DOMINION OF CANADA

DEPARTMENT OF AGRICULTURE

DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

LA FERME, P.Q.

REPORT OF THE SUPERINTENDENT

PASCAL FORTIER

FOR THE YEAR 1928

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EXPERIMENTAL STATION, LA FERME, P.Q.

REPORT OF THE SUPERINTENDENT, PASCAL FORTIER

THE SEASON

The winter of 1928 was characterized by a heavy snowfall which remained until the beginning of May in the open fields and until the middle of May in the bush. On account of the protection provided by the snow, there was very little frost in the soil, which dried very quickly when the weather warmed up, so that seeding could be started on May 16. It was interrupted several times, however, by cold and persistent rains.

As a whole, the season of growth of 1928 was the wettest of the last eleven years. The total precipitation during the period of growth, May to November inclusive, was 34·95 inches, which is 14·5 inches more than the average recorded during the last eleven years.

The temperature was about equal to the average of the same period. However, there were about 132 hours of sunshine less than the average for the last eleven years. The summary of the meteorological observations recorded in the last year is given in the following table:—

METEOROLOGICAL RECORDS, 1928

Month	Temperature (°F)						Precipitation (inches)				Sunshine (hours)	
	Mean		Maximum in 1928		Minimum in 1928		Rain	Snow	Total precipitation		1928	Average 8 years
	1928	Average 11 years	Highest	an maximum	Lowest	Mean minimum			1928	Average 11 years		
January	0·32	−2·43	32	30·7	−38	−41·2	.....	18·0	1·80	1·83	84·5	91·2
February	1·51	1·73	29	37·2	−40	−36·5	.....	10·5	1·05	1·44	87·5	105·0
March	12·93	15·75	40	49·0	−28	−24·5	.....	6·5	·65	1·88	122·8	139·9
April	26·29	30·76	53	63·5	0	−3·3	1·30	4·5	1·75	2·48	152·0	153·2
May	44·85	46·03	74	78·5	17	16·0	3·24	1·0	3·34	2·26	172·5	199·9
June	55·81	55·27	77	84·8	31	28·0	7·26	.....	7·26	3·08	186·9	244·0
July	61·41	61·84	80	85·7	37	35·6	5·88	.....	5·88	4·21	170·6	234·0
August	61·90	59·19	86	82·4	38	34·9	6·09	.....	6·09	4·15	251·6	212·4
September	48·21	50·12	75	75·8	25	27·4	5·94	1·5	6·09	3·95	129·8	135·3
October	38·90	38·63	64	65·8	0	13·2	5·74	5·5	6·29	2·85	65·1	82·9
November	25·81	23·0	45	46·4	3	25·8	·75	9·0	1·65	1·97	58·4	45·8
December	18·30	8·5	38	38·5	−16	−31·0	·36	7·0	1·06	2·46	16·0	43·0
Totals	.....	.....	.....	.....	.....	.....	36·56	63·5	42·91	31·83	1,497·7	140·5

EVAPORATION OF MOISTURE

In order to ascertain the quantity of water evaporated during the main months of vegetation, observations were made during four months from June to September inclusive.

The method followed consists in measuring at specific intervals the level of the water in a basin exposed to the air. The variations of level were compared with the precipitation recorded by means of a rain gauge, and the quantity of water evaporated was ascertained in this manner. The observations made during the last season are given in the following table, with the average of three years.

EVAPORATION COMPARED WITH PRECIPITATION

—	1928			Average, 3 years		
	Precipitation	Evaporation	Excess of precipitation over evaporation	Precipitation	Evaporation	Excess of precipitation over evaporation
	inches	inches	inches	inches	inches	inches
June	7·26	2·05	5·21	4·62	2·66	1·96
July	5·88	3·50	2·38	4·79	3·04	1·75
August	6·09	2·03	4·06	3·92	2·20	1·72
September	6·09	4·08	2·01	4·33	1·99	2·34
Total	25·32	11·66	13·66	17·66	9·89	7·77

The above table shows that there was an excess of 13·66 inches of precipitation over evaporation in 1928. This explains why the soil remained saturated with water during the last season of growth.

INFLUENCE OF TOPOGRAPHY ON THE TEMPERATURE AND THE FREQUENCY OF FROSTS

Thermometric observations were made daily at six points on this farm during the season of growth.

These observation posts are scattered over an area of land with a radius of 1·5 mile. Post No. 1 is in the centre of a field covered with stumps, half burnt trees and is surrounded by a bush. Post No. 2 is on the south shore of Lake George. Post No. 3 is in the centre of a cultivated field, containing 150 acres. Post No. 4 is located at a short distance from the north shore of Spirit Lake. Post No. 5 is on a high rock, 30 feet above the surrounding ground. Post No. 6 is in a slough.

Each of these posts is provided with two thermometers, maxima and minima. A summary of the observations made is given in the following table:—

AVERAGE MAXIMUM AND MINIMUM TEMPERATURE IN 1928

Month	Post No. 1		Post No. 2		Post No. 3		Post No. 4		Post No. 5		Post No. 6	
	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum	Minimum
June	68·0	46·0	67·2	45·1	68·4	47·0	60·0	48·3	68·1	48·5	67·4	48·0
July	72·7	50·4	73·0	50·2	72·9	50·4	74·3	52·0	73·5	51·3	73·5	50·8
August	73·3	48·7	73·5	48·2	73·9	49·5	75·3	49·9	73·5	50·4	74·2	50·4
September	56·0	36·7	56·1	37·1	56·2	37·4	57·9	38·1	56·5	37·5	56·4	38·6
Total	270·0	181·8	269·8	180·6	271·4	184·3	276·5	188·3	271·6	187·7	271·5	187·8
Average for the year	67·5	45·4	67·4	45·1	67·8	46·1	69·1	47·1	67·9	46·9	67·9	46·9
Average for 2 years	68·0	42·2	66·0	42·7	67·6	44·2	68·8	46·3	67·2	46·6	67·4	45·2

ANIMAL HUSBANDRY

HORSES

Seventeen horses were kept on this station in 1928, including 8 registered Canadian horses kept for breeding purposes and for general work on the farm and 9 grade horses, chiefly used for the heavier farm work.

COST OF MAINTENANCE AND FEEDING WORK-HORSES

The feed consumed by the horses kept at heavy work during the year was recorded. The cost of oats and of bran was figured from the average price prevailing in the district and that of hay from the average production cost per ton. The total cost of feeding and maintenance per head was $292.06. During the same time each horse performed an average of 2,302 hours of work, making a cost of 12·3 cents per hour of work.

COST OF MAINTENANCE AND FEEDING OF WORKING HORSES AND COST OF AN HOUR OF WORK

Item	Cost 1928	Average three years
	$	$
2·74 tons of whole oats at $46.50	127 41	112 75
0·55 ton of bran at $39.72	21 85	14 72
3·76 tons of hay at $13	48 88	56 09
Manual labour	50 10	48 81
Interest 7 per cent on $200 (value of horse)	14 00	17 56
Shelter 4·9 per cent of total cost	10 48	10 45
Harness and repairs	8 34	5 89
Shoeing	11 00	10 75
Total cost	293 06	277 02
Number of working houre	2302·0	2172·0
	cts.	cts.
Cost of horse labour per hour	12·3	12·7

BREEDING OF CANADIAN HORSES

Three mares bred to the three-year-old registered stallion Marcel de Cap Rouge gave birth in the spring to two fillies and one male colt. The growth of these colts was somewhat delayed by the flies, but they resumed their normal growth later. In addition to the breeding of registered Canadian horses, an experiment was undertaken with a view to ascertaining the cost of raising a Canadian horse up to the age of three years, when the period of useful work begins. The above mentioned young colts will be used in this experiment on the cost of raising light draft horses.

DAIRY CATTLE

Dairying is steadily developing in our country. The importance of this industry which enables the farmers to utilize in the most profitable manner the crops that are suitable for the district, is daily becoming more recognized. Thus the breeding and care of dairy cattle are receiving a great deal of attention at this station.

The main projects undertaken in this branch are the breeding of Ayrshires, the value of good Ayrshire bulls for the improvement of grade herds, the cost of raising breeding animals and the cost of producing dairy products. On December 31, 1928, the dairy herd was composed of 45 accredited animals, 20 of which were Ayrshires including an adult bull (Ottawa Supreme 88031) registered in the Advanced registration Class A, and 25 grade animals.

FEEDING OF CATTLE

Summer Feeding.—Dry cows and heifers are pastured on a large piece of burnt land, on the northern limit of the farm. There is good water and plenty of clover and it would be an ideal place if the flies were not so thick during the season. The cows are somewhat inconvenienced by these flies, which do not, however, cause a great deal of damage.

The milking cows have a fairly good but not very large pasture, and it must be supplemented at various times by ensilage or green fodder.

Milch cows receive a light ration of mixed concentrates. The quantity varies according to the quantity of milk produced and the condition of the pasture; on an average, a cow giving 25 pounds of milk receives 3 pounds of concentrates when on pasture.

Winter feeding.—The ration is mostly composed of good hay containing a large proportion of clover, of peas, oats and vetch ensilage, and of sunflower and clover ensilage. The quantity of ensilage given is about three pounds per 100 pounds live weight of the animal; thus a cow weighing 1,000 pounds receives about 30 pounds a day. Dry cows and heifers receive only a very small amount of concentrates in addition to the above mentioned ration. Milch cows receive about one pound of concentrates to every $3\frac{1}{2}$ to 4 pounds of milk produced. Concentrates are fed in heavier proportion to heavy milkers or to cows giving a rich milk. The mixture of concentrates generally given is composed of five parts of bran, two parts of oats, two of barley and one of linseed meal.

COST OF PRODUCTION OF MILK

In this experiment a record is kept of the quantity of milk and fat given by each cow, as well as of the quantity of feed consumed during the year, and the cost of milk and fat is figured from this. During the year 1928, 20 cows completed a period of lactation. The results obtained are given in the following table:—

Records of Cows having Completed a Lactation Period in 1928

Name of cow	Age at beginning of lactation	Date of calving	Number of days in lactation period	Total production of milk	Average daily milk production	Per cent of fat	Butterfat produced during period	Value of butterfat at 42 cts. per pound.	Value of skim-milk at 30 cts. per 100 lbs	Total value of products.	Meal at $43.04 per ton	Roots at $2.50 per ton	Hay at $13 per ton	Green feed at $2.50 per ton	Silage at $5 per ton	Pasture at $1 per month	Total cost of feed	Cost per 100 pounds milk	Cost of one pound of butterfat, skim-milk not considered	Profit on one pound butterfat, skim-milk not considered	Profit per cow, manual labour and calf neglected
	years		days	lb.	lb.	%	lb.	$	$	$	lb.	lb.	lb.	lb.	lb.	mos.	$	$	cts.	cts.	$
Glista	8·0	14– 3–27	323	9,698	30·02	3·2	310·34	130 34	28 34	158 68	2,610	450	2,341	1,500	6,690	3·	93 56	0 96	30·1	11·9	65 16
Albertine	3·9	11–12–27	307	6,112	19·91	4·1	250·59	105 25	17 72	122 97	1,566	150	1,708	1,980	6,742	6·5	70 83	1 16	28·2	13·8	52 16
Mignonne	4·8	1– 1–28	258	7,287	28·24	3·9	284·19	119 36	21 17	140 53	2,089	.....	1,515	1,880	7,730	3·5	79 99	1 10	28·1	13·9	60 56
Cecile	2·6	14– 2–28	250	5,075	20·30	4·3	218·22	91 65	14 69	106 34	1,352	.....	912	1,950	3,775	3·5	50 41	0 99	23·1	18·9	55 93
Aurore	3·9	25– 1–28	259	5,779	22·31	4·0	231·16	97 09	16 77	113 86	1,437	.....	1,134	1,980	5,150	3·5	57 15	0 99	24·2	17·8	57 73
Blanche	8·3	28–11–27	313	8,087	25·84	3·8	307·31	129 07	23 51	152 58	2,244	150	1,837	2,790	8,593	3·5	88 89	1 10	29·2	12·8	62 69
Fauvette	4·8	8– 5–27	250	5,625	22·50	3·8	213·75	89 78	16 35	106 13	1,429	450	2,343	1,300	6,810	3·	68 20	1 21	31·8	10·2	37 96
Belle	7·0	8– 6–27	256	6,123	23·92	3·8	232·67	97 72	17 80	115 52	1,493	375	1,968	1,375	6,360	3·	66 01	1 08	28·3	13·7	49 51
Pauline C	6·5	30–10–27	324	6,752	20·84	4·0	270·08	113 43	19 60	133 03	1,694	150	1,708	1,590	7,305	3·5	71 49	1 06	26·4	15·6	61 54
Jumelle	8·9	19– 1–28	295	7,183	24·35	3·9	280·14	117 66	20 86	138 52	1,827	225	2,080	2,590	8,545	6·5	84 22	1 17	30·0	12·0	54 37
Ottawa Pansy	4·7	21– 1–28	262	5,888	22·47	4·1	241·41	101 39	17 07	118 46	1,450	.....	1,493	2,130	7,280	3·5	65 26	1 11	27·0	15·0	53 20
Primrose of Ottawa	7·0	1– 6–27	250	5,549	22·20	4·1	227·51	95 55	16 09	111 64	1,430	450	1,978	1,375	6,650	3·	65 54	1 18	28·7	13·3	46 12
Rosette	3·4	3– 5–27	290	5,924	20·43	4·0	235·96	99 52	17 19	116 71	1,453	375	2,486	1,300	7,695	3·	71 77	1 21	30·3	11·7	44·99
Lily	8·9	18–11–27	281	8,447	30·06	4·1	346·33	145·46	24 49	169 95	2,398	.....	1,611	1,150	8,190	3·	86 99	1 03	25·1	16·9	82 96
Adele	3·6	24–10–27	280	6,438	22·99	4·0	257·52	108 16	18 69	126 85	1,557	150	1,677	440	6,995	3·	65 64	1 02	25·4	16·6	61 22
Primrose of Ottawa 2nd	3·8	27– 1–28	283	6,925	24·47	3·9	270·08	113 43	20 11	133 54	1,834	.....	1,347	2,440	6,285	3·5	70 49	1 02	26·1	15·9	63 06
Ottawa Valentine 2nd	4·5	11– 4–28	251	5,850	23·31	4·3	251·55	105 65	16·94	122 59	1,528	.....	1,635	2,130	7,125	3·5	67 48	1 15	26·6	15·4	55 11
Delvine	1·11	17– 3–28	258	4,000	15·50	4·0	160·00	67 20	11 61	78·81	904	.....	986	1,950	4,140	3·5	42 15	1 05	26·3	15·7	36·66
Daisy A. 1	8·4	11– 3–28	276	7,133	25 84	3·9	278 19	116 84	20 72	137 56	1,943	.....	1,843	2,590	8,450	3·5	81 66	1 14	29·3	12·7	55·91
Del.a	2·1	20– 4–28	244	5,231	21·44	3·8	198·78	83·49	15 21	98 70	1,295	.....	984	2,130	4,150	3·5	50 81	0 97	26·0	16·0	47 91
Totals	.....	.....	5,510	129,106	466·94	.....	5,066.78	2,128.04	374 93	2,502 97	33,533	2,925	33,586	36,570	134,660	72·5	139854	21 62	$5.50·2	$2.89·8	1,104 75
Averages	.....	.....	275·5	6,455·3	23·34	3·9	253·34	106 40	18 75	125 15	1·676·7	146·3	1,679.3	1,828.5	6733·0	3·63	69 93	1 08	27·5	14·5	55 24
Average of 9 years	.....	.....	308·0	6,755·9	21·10	3·9	253·34	106 40	18 75	125 15	1,650 7	425·8	2202·7	1,728.6	7238·2	3·62	89 34	1 30	27·5	14·5	86 14

COST OF RAISING HEIFERS

In this experiment the quantity of the various feeds consumed by the heifers has been carefully recorded from the time of their birth up to their first calving. This period was reached by four heifers during the year 1928 at the average age of 28 months.

The data of this experiment including the average for an eight-year period are summarized in the following table:—

COST OF RAISING HEIFERS, 1928

Name of heifer	Age at calving	Feed consumed								Total cost
		Whole milk at $1.67 per 100 lb.	Skim-milk at $0.50 per 100 lb.	Meal at $38.40 per ton	Hay at $13.00 per ton	Green fodder at $2.50 per ton	Silage at $5.00 per ton	Roots at $2.50 per ton	Pasture at $1.00 per month	
	years	lb.	lb.	lb.	lb.	lb.	lb.	lb.	months	$
Delvine	1·11	305	2,540	1,112	2,082	30	5,477	60	4·0	70 48
Delia	2·1	146	2,548	1,092	1,322	30	7,132	60	4·5	67 19
Cecile	2·7	385	2,051	1,405	2,700	40	6,866	60	8·0	86 51
Charlotte	3·5	370	2,548	1,801	4,313	50	11,465	60	10·0	120 33
Totals	9·41	1,206	9,687	5,410	10,417	150	30,940	240	26·5	344 51
Average	2·4	301·5	2,421·8	1,352·5	2,604·3	37·5	7,735·0	60·0	6·6	86 13
Average for 8 years	2·4	344·5	2,116·3	1,196·9	2,568·5	471·4	7,092·5	163·7	5·9	88 58

SWINE

A careful selection of our breeding sows was made during the year, and only the Yorkshire bacon types were kept. Sows farrowing poor litters were eliminated and replaced by young sows, the progeny of prolific and strong mothers. The farmers of the district come to this station for their breeding animals and a good many animals were sold for breeding.

On December 31, 1928, there were 52 head of swine, including two boars, ten breeding sows and 40 young pigs of four to five months of age. Experiments conducted during the year dealt chiefly with the cost of production of pork at various periods. The details of these experiments are given in the following table:—

COST OF PRODUCING YOUNG PIGS AT WEANING AGE

Number of sows		4
Number of litters per sow		2
Young pigs alive from 4 sows		53
Average of young pigs alive per sow		13·25
Feed for 4 sows and 53 pigs for six weeks—		
Cost of feed:—		
2,067 pounds	of ground oats at $47.97 per ton	$ 49 58
895 "	barley at $50.48 per ton	22 59
1,582 "	bran at $38.46 per ton	30 42
1,546 "	shorts at $40.10 per ton	31 00
1,093 "	middlings at $47.76 per ton	26 10
241 "	ground oats Purity O.M. at $78.42	9 45
865 "	charcoal, bone meal and salt	8 65
3,656 "	skim-milk at $0.25 cents per cwt	9 14
2,083 "	clover hay at $13.00 per ton	13 53
580 "	green fodder at $2.50 per ton	0 73
55 days of pasture for 4 sows, 220 days at $0.50 per month		3 50
Cost of service of boar at $2.00 per litter		16 00
Interest on capital $35.00 per sow at 6%		8 40
Total cost		$ 229 09
Average cost for one pig at six weeks		4 32

Cost of Raising a Pig up to Three Months of Age

25 young pigs costing $4.32 each at weaning time			$ 108 00
Feeding 25 young pigs from weaning up to the age of 3 months:			
1,042	pounds	of middlings at $48 per ton	25 01
515	"	ground oats at $50 per ton	12 88
580	"	barley at $51 per ton	14 79
513	"	shorts at $40 per ton	10 26
263	"	of Purity Oat Meal at $86 per ton	11 31
207	"	linseed meal at $60 per ton	6 21
4,526	"	of skim-milk at $0.25 per cwt	11 32
303	"	charcoal, salt and bone meal at $20 per ton	3 03
198	"	green fodder at $2.50 per ton	0 25
	Total		203 06
Average cost for one pig at the age of three months			8 12

Cost of Raising a Pig up to Six Months of Age

17 pigs costing $8.12 each at three months of age			$ 138 04
Feeding 17 pigs from three months to the age of six months:			
870	pounds	of ground oats at $50 per ton	21 75
1,486	"	barley at $51 per ton	37 89
870	"	middlings at $48 per ton	20 88
870	"	shorts at $40 per ton	17 40
367	"	linseed meal at $60 per ton	11 01
773	"	oats, peas and vetches at $2.50 per ton	0 97
100	"	of charcoal, bone meal and salt at $20 per ton	1 00
4,577	"	skim-milk at $0.25 per cwt	11 44
	Total cost		260 38
Average cost of one pig at six months			15 32

Cost of Raising a Pig up to Slaughtering (143 pounds slaughtered) Finishing Period Included

Cost of 11 pigs at 6 months			$ 168 52
Feeding of 11 pigs from 6 months of age up to slaughtering (8½ months):			
397	pounds	of oats at $50 per ton	9 93
908	"	barley at $51 per ton	23 15
448	"	middlings at $48 per ton	10 75
300	"	shorts at $40 per ton	6 00
128	"	linseed meal at $60 per ton	3 84
148	"	charcoal and bone meal at $20 per ton	1 48
300	"	corn at $60 per ton	9 00
198	"	O.P.V. at $2.50 per ton	0 25
891	"	of clover hay at $13 per ton	5 79
462	"	turnips at $5 per ton	1 16
1,942	"	skim-milk at $0.25 per cwt	4 86
	Total		$ 76 21
Total cost of 11 pigs from birth to slaughtering—			
Cost to six months			168 52
Feed cost from 6 to 8½ months (slaughtering)			76 21
	Total		$ 244 73
Average cost per pig			22 25
Value of pork—			
143 pounds at $0.18			25 74
Cost of raising pig to 8½ months (143 pounds of pork)			22 25
Net profit			$ 3 49
Profit per 100 pounds of pork			2 44
Profit per pound			0·024

Cost of Raising Sows up to One Year of Age

4 sows at weaning time at 8 weeks, at $5.53 each (see 1927 report)			$ 22 12
Feed for 4 sows from weaning time to one year of age—			
4,341	pounds	of mixed grains at $40.23 per ton	87 32
95	"	whole oats at $45 per ton	2 14
350	"	charcoal, bone meal and salt at $20 per ton	3 50
1,804	"	green fodder at $2.50 per ton	2 26
434	"	turnips at $5 per ton	1 09
870	"	of clover hay at $13 per ton	5 66
2,790	"	skim-milk at $0.25 per 100 pounds	6 98
45 days of pasture at $0.50 per month per head			3 00
Total cost for 4 sows			$ 134 07
Average cost per sow			33 52

FEED CONSUMED BY FOUR SOWS FROM WEANING TIME (EIGHT WEEKS) UP TO THE DATE OF THE FIRST LITTER (13 TO 14 MONTHS)

Total cost at weaning time			$ 22 12
5,006	pounds of	grain mixture at $40.23 per ton	100 70
64	"	whole oats at $45 per ton	1 44
450	"	charcoal, bone meal and salt at $20 per ton	4 50
1,804	"	green fodder at $2.50 per ton	2 26
434	"	turnips at $5 per ton	1 09
1,020	"	clover hay at $13 per ton	6 63
3,043	"	skim-milk at $0.25 per 100 pounds	7 61
61	days of	pasture at $0.50 per month, per head	4 00
Total cost of 4 sows			$ 150 35
Average cost of one sow			37 59

COST OF MAINTENANCE OF AN ADULT BOAR FOR ONE YEAR

453	pounds of	ground oats at $47.47 per ton	$ 10 75
254	"	barley at $59.55 per ton	7 56
453	"	bran at $38.79 per ton	8 79
391	"	shorts at $40 per ton	7 82
252	"	middlings at $48 per ton	6 05
214	"	charcoal, bone meal and salt at $20 per ton	2 14
441	"	clover hay at $13 per ton	2 87
198	"	green fodder at $2.50 per ton	0 25
636	"	skim-milk at $0.25 per 100 pounds	1 59
Total cost for the year			$ 47 82
Number of sows bred during the year			23

SHEEP

The flock of Cheviot sheep kept at this station on December 31, 1928, was composed of 35 ewes, 13 ewe-lambs and one ram (MacDonald No. 2180), all registered, making a total of 49 head. The lambs born in the spring of 1928 were stronger and heavier than in 1927, when the average birth weight was 7·3 against 8·9 in 1928. There were only four sets of twins born in 1928.

The average fleece weight was 6 pounds. All the wool was sold and graded by experts of the Wool Growers' Co-operative Association, at the Lennoxville warehouse. Their grading is used as a guide to dispose of sheep producing wool of inferior quality. The returns for the wool sold to this association was 34 cents a pound.

The flock is also culled according to type of the breed, in other words, animals which are not true to the type of the Cheviot race are disposed of.

The use of iodine as a preventive against goitre still gives satisfaction at this station. Not one case of goitre has been noticed since this treatment has been applied Iodized salt is given. It is prepared by dissolving 4 ounces of potassium iodide in a little water, and the solution is spread on 100 pounds of ordinary salt which is left to dry. This iodized salt is distributed regularly to the ewes in the usual manner.

FIELD HUSBANDRY

SEEDING

Although the snow was late in melting, the first crops were sown on May 16, or seven days later than in 1927, but this work was delayed by cold and persistent rains and as a rule could not be done under satisfactory conditions.

GROWTH

The germination and the first growth of cereals were poor, especially that of barley, which was practically a failure. The hoed crops grew slowly and the cultivation and hoeing were performed with difficulty. The only crop that did not suffer greatly from this excess of precipitation was the hay crop.

CROPS

The hay crop was good and of fairly good quality as the buying was done under favourable conditions and in good time. The early sown cereals ripened very well but the yield was rather low.

COST OF PRODUCTION OF CROPS

In order to ascertain the cost of production of the various crops, a careful record was made of a number of items which enter into this cost. During the year the cost of hand labour was figured at 30 cents an hour, and that of horse labour at 10 cents an hour. An amount of $2.85 per acre was charged for taxes and interest on capital. The manure was figured at $2 per ton, including $1 for spreading. These are conventional prices, representing very closely the average conditions on the farms of this district. The cost of seed, as well as the value of crops produced, are also based on the prevailing prices in the district. On account of the rapidity of settlement in this district, the cost of production of the various crops is shown under two different headings, improved land and unimproved land. By unimproved land is meant land recently cleared and which has not received any manure as yet; by improved land, that which is under rotation and which is manured regularly. Three crops were entered under these two headings: hay, a mixture of oats and peas, and a mixture of oats, peas and vetches.

COST OF PRODUCTION OF HAY

The crop of hay in 1928 was heavy, as compared with other crops. The mixture generally used includes 10 pounds of timothy, 8 pounds of red clover, 4 pounds of alsike clover, per acre The cost of seed is equally distributed among the number of years in meadow.

The amount of $3.20 recorded in the following table represents the part of a quantity of 16 tons of manure per acre applied to a four-year rotation. This represents 10 per cent of the total manure, 40 per cent of which is charged to the first year of rotation, 30 per cent the second year and 20 per cent to the third year.

The hay crop, producing as it does nutritive materials at the lowest cost, usually yields the largest profits. For the last few years a part of this crop has been made into ensilage, which is greatly relished by the cattle. Not only is clover made into ensilage, but also mixed hay, including clover and timothy. This gives a better ensilage than clover alone, which ferments too much.

Observations made in the whole district show that the yield of hay goes on increasing. There are instances of meadows on their fifth and sixth year of hay which produce more from year to year.

This is probably due to the improvement of the mechanical conditions of the soil, to the increase of organic matter and to the penetration of the clover roots, making the soil accessible to air and water and to a great store of plant food. Greater care should be given, however, to the maintenance of soil fertility, by the use of sufficient manure to replace the elements of fertility removed by the crop.

COST OF PRODUCTION OF HAY PER ACRE AT LA FEEME

Items		Improved lands		Unimproved lands	
		1928	Three years' average	1928	Three years' average
Rent and taxes	$	4 50	4 50	4 50	4 50
Manure	$	3 20	3 20	.....	.....
Seed	$	2 38	2 07	2 38	2 07
Use of machinery	$	2 85	2 85	2 85	2 85
Labour	$	3 28	3 98	3 09	4 24
Horse labour	$	1 86	1 60	1 74	1 48
Total cost per acre	$	18 07	18 20	14 56	15 14
Yield per acre	tons	2·25	1·96	2·08	1·63
Cost per ton	$	8 03	9 28	7 00	9 29
Value per acre	$	33 75	29 40	31 20	24 45
Profit per acre	$	15 68	11 20	16 64	9 31

COST OF PRODUCTION OF A MIXTURE PEAS, OATS AND VETCHES

Although not quite as heavy as usual, the yield of a mixture of oats, peas and vetches compares favourably with other crops. This mixture is suitable for the first year of cultivation after breaking in a district like that in which La Ferme is located where the seeding is often late, and it is also suitable for the first year of the rotation, when the manure is generally applied. On land recently cleared, this crop, with an application of manure, should come before the hoed crop during the first cycle of the rotation, so as to clean the land for the hoed crop.

In addition to producing a highly nutritive fodder this mixture makes a splendid ensilage, which is most suitable for our district, together with the clover hay.

The amount of $12.80 charged to manuring represents 40 per cent of the quantity of 16 tons of manure to the acre, applied to a four-year rotation. The cost of production of an acre of peas, oats and vetch mixture, grown under ordinary field conditions, is given in the following table:—

COST OF PRODUCTION OF ONE ACRE OF PEAS, OATS AND VETCHES AT LA FERME

Items		Manured plots		Unmanured plots	
		1928	Three-year average	1928	Three-year average
Rent and taxes	$	4 50	4 50	4 50	4 50
Manure	$	12 80	12 80		
Seed	$	6 00	5 83	6 00	5 83
Use of machinery	$	2 85	2 85	2 85	2 85
Manual labour	$	4 89	4 99	4 77	5 22
Horse labour	$	3 15	2 45	3 12	3 48
Total cost per acre	$	34 19	33 42	21 24	21 88
Yield per acre	tons	4·20	4·40	3·27	3·02
Cost per ton	$	8 14	7 59	9 55	6 06
Value per acre	$	21 00	25 50	16 35	15 42
Loss per acre	$	13 19	6 92	4 89	6 46

COST OF PRODUCTION OF SUNFLOWERS AT LA FERME

The crop of sunflowers was very poor. Most of the fields under hoed crops were almost completely saturated with water. Sunflowers yield very little during years of excessive precipitation. The amount of $12.80 charged for manure represents 40 per cent of a quantity of sixteen tons of manure to the acre, applied to a four-year rotation.

COST OF PRODUCTION OF AN ACRE OF SUNFLOWERS AT LA FERME

Items		1928	Three-years' average
Rent and taxes	$	4 50	4 50
Manure	$	12 80	12 80
Seed	$	1 20	1 13
Use of machinery	$	2 85	2 85
Manual labour	$	13 30	11 66
Horse labour	$	3 57	3 09
Total cost per acre	$	38 32	36 03
Yield per acre	tons	2·20	2·07
Cost per ton	$	17 37	17 40
Value per acre	$	8 80	8 83
Loss per acre	$	29 42	27 20

COST OF PRODUCTION OF OATS AT LA FERME

The oat crop was one of the poorest ever recorded in this district. The amount of $9.60 which was charged for manure represents 30 per cent of a quantity of sixteen tons of manure applied to a four-year rotation, where oats come in the second year of the rotation.

Cost of Production of an Acre of Oats at La Ferme

Items	On improved land		On unimproved land	
	1928	Three years average	1928	Three years' average
Rent and taxes $	4 50	4 50	4 50	4 50
Manure $	9 60	9 60	.....	.....
Seed $	4 50	4 01	4 50	4 01
Use of machinery $	2 85	2 85	2 85	2 85
Twine $	0 27	0 35	0 32	0 35
Manual labour $	4 45	3 69	4 26	4 28
Horse labour $	2 94	3 80	2 74	2 76
Threshing $	1 39	1 89	1 00	1 29
Total cost per acre $	30 50	29 76	20 17	19 71
Yield per acre, (grain, bush)	16·2	25·6	12·6	18·6
(straw, ton)	0·51	0·88	0·65	0·89
Value per acre $	16 02	23 26	13 98	18 15
Value of straw deducted from total cost $	1 69	1 04	1 29	0 87
Loss per acre $	14 48	6 50	6 19	1 56

COST OF PRODUCTION OF BARLEY AT LA FERME

The barley crop suffered more than any other crop by the excessive precipitation recorded during the last season of growth. Only one acre could be harvested in fairly good condition, and the yield was very poor. An amount of $9.60 is charged for manure, representing 30 per cent of the cost of a quantity of sixteen tons of manure to the acre applied to a four-year rotation.

Cost of Production of One Acre of Barley at La Ferme

Items	1928	Three years' average
Rent and taxes $	4 50	4 50
Manure $	9 60	9 60
Seed $	5 00	4 83
Machinery $	2 85	2 85
Twine $	0 34	0 31
Manual labour $	4 50	4 98
Horse labour $	2 98	3 24
Threshing $	0 62	1 17
Total cost per acre $	30 39	31 48
Yield per acre (grain, bush.)	6·2	13·7
(straw, tons)	0·92	0·83
Value per acre $	17 92	19 63
Cost per bushel, value of straw deducted $	4 00	1 93
Loss per acre $	12 47	11 85

COST OF PRODUCTION OF POTATOES AT LA FERME

The potato crop is generally a paying one in this district. The prices are always high, compared with those obtained in other districts of the province. On account of the rapid development of the district, the demand for potatoes can never be satisfied and large quantities have to be imported every year.

There appears to be a good market for many years to come for the potato crop of the district. However, this crop was produced at a loss in 1928, on account of the poor yield, due to excessive precipitation and to the very high cost of harvesting, caused by the saturated condition of the soil. The amount of $19.20 charged for manure represents 40 per cent of a quantity of 24 tons an acre applied to a six-year rotation.

Cost of Production of an Acre of Potatoes at La Ferme

Items		1928	Three years' average
Rent and taxes	$	4 50	4 50
Manure	$	19 20	19 20
Seed	$	31 50	31 50
Use of machinery	$	2 85	2 85
Manual labour	$	58 65	37 72
Horse labour	$	5 40	5 01
Total cost per acre	$	122 10	100 78
Yield per acre	bush	75·00	101·1
Cost per bushel	$	1 63	0 99
Value per acre	$	75 00	120 04
Profit and loss per acre	$	−47 10	20 04

ENSILAGE VERSUS ROOTS

The object of this experiment is to ascertain the best source of succulent fodder for the feeding of cattle. A four-year rotation was arranged in the following order: first year, hoed crop; 2nd year, oats; 3rd year, clover hay; fourth year, timothy hay. The comparison is made in the first year of the rotation. The land is first ploughed in the fall and then manured at the rate of sixteen tons per acre. One-quarter of the area is planted with roots, one-quarter with sunflowers, one-quarter with corn and the last part is sown with a mixture of peas, oats and vetches. The results given in the following table show the value of the various crops.

Comparison of Ensilage and Roots

Item		Mixture of peas, oats, and vetches	Sunflowers	Corn	Turnip
Cost per acre	$	33 42	37 50	36 25	39 30
Yield of green feed per acre	tons	4·20	1·90	0·80	0·30
Yield of dry matter per acre	lb.	1,621·0	475·0	200·0	85·0
Value of crop per acre	$	21 00	7 60	3 20	1 35
Loss per acre	$	12 42	29 90	33 05	37 95
Cost of 100 pounds of dry matter	$	2 06	7 68	18 12	46 27

EXPERIMENTS ON SURFACE DRAINAGE

The object of this experiment is to ascertain the influence of the width between dead furrows on the yield of the crop. It is conducted on a clay loam, containing a good proportion of humus and with a subsoil of heavy clay. This soil is under a four-year rotation, including the following crops: first year, oats with 16 tons of manure to the acre; second year, barley seeded with grass and clover; third year, clover hay; and fourth year, timothy hay. On half of this

ground the distance between dead furrows is three rods (49·5 feet) and on the other half the distance between dead furrows is one rod (16·5 feet). The results obtained are given in the following table:—

RESULTS OF EXPERIMENTS ON SURFACE DRAINAGE

Year of rotation	Crop	Yield per acre			
		1928		Two years' average	
		Narrow intervals	Wide intervals	Narrow intervals	Wide intervals
1	Oats..... bush.	16·4	19·4	27·3	29·3
2	Barley..... "	6·9	8·2	11·7	13·3
3	Clover hay..... ton	2·50	2·40	1·95	1·73
4	Timothy hay..... "	2·64	2·60	1·70	1·80

ROTATIONS

The experiments with rotations, started in 1923, were continued. There are altogether five rotations which appear to be quite suitable for the various soils and farms of this district, where mixed farming is practised. The main object of these experiments is to find the best rotation for this district and the crops which give the highest yield while, at the same time, increasing the fertility and improving the mechanical condition of the soil.

Nothing is more important than the choice of a rotation when newly cleared land is put under cutivation.

ROTATION "A"—THREE YEARS

First year—Sunflowers.
Second year—Oats.
Third year—Clover hay.

This rotation is suitable for a farmer who has additional land that might be used as pasture for his cattle. It would also be suitable for a dairy farmer, living in the vicinity of one of our small towns, where the cows are kept in the stable all summer and where there is not much cleared land. In some cases the mixture of peas, oats and vetches might be substituted for the sunflower crop.

A quantity of 12 tons of farmyard manure is applied to the first year of the rotation. One-third of the land is in sunflowers, one-third in oats, and one-third in hay. The mixture sown with the oats includes 10 pounds of timothy, 8 pounds of red clover, and 4 pounds of alsike clover.

YIELD OF ROTATION "A"

Year of rotation	Crop	Yield per acre	
		1928	Six years' average
1	Sunflowers..... tons	1·20	2·54
2	Oats..... bush.	12·9	22·1
3	Clover hay..... tons	2·16	0·95

ROTATION "B"—FOUR YEARS

First year—Sunflowers.
Second year—Oats.
Third year—Clover hay.
Fourth year—Clover and timothy hay.

This rotation is more suitable for general conditions on farms where there is sufficient cleared land to provide pasture in the fourth year of the rotation. In this rotation one-quarter of the land is in hoed crops, one-quarter in oats, and one-half in hay. Sixteen tons of farmyard manure are applied to the hoed crop. The mixture of grass and clovers sown to the acre includes 10 pounds of timothy, 8 pounds of red clover, and 4 pounds of alsike clover.

ROTATION "B"—FOUR YEARS

Year of rotation	Crop	Yield per acre	
		1928	Six years' average
1	Sunflowers.....tons	1·20	2·43
2	Oats.....bush.	13·5	25·1
3	Clover hay.....tons	1·83	1·23
4	Timothy hay.....tons	0·93	0·94

ROTATION "C"—FIVE YEARS

First year—Oats.
Second year—Sunflowers.
Third year—Barley.
Fourth year—Clover hay.
Fifth year—Timothy hay.

This five-year rotation allows for the growing of a larger proportion of grain. It is especially suitable for districts where the growing of grain is profitable, on farms where dairying is practised, and where swine are raised for the production of pork. Barley fills an important place in a rotation of this kind. In this rotation one-fifth of the land is in hoed crops, two-fifths in grain and two-fifths in hay. The mixture of grasses and clovers sown with barley for the formation of a meadow includes 10 pounds of timothy, 8 pounds of red clover and 4 pounds of alsike clover. A quantity of 20 tons of manure is applied in two instalments in this rotation. Twelve tons are first applied in the second year to the hoed crop and 8 more in the fifth year of the rotation, for the timothy hay. A good method is to apply this manure sometime after the harvesting of the clover; in this way it stimulates the second growth of the clover which protects the meadow during the winter and which, after decaying in the spring, increases the quantity of plant food available for the timothy.

YIELD OF ROTATION "C"

Year of rotation	Crop	Yield per acre	
		1928	Six years' average
1	Oats.....bush.	27·1	31·6
2	Sunflowers.....tons	2·20	2·13
3	Barley.....bush.	.....	12·9
4	Clover.....tons	2·24	1·12
5	Timothy.....tons	2·25	1·42

ROTATION "D"—SIX YEARS

First year—Potatoes.
Second year—Wheat.
Third year—Barley.
Fourth year—Clover hay.
Fifth year—Timothy hay.
Sixth year—Timothy hay.

Of all the rotations already discussed, this six-year rotation is probably one of the best for our district; it gives the largest profit per acre, on account of the potato crop for which a good market can always be found in this district, and also on account of the large area left for the hay crop, the cost of production of which is generally moderate, and generally a good yield is obtained.

Some changes might be made in this rotation, for instance, in the first year a part of the land might be seeded with some fodder crops; in the second year a part could be sown in wheat and the other in oats, if required, and the sixth year of the rotation might be reserved for pasture only. The grass and clover mixture is composed of 10 pounds of timothy hay, 8 pounds of red clover and 4 pounds of alsike clover. This mixture is sown with the barley. The manure is spread at the rate of 24 tons to the acre; 16 tons for the potato crop and 8 tons are spread on top for the clover.

ROTATION "D"—SIX YEARS

Year of rotation	Crop	Yield per acre	
		1928	Six year average
1	Potatoes.....bush.	75·0	82·0
2	Wheat.....bush.	13·4	15·1
3	Barley.....bush.	10·1	10·1
4	Clover hay.....tons	1·95	1·37
5	Timothy hay.....tons	2·15	1·43
6	Timothy hay.....tons	2·02	1·20

ROTATION "E"—FIVE YEARS

First year—Oats.
Second year—Summer-fallow.
Third year—One-half of the land in fall wheat and one-half in fall rye.
Fourth year—Clover hay.
Fifth year—Timothy hay.

The main object of this rotation was to ascertain the value of fall grain for our district and the influence of a summer-fallow on the total yield. In this rotation 8 pounds of red clover seed and 2 pounds of alsike clover are sown with the oats.

The following spring, when the clover has developed sufficiently, it is ploughed under and the land is kept cultivated as a summer-fallow, then one-half of the field is sown with fall wheat and the other half with fall rye.

The grasses and clovers for the formation of the meadow are sown broadcast early the following spring. They include the regular mixture, 10 pounds of timothy, 8 pounds of red clover and 4 pounds of alsike clover. The manure is applied at the rate of 20 tons per acre; 12 tons for the third year of rotation and 8 tons for the last year.

ROTATION "E"—FIVE YEARS

Rotation year	Crop	Yield per acre	
		1928	Six year average
1	Oats.....bush.	11·4	18·6
2	Summer-fallow.....	.....	.....
3	Wheat.....bush.	5·0	7·2
	Rye.....bush.	8·3	7·1
4	Clover hay.....tons	1·40	1·48
5	Timothy hay.....tons	1·65	1·63

EXPERIMENTS WITH GREEN MANURE

CLOVER PLOUGHED UNDER FOLLOWED WITH A SUMMER-FALLOW.—A five-year rotation is followed for this experiment, the object of which is to ascertain the value of clover as green manure. The clover is sown with the oats. When it has reached sufficient development it is ploughed under and the land is kept cultivated until fall. The following results were obtained:—

CLOVER PLOUGHED UNDER FOLLOWED BY SUMMER-FALLOW

Rotation year	Crop	Yield per acre				Cost of summer-fallow		Value of crop, deducting cost of summer-fallow	
		Hay and straw		Grain					
		1928	Six-year average	1928	Six-year average	1928	Six-year average	1928	Six-year average
		tons	tons	bush.	bush.	$	$	$	$
1	Oats	0·60	1·10	11·7	22·2	3 43	3 74	9 53	21 55
2	Clover ploughed under and followed by fallow	.....	.....	.....	.....	.....	.....	.....	.....
3	Barley	.....	0·53	.....	9·7	3 43	5 29	.....	5 56
4	Clover hay	1·94	1·80	.....	.....	3 43	8 08	25 67	13 91
5	Timothy hay	1·67	1·48	.....	.....	3 43	5 46	21 62	18 61
	Average per acre	.....	.....	.....	.....	2 74	5 64	11 16	11 92

CLOVER PLOUGHED UNDER FOLLOWED BY A CROP OF PEAS AND OATS PLOUGHED UNDER AGAIN IN THE FALL.—A five-year rotation is also followed in this experiment. The object is to ascertain the value of clover, peas and oats as green manure. The peas and oats are sown immediately after the clover is ploughed under. This crop takes the place of the half-fallow (summer-fallow) of the preceding experiment. The crop of peas and oats is ploughed under at the end of the period of growth. The results obtained are as follows:—

CLOVER PLOUGHED UNDER FOLLOWED BY A CROP OF PEAS AND OATS PLOUGHED UNDER AGAIN IN THE FALL

Rotation year	Crop	Yield per acre				Cost of green manure and ploughing under		Value of crop, cost of green manure deducted	
		Hay and straw		Grain					
		1928	Six-year average	1928	Six-year average	1928	Six-year average	1928	Six-year average
		tons	tons	bush.	bush.	$	$	$	$
1	Oats	0·95	1·02	11·3	19·5	5 99	5 89	8 75	16 96
2	Clover ploughed under followed by a crop of peas and oats ploughed under in the fall	.....	.....	.....	.....	.....	.....	.....	.....
3	Barley	.....	0·57	.....	9·5	5 99	11 99	5 99	5 90
4	Clover	1·86	1·68	.....	.....	5 99	7 53	21 91	14 85
5	Timothy	1 75	1·69	.....	.....	5·99	5 89	20 26	21 08
	Average per acre	.....	.....	.....	.....	4 79	6 26	11 38	11 75

EXPERIMENTS WITH FARMYARD MANURE

A four-year rotation is followed in this experiment. Sixteen tons of manure are applied to the oat crop which is the first year of the rotation. The results obtained are as follows:—

EXPERIMENT WITH FARMYARD MANURE ONLY

Rotation year	Crop	Yield per acre				Cost of farmyard manure		Value of crop, deducting cost of farmyard manure	
		Hay and straw		Grain		1928	Six-year average	1928	Six-year average
		1928	Six-year average	1928	Six-year average				
		tons	tons	bush.	bush.	$	$	$	$
1	Oats	0·64	1·03	11·5	28·7	12 80	11 73	7·6	14 25
2	Barley	.....	0·82	11·8	.....	9 60	8 80	.....	7 79
3	Clover hay	1·87	1·61	.....	.....	6 40	5 86	21 65	18 38
4	Timothy hay	2 04	1·46	.....	.....	3 20	2 93	27 40	18 98
	Average per acre	.....	.....	.....	.....	8 00	7 30	12 07	14 85

EXPERIMENT WITH FARMYARD MANURE AND LIME

The rotation followed is the same as in the preceding experiment. The same quantity of manure is applied to the oat crop and in addition two tons of limestone. The results obtained are as follows:—

EXPERIMENT WITH FARMYARD MANURE AND LIME

Rotation year	Crop	Yield per acre				Cost of farmyard manure and lime		Value of crop, cost of farmyard manure and lime deducted	
		Hay and straw		Grain		1928	Six-year average	1928	Six-year average
		1928	Six-year average	1928	Six-year average				
		tons	tons	bush.	bush.	$	$	$	$
1	Oats	0 90	0·94	14·7	27·2	16 52	13 98	0 44	10 95
2	Barley	.....	0·80	.....	10·7	18 43	11 05	.....	8 38
3	Clover hay	2·05	1·89	.....	.....	10 22	8 11	20 53	22 11
4	Timothy hay	2·10	1·31	.....	.....	7 05	11 68	24 47	17 28
	Average per acre	.....	.....	.....	.....	11 82	11 19	11 36	14 68

EXPERIMENT WITH COMMERCIAL FERTILIZERS

The same four-year rotation is followed in this experiment as in the two previous ones. The commercial fertilizers used are nitrate of soda and superphosphate. One hundred pounds of nitrate of soda are applied on top of the barley crop shortly after the seed germinates, then a mixture of 100 pounds of nitrate of soda and 300 pounds of superphosphate is applied to the first year in hay. This latter application is also made at the very beginning of the growth.

RESULTS WITH COMMERCIAL FERTILIZER

Rotation year	Crop	Yield per acre				Cost of commercial fertilizers		Value of crop, deducting cost of fertilizers	
		Hay and straw		Grain		1928	Six-year average	1928	Six-year average
		1928	Six-year average	1928	Six-year average				
		tons	tons	bush.	bush.	$	$	$	$
1	Oats	0·80	1·01	12·3	28·2	2 22	2 57	12 42	16 13
2	Barley	0·75	.....	.....	10 7	3 66	4 82	.....	6 97
3	Clover hay	2·40	1·69	.....	.....	1 10	1 03	34 90	24 96
4	Timothy hay	2 15	1·76	.....	.....	4 07	6 02	27 18	19 64
	Average per acre	.....	.....	.....	.....	2 76	3 61	18 62	16 80

RESULTS WITHOUT FERTILIZERS

The same four-year rotation is followed without the use of any manure or fertilizers. The following results have been obtained.

RESULTS WITHOUT MANURE OR FERTILIZERS

Rotation year	Crop	Yield per acre				Value of crop	
		Hay and straw		Grain		1928	Six-year average
		1928	Six-year average	1928	Six-year average		
		tons	tons	bush.	bush.	$	$
1	Oats	0·65	0·79	12·6	22·7	13 98	16 80
2	Barley	.....	0·45	.....	6·9	.....	8 00
3	Clover hay	2·01	1·38	.....	.....	30 15	22 48
4	Timothy hay	2·11	1·44	.....	.....	31 65	22 62
	Average per acre	.....	.....	.....	.....	18 94	17 47

HORTICULTURE

FRUIT TREES

Apple trees and plums wintered well this year and very little killing back was observed. The orchard soil, which is in sod, had a good growth of clover, which was ploughed under in the beginning of July. Then the land was disked and cultivated several times at a good depth and a small quantity of ground limestone was applied, followed by harrowing and the seeding of a nurse crop. The application of lime and the seeding of the nurse crop were limited to a radius of 10 feet around the trees. The rape made a quick growth and sheltered the roots of the trees perfectly in the fall. The new growth of the trees was two feet long in some cases and most of it was perfectly ripened.

SMALL FRUITS

The tests of varieties were continued. The black currants were affected by the rust, which was observed throughout the district.

STRAWBERRIES—TEST OF VARIETIES

Seven varieties gave a satisfactory yield. The results obtained in rows 30 feet long are given in the following table:—

STRAWBERRIES—RESULTS OF TEST OF VARIETIES

Variety	Date ready to use	Yield per 30 foot row	Observations
		lb.	
Parson Beauty	July 30	12·5	Large.
Mariana	" 23	12·5	"
Excelsior	" 30	8·0	Small.
Cassandra	" 26	16·0	"
Lavinia	" 23	17·0	Large.
Portia	" 27	13·3	"
Parson Beauty Per	" 18	13·3	Medium.

VEGETABLES

On account of the excessive rain the season was not very favourable to the growth of garden plants. However, satisfactory results were obtained.

HORSE BEANS—TEST OF VARIETIES

On May 21, thirteen varieties were sown in rows 30 feet long and 36 inches apart. Some time after germination the plants were thinned 4 inches apart in the rows.

The crop was harvested on September 18. The yields obtained in 1928 as well as the average for three years are given in the following table:—

HORSE BEANS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Yield of beans		Total weight of the yield in wet matter	
		1928	Three years' average	1928	Three years' average
		lb.	lb.	lb.	lb.
Broad Windsor	S.B.	10	9·5	57	67·7
Lg. Pd. Aquadulce	Sharp	9	7·0	57	49·2
Green Windsor	"	9	6·0	56	57·6
Lg. Pod. Bunyard Ex.	"	10	6·3	47	57·6
Giant Seville Lg. Pod	"	9	5·9	60·5	41·0
Lg. Pod. Green	"	8	6·0	61	53·0
Lg. Pod. Masterpiece Grn.	"	6	5·1	49	57·0
Mazagam	Sutton	6	4·6	62	68·0
Lg. Pod. Conqueror	Sharp	9	7·0	70	76·0
Giant Seeded	"	10	7·8	67	64·2
Lg Pod. Hangdown	"	11	8·2	77	68·0
Taylor Windsor	"	8	8·6	57	67·6
Ex. Lg. Pod	"	8	6·6	57	59·0

BEANS—TEST OF VARIETIES

Twenty-one varieties were sown on May 21 in 30 foot rows, 30 inches apart. The plants were thinned four inches apart in the rows. The yields obtained are given in the following table:—

BEANS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Days from sowing until ready to use	Yield per 30 foot row	Observations
			lb.	
Davis Wax	McD	82	0	Poor germination.
Wardwell Kid. Wax	Graham	82	2·3-4	Rusted.
Inter. Challenge B. W.	C.E.F.	82	6·5	Rusted.
Princess of Artois	0-925	82	4·0	
Stringless G. Pod	0-11402	82	3·3-4	Slightly rusted.
Masterpiece	C.E.F.	84	3·3	
Bountiful	Will	86	5·0	Slightly rusted.
Plentiful	Sutton	86	5·3	Slightly rusted.
Pencil Pod B. W.	Burpee	86	2·3-4	Rusted.
Giant Stringless G.P.	"	89	2·3-4	Slightly rusted.
Imp. Refugee	S.B.	89	1·5	75% killed by water.
Pencil Pod. B.W.	C.E.F.	89	3·3	Rusted.
Refugee 1,000-1	Burpee	96	3·3-4	
Golden King W.P.	Webb	96	1·0	Rusted.
Pole No. 1	0-1495	96	6·5	
Hodson Lg. Pod	Rennie	96	4·3	
Hodson Lg. Pod	0-9325	98	3·5	
Refugee 1,000-1	0-9357	103	2·5	Slightly rusted.
Kentucky Wonder	Will	103	2·3	
Yellow Pod. B.	Chill	89	3·3	Slightly rusted.
Dwarf C. Pod. B.	Schell	86	3·3	

BEETS—TEST OF VARIETIES

Eleven varieties of beets were sown on May 21, in 30 foot rows, 30 inches apart. The plants were thinned 3 inches apart in the rows. The results obtained during the year as well as the average for four years are given in the following table:—

BEETS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			1928	Four years' average
			lb.	lb.
Detroit D. Red	Graham	92	9·7	13·4
Detroit D. Red	Moore	92	8·0	.....
Detroit D. Red	McD	92	9·0	14·7
Ex. Ey. Flat Egyptian	Moore	92	11·5	.....
Eclipse	McD	92	11·5	16·9
Crosby Egyptian	S.B.	103	10·0	14·4
Blk. Red Ball	Burpee	110	7·0	9·1
Blk. Red Ball	C.E.F.	110	6·0	12·7
Columbia	Burpee	110	5·0	12·4
Detroit D. Red	C.E.F.	110	6·4	.....
Sunnybrook	.....	116	4·0	11·3

BEETS—THINNING EXPERIMENT

The variety Detroit Dark Red was selected for this experiment; it was sown on May 21, in 30 foot rows, 30 inches apart. One row was thinned to 2 inches, one to 3 inches and one to 4 inches. The heaviest yields obtained during the period of six years were in the following order of distances left between plants: 2 inches, 3 inches and 4 inches. The results obtained in 1928 as well as the average of the last six years are given in the following table:—

BEETS—RESULTS OF THINNING EXPERIMENT

Thinning distance	Yield per 30 foot row		
	1928		Six years' average
	Marketable	Unmarketable	Marketable
	lb.	lb.	lb.
2 inches	10·5	2·0	17·6
3 inches	11·0	2·0	14·0
4 inches	8·5	1·5	13·8

BEETS—SOWING AT DIFFERENT DATES

The object of this experiment is to find the best date for sowing. The Detroit Dark Red variety has been used since the beginning of the experiment and the plants thinned two inches apart. The results obtained during the last season as well as the average for two years are given in the following table:—

BEETS—RESULTS FROM SOWING AT DIFFERENT DATES

Variety	Date of sowing	Yield per 30 foot row		
		1928		Average for two years
		Marketable	Unmarketable	Marketable
Detroit Dark Red		lb.	lb.	lb.
McD	May 21	7·7	3·0	21·3
"	May 28	10·0	3·0	12·0
"	June 4	9·4	2·0	9·6
"	June 11	7·4	1·5	5·6

BEETS—FALL SOWING VS. SPRING SOWING

The object of this experiment is to find out whether it is profitable to sow beets in the fall just when the earth is about to freeze. No yield was obtained from the fall seeding during the last season. In 1926 the fall sowing gave the highest yield; this was the only time in a period of six years when the fall seeding gave the best results.

CABBAGE—TEST OF VARIETIES

Twenty-five varieties were sown in hotbeds on April 21, and transplanted on May 30. The plants were thinned to 18 inches in rows 30 inches apart. The results obtained in the last season with the average of three years is given in the following table:—

CABBAGE—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 60 foot row	
			1928	Three years' average
			lb.	lb.
Baby Head	D. & F.	110	30·5	31·1
Fottler Imp. B	S.B.	113	32·5	14·7
Drumhead Savoy	McK.	116	36·0	.....
Savoy Imp. Am	Ferry	116	18·0	.....
Winnigstadt	Modsen	116	36·3	.....
All Head Early	S.B.	124	73·5	47·3
Dala	McD.	124	29·9	.....
Kinver Globe	Webb	124	21·0	.....
Midseason Mkt	Harris	124	41·0	.....
Ey. Jersey Wakefield	Stokes	124	21·0	.....
Charleston	"	124	26·5	.....
Golden Acre	Harris	124	22·3	32·0
Golden Acre	Modsen	124	12·3	.....
Copenhagen Mkt	Strandholm	128	11·0	.....
Danish Ballhead S.S	Harris	133	83·5	41·0
Danish Ballhead S.E	"	147	67·5	.....
Danish Ballhead	S.B.	152	43·5	24·0
Danish Round Head	Burpee	157	70·0	.....
Glory of Enkhuisen	Rennie	161	13·5	37·3
New Flat Swedish	D. & F.	161	15·9	.....
Kildonan	S.B.	161	28·3	31·7
Hollander	Harris	161	27·5	.....
Brunswick S.S	Modsen	161	9·5	.....
Summer Ballhead	Harris	190	8·0	.....
Hago Red	D. & F.	198	6·0	.....
Copenhagen Mkt	Graham	119	123·0	95·2
Ex. Am. Danish Ballhead	C.E.F.	126	21·0	27·6

Note:—The varieties Golden Acre and Copenhagen Market appear to be very suitable.

CABBAGE SOWN IN THE OPEN VS. SOWN IN HOTBEDS

The varieties Copenhagen Market and Danish Ballhead were used in this experiment. The results obtained are given in the following table:—

RESULTS WITH CABBAGE SOWN IN HOTBEDS VS. SOWN IN THE OPEN

Variety	Method of sowing	Date of sowing	Ready for use on	Head cabbages	Yield per 60 foot row
				lb.	lb.
Copenhagen Market	Hotbeds	.....	Aug. 25	17·0	31·0
(Graham)	In the open	May 28	Oct. 2	8	10
Ex. Am. Danish Ballhead	Hotbeds	.....	Oct. 8	13·0	21·0
(C.E.F.)	In the open	May 28	.....	.....	.....

Observations.—The observations made during the last few years show that cabbage sown in the open are rarely satisfactory; it is better to start them in a hotbed. Sowing in the open should be practised only when hotbed sowing has failed. In this case early varieties should be selected.

CABBAGE—PROTECTION AGAINST ROOT MAGGOTS

The varieties Early Jersey Wakefield and Copenhagen Market were used in this experiment. The results obtained were as follows:—

CABBAGE—PROTECTION FROM ROOT MAGGOTS

Varieties	With corrosive sublimate		With tarred disks		Without protection	
	Percentage killed	Yield per 30 foot row	Percentage killed	Yield per 30 foot row	Percentage killed	Yield per 30 foot row
	%	lb.	%	lb.	%	lb.
Copenhagen Market	0	53·5	0	61·5	3	37·5
Early Jersey Wakefield	1	52·3	1	39·5	1	49·5
Seven year average	2·5	19·7	18	22·4	29·2	16·1

CAULIFLOWERS—TEST OF VARIETIES

Three varieties were sown in a hotbed on April 25, and transplanted in the open on June 8, 18 inches apart in rows 30 inches apart. The yields were as follows:—

CAULIFLOWERS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 60 foot row
			lb.
6 Weeks	McD	83	5·0
Early Snowball	Graham	83	5·0
Danish Ex. Ey. Snowball	Strandholm	83	6·5

CAULIFLOWERS—PROTECTION FROM ROOT MAGGOTS

The same procedure was followed as for ordinary cabbage. The results obtained were as follows:—

CAULIFLOWERS—RESULTS OF DIFFERENT METHODS OF PROTECTION

Variety	With corrosive sublimate		With tarred paper disks		Without protection	
	Percentage killed	Yield per 30 foot row	Percentage killed	Yield per 30 foot row	Percentage killed	Yield per 30 foot row
	%	lb.	%	lb.	%	lb.
Ey. Dwarf Erfurt	5	9·3	11	6·7	11	5·3
Ey. Snowball	9	6·3	8	6·3	9	6·5

CARROTS—TEST OF VARIETIES

Eight varieties of carrots were sown on May 21, in rows 30 inches apart. The plants were thinned to two inches in the rows. The results obtained were as follows:—

CARROTS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			1928	Two years' average
			Marketable	Marketable
			lb.	lb.
Chantenay	0-8932	81	19·0	24·5
Sel Chantenay	McD.	81	14·5	23·7
Ey. Sc. Horn	D. & F.	81	23·0	31·5
Oxheart	S.B.	81	15·5	13·2
Danvers ½ Long	Rennie	83	18·0	12·0
Henderson Int.	"	86	13·0	18·0
Nantes ½ Long	McD.	86	20·0	22·0
St-Valery	D. & F.	88	6·0	12·0

The varieties Chantenay and Nantes appear to be suitable.

CARROTS—SOWING AT DIFFERENT DATES

The first sowing is done as soon as weather and soil conditions are favourable and the other sowings at intervals of one week. The results obtained are as follows:—

CARROTS—SOWING AT DIFFERENT DATES

Variety used	Date of sowing	Yield per 30 foot row			
		1928		Three years' average	
		Marketable	Unmarketable	Marketable	Unmarketable
		lb.	lb.	lb.	lb.
Chantenay	May 21	11	3·5	14·6	3·3
	May 28	11	3·4	8·6	7·5
	June 4	11	3·6	8·5	5·0
	June 11	9	2·8	4·1	4·7

The first sowings generally gave the best results.

CARROTS—THINNING TEST

The variety Chantenay was used in this experiment which gave the following results:—

CARROTS—RESULTS OF THINNING TEST

Variety	Yield per 30 foot row			
	1928		Three years' average	
	Marketable	Unmarketable	Marketable	Unmarketable
	lb.	lb.	lb.	lb.
1½ inches	14	2·5	19·0	3·9
2 inches	12	2·0	16·0	9·6
3 inches	12	2·0	13·1	3·4

CARROTS—FALL SOWING VS. SPRING SOWING

In this comparison the fall sowing is done just before the frost and the spring sowing as soon as the soil and weather conditions are favourable. The results obtained are as follows:—

CARROTS—RESULTS FROM FALL SOWING VS. SPRING SOWING

Variety	Season of the sowing	Date of sowing	Date ready to use	Yield per 30 foot row
				lb.
Chantenay	Autumn	Oct. 20	July 31	20
	Spring	May 21	Aug. 10	19

PARSNIPS—TEST OF VARIETIES

Five varieties were sown on May 21, in rows 30 inches apart. The plants were thinned to two inches in the rows. The results obtained were as follows:—

PARSNIPS—RESULTS OF TEST OF VARIETIES

Variety	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			1928	Three-years' average
			lb.	lb.
Hollow Crown	McK	91	7·5	5·6
Hollow Crown	O-289-A	91	5·0	5·5
Elcomb Imp	Graham	94	5·0	4·5
XXX Guernsey	Rennie	94	7·0	6·5

PARSNIPS—SOWING AT DIFFERENT DATES

The first sowing was done as soon as the soil was ready in the spring, and the following sowings at one week's intervals. The results obtained are as follows:—

PARSNIPS—RESULTS FROM SOWING AT DIFFERENT DATES

Variety used: Hollow Crown	Date of sowing	Date of harvesting	Yield per 30 foot row	
			Usable	
			1928	Two-years' average
			lb.	lb.
1	May 21	Sept. 19	10·5	8·5
2	May '28	Sept. 19	12·0	8·5
3	June 4	Sept. 19	9·0	6·9
4	June 11	Sept. 19	Nil	

PARSNIPS—THINNING TEST

The object of this experiment is to ascertain the best distance to leave between the plants in rows 30 inches apart. The results obtained are as follows:—

PARSNIPS—RESULTS OF THINNING TEST

Variety used: Hollow Crown	Date of sowing	Date of harvesting	Yield per 30 feet row		
			1928		Three years' average
			Marketable	Unmarketable	Marketable
			lb.	lb.	lb.
Thinned at 2 inches	May 21	Sept. 17	12	6·3–4	10·5
Thinned at 3 inches	May 21	.....	12	6.0	8.5
Thinned at 4 inches	May 21	.....	15·5	2·0	10·7

LETTUCE—TEST OF VARIETIES

Eighteen varieties were sown on May 21, in rows 15 inches apart. The plants were thined at 15 inches in the rows. The results obtained were as follows:—

LETTUCE—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 15 foot rows	
			1928	Three-years' average
		days	lb.	lb.
Ey. Paris Mkt	O-380	61	3·7	4·5
Blk. Sd. Simpson	Vaughan	61	11·5	.....
Hard Head	Burpee	61	9·3	.....
New Brittle	Burpee	61	11·9	.....
Big Boston	McK	61	18·9	14·8
Grand Rapids	McK	61	8·9	13·8
Imp. Hanson	D. & F	61	14·9	11·0
Wonderful	Webb	61	15·0	.....
Blk. Sd. Simpson	Ewing	61	12·5	14·3
Big Boston	Graham	61	14·5	.....
Iceberg	Ewing	61	9·9	12·1
Blk. Sd. Simpson	Dreer	61	13·0	.....
Crisp as Ice	Will	61	9·5	8·6
Salamander	McD	61	11·3	12·1
Grand Rapids	Burpee	61	9·5	9·8
All heart	Dreer	66	9·9	9·2
Paris White (Cos)	Graham	81	16·9	13·1
Trianon Cos	Vaughan	84	11·3	24·3

LETTUCE—FALL SOWING VS. HOTBED SOWING VS. SOWING IN THE OPEN

The fall sowing is done just before the earth freezes; the sowing in the hotbeds in the last days of April and the sowing in the open as soon as the conditions of the soil and temperature are favourable. The results obtained were as follows:—

LETTUCE.—RESULTS FROM FALL SOWING VS. SOWING IN HOTBED VS SPRING SOWING

When sown	Date of sowing	When ready to use	Number of plants	Yields in 1928
				lb.
Autumn	Oct. 20	July 17	56	25·5
Spring	May 21	July 21	37	17·8
Hotbeds	April 27	July 9	60	28·8

PARSLEY—TEST OF VARIETIES

Two varieties were sown on May 21, in rows 30 inches apart. The plants were thinned to 2 inches in the rows. This experiment gave the following results:—

PARSLEY—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			1928	Two-years' average
			lb.	lb.
Champion M.C.	Ewing	141	9·5	13·7
Triple Curled	Ewing	141	10·0	8·5

PEAS—PLANTING AT VARIOUS DISTANCES

Three varieties, Thomas Laxton, Stratagem and English Wonder were used in this experiment. The following results were obtained:—

PEAS—RESULTS FROM PLANTING AT VARIOUS DISTANCES

Varieties	Date ready to use	Yield per 30 foot row					
		1928			Two-year average		
		1 inch	2 inches	3 inches	1 inch	2 inches	3 inches
		lb.	lb.	lb.	lb.	lb.	lb.
Thomas Laxton	July 26	17·7	14·0	14·0	25·1	23·0	17·2
Stratagem	August 14	21·	17·7	17·7	21·5	20·6	20·9
English Wonder	August 1	11·5	8·7	8·7	18·6	13·2	13·9

POTATOES—TEST OF VARIETIES

Five varieties were planted on May 29, in rows 30 inches apart and the sets 12 inches apart in the rows. The following results were obtained:—

POTATOES—RESULTS OF TEST OF VARIETIES

Variety	Seed per per acre	Yield per acre		
		Date of harvest	Per cent of the crop ready to use	Marketable
	bush.			bush.
Early Ohio	22·7	August 29	60	149·8
Gold Nugget	25·1	" 29	50	145·0
Gold Coin	20·7	" 29	45	130·5
Irish Cobbler	22·2	" 29	60	140·1
Green Mountain	21·2	" 29	80	201·6

POTATOES—PLANTING AT DIFFERENT DATES

In 1928 the first planting was done on May 21 and the following plantings at intervals of one week, the latest being done on June 28. The following results were obtained:—

POTATOES—RESULTS FROM PLANTING AT DIFFERENT DATES

Variety	Date of sowing	Yield per acre			
		1928		Three-year average	
		Marketable	Unmarketable	Marketable	Unmarketable
		bush.	bush.	bush.	bush.
Green Mountain	May 21	96·6	17·9	167·1	60·2
"	" 28	77·3	21·7	146·1	83·5
"	June 4	101·5	29·0	165·8	58·0
"	" 11	94·2	22·9	178·0	64·8
"	" 18	50·7	9·3	157·6	67·6
"	" 28	29·0	19·3	.....	.....
Irish Cobbler	May 21	94·4	26·5	166·4	63·8
"	" 28	91·8	24·1	162·6	47·1
"	June 4	99·0	22·9	144·5	81·3
"	" 11	99·0	25·3	110·7	71·5
"	" 18	92·4	18·1	120·3	50·0
	" 28	24·1	9·6	.....	.....

POTATOES—VARIOUS SORTS OF SETS

The object of this experiment is to ascertain the comparative yields of sets with one eye, two eyes and three eyes. The results obtained are given in the following table:—

POTATOES—RESULTS FROM DIFFERENT SORTS OF SETS

Varieties	Number of eyes	Date of planting	Quantity of seed	1928		3 years' average	
				Marketable	Unmarketable	Marketable	Unmarketable
			bush.	bush.	bush.	bush.	bush.
Green Mountain	1 eye	May 24	13·2	140·1	18·1	162·6	36·0
Green Mountain	2 eyes	May 24	18·1	154·6	33·8	211·2	30·8
Green Mountain	3 eyes	May 24	20·5	120·8	43·5	228·8	52·8
Irish Cobbler	1 eye	May 24	13·2	116·0	19·3	150·1	60·1
Irish Cobbler	2 eyes	May 24	18·5	96·6	31·4	178·8	39·0
Irish Cobbler	3 eyes	May 24	21·7	101·5	39·8	139·4	26·7

POTATOES—PLANTING AT DIFFERENT DISTANCES

The object of this experiment is to find out the best distance apart between rows and sets. The results obtained are given in the following table:—

POTATOES—RESULTS FROM PLANTING AT DIFFERENT DISTANCES

Varieties	Distance between rows	Distance between sets	Quantity of seed used	Yield per acre			
				1928		3 years' average	
				Marketable	Unmarketable	Marketable	Unmarketable
	in.	in.	bush.	bush.	bush.	bush.	bush.
Green Mountain	30	12	22·9	128·0	24·1	181·1	54·0
	30	14	19·8	89·4	14·9	139·4	42·6
	36	12	22·0	132·4	19·3	143·3	41·6
	36	14	21·7	130·5	13·5	202·1	36·0
Irish Cobbler	30	12	23·2	119·8	19·3	130·3	51·6
	30	14	18·8	275·9	12·0	221·3	40·6
	36	12	26·5	113·5	16·4	147·6	39·1
	36	14	21·2	120·3	17·6	174·5	27·8

POTATOES—SETS FROM VARIOUS STAGES OF RIPENING

The object of this experiment was to ascertain the influence of the stage of ripening of the set on the yield of potatoes. In this experiment the sets used came from crops planted at different dates but all harvested on the same date. The planting was done on May 29.

POTATOES—RESULTS FROM SETS AT VARIOUS STAGES OF RIPENING

Varieties	Date of planting	Quantity of seed per acre	1928		Three years' average	
			Marketable	Unmarketable	Marketable	Unmarketable
		bush.	bush.	bush.	bush.	bush.
Irish Cobbler	May 21	24·1	58·0	24·1	154·2	63·0
	May 28	21·7	67·6	29·0	154·5	72·7
	June 4	19·3	72·5	22·9	135·6	81·3
	June 11	20·5	82·1	24·1	105·1	71·2
	June 17	20·5	58·0	33·8	75·0	55·2
	June 24	20·5	58·0	26·5	.....	.....
Green Mountain	May 21	24·1	43·5	37·4	162·6	50·6
	May 28	20·5	43·5	36·2	134·9	63·4
	June 4	21·7	101·5	41·0	165·8	62·0
	Junr 11	23·0	174·0	30·2	194·4	67·2
	June 17	25·3	43·5	31·6	207·7	72·1
	June 24	21·7	17·0	14·5	.....	.....

POTATOES—SPROUTED SETS VS. UNSPROUTED SETS FOR PLANTING

The varieties Irish Cobbler and Green Mountain were used in this experiment. In order to stimulate development of strong sprouts, potatoes are exposed to the sunlight in a room kept at a fairly low temperature. The others are kept in a cool and dark place until the time of planting has arrived. The following results were obtained—

POTATOES—RESULTS WITH SPROUTED SETS VS. UNSPROUTED SETS

Variety	Date ready to use	Yield per acre		
		1928		Three years' average
		Marketable	Unmarketable	Marketable
		bush.	bush.	bush.
Irish Cobbler—				
Sprouted	Aug. 28	60·4	30·2	156·5
Unsprouted	Sept. 12	103·9	19·3	142·6
Green Mountain—				
Sprouted	12 Sept.	53·1	22·9	181·9
Unsprouted	11 Sept.	87·0	25·2	105·6

POTATOES—LEVEL VS. HILL CULTIVATION

A part of the plantation was hilled at once and the other after the last hoeing. The results obtained were as follows;—

POTATOES—RESULTS FROM LEVEL VS. HILL CULTIVATION

Method of cultivation	Yield per acre			
	1928		Three years' average	
	Marketable	Unmarketable	Marketable	Unmarketable
	bush.	bush.	bush.	bush.
Level	82·6	32·8	161·5	51·7
Hill	73·4	31·4	195·7	58·5

POTATOES—NUMBER OF CULTIVATIONS

The object of this experiment is to ascertain the influence of 3 or 6 cultivations on the yield. One part of the field received three cultivations while the other received six during the season. The results obtained were as follows:—

POTATOES—RESULTS FROM DIFFERENT NUMBERS OF CULTIVATIONS

Number of cultivations	Yield per acre			
	1928		Three years' average	
	Marketable	Unmarketable	Marketable	Unmarketable
	bush.	bush.	bush.	bush.
3	71·0	30·9	113·4	56·8
6	29·0	13·5	97·6	54·5

POTATOES—NITRATE OF SODA APPLIED AS A STIMULANT

The object of this experiment is to ascertain the value of nitrate of soda applied on top of the soil at various intervals from the time of sowing. The total quantity of nitrate of soda which is applied to each plot is equivalent to 250 pounds an acre. The potatoes were planted on May 29 and dug on September 20. The results obtained are given in the following table:—

POTATOES—RESULTS FROM NITRATE OF SODA APPLIED AS A STIMULANT

Method of application	Marketable potatoes per acre
	bush.
One application after planting	133·4
Four applications at intervals of 5 days	108·2
Four applications at intervals of 10 days	193·3
Four applications at intervals of 20 days	224·2

SPINACH—TEST OF VARIETIES

Eight varieties of spinach were sown on May 21 in rows 30 inches apart. The results obtained were as follows:—

SPINACH—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			Marketable	
			1928	Two years' average
		days	lb.	lb.
Princess Juliana	Rice	44	2·7	7·0
King of Denmark	Graham	44	5·5	7·5
Victoria	McD	44	3·5	9·6
Big Crop	Madsem	44	4·5	6·5
Juliana	"	44	4·5	8·5
King of Denmark	"	44	6·7	8·0
Noble Gandry	Stokes	44	4·7	10·6
New Zealand	Graham	63	38·5	25·6

SALSIFY—TEST OF VARIETIES

Three varieties were sown on May 21 in rows 30 inches apart and the plants were set 1·5 inch apart in the rows. The results obtained are as follows:—

SALSIFY—RESULTS OF TEST OF VARIETIES

Variety	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			Marketable	
			1928	Two years' average
		days	lb.	lb.
Mammoth Sandwich	Rennie	119	10	18
Long White	Dreer	119	6	–
Mam. Sand. Island	D. & F.	119	9	–

TABLE TURNIPS—TEST OF VARIETIES

Three varieties were sown on May 21 in rows 15 inches apart and the plants were thinned to two inches in the rows.

TABLE TURNIPS—RESULTS OF TEST OF VARIETIES

Variety	Source	Days from sowing until ready for use	Yield per 30 foot row	
			Marketable	
			1298	Three years' average
		days	lb.	lb.
Purple Top Milan	McD.	66	30·0	31·1
Early White Milan	Harris	70	26·2	25·1
Red Top Strap Leaf	McD.	70	38·0	.....

RADISHES—TEST OF VARIETIES

Eleven varieties were sown on May 21 in rows 15 inches apart, and the plants were thinned at 1 inch in the rows. The following results were obtained:—

RADISHES—RESULTS OF TEST OF VARIETIES

Variety	Source	Days from sowing until ready for use	Yield per 30 foot row	
			Marketable	
			1928	Three years' average
		days	lb.	lb.
French Breakfast	Patmore	40	5·0	9·1
XXX Sc. Oval	Rennie	40	4·9	6·9
Sc. Turnip Wt. Tip	McD.	40	4·9	7·1
Early White Tipped	Ewing	40	5·0	10·2
Saxa	McK.	40	5·0	.....
Saxa	Rice	40	6·9	.....
20 Days	Vaughan	40	7·0	8·2
Sc. Turnip Wt. Tip	Graham	40	4·9	.....
Ey. Sc. Globe	Vick's	44	4·0	6·5
Icicle	D. & F.	44	5·5	10·9
Chartier	Ewing	53	3·3	8·8

KOHL-RABI—TEST OF VARIETIES

Two varieties were sown on May 21 in rows 30 inches apart. The results obtained are as follows:—

KOHL-RABI—RESULTS OF TEST OF VARIETIES

Variety	Source	Days from sowing until ready for use	Yield per 30-foot row
			lb.
Purple Vienna	Graham	82	20
Ey. White	McD	86	8

CHARD—TEST OF VARIETIES

Two varieties were sown on May 21 in rows 30 inches apart. The results obtained were as follows:—

CHARD—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30 foot row	
			1928	Two years' average
			lb.	lb.
Luculus	Ewing	67	27·3	37·6
Spinach Beet	Rennie	67	28·3	43·1

SQUASH—TEST OF VARIETIES

Eleven varieties were sown on May 16 in hills 9 feet apart, five of which gave a yield. The results obtained were as follows:—

SQUASH—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready for use	Yield per two hills
			lb.
Golden Hubbard	Harris	110	3
Lg. Wht. Bush	Ewing	114	52·0
Eng. Vegetable	S.B.	117	8·5
Green Hubbard	Graham	121	9·9
Perfect Gem	Morse	127	4·9
Golden Hubbard	McD	.....	.....
New Acorn	Buckbee	.....	.....
Delicious	Graham	.....	.....
Des Moines	Stokes	.....	.....
Golden Hubbard	0–11348	.....	.....

CUCUMBERS—TEST OF VARIETIES

Twelve varieties were sown in hills 6 feet apart, ten of which gave a yield. The results obtained were as follows:—

CUCUMBERS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per two hills
			lb.
Imp. Lg. Green	Rice	87	1·3
Imp. Lg. Green	McD	87	0·3
Ey. Wht. Spine	Harris	87	0·5
Ey. Russian	Burpee	87	2·0
Harris D. Yield	Harris	87	7·9
Ey. Wht. Spine	Bruce	89	4·3
Davis Perfect	Graham	90	1·0
China	Harris	91	1·0
Green Prolific	Livingston	97	1·3
Giant Pera	D. & F	100	3·9
Harris Perfection	Harris	.....	.....
Indiana Gherkin	Burpee	.....	.....

ONIONS

Five varieties were started in a hotbed and transplanted in the open on May 31 in rows 15 inches apart. The plants were set 1 inch apart in the rows. The results obtained are as follows:—

ONIONS—STARTED IN HOTBED

Varieties	Date of harvest	Yield per 30-foot row	
		1928	Two years' average
		lb.	lb.
Ey. Flat Red Weatherfield, Graham	Sept. 10	9·3	5·9
Lg. Red Weatherfield, MacDonald	Sept. 10	2·9	7·5
Yellow Globe Danvers, McDonald	Sept. 10	5·0	6·5
Prize Taker	Sept. 10	7·5	7·7

ONION SETS PLANTED

Two varieties were planted in rows 15 inches apart, and the sets were placed one inch apart in the rows. The results obtained are contained in the following table:—

ONION SETS PLANTED

Varieties	Date of planting	Date harvested	Yield per 30-foot row	
			1928	Two years' average
			lb.	lb.
Red	May 29	Aug. 25	11·0	15·5
Yellow	May 29	Aug. 25	16·0	19·5

LEEK—TEST OF VARIETIES

Five varieties were sown on May 21 in rows 15 inches apart and the plants were placed an inch apart in the rows. The results obtained were as follows:—

LEEK—TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per 30-foot row
			lb.
Lg. American Flag	Ferry	117	3·5
Musselburg	Graham	122	4·5
Monstrous Carentan	D. & F.	122	1·9
London Flag	Bruce	122	2·5
Dobbies Int. Prize	D. & F.	122	3·3

TOMATOES—TEST OF VARIETIES

Tomatoes were sown in hotbeds on April 17 and after a couple of transplantings, they were planted in the open on June 8. Plants were spaced 4 feet apart every way. The list of varieties producing fruits is given in the following table:—

TOMATOES—RESULTS OF TEST OF VARIETIES

Varieties	Source	Number of days from sowing until ready to use	Yield per five plants
			lb.
A-X-B-B	O-11390	123	0·9
Fargo 1927	N.D.A.C.	128	2·0
Sel Earliana	Moore	129	0·3
Canadian Nov	Harris	129	0·9
Alacrity	0-381	134	0·2
Pink Noel	0-9731	134	0·9
Alac. x. Earlibell	0-6572	134	0·2
Pink No. 2	0-9730	137	0·9
Earliest of all	S.B.	137	0·3
Red Rock	Langdon	137	0·6
Ey. Atlantic	McK.	144	0·3
Chalk Ey. Jewel	S.B.	144	0·5
A-B-B-X	11389	144	0·9
Mariana Nov	Harris	144	0·3
Red Head	Lnagdon	144	0·5
Viking Tomato	N.D.A.G. 1927	148	0·9
Pen. State Earliana	Stokes	148	0·5
New 50 days	Buckbee	148	0·2
Pink No. 2	0-6569	148	0·2
Earliest Mkt. Full of Life	Buckbee	148	0·3

TOMATOES—PRUNING EXPERIMENT

The object of this experiment is to ascertain the influence of pruning on the size of the fruits. One flower cluster was left on some plants, two clusters were

left on another lot of plants, three clusters on a third lot, and the last one was left unpruned. The results obtained are given in the following table:—

TOMATOES—RESULTS OF PRUNING EXPERIMENT

Various methods of pruning	Varieties	Date of sowing	Number of days from sowing until ready to use	Yield per 30-foot row
				lb.
1 Cluster	Alac. 0-6560	April 17	134	6·5
2 Clusters	Alac. 0-6560	April 17	134	6·5
3 Clusters	Alac. 0-6560	April 17	134	2·5
Unpruned	Alac. 0-6560	April 17	150	0·5

OTHER GARDEN CROPS

Several other garden plants were under test. As they were used mainly for seasoning and have a minor importance, some details were omitted so as to present the yields obtained in one table only.

TEST OF VARIETIES WITH VARIOUS OTHER GARDEN PLANTS

Sort	Variety	Source	Number of days from sowing until ready to use	Yield per 30-foot row
				lb.
Chervil	Green Curled	Will	57	10·0
Chervil	Double Curled	McD	57	9·5
Cress	Pepper Grass	S.B.	49	16·5
Fennel		Sharp	81	15·5
Savory	Summer	S.B.	63	17·0
Sage	White Curled	S.B.	81	5·0
Chicory		Graham	54	33·0
Dandelion	Imp. Brood Leaf	Sutton	63	10·0
Dandelion	Imp. Thick Lived	Sutton	63	9·0

CEREALS

The production of cereals was greatly affected by the unsual quantity of cold rain during the first part of the season of vegetation, to such an extent that barley was unable to germinate sufficiently to give a fair crop. Peas grew so slowly that they were unable to ripen, and the same conditions prevailed in all the districts of the Abitibi. The crops of wheat, oats and barley were recorded, but they were below the average.

EXPERIMENTS.—Experiments are carried to find the earliest varieties of cereals as well as those most resistant to diseases and the most productive. These experiments are at first conducted on plots including five rows, one rod long. Each variety under test is sown in four of these plots every year. This system is very satisfactory, and with sufficient care gives results quite as accurate as with larger plots.

TEST OF VARIETIES OF CEREALS IN ROD-ROW PLOTS

WHEAT—TEST OF VARIETIES.—Four varieties of wheat were sown on June 6, in rod-rows. The results obtained are summarized in the following table:—

WHEAT—RESULTS OF TEST OF VARIETIES

Varieties	Number of days from sowing to ripening	Length of straw including head	Strength of straw maximum 10 points	Yield per acre after sifting	
				1928	Two-years' average
		inches		bush.	bush.
Garnet	99	23·2	9·5	13·3	15·6
Prelude	96	23·0	9·5	10·6	14·6
Ruby	100	25·5	9·0	9·2	11·6
Marquis	108	27·5	10·5	8·7	7·4

The Garnet variety was found very suitable for all the district.

OATS—TEST OF VARIETIES.—Four varieties of oats were sown on June 6 in rod-row plots. The results obtained are given in the following table:—

OATS—RESULTS OF TEST OF VARIETIES

Variety	Number of days from sowing until ripening	Average length of straw, head included	Strength of straw, maximum 10 points	Yield per acre after sifting	
				1928	Two-years' average
		inches		bush.	bush.
Gold Rain	107	38	8·0	13·3	30·4
Alaska	96	39	8·0	7·5	26·7
Banner	110	44	7·5	13·4	19·5
Liberty	105	36	8·0	8·8	15·1

CEREALS—TEST OF VARIETIES ON 1/120-ACRE PLOTS

In this experiment five plots of 1/120 of an acre were sown every year with the same varieties. The results obtained are given in the following tables.

WHEAT—TEST OF VARIETIES.—Three varieties of the earliest types were under test on these plots. Sowing was done on June 5 at the rate of 1·5 bushel an acre. The results obtained are given in the following table:—

WHEAT—RESULTS OF TEST OF VARIETIES

Varieties	Number of days from sowing until ripening	Length of straw head included	Strength of straw, maximum 10 points	Yield per acre after sifting
		inches		bush.
Garnet	100	23	10·0	9·91
Ruby	103	17	9·5	5·35
Prelude	97	22	9·5	4·78

OATS—TEST OF VARIETIES.—Out of four varieties of oats sown on June 5 at the rate of 2·5 bushels to the acre, three ripened completely. The Banner variety did not ripen completely and therefore gave a smaller yield than the others.

OATS—RESULTS OF TEST OF VARIETIES

Varieties	Number of days from sowing until ripening	Average length of straw head included	Strength of straw, maximum 10 points	Yield per acre after sifting	
				1928	Two-years' average
		inches		bush.	bush.
Alaska	102	22	8·5	16·4	25·6
Montcalm	100	20	9·0	17·4	23·3
Cartier	103	21	8·5	16·0	23·8
Banner	118	24	9·0	9·8	.....

BARLEY—TEST OF VARIETIES—Eleven varieties of barley were sown on June 5 at the rate of 2·0 bushels per acre. The results obtained are given in the following table.

BARLEY—RESULTS OF TEST OF VARIETIES

Varieties	Number of days from sowing until ripening	Length of straw head included	Strength of straw, maximum 10 points	Yield per acre after sifting	
				1928	Two-years' average
		inches		bush.	bush.
Charlottetown No. 80 (a)	118	31	9·5	17·8	27·4
Hannachen Sn. (a)	117	29	9·0	10·1	24·1
Star	113	24	9·0	15·0	23·9
O.A.C. No. 21	113	32	9·0	10·7	23·7
Duckbill Ottawa 57 (a)	120	30	9·0	14·4	23·7
Chinese Ottawa 60	119	25	9·5	6·4	22·6
Bearer Ottawa 475	122	22	9·0	11·1	22·9
Duckbill 207 M.C. (a)	120	26	9·0	12·1	21·9
Mensury 3207 M.C	117	30	9·0	13·1	19·9
Pontiac	118	26	9·5	7·3	.....
Monck	121	23	9·0	7·3	.....

Note—The letter (a) shows that these are two-rowed varieties.

FODDER PLANTS

Several varieties of sunflowers, corn and legumes as well as various annual crops and grass mixtures were under test on a 17-acre field divided in one-eightieth-acre plots.

Several hundred samples of these various fodder plants and grass mixtures were forwarded to the Fodder Plant Division at Ottawa for a determination of the percentage of dry matter. A five-year rotation is followed on this field. The land for hoed crops is generally manured at the rate of 16 tons to the acre.

SUNFLOWERS—TEST OF VARIETIES

Five varieties were sown on June 15 on triplicate plots and harvested on September 8. The results obtained are given in the following table:—

SUNFLOWERS—RESULTS OF TEST OF VARIETIES

Varieties	Source	Yield per acre 1928		Yield per acre, two-years' average	
		Green matter	Dry matter	Green matter	Dry matter
		tons lb.	lb.	tons lb.	lb.
Ottawa 76	C.E.F. Ottawa	1 1,500	450	4 651	1,329
Russian Mammoth	Disco	2 200	483	3 1,765	1,109
Manchurian	McKenzie	2 300	525	2 1,219	807
Russian Mammoth	K. McDonald	1 1,800	433	2 1,505	738
Russian Mammoth	Wm. Ewing	1 1,300	403	.....	.....

The variety Ottawa of the Central Experimental Farm of Ottawa is probably the best of the above list for this district; its superior yield may be attributed to the fact that it is the earliest.

CORN—TEST OF VARIETIES

Twenty varieties were sown on June 8 on triplicate plots and harvested on September 8. The results obtained are given in the following table:—

CORN—RESULTS OF TEST OF VARIETIES

Varieties	Source	Yield per acre 1928		Yield per acre two-years' average	
		Green matter	Dry matter	Green matter	Dry matter
		tons lb.	lb.	tons lb.	lb.
Quebec 28	McDonald college	0 1,600	202	2 075	527
N.W.D	Rennie	1 100	263	2 325	475
Amber Flint	Wimple	0 900	115	1 325	425
Queitcheel's pride	Fredericton, E.P.	0 900	118	1 1,708	417
Minnesota No. 12	Disco	1 200	277	1 583	390
Burr Leaming	Carter	1 1,100	391	1 1,375	388
Gehu	Disco	1 1,200	301	1 100	374
Yellow Dent	Wimple	0 1,800	225	1 675	368
N.W.D. Crookton strain	McKenzie	0 1,500	179	0 1,850	353
Longfellow	J. A. Duke	0 1,200	152	1 575	299
Golden Glove	J. A. Duke	0 900	122	0 350	296
Compton's Early	J. A. Duke	1 500	313	1 358	269
Bailey	Dr. Bondy	1 800	342	0 1,965	240
Hybrid	Wimple	0 1,100	140	0 1,665	205
Sweepstaker	Jos. Harris	0 1,900	251	.....	.....
Longfellow	Poff & Lang	1 800	378	.....	.....
Wisconsin No. 7	J. A. Duke	0 500	064	.....	.....
Hall's Golden Nugget	Jos. Harris	0 1,900	217	.....	.....
N.W.D	E. F. Brandon	1 000	264	.....	.....
Compton Early	McDonald college	0 1,900	243	.....	.....

ANNUAL HAY CROPS

Settlers and farmers of new districts are taking an ever-increasing interest in the growing of annual hay crops, and an endeavour is made to help them by

experimenting with these crops. Several kinds, varieties and mixtures of plants were under test. The results obtained are given in the following table:—

TEST OF ANNUAL HAY PLANTS

—	Rate of sowing per acre	Yield per acre			
		1928		Four-years' average	
		Green matter	Hay containing 15% moisture	Green matter	Hay containing 15% moisture
	bush.	tons lb.	lb.	tons lb.	tons lb.
Oats, peas and vetches	3·0	4 400	1,907	6 213	1 1,479
Oats and peas	2·5	2 1,400	1,347	5 1,409	1 1,277
Spring Rye	.....	1 1,200	1,246	3 986	1 1,144
Victory Oats	2·5	1 1,300	1,079	4 1,562	1 1,125
Bannor Oats	2·5	1 1,000	963	4 608	1 954
Hulless Barley	2·0	1 1,400	1,248	5 283	1 565
Golden Vine Peas	2·5	2 1,700	1,462	5 714	1 514
Arthur Peas	2·5	2 1,100	1,440	4 1,331	1 349
Sweet clover Rubam	.....	2 1,000	1,300	3 320	0 1,599
Abundance Oats	2·5	2 1,200	1,774	.....	.....
Alaska Oats	2·5	2 600	1,412	.....	.....
Beauty of Canada Peas	2·5	1 1,800	1,055	.....	.....
Longfellow Oats	2·5	1 900	935	.....	.....

RED CLOVER—TEST OF VARIETIES

Twelve varieties of red clover that are generally found on the market were under test. The following results were obtained:—

RED CLOVER—RESULTS OF TEST OF VARIETIES

—	Rate of sowing per acre	Yield per acre			
		1928		Four-years' average	
		Green matter	Hay containing 15% moisture	Green matter	Hay containing 15% moisture
	lb.	tons lb.	tons lb.	tons lb.	tons lb.
Ambra (Italy)	12	7 600	2 963	5 1,313	1 1,803
France (Dauphine)	12	5 1,800	2 497	3 1,223	1 1,623
Alta Swede	12	5 1,000	1 976	4 827	1 1,400
Early Swedish	12	4 1,500	1 727	4 1,841	1 1,280
Medium Late Swedish	12	4 1,700	1 819	5 737	1 1,132
Quebec, St-Clet	12	4 300	1 929	3 1,576	1 999
Chateauguay	12	5 800	1 1,240	4 1,967	1 942
Ottawa	12	5 900	1 1,808	4 1,125	1 905
Late Swedish	12	5 700	1 1,166	4 942	1 750
Kenora	12	6 600	1 1,764	4 1,115	1 442
Emilia (Italy)	12	5 700	1 1,286	4 049	1 1,278
Commercial	12	5 1,000	1 1,390	.....	.....

WHITE CLOVER—TEST OF VARIETIES

White clover fills an important place among pasture plants, and a certain number of varieties are under test each year. The results obtained are given in the following table:—

WHITE CLOVER—TEST OF VARIETIES

Varieties	Rate of sowing per acre	Yield per acre			
		1928		Four-years' average	
		Green matter	Hay containing 15% moisture	Green matter	Hay containing 15% moisture
	lb.	tons lb.	tons lb.	tons lb.	lb.
Ladino	4	3	0 1,800	3 1,046	1,770
Danish W. Marso	4	4 600	1 458	2 1,897	1,800
Eng. White Wild	4	3 900	1 508	2 1,224	1,537
Danish W. Styrno	4	2 1,400	0 1,911	1 1,483	1,403
Scotch White Wild	4	2 1,600	0 1,621	2 358	1,305
Commercial	4	1 1,500	0 922	2 306	863

ALSIKE CLOVER

Only one lot of alsike clover was sown under the same conditions as the other kinds of clover and gave the following yields: 3 tons 100 pounds of green matter, or 1 ton 146 pounds of hay containing 15 per cent moisture.

ALFALFA

Alfalfa is yet little known in this district, however, as this plant has a great nutritive value and as the soil of a large part of the district is of good quality and as there is a great need for rapid growing plants on account of the shortness of the season of growth it is believed that it will be grown to a greater extent in the future than it is now.

Three varieties were compared in the last season and the results obtained are given in the following table:—

ALFALFA—RESULTS OF TEST OF VARIETIES

Varieties	Rate of sowing per acre	Yield per acre, 1928	
		Green matter	Hay containing 15% of moisture
	lb.	tons lb.	tons lb.
Medicago	10	6 600	2 625
Grim	10	6 300	2 544
Panachée	10	6 1,300	2 408

TIMOTHY—TEST OF VARIETIES

The timothy crop is still filling an important place. Timothy hay is still grown on a large scale as there is a great demand for it in the lumber camps and as a rule for the feeding of horses.

Three varieties were under test this year. The results obtained are given in the following table:—

TIMOTHY—RESULTS OF TEST OF VARIETIES

Varieties	Rate of sowing per acre	Year per acre				Three-year average	
		1928				Hay containing 15% of moisture	
		Green matter		Hay containing 15% of moisture			
	lb.	tons	lb.	tons	lb.	tons	lb.
Commercial	12	6	500	2	692	2	236
Boon	12	7	300	2	1,133	1	1,937
Ohio 9227	12	5	1,600	2	667	1	1,872

TEST OF DIFFERENT VARIETIES OF GRASSES

A test of various grasses was made to see if grasses with a satisfactory yield could not be produced by crops other than timothy hay. The results obtained are given in the following table:—

RESULTS OF THE TEST OF DIFFERENT VARIETIES OF GRASSES

Varieties	Rate of sowing per acre	Yield per acre				Three-year average	
		1928				Hay containing 15% of moisture	
		Green matter		Hay containing 15% of moisture			
	lb.	tons	lb.	tons	lb.	tons	lb.
Red fescue	20	3	1,100	1	807	1	1,160
Orchard grass	30	3	600	1	282	1	836
Western rye-grass	14	3	600	1	1,401	1	485
Tall oats	25	2	600	0	1,932	1	391
Meadow fescue	30	2	1,200	1	227	1	257
Kentucky blue grass	20	3	300	1	587	1	177
English or perennial rye-grass	24	3	000	1	068	1	029
Brome	14	3	600	1	834	0	1,734

MIXTURES OF GRASSES AND LEGUMINOUS PLANTS

A fairly large number of mixtures of grasses and clover were compared. These tests are of great importance and are followed with great interest by the farmers and settlers of the district. The results obtained are given in the following table:—

RESULTS OF TESTS OF MIXTURES OF GRASSES AND LEGUMINOUS PLANTS

Mixture	Seed per acre	Yield per acre							
		Meadow hay of first year							
		1928				Four years' average			
		Green Matter		Hay containing 15% of moisture		Green matter		Hay containing 15% of moisture	
	lb.	tons	lb.	tons	lb.	tons.	lb.	tons	lb.
Timothy 6 Orchard grass 4 Sweet clover 10 White Dutch 1		5	1,100	1	1,880	4	756	1	1,081
Timothy 6 Meadow fescue 4 Sweet clover 10 White Dutch 1		3	1,600	1	762	4	995	1	821
Timothy 6 Meadow fescue 2 Orchard grass 2 White Dutch 1 Sweet clover 10		5	100	1	1,755	3	1,755	1	1,000
Timothy 8 Sweet clover 10 White Dutch 1		5	600	1	1,616	4	699	1	683
Alfalfa 3 Timothy 6 Red clover 5 White Dutch 1		5	1,300	1	1,484	5	693	1	1,314
Timothy 8 Red clover 10 Kentucky B. grass 2 Red top 2 White Dutch 1		5	1,800	1	1,998	5	1,142	1	1,580
Timothy 8 Red clover 8 Alsike 2 White Dutch 1		5	1,000	1	1,225	6	629	1	1,292
Timothy 8 Red clover 10 White Dutch 1		5	1,200	1	1,624	5	806	1	1,616
Alfalfa 6 Timothy 6 Red clover 10 Alsike clover 2 White Dutch 1		6	600	2	447	5	769	1	1,700
Timothy 8 Alsike clover 4 White clover 1		4	1,800	1	1,908	5	209	2	422
Alfalfa 6 Timothy 6 Red clover 10 Alsike clover 2 White clover 1		5	1,400	2	265	4	698	2	417
Alfalfa 3 Timothy 6 Red clover 6 White clover 1		3	1,900	1	1,699	4	580	2	107
Timothy 6 Orchard grass 2 Red clover 10 Meadow fescue 2 White clover 1		4	1,900	2	216	3	318	2	150

RESULTS OF TESTS OF MIXTURES OF GRASSES AND LEGUMINOUS PLANTS—*Continued*

Mixture	Seed per acre	Yield per acre							
		Meadow hay of first year							
		1928				Four years' average			
		Green Matter		Hay containing 15% of moisture		Green matter		Hay containing 15% of moisture	
	lb.	tons	lb.	tons	lb.	tons.	lb.	tons	lb.
Timothy Alsike clover Kentucky blue grass Red fescue White clover	8 4 2 2 1	6	5,000	2	604	4	1,348	2	051
Timothy Red clover Alsike clover Kentucky blue grass Red fescue White clover	8 8 2 2 2 1	4	1,800	1	1,714	4	1,062	1	1,999
Timothy Orchard grass Meadow fescue Red clover Alsike clover Kentucky blue grass Red fescue White clover	6 2 2 8 2 2 2 1	4	1,000	1	1,812	4	1,622	1	1,988
Timothy Red clover White clover	8 10 1	4	200	1	1,087	4	915	1	1,964
Timothy Red clover Kentucky blue grass Red fescue White clover	8 10 2 2 1	4	1,300	1,	1,556	4	782	1	1,859
Timothy Meadow fescue Red clover Alsike clover Kentucky blue grass Red fescue White fescue	6 4 8 2 2 2 1	4	1,400	1	1,627	4	442	1	1,576
Timothy Meadow fescue Red clover Alsike clover White clover	6 4 8 2 1	5	1,800	2	289	4	520	1	1,563
Timothy Orchard grass Red clover Alsike clover Kentucky blue grass Red fescue White clover	6 4 8 2 2 2 1	4	200	1	1,020	4	630	1	1,556
Timothy Red clover Alsike clover White clover	8 8 2 1	4	1,900	1	1,762	4	1,282	1	1,526
Timothy Orchard grass Meadow fescue Red clover Kentucky blue grass Red fescue White clover	6 2 2 10 2 2 1	4	100	1	1,268	4	202	1	1,466

RESULTS OF TESTS OF MIXTURES OF GRASSES AND LEGUMINOUS PLANTS—*Concluded*

Mixture	Seed per acre	Yield per acre							
		Meadow hay of first year							
		1928				Four years' average			
		Green Matter		Hay containing 15% of moisture		Green matter		Hay containing 15% of moisture	
	lb.	tons	lb.	tons	lb.	tons.	lb.	tons	lb.
Timothy	6								
Meadow fescue	4								
Red clover	10	4	1,600	1	1,530	4	551	1	1,395
White clover	1								
Timothy	6								
Meadow fescue	4								
Red clover	10								
Kentucky blue grass	2	5	200	2	056	2	1,791	1	1,376
Red fescue	2								
White clover	1								
Timothy	6								
Orchard grass	4								
Red clover	10								
Kentucky blue grass	2	4	1,400	2	003	3	1,506	1	1,272
Red fescue	2								
White clover	1								
Timothy	6								
Orchard grass	4								
Red clover	8	3	1,900	1	1,1076	3	1,970	1	1,198
Alsike clover	2								
White clover	1								
Timothy	6								
Orchard grass	2								
Meadow fescue	2								
Red clover	8	4	400	1	1,351	4	1,387	1	1,114
Alsike clover	2								
White clover	1								
Timothy	4								
Orchard grass	4								
Red clover	10	3	1,900	1	271	3	1,193	1	828
White clover	1								

POULTRY

Interest in poultry breeding is developing to a remarkable extent among the settlers of the Abitibi, many of whom realize that this industry is profitable and interesting. There are already a good many flocks of 50 to 100 hens. There are also poultry specialists who practise the industry on a larger scale. Both farmers and specialists are highly satisfied with the returns from their poultry plant.

The farmers have always been advised to raise the Plymouth Rock breed, which does well under our climatic conditions and meets the requirements of the market, and it is a pleasure to observe that this advice has been generally followed, to the great satisfaction of the settlers.

There has been quite an improvement in the breed type and the egg laying capacity of our poultry during the last few years and especially in 1928, as well as in the demand for breeders, eggs for incubation, day-old chicks, eight-weeks pullets and fall pullets. The demand has greatly exceeded the supply. Over 2,000 breeders have been sold to the farmers, and there has been a great improvement in the quality of these farmers' fowls. The keeping the Plymouth Rock breed is becoming general in the district.

On December 31, 1928, our flock contained 44 cocks and cockerels, 107 hens and 238 pullets, all of the Plymouth Rock breed. An office room was added to the administration building during the summer.

EXTENSION WORK

During the month of March short courses on poultry breeding were given and attended by a number of farmers. These courses appeared to have done much good as a great improvement was noticed in the system of breeding followed by these farmers when they were visited during the summer.

Our poultry exhibit was shown at the Amos and Macamic fairs. Our poultry plant was visited by the farmers' wives from the western part of the district, when they held their field day at La Ferme and much interest was shown.

The correspondence with settlers on poultry breeding and on poultry management has increased since last year.

INCUBATION

The number of eggs incubated last spring was 4,849. The average fertility of these eggs was 89·3 per cent. The percentage of eggs hatched was 60·9 of the number of eggs fertilized. The number of chickens alive at the age of three weeks was 96·5 per cent of the number of chickens hatched.

MATING AND PEDIGREE BREEDING

Egg laying has been greatly improved in our flock since 1924 by pedigree breeding. The average production of our 24 best layers in 1924 was 151 eggs. This average is 246 this year giving the large increase of 95 eggs per hen. Six hens qualified for registration at the Quebec East laying contest last year. Two of these hens were birds of second generation. Our first mating pen this year will be entirely composed of registered hens. No hen laying less than 200 eggs will be used for our pedigree breeding.

COST OF ARTIFICIAL INCUBATION

In order to ascertain the total cost of artificial incubation, a record was made of the number of eggs placed in the incubator, of the cost of these eggs, of the quantity and cost of oil consumed by the incubator as well as of the value of labour. Eggs were valued at $10 per hundred, the oil at 25 cents a gallon and labour at 30 cents an hour. The results obtained are as follows:—

SUMMARY OF COST OF ARTIFICIAL INCUBATION

Number of eggs set	4,849
Number of chicks hatched	2,940
Value of eggs	$484 90
Quantity of oil used (gallons)	95
Cost of oil	$33 25
Labour, 165 hours at 30 cents per hour	49 50
Total cost	567 65
Cost per chick	0·193

COST OF INCUBATION WITH INCUBATORS OF VARIOUS BRANDS

Incubation tests were made with incubators of various types and brands. The Buckeye, a hot water machine, and the Prairie State, a hot air machine, were used. The results obtained were as follows:—

RESULTS FROM DIFFERENT INCUBATORS

Incubator	Capacity	Total quantity of oil	Quantity per 100 eggs	Total cost	Cost per 100 eggs
		quarts	quarts		cts.
Buckeye (hot water)	600	31·5	5·25	2 76	50
" "	350	23	6·8	2 01	57
" "	175	16	10·3	1 57	90
Prairie State (hot air)	210	21	10·0	1 84	88

It is shown in the above table that the quantity of labour and oil consumed decreased in proportion with the number of eggs placed in the incubator.

A greater quantity of oil is consumed in the Prairie State incubator, but this may be due to the fact that this machine is very old and requires more oil to maintain the necessary heat. However, this machine may be compared with the Buckeye machines with a capacity of 350 and 175 eggs, which are as old as the Prairie State machines.

NATURAL VS. ARTIFICIAL INCUBATION

We are often asked whether it is better to hatch eggs under hens or incubators. An experiment has been conducted on this point. Different lots of eggs from selected hens were hatched in the same time by hens and by incubators. A record was kept of the results obtained as regards cost, percentage of eggs hatched and viability of the chicks. The results obtained are given in the following table:—

RESULTS FROM NATURAL VS ARTIFICIAL INCUBATION

——	Natural incubation	Artificial incubation
Number of eggs set for hatching	60	169
Number of chicks hatched	45	105
Total percentage of eggs hatched	75	61·1
Number of chicks alive at the age of three weeks	39	93
Per cent of chicks alive at the age of three weeks	86·6	88·6

SUMMARY OF COST

——	Natural incubation	Artificial incubation
Cost of eggs at 10 cents each	$6 00	$16 90
Quantity of oil used, gallons	.....	7
Cost of labour	$3 20	$2 18
Cost of oil used	.....	2 45
Total cost	$9 20	21 53
Cost per chick hatched	0 21	0·204
Cost of incubation per chick	0 24	0 23

At the age of three weeks, chicks raised by natural incubation cost 1 cent more than the others. The loss of chicks in natural incubation was largely due to the unfavourable weather.

COST OF ARTIFICIAL BROODING

The object of this experiment is to ascertain the cost of brooding chickens from their birth until they can do without artificial heat, that is a period of about six weeks. The results obtained are as follows:—

COST OF ARTIFICIAL BROODING

Number of chicks	200
Quantity of coal used (pounds)	905
Value of coal at $17.35 per ton	$ 7 85
Cost of grain, 98 pounds at $2.50 per 100 pounds	2 45
Cost of mash, 81 pounds at $2.75 per 100 pounds	2 23
Cost of skim-milk, 200 pounds at $0.005 per pound	1 00
Cost of cod liver oil (1½ quart)	0 29
Cost of labour, 35 hours at 30 cents	10 50
Total cost	24 32
Cost per 100 chicks	12 16

No account was taken of the value of infertile eggs which were hard cooked and given to the chicks, the value of these eggs being recorded in the cost of incubation. Charcoal and oyster shells were mixed with the mash.

NATURAL AND ARTIFICIAL INCUBATION

The object of this experiment is to ascertain the comparative advantage of raising chicks up to the age of six weeks under hens and with artificial brooders. All expenses incurred in the two kinds of brooding have been recorded and the results are given in the following table:—

NATURAL VS. ARTIFICIAL BROODING

——	Natural Brooding	Artificial Brooding
Number of chicks	39	93
Cost of coal	.....	$ 3 90
Cost of scratch grain, $2.50 per 100 pounds	$ 0 60	1 25
Cost of mash at $2.75 per 100 pounds	0 51	1 10
Cost of skim-milk at 50 cents per 100 pounds	0 21	0 45
Cost of cod liver oil	.....	0 16
Cost of labour	2 25	5 20
Total cost	3 57	12 06
Cost per chick	0 091	0 13

No account was taken of the fact that the hens which hatched and raised the chicks were later in resuming laying than the others.

METHOD AND RATIONS FOR THE FATTENING OF COCKERELS

The object of this experiment is to ascertain (1) whether it is better to fatten cockerels in pens or in fattening crates; (2) to compare barley and corn or a mixture of both for fattening; (3) to ascertain the cost and gain of fattening.

Forty-eight cockerels were selected for this experiment. They were divided in six equal lots of six birds each.

Lots 1, 2, and 3 were fattened in crates.

Lots 4, 5, and 6 were fattened in pens.

Lot No. 1 received a corn ration composed of 2 parts of cornmeal, 1 part of middlings, ½ part of oatmeal, 2½ per cent of charcoal and skim-milk. Lot No. 2 received a barley ration. This ration was the same as that of No. 1 with this exception that the cornmeal was replaced by barley meal. Lot No. 3 received two parts of cornmeal, two parts of barley meal, one part of middlings, one-half part of oatmeal, 2½ per cent of charcoal and skim-milk. Lot No. 4 received the same ration as No. 1. Lot No. 5 received the same ration as No. 2. Lot No. 6 received an ordinary ration, composed as follows: dry mash in hoppers and wet mash in a trough at noon and scratch grain in the litter in the morning and at night.

Each lot received 5 pounds of skim-milk. One meal of sprouted oats was given from time to time to stimulate the appetite. The value of cockerels before fattening was estimated at 30 cents a pound and at 35 cents per pound after fattening, which is the market price for our district.

The period of fattening lasted twenty-one days. The results obtained are given in the following table, as well as the average for a five years' experiment.

FATTENING TEST OF COCKERELS

Lot and special feed	Initial weight	Weight after fattening	Value at the start	Value after fattening	Increase in value	Value of feed	Profit	Method of fattening
	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
No. 1 Corn	49·25	58·75	14 78	20 56	5 78	0 99	4 79	Crate
Five year average	46·75	55·0	12 48	18 78	4 30	1 40	2 89	"
No. 2 Barley	47·75	53·0	14 33	18 55	4 22	0 89	3 33	"
Five year average	46·1	51·85	14 32	17 72	3 33	1 12	2 28	"
No. 3 Barley and Corn	51·75	56·75	15 53	19 86	4 33	0 92	3 41	"
Five year average	47·7	53·1	14 79	18 16	3 30	1 33	2 07	"
No. 4 Corn	50·25	54·75	15 08	19 16	4 08	1 10	2 98	Pen
Five year average	46·3	52·35	14 42	17 91	3 40	1 52	2 01	"
No. 5 Barley	49·0	53·0	14 70	18 55	3 85	1 02	2 83	"
Five year average	46·25	51·5	14 36	17 62	3 19	1 24	2 02	"
No. 6 ordinary ration	50 75	53·75	15 23	18 81	3 58	0 98	2 60	"
Five year average	46·35	51·7	14 36	17 66	3 06	1 85	1 44	"

The following deductions may be made from the preceding table:—

(1) Fattening in crates is preferable to fattening in pens.

(2) The returns on the crate fattened lot receiving a corn ration were 61 cents higher than on the lot receiving the barley ration and 82 cents higher than on the lot receiving the barley and corn ration.

(3) Pen fattening gave the same results for the barley fed lot as for the corn fed lot.

(4) The check pen lot receiving the ordinary ration has clearly shown by its poor returns that it is much more profitable to crate fatten chickens for some time before selling.

GENERAL CONCLUSIONS.—The fattening of cockerels is very profitable. Crate fattening is more profitable than pen fattening. Corn is better than barley for the fattening of cockerels.

To ascertain the effect of various feeds and methods of feeding on the flavour and quality of the flesh of fattened birds, one chicken of each group was tested. All were cooked in the same manner and at the same time and tasted by a group of persons who scored them as follows:—

Lots	Flavour	Appearance
No. 1	2nd	3rd
" 2	3rd	2nd
" 3	1st	1st
" 4	5th	4th
" 5	4th	6th
" 6	6th	5th

The above shows that lot No. 3, fattened in a crate with a barley and corn ration had the best flesh and also the best appearance.

POTATOES AS A SUBSTITUTE FOR CORNMEAL FOR THE FATTENING OF CHICKENS

The object of this experiment was to ascertain whether cull potatoes might be used as a substitute for cornmeal in the fattening of chickens. Three lots of four chickens each were fattened in crates. Lot No. 1 received a wet mash composed of equal parts of cornmeal, middlings and rolled oats, with skim-milk. Lot No. 2 received a mash composed of equal parts of middlings, rolled oats and potatoes, with skim-milk. Lot No. 3 received the same mash as lot No. 2 without skim-milk. Each lot received 2½ per cent of charcoal, and a meal of sprouted oats at noon from time to time. The mash was served in the morning, and at night. The fattening period lasted twenty-one days. The following table gives the results obtained:—

FATTENING OF COCKERELS—POTATOES VS. CORNMEAL

Lot and special feed	Initial weight	Weight after fattening	Value at start of experiment	Value after fattening	Increase in value	Value of feed	Profit	Profit per chicken
	lb.	lb.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	cts.
No. 1 Corn	23·25	26·5	6 98	9 28	2 30	1 27	1 03	26
No. 2 Potatoes and milk	21·5	24·75	6 45	8 66	2 21	0 97	1 24	31
No. 3 Potatoes without milk	22·5	24·75	6 75	8 66	1 91	0 92	0 99	25

The lot receiving cooked potatoes mixed with meal and skim-milk gave the largest profits and also had the best appearance for the market. The lot receiving no potatoes had the best flavour. This experiment will be repeated four more years before definite conclusions are drawn.

WET MASH VS. DRY MASH

The object of this experiment is to compare dry mash and wet mash for egg production. Two lots of birds as similar as possible as regards progeny, age and weight, were selected for this experiment. They were housed, treated and fed in the same manner, with this exception that one lot always had dry mash at its disposal while the other received in addition wet mash in a trough at noon.

The experiment was conducted for a period of six months from November 1 to May 1. The results obtained are given in the following table:—

RESULTS WITH WET MASH VS DRY MASH

—	Wet mash	Dry mash
Total cost of feed	$1 30	$1 39
Eggs layed	63·54	73·1
Value of eggs layed	$ 3 15	$ 3 65
Cost of feed per dozen of eggs	0 24	0 23
Net profit	1 86	2 26

These figures are based on the production of one bird. The lot receiving dry mash only gave the largest profit this year; this is the reverse of the results of the last few years. The results obtained and the conclusions reached for the five years of the experiment will be given in next year's report.

ROOTS VS. CLOVER VS. SPROUTED OATS VS. EPSOM SALT

The object of this experiment is to compare the above mentioned green feeds and to find out if Epsom salts may be used as a substitute for green feed. Four lots of 25 pullets housed, treated and fed in the same manner (green feed excepted) were used in this experiment.

The first lot received clover as green fed. The second lot received roots as green feed. The third received sprouted oats as green feed. The fourth received Epsom salt as a substitute for green feed at the rate of two ounces a day for 25 hens.

This experiment lasted six months from November 1 to May 1. The results obtained were as follows:—

RESULTS WITH ROOTS VS. CLOVER VS. SPROUTED OATS VS. EPSOM SALT

—	Clover	Roots	Sprouted oats	Epsom salt
Cost of feed	$ 1 27	$ 1 25	$ 1 33	$ 1 34
Eggs layed	79·84	72·12	90·42	68·47
Value of eggs layed	$ 4 06	$ 3 58	$ 4 57	$ 3 37
Cost of feed per dozen of eggs	0 19	0 21	0 18	0 235
Net profit	2 79	2 33	3 24	2 04
Rate of deaths	4%	.....	4%	12%

These figures are based on the production of one bird. The lot receiving sprouted oats as green feed gave the best results. This experiment will be repeated before definite conclusions are drawn.

INFLUENCE OF DIFFERENT GREEN FEEDS ON FERTILITY

The object of this experiment is to ascertain the influence of various green feeds on egg fertility. Four pens of 25 pullets each were used for this experiment. These pens received, respectively, clover, roots, sprouted oats, and Epsom salts as green feed.

All the birds in these pens were mated at two different periods. During the first period the males were changed from one pen to another each day. The second period was an ordinary mating. A record of incubation was kept for both periods. The results obtained are given in the following table:—

EFFECT OF DIFFERENT GREEN FEEDS ON FERTILITY

—	Number of eggs set	Number of infertile eggs	Per cent fertile	Average for the season. Per cent fertile	Average for each period. Per cent fertile
First period—					
Lot No. 1 clover	60	8	86·6	.....	.....
Lot No. 2 roots	60	3	95·0	.....	.....
Lot No. 3 sprouted oats	60	14	76·6	.....	.....
Lot No. 4 Epsom salt	60	10	83·3	.....	85·4
Second period—					
Lot No. 1 clover	60	2	96·6	91·6	.....
Lot No. 2 roots	60	3	95·0	95·0	.....
Lot No. 3 sprouted oats	60	12	80·0	78·3	.....
Lot No. 4 Epsom salt	60	19	68·3	75·8	84·5

The percentage of fertilized eggs was slightly higher when the males were changed from one pen to another each day. Pen No. 2 receiving roots had the best fertility.

COST OF PRODUCTION OF EGGS

The object of this experiment is to ascertain the cost of food for the production of eggs, as well as to find out the number of eggs required to pay for the food during the winter. A lot of 25 pullets was used in this experiment, which lasted six months. A record was kept of the food consumed, of the food cost of the eggs laid and of the value of these eggs. The results obtained were as follows:—

COST OF PRODUCTION OF EGGS

—	
Number of birds	25
Cost of food consumed	$ 27 63
Number of eggs layed	1,826
Value of the eggs layed	$ 97 38
No. of eggs required to pay for the feed	518·1
No. of eggs required per hen to pay for the food	20·7
No. of eggs required to pay for the winter food	351·4
No. of eggs required per hen to pay for the winter food	14·1

The winter season consists of the months from November to February inclusive. The average selling price of eggs was 64 cents a dozen, for the six months of the experiment. The number of eggs required to pay for winter feeding was 14·1 per hen and 20·7 to pay for the food from November 1 until May 1.

PULLETS VS. HENS FOR THE PRODUCTION OF EGGS

The object of this experiment is to compare pullets with hens for the production of eggs.

A record was kept of the cost of food, the number of eggs layed, the value of these eggs, and the profit from the ten best layers for the first and second year of laying. The results are given in the following table:—

PULLETS VS. HENS FOR THE PRODUCTION OF EGGS

—	Pullets	Hens
Number of birds	10	10
Number of eggs layed	2,283	1,288
Value of these eggs (average price 50 cents per dozen)	$ 95 15	$ 53 67
Cost of food	30 50	27 50
Profit	64 65	26 17
Profit per bird	6 47	2 62

The profit is much higher from pullets than from hens. After the age of one year, only the hens necessary for breeding should be kept.

RELATION OF WINTER PRODUCTION TO FERTILITY, HATCHABILITY AND VIABILITY OF CHICKS

The object of this experiment is to ascertain to what extent fertility, hatchability and viability are affected by winter production. Eggs from hens with various egg laying records were incubated and the record of incubation was kept in each case. The winter season of production includes the following months: November, December, January and February. The results obtained are given in the following table:—

RELATION BETWEEN WINTER LAYING AND FERTILITY, HATCHABILITY AND VIABILITY OF CHICKS

Winter season production	Number of eggs set	Number of infertile eggs	Number of dead germs	Number of eggs hatched	Percentage of fertility	Per cent of hatchability	Percentage of chicks alive at three weeks
20 to 30 eggs	75	2	3	58	97·3	77·3	96
30 to 40 eggs	51	2	5	30	96·1	58·8	97
40 to 50 eggs	142	1	5	103	99·3	72·5	96·5
50 to 60 eggs	48	.....	1	40	100·0	83·3	97
60 to 70 eggs	242	11	6	193	96·0	71·0	95
70 to 80 eggs	80	13	7	50	83·8	62·5	95

Fertility, hatchability and viability appear to be slightly affected by a heavy winter production.

INTESTINAL PARASITISM

The object of this experiment is to discover and apply methods of control for this disease. No symptoms of parasites have yet been found in our flock, but preventive methods are used against intestinal worms.

Chickens are never allowed to come in contact with adult fowls; they are kept in movable poultry houses and these houses are moved each year on fresh soil which has been ploughed and seeded the previous year.

This manner of proceeding compels us to have two breeding grounds so that one may be disinfected each year by a good ploughing and a grass crop, while the other one, which has been ploughed and seeded the year before, is used for the chickens.

FIBRE CROPS

An experiment with flax and hemp was conducted on a sandy loam with an impervious subsoil. The field was under a four years' rotation, including the following crops: First year flax and hemp; second year, peas oats and vetches with an application of 16 tons of farmyard manure to the acre; third year, oats; fourth year, clover hay. During the year the experiment was conducted in duplicate on 1/60 acre plots. Seeding of hemp and flax was done on June 4.

HEMP—TEST OF VARIETIES

The hemp germinated normally but grew very little, barely reaching the height of 20 inches. This result, which is the same as that of previous years, is attributed to the scarcity of lime in the soil, as this plant requires an abundance of lime as well as of the other elements of plant-food.

FLAX—TEST OF VARIETIES

Three varieties of flax were sown broadcast at the rate of 84 pounds to the acre. The germination was normal and the growth fairly regular. Samples of the crop after drying were sent to the Fibre Division of the Dominion Experimental Farm at Ottawa to be treated, examined, and graded according to the quality of fibre. The results obtained are given in the following table:—

FLAX—TEST OF VARIETIES

Varieties	Number of days from sowing until harvest	Average length of the plant	Yield per acre after open air drying	
			1928	Two years' average
		inches	tons	tons
Longstem	102	24	1·51	1·84
Riga blue	100	27	1·41	1·60
Dutch blue	100	26	1·24	1·52

ILLUSTRATION STATIONS

A program of demonstration work to be conducted on the five illustration stations of the district was prepared and put in operation. This work proves to be very interesting for the operators and farmers who are anxious to see the results. Every parish of the district would like to have a farm of this kind.

EXTENSION AND PUBLICITY

A great many visitors were received by the station during the year; much information was given by means of letters and publications, and a rather large number of articles were written for the local press. The staff acted as judges in several agricultural competitions organized throughout the district. The staff also co-operates with the district agriculturists towards the improvement of agriculture, and nothing could give a better demonstration of this fact that the short agricultural courses which were held at this station in March, 1927.

These courses were organized by the provincial district agriculturists. They included several lectures with demonstrations on various branches of farming, and were attended by a large number of farmers.

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