satisfactory. (Project A. 38).

METHODS OF INCREASE WITHOUT NATURAL SWARMING

At the first appearance of royal cells, the queen from the hive to be divided was taken with two frames of brood with its adhering bees and placed in a new hive. A frame covered with honey was also added and the balance of the hive filled with drawn empty frames.

The new hive was then set on a new platform. The hive from which the queen is taken has a young queen introduced. These artificially made colonies are very satisfactory if made at the latter part of June or early July.

Another method consists in allowing the queen to lay eggs in an upper super after the honey flow. When there is present a fair amount of brood, this double hive with its brood, bees and honey is divided as equally as possible and a fecunded queen is introduced in the new hive. This method is also very satisfactory and does not hamper the production of a good honey crop early in the season. (Project A. 45).

RELATION BETWEEN DIVIDED AND UNDIVIDED COLONIES AND HONEY YIELDS

To find out the advantage or disadvantage of dividing hives as far as the production of honey is concerned, a certain number of hives were divided and compared with another group which were not divided. (Project A. 47).

The results were as follows:—

Divided Colonies—Number of hives		Undivided Colonies	
	Honey production	Number of hives	Honey production
	lb.		lb.
45	48	60	169
62	63½	39	173
63	50	18	109
4	100	21	150

WINTERING IN DOUBLE BROOD-CHAMBER

During the winter 1924-25 one hive was wintered with a half super to determine if this practice produced any advantage. This hive wintered very well, but has not given any better result than the others during the year.

OUT-APIARIES

This out-apiary was started in the spring of 1925 with three colonies of Italian bees and three colonies of Carniolan bees. This out-apiary is located about five miles from our Station. As the season was very dry in that section, which has several hundred feet more of altitude, the results were not as favourable as those from our Station apiary.

The six colonies are being wintered in cases of two colonies each. (Project A. 55).

FIBRE PRODUCTION

TEST OF VARIETIES OF FLAX

Two acres of land were devoted to flax culture. As the number of experiments were greatly increased we were obliged to use a new piece of land, which was not quite well enough prepared. For that reason, this year's crop of flax is not as good as it could be nor the quality of fibre as good as desired.

Five varieties were sown in triplicate plots of 1/120 of an acre on May 7, and harvested from the 10th to 27th of August.

FLAX—VARIETY TEST

—	Number days maturing	Length of straw	Green weight	Weight before threshing	Weight after threshing	Weight of seed	Weight before breaking	Weight of fibre	Weight of tow	Yield of seed per acre	Yield of fibre per acre
		in.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Pure Line No. 5	92	23·0	64·6	29·3	19·6	6·4	13·4	2·6	2·5	768	312
Longstem	100	25·3	61·0	32·7	22·0	6·7	16·7	4·0	1·7	804	480
Saginaw	92	30·3	68·0	33·0	23·0	5·4	15·8	3·5	2·2	648	420
Riga blue	92	27·0	67·4	31·7	21·7	5·2	15·0	3·2	2·3	624	384
829 C	100	25·7	59·0	30·7	21·0	5·9	17·0	3·8	1·7	708	456

No definite conclusions are made on the year's growth, nevertheless, a comparison of the yield of each variety indicates the possibilities for fibre production. (Project E. 3.)

METHOD OF SEEDING FLAX

Two methods were tried: broadcasting by hand and sowing in drills with a Planet Junior seeder. Distance between drills was 6 inches.

The following table gives the results obtained: (Project E. 5.)

FLAX—METHOD OF SOWING

—	Number days maturing	Length of straw	Green weight	Weight before threshing	Weight after threshing	Weight of seed	Weight before breaking	Weight of fibre	Weight of tow	Yield of seed per acre	Yield of fibre per acre
		in.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Riga Blue in drills.....	92	26	53·3	23·2	15·7	4·2	12·3	2·7	1·0	504	324
Broadcast.....	92	28	55·7	27·7	19·0	5·7	16·3	3·6	2·3	684	432

DATE OF SEEDING FLAX

In this experiment, the first seeding was done as soon as the land was ready. The second one week later and so on till the fourth seeding. The following were the yields obtained.

FLAX—DATE OF SEEDING

—	Number days maturing	Length of straw	Green weight	Weight before threshing	Weight after threshing	Weight of seed	Weight before breaking	Weight of fibre	Weight of tow	Yield of seed per acre	Yield of fibre per acre
		in.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Riga Blue 1st seeding May 7.....	95	26·3	67·0	33·0	22·3	5·7	17·3	3·7	2·0	684	444
Riga Blue 2nd seeding May 14.....	95	27·3	60·7	31·0	20·7	6·5	15·0	2·9	1·2	660	348
Riga Blue 3rd seeding May 20.....	98	26·3	68·5	28·3	20·0	5·9	17·0	3·9	2·0	708	468
Riga Blue 4th seeding May 27.....	102	27·7	60·3	29·7	22·0	5·2	16·7	3·4	2·7	624	408

This year, owing to the weather condition, as indicated in the table, the third seeding gave the best results. Nevertheless no definite conclusion should be drawn from one year's test. In the three years in which this test has been carried, the best results were obtained in 1923 with the last seeding; the first one being destroyed by the extreme drought. In 1924, the first seeding gave the best result. An advantage of the first seeding is that the fibre is of a more desirable quality. (Project E.7.)

RATE OF SEEDING FLAX

The flax was sown at three different rates: 112 pounds per acre, 98 pounds per acre and 84 pounds per acre. This was sown on plots of 1/120 of an acre, in triplicate, on May 7 and harvested on August 10 and 11.

RATE OF SEEDING FLAX

—	Number days maturing	Length of straw	Green weight	Weight before threshing	Weight after threshing	Weight of seed	Weight before breaking	Weight of fibre	Weight of tow	Yield of seed per acre	Yield of fibre per acre
		in.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Riga Blue, 112 lb.....	95	26	65·0	32·3	22·3	6·2	17·7	4·1	1·8	744	492
Riga Blue, 98 lb.....	93	26	67·7	32·3	22·2	5·4	17·3	3·7	2·3	648	444
Riga Blue, 84 lb.....	95	26	65·7	29·3	23·3	6·2	15·8	3·2	2·2	744	384

It will be noted that the highest rate of seeding has also given the highest yield of fibre. It could also be added that the thicker the stand, to a certain limit, the finer and the better will be the quality of the fibre. (Project E.9.)

FLAX—FERTILIZERS EXPERIMENTS

This experiment was started this year on plots 1/120 of an acre in triplicate. Fertilizers were spread by hand when the land was ready to receive the seed and mixed into the soil by a good harrowing. The fertilizers employed were nitrate of soda, superphosphate, and muriate of potash. Some plots received only one fertilizer at different rates per acre; some others two; and some others three. Two plots were used as checks. The results were more or less disappointing. The cause may be attributed to a lack of moisture during the growing season or to some plots having more weeds than others.

HEMP

Variety experiments are underway with hemp to determine the relative success of that crop in this district. Up to the present time, we have had no results good enough to mention.

GENERAL NOTES

ILLUSTRATION STATIONS.—Twenty Illustration Stations are supervised by the Experimental Station. The object in maintaining these Illustration Stations is to bring to the farmers of the district the most up-to-date methods and the results of experimental tests carried on at the Experimental Station. Full details regarding the work will be found in the report of the Chief Supervisor on the Illustration Stations in Quebec.

EXHIBITIONS.—As in former years, an educational agricultural exhibit was installed in the fall at a certain number of county fairs namely: St. Michel de Bellechasse; Montmagny; St. Jean Port Joli, L'Islet; Isle Verte, Temiscouata; Rimouski and Ste. Anne de la Pocatière. Bulletins, circulars and information are distributed through these local fairs.

A collection of Percheron horses was shown with much success at the Special Percheron shown held at Ste. Anne and later a Special Seed Grain exhibit was also installed at the Provincial Seed Fair held also at Ste. Anne.

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