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DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

LA FERME, P.Q.

REPORT OF THE SUPERINTENDENT
PASCAL FORTIER

FOR THE YEAR 1925

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EXPERIMENTAL STATION, LA FERME, P.Q.

REPORT OF THE SUPERINTENDENT, PASCAL FORTIER

THE SEASON

January and March were a great deal colder than the average of the eight preceding years, while February and April were warmer. May was 9.6 degrees, July 3.81 degrees and September 1.24 degrees respectively below the average, while June and August were warmer. October was also under the average and November and December above the average.

The total precipitation for the year was a little below the eight year's average, 1918-1925. However, during the season of growth, from the 1st of May to the 30th of September, the precipitation was 2.20 inches above the average; the figures being 18.87 inches or 59.2 per cent of the total for the year 1925, and 16.67 inches or 51.3 per cent of the total for the average.

June, July and August were particularly wet, delaying the ripening of the grain and those who had sown late varieties saw their crops buried under the snow.

The total amount of sunshine during the year was 1,669.9 hours as compared with 1,750 for a five-year average. During the season of growth, May 1-September 30, there were 948.9 hours of sunshine or 115.4 hours less than the five-year average for the same period. This lack of sunshine, acting in conjunction with the cold and rain, further delayed the growth and the ripening of the grain.

On this Station, the effect of the unseasonable weather could easily be noticed on sunflowers, corn, and leguminous fodders. The early varieties of grain succeeded very well and the yield of hay was very good. There were no sharp frosts during the summer months, and the period without frosts extended from June 13 to September 13, a total of 92 days. This is about the average for this district. There is no doubt that when earlier varieties are used, there will be a rapid development of agriculture in the district.

EVAPORATION OF WATER

In addition to the records on temperature, atmospheric precipitation and sunshine already given, a special apparatus was installed this year to ascertain the loss of water from a unit area of water surface. The amount of water evaporated from a water surface does not exactly represent the quantity evaporated from the same surface of land, but such data will help in demonstrating the value of cultural methods which will check evaporation.

Data of this kind are very useful as this is a new district, situated in the northern part of the province, and as our season of growth is particularly short. Similar experiments are being conducted elsewhere in Canada and a comparison with the data recorded at the various Stations should be interesting.

Owing to the fact that the evaporimeter was installed late in the season, the figures that follow are for August and September only. In the future, records will be taken for a period extending from May 1 to September 30, covering the season of growth in this district.

Month	Precipitation	Evaporation
Aug. 1-29 inclusive.....	4.4 inches.....	4.37 inches
Aug. 30-Sept. 27 inclusive.....	4.0 ".....	2.16 "

A fact worthy of notice is that, during the first period, evaporation was quite as high as precipitation; during the second period, only a little more than half the water received was evaporated. This is explained by the fact that there were about 125 hours of sunshine less in September than in August.

INFLUENCE OF THE TOPOGRAPHY ON TEMPERATURE AND FROSTS

The object of this experiment was to find out what influence the topography of the ground and the clearing of land had on temperature and frosts. It is not claimed that a way to prevent frosts may be discovered, but the intention was to ascertain if the danger of frosts decreases as the land is cleared. With such data, we should also be able to make a better selection of varieties and do our sowing and harvesting at a suitable time so as to prevent, or at least reduce to a minimum, losses caused by frost.

Six thermometers were set out at various elevations, some in open land and others in small clearings. From the readings secured, it would seem that the size of clearing influences temperature. Further observations will be taken next season.

METEOROLOGICAL RECORDS—1925

Month	Temperature, °F.					Precipitation			
	Max.	Date	Min.	Date	Mean	Rain	Snow	Total	8-year average
						inches	inches	inches	
January.....	26.0	7	-43.0	19	- 6.9	.....	14.5	1.45	2.04
February.....	47.0	9	-35.0	3	6.7	0.5	16.0	2.1	1.70
March.....	48.0	26	-29.0	5	15.5	0.73	7.0	1.43	2.28
April.....	65.0	25	6.0	4	32.9	1.43	1.5	1.58	2.29
May.....	68.0	28	16.5	23	37.9	0.65	7.25	1.375	2.12
June.....	86.0	8	31.0	13	58.06	3.92	.....	3.92	2.5
July.....	78.0	19	36.0	5	58.09	5.5	.....	5.5	3.99
August.....	83.0	6	32.0	27	63.26	4.15	.....	4.15	4.24
September.....	75.0	16	28.0	30	49.21	3.98	.....	3.98	3.82
October.....	55.0	2	9.5	30	31.03	1.22	15.75	2.795	2.48
November.....	45.5	4	-15.0	30	24.2	0.93	8.5	1.78	2.09
December.....	42.0	5	-28.0	26	11.3	0.7	11.0	1.8	2.84
Total.....						23.71	81.05	31.85	32.47

HOURS OF SUNSHINE—1921-1925

Month	1921	1922	1923	1924	1925	Average
January.....	91.8	83.5	95.8	87.2	110.9	93.84
February.....	124.4	102.7	113.2	130.6	75.5	103.3
March.....	101.6	165.0	152.1	75.2	148.0	128.4
April.....	190.8	136.1	177.7	148.2	233.9	179.2
May.....	214.7	256.6	222.7	156.5	136.0	196.9
June.....	281.1	250.2	229.3	275.4	206.4	248.5
July.....	231.1	236.4	305.8	228.1	186.4	237.5
August.....	194.5	227.2	201.3	181.4	272.7	215.4
September.....	132.8	163.9	150.8	130.0	147.4	144.9
October.....	62.0	94.9	108.5	182.0	47.4	98.9
November.....	47.5	34.5	77.9	42.1	65.7	53.5
December.....	21.5	72.8	29.0	60.7	39.4	44.7
Total.....	1,693.8	1,823.8	1,864.1	1,698.4	1,669.9	1,750.0

ANIMAL HUSBANDRY

DAIRY CATTLE

There has been a great development of dairying in this district during 1925. The number of cattle has increased in the proportion of 25 per cent; the number of creameries has been brought up from three in 1924 to nine in 1925, with a cheese factory in addition; and the production of butter has increased from 17,005 pounds in 1924 to 66,948 pounds in 1925, with the addition of 500 pounds of cheese. The quantities of butter produced, their total value and the value per capita for 1924 and 1925, are given in the following table:—

PRODUCTION OF BUTTER IN ABITIBI

Year	Population of Abitibi	No. of creameries operated	Quantity of butter produced	Quantity of butter produced per capita	Quantity of butter imported	Value of butter imported	Pounds imported butter per capita	Value of imported butter per capita
			lbs.	lb.	lbs.	\$		\$
1924.....	16,900	3	17,005	1.01	178,180	80,181 00	10.54	4.74
1925.....	18,067	9	66,948	3.71	153,903	68,806 35	8.52	3.82

As shown by these figures, the quantity of butter produced is four times as large in 1925 as it was in 1924. There has not been however the same decrease in the quantity imported, although some improvement was made in this respect. This is explained to a certain extent by the fact that a rather large quantity of butter was shipped to the mines of the southern part of the district and the men employed there were not included in the population of Abitibi. In 1924, there were produced 1.01 pounds of butter and 4.74 pounds were imported per capita as compared with 3.71 pounds produced and 3.82 pounds imported per capita in 1925.

The fact that there was a considerable surplus of hay in 1924 which could not be used, and that the crop of 1925 was still larger, shows that a great many more cows could be kept in this district. In addition to the loss of the crop, the loss in value of butter amounted to at least \$68,806 for this district.

On December 31, 1925, the herd at the Station included 45 head, an increase of 30 over the previous year. One grade heifer and four pure-bred heifers and a young bull were received from the Central Experimental Farm during the year. In addition a very good cow was purchased from Mr. J. R. Canhan, of Newington, Ont., "LILY 65230". The pure-bred Ayrshire herd now includes 6 cows, 6 heifers over 1 year of age and 4 calves. The grade herd is composed of 18 cows, 3 heifers and 6 calves. Both herds have been accredited since the fall of 1922; this means that not an animal was found to be tubercular, largely because no animal was introduced into the herd without first being tested with tuberculin. Tuberculosis was excluded by this method, and with the help of our healthy climate. The farmers are strongly urged to have their herds tested with tuberculin before they are larger and to ask for a certificate of good health when purchasing cattle. As this district is isolated from the rest of the province, the railways being the only means of communication, and as the number of cattle is not large, it should be easy to control this disease.

The bull "Ottawa Lord Kyle 10th" 86753, is at the head of the herd. He is of good size and good type. He comes from high-producing stock, on his sire's side as well as on his dam's.

PRODUCTION OF MILK

The quantity of milk produced by each cow is weighed morning and night and recorded on a weekly form. The milk is tested once a month for its percentage of fat. A record is also kept of the food consumed by each cow during the milking period and also during the dry period before calving. These data enable us to check the quantity of food required for the maintenance of each cow, the cost of such maintenance, and the cost of production of the milk.

The method followed in the maintenance of milch cows is given in the 1924 report and readers desiring information on this subject are referred to the Station report for 1924.

The milk yield of each cow having completed a lactation period in 1925 is given in the following table, which also includes the quantity of food consumed, the value of the milk and the cost of feeding. The column of profits represents only the difference between the cost of food and the value of the product. No account is kept of labour, the value of calves, interest on the capital invested, or depreciation.

These records call for some explanations, as the average production is lower than that of the preceding year. One of our cows aborted (contagious abortion) twice and her production was reduced by half after the second abortion. The production of a heifer was also greatly affected by the same cause.

RECORDS OF MILCH COWS IN 1926

Name of cow	Age at beginning of lactation	Date of calving	Number of days in period of lactation	Total production of milk	Average daily milk production	Percent of fat	Value of milk at \$3.20 per 100 lbs.	Meal at \$34.81 per ton	Silage at \$5.00 per ton	Roots at \$2.50 per ton	Hay at \$15 per ton	Green fodder at \$5.00 per ton	Pasture at \$1 per month	Cost per 100 lbs. of milk	Total cost of feed	Profit per 100 lbs. of milk	Profit per cow (value manual labour and calf not included)
			days	lbs.	lbs.		\$ cts.	lbs.	lbs.	lbs.	lbs.	lbs.	month	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Nellie (a)	.....	3-7-24	212	6,111	28-8	.....	195 55	1,826	5,985	490	2,140	2,310	3	1 18	71 87	2 02	123 68
Nellie (b)	.....	27-1-25	212	3,154	14-9	3-9	100 93	2,921	4,760	.....	1,155	1,622	2 1/2	1 26	39 50	1 94	61 43
Liliane (b)	.....	13-2-24	611	8,879	14-5	4-19	284 13	2,997	16,091	1,650	5,070	3,110	6	1 58	139 76	1 62	144 37
Primrose of Athens	7	18-5-24	581	7,520	12-9	4-19	240 64	2,175	12,755	1,190	3,786	3,060	6	1 51	113 27	1 69	126 37
Primrose of Ottawa	5	27-4-24	337	6,111	18-2	4-33	165 54	1,882	8,350	490	2,754	2,310	3	1 38	83 61	1 82	111 93
Glista	4 1/2	12-3-24	347	11,207	32-3	3-28	358 62	3,188	8,058	490	2,766	2,555	3	0 92	104 03	2 28	252 58
Blanche	5	6-7-24	321	6,535	23-5	3-15	209 12	1,758	9,894	490	3,024	2,310	3	1 33	86 90	1 87	122 22
Belle	3 1/2	31-1-24	408	6,437	17-8	3-8	207 58	1,852	10,010	420	3,010	1,975	3	1 33	87 72	1 87	119 86
Anna	4	15-1-25	285	5,241	17-8	3-9	167 71	1,454	5,865	700	1,626	1,760	3	1 11	57 99	2 09	109 72
Deaneiges	3 1/2	6-2-24	374	5,426	14-5	.....	173 63	1,596	7,170	.....	2,511	1,975	3	1 35	71 47	1 85	102 16
Emma	3	28-2-24	373	5,174	13-7	4-28	165 57	1,484	7,240	425	2,425	1,903	3	1 41	72 93	1 79	92 64
Rose	2	4-7-24	361	4,991	13-8	4-15	159 71	1,513	5,955	420	1,903	1,975	3	1 25	62 54	1 95	97 18
Daisy A-1	5	14-11-24	314	6,118	19-5	4-11	195 78	1,632	7,006	455	1,976	1,790	3	1 17	71 08	2 08	124 70
Ottawa Mina	5	17-4-24	290	4,405	15-5	3-9	143 52	1,538	8,365	490	2,317	2,320	3	1 66	74 58	1 54	68 94
Ottawa Mina	8	28-3-25	259	4,657	17-9	3-81	149 02	1,344	6,080	600	1,496	2,317	3	1 19	55 71	2 01	94 31
Daisy B-1	5	7-12-24	263	3,860	14-7	4-24	123 52	1,101	7,071	205	1,843	484	3	1 42	55 08	1 78	68 94
Rita	1 1/2	7-7-24	320	5,120	16-3	3-52	163 86	1,443	4,725	200	1,615	1,790	3	1 11	56 14	2 09	107 72
Eva (c)	2	2-1-25	331	2,623	7-9	4-04	83 94	1,844	5,484	600	1,532	672	3	1 74	45 51	1 45	38 43
Pauline C	3	31-1-24	425	6,653	15-7	4-29	212 90	2,610	14,410	.....	3,187	.....	5	1 64	113 96	1 46	98 94
Total	.....	.....	6,633	110,532	.....	.....	3,531 27	33,158	155,154	9,315	46,136	31,195	64 1/2	.....	1,465 60	.....	2,065 67
Averages	.....	.....	349	5,807-6	16-6	.....	185 82	1,745-1	8,166	548	2,428-2	1,733	.....	1 32	76 74	.....	1 88

(a) Aborted Sept. 4th, 1924 and again Jan. 27th, 1925.
 (b) Will be slaughtered and sold.
 (c) Aborted Jan. 2nd, 1925.

COST OF RAISING HEIFERS

All the feed consumed by heifers from birth to calving is recorded. Up-to-date, 12 heifers have been raised to calving. The quantity of feed consumed and the cost for four heifers calving the past year, as well as the average for the twelve heifers raised to date, are given in the following table.

COST OF RAISING HEIFERS

Name of heifer	Date of birth	Date of calving	Age at calving months	Feed consumed						Total cost \$ cts.		
				Whole milk at \$1.32 per 100 lb.	Skimmed milk at 50 cents per 100 lb.	Meal at \$35.16 per ton	Hay at \$15.00 per ton	Green fodder at \$5.00 per ton	Silage at \$5.00 per ton		Roots at \$2.50 per ton	Pasture at 50 cents per month
Antoinette No. 25	Dec. 6, 1923	Sept. 7, 1925	21	292-0	1,690	1,452	3,201	515	5,442	352	4	78 67
Fauvette No. 17	Oct. 3, 1922	Mar. 31, 1925	30	799-0	1,242	2,717	3,767	3,368	16,624	1,044	10	149 05
Mignonne No. 22	April 28, 1923	Oct. 7, 1925	25	385-0	1,870½	1,891½	3,008	2,323	11,507	430	7½	108 35
Veline No. 19	Dec. 8, 1922	Mar. 26, 1925	27	670-7	761	2,940	4,577	2,949	15,273	1,037	8½	142 73
Totals			103	2,126-7	5,363½	8,600½	14,553	9,155	48,846	2,863	30	478 80
Averages			25-75	531-7	1,340-9	2,150-1	3,628-2	2,289	12,211-5	715-7	7½	119 70
Average for 12 heifers			26-25	496-6	1,561-7	1,502-7	3,216-3	2,265-4	10,223-4	647-3	6½	11 57

The average cost of raising a heifer from birth to the age of 26½ months was \$115.71, and the quantity of feed consumed during this period was as follows:— 497 pounds of whole milk, 1,562 pounds of skim-milk, 1,503 pounds of hay, 3,126 pounds of green fodder, 2,265 pounds of silage, 10,223 pounds of roots and 647 pounds of meal, and, in addition, 6½ months on pasture. The cost may seem to be rather high but if the whole of the feed is taken into account, it must be admitted that the raising of a heifer costs at least this amount. The feed was priced at the current market prices, with the exception of milk which was counted at cost. No account was taken of interest on capital, of depreciation of material or of labour.

These figures show that it is very important to raise only good heifers— heifers issued from sires that have proved their worth as breeders. The reader who might desire further information on this subject is referred to the 1924 report for the methods of breeding used on this Farm.

MAINTENANCE COST OF A BULL

In order to know the cost of maintenance of a bull, all the feed consumed during a year by a bull, from the age of one year, when he started to serve a small herd, to the age of two years, was recorded. The quantities consumed are as follows:—

3561 lb. of hay at \$15 per ton.....	\$	26 71
999 lb. of grain at \$34.81 per ton.....		17 39
3860 lb. of silage at \$5. per ton.....		9 65
Total.....	\$	53 75

The cost is rather high, but if we take into account the fact that this bull served more than 25 cows during this period, it is not excessive. It costs quite as much to keep a scrub bull as a well-bred one. This bull was kept in the stable but had the run of a small yard for exercise.

HORSES

On December 31, 1925, there were on the Station 9 work horses, and 2 light horses, all grades; as well as 4 French-Canadian mares whose ages varied from 7 months to 3½ years, and one stallion. Three work-horses were purchased during the spring; 5 died from accident or were killed because they were no longer useful. One foal only was raised in 1924. "Fine 1524" a French-Canadian mare gave birth to a very strong filly. This mare, unfortunately later died from the effects of an accident.

The cost of maintaining horses is recorded, as well as the cost of raising foals. Figures will be given in next year's report. As soon as the young horses are old enough to work, notes will be taken to see if the French-Canadian breed can be used economically on the heavy soils of the Abitibi.

The total number of working hours credited to the horses was 21,404, or 1,963.6 hours each (average of 10.9 horses) or an average of approximately 200 days of 10 hours. Out of this total number of hours, horses were hired out for a total of 5,535 hours during the period when they could not be used on the Station.

From January 1 to December 1, 1925, the following quantities of feed were consumed by an average of 10.9 horses.

39.95 tons of hay at \$15 per ton.....	\$	594 32
2056 bush. of oats at 65½c. per bush.....		1,341 54
3.29 tons of bran at \$27 per ton.....		88 86
38 gal. molasses at 75c. per gallon.....		28 50
Total cost.....	\$	2,053 22
Cost per horse.....		188 35
Average cost of feed per hour of work.....		9.5

The average quantity of feed consumed per horse and per day was 19.9 pounds hay, 17.5 pounds of oats and 1.6 pounds bran; this ration is considered sufficient for horses kept at hard work.

Since 1922, when these records of feed and work were first kept, the horses worked on an average 2,005 hours per year at an average cost of \$190.03, or 9.4 cents per hour.

These figures include only the cost of feed; they do not include interest on capital, depreciation, or labour.

SWINE

Six spring litters and six fall litters were raised on this Station during the year. The total number of pigs farrowed was 133 of which 92 only were raised. The litters obtained before the 22nd of March were not satisfactory on account of the high rate of mortality, and the same may be said of the fall litters born after September 15. Unless a warm and dry piggery is available, it is not advisable to farrow pigs before or after these dates, as the new-born pigs cannot stand the cold March days in the spring and the dampness in the fall. Two years' experience show that one-year-old sows do not always give good results. Two of these sows farrowed 20 pigs in the spring, of which four only were saved; one of these sows destroyed all her litter and the other one did not take good care of them. The same sows raised 20 pigs out of 20 farrowed in the fall.

The keeping of only young sows for breeding purposes is unsafe and we would strongly recommend that sows giving good litters and that have shown themselves to be good mothers should be kept as long as possible. The average of live pigs from old sows (sows over one year of age) is much higher than that from the young sows. In addition, the older sows give more milk and their pigs are accordingly better.

There has been a great development in hog-breeding in this district and many breeding pigs have been sold to farmers.

COST OF PRODUCTION OF PORK

A record was kept during the year of all the feed consumed by three sows from the weaning of the young pigs until the next litter, and from farrowing until weaning, in order to know the cost of raising pigs up to the age of 2 months. The feed consumed from the age of two months until the pigs were sold for pork was also recorded and the figures are given for the various periods in the following tables:—

COST OF PORK PRODUCTION	
<i>Cost of feeding three sows from weaning to farrowing:—</i>	
2857 pounds of grain at \$35.36 per ton.....	\$ 50 51
214 pounds of skim-milk at 50c. per 100 pounds.....	1 07
Total cost.....	\$ 51 57
<i>Cost of feeding three sows, from farrowing to weaning, including the feeding of 28 young pigs:—</i>	
2147 pounds of grain at \$35.32 per ton.....	\$ 22 06
2517 pounds of skim-milk at 50c. per 100 pounds.....	12 58
Total cost.....	34 64
Total cost of 28 young pigs at the age of 8 weeks.....	86 21
Cost per pig.....	3 08
<i>Cost of feeding six pigs up to the age of 6 months:—</i>	
Cost of six pigs 8 weeks old at \$3.08.....	18 48
<i>Feed consumed from 8 weeks of age to 6 months:—</i>	
3242 pounds of grain at \$36.94 per ton.....	\$ 59 87
4172 pounds of skim-milk at 50c. per 100 pounds.....	20 86
Total cost of six pigs at the age of 6 months.....	\$ 99 25
Cost of one pig six months old.....	16 54
<i>Cost of feeding (42 days) of six pigs. (Finishing period)</i>	
1886 pound of grain at \$47.24.....	\$ 39 79
Cost per pig.....	6 63
<i>Summary of the cost of production of pork:—</i>	
Number of pigs.....	6
Total cost of all feed given since the age of 2 months, including the cost of production of young pigs.....	\$ 139 00
Average cost of feed per head.....	23 16
Total weight at end of experiment.....	1200 lbs.
Average weight per head.....	200 lbs.
Cost per 100 pounds live weight.....	\$ 11 58

Up to the age of eight weeks, a pig costs \$3.08 and at six months of age, the cost, including the value of young pigs, is \$16.57 per head, and the average cost per pig when ready for market is \$23.16, or \$11.58 per 100 pounds live weight. At the date of slaughter, the market price was 18 cents per pound live weight. No account was taken, in figuring the cost of production, of labour, nor of the interest on the capital or of depreciation.

This cost might have been greatly lessened if a good clover pasture had been available and if a larger quantity of skim-milk had been fed. However, these figures show that pig-breeding deserves more attention from the farmers, as a great deal of pork is imported into the district.

CORN VS. BARLEY FOR THE FATTENING OF PIGS

This experiment, started in 1921, was continued in 1924 and 1925. The object was to see if barley could take the place of corn in the fattening of pigs.

Six pigs were divided into two lots of three each, of equal weights; the first lot received the following ration: 1 part ground oats, 1 part cornmeal, 1 part middlings, and $\frac{1}{2}$ part linseed meal. The second lot received a similar ration with the exception that cornmeal was replaced in the same proportion by ground barley. The results are given in the following tables:—

1925—CORN VS. BARLEY FOR FATTENING PIGS

	Corn	Barley
Number of pigs in each lot.....	3	3
Initial weight..... lb.	441	441
Average weight per head.....	147	147
Final weight of each lot.....	681	569
Final weight per head.....	210.3	189.7
Total increase in weight for each lot (42 days).....	190	128
Average daily increase in weight per lot.....	4.53	3.05
Average daily increase per head.....	1.51	1.02
Quantity of meal per lot.....	868	821
Average ration per day and per lot.....	21.19	19.81
Average ration per day and per head.....	7.06	6.43
Quantity of meal required per 100 pounds gain.....	456.8	641.4
Quantity of meal required for 1 pound gain.....	4.56	6.41
Cost of feed per lot (labour not included)..... \$	20 74	19 05
Cost of producing 100 pound gain..... \$	10 92	14 88

CORN VS. BARLEY FOR FATTENING PIGS—AVERAGES FOR THREE YEARS

	Corn	Barley
Number of pigs in each lot..... lb.	19	19
Initial weight.....	2432	2381
Average weight per head.....	128	125.8
Final weight of each lot.....	3477	3381
Final weight per head.....	183	177.9
Gain per lot.....	1045	1000
Average daily gain per lot.....	21.8	20.8
Average daily gain per head.....	1.15	1.0
Grain per lot.....	5390	5658
Roots per lot.....	1536	1473
Average daily grain ration per lot.....	112.3	111.8
Average daily grain ration per head.....	5.92	5.88
Quantity of grain required for 100 lb. gain.....	515.8	535.8
Quantity of grain required for 1 lb. gain.....	5.2	5.4
Total cost of feed per lot..... \$	129 00	128 56
Cost of feed per 100 lb. gain..... \$	12 34	12 86

The three-year averages show that the cost of gain is the same in the two lots, i.e. that it is just as economical to use barley as corn for feeding purposes. However, the lot receiving the corn made a little heavier gain than lot 2, and consumed 20 pounds less per 100 pounds of gain than the lot fed on barley.

Both the barley and corn were valued at the prices paid on the local market and the difference in cost between them is very slight. At these prices, the growing of barley would leave a substantial profit on the cost of production.

This experiment will be repeated once more as a check. However, the average results secured so far show that corn should not be depended upon entirely and that farmers would do well to grow barley as a substitute.

SHEEP

On December 31, 1925, there were on this Station 18 ewes, 7 ewe lambs, and a pure-bred Cheviot ram; also 7 grade lambs which are to be slaughtered after the grading-up experiments are completed in 1926.

The lamb crop was not as satisfactory this year as that of the preceding year. Sixteen pure-bred ewes yielded 25 lambs, or 156 per cent, and nine grade ewes, 14 lambs, or 155 per cent. They were quite thrifty, however, and showed beyond doubt that the Cheviot breed is well adapted to this district.

TREATMENT FOR GOITRE IN LAMBS

This disease, characterized by hypertrophy of the thyroid gland, is caused by a lack of iodine in water and food. In 1924, 30 per cent of the lambs had goitre. Iodized salt was then given to pregnant ewes as a preventive treatment. This treatment was very successful, as none of the lambs of the 1925 crop suffered from the disease. Iodized salt is prepared by dissolving 4 ounces of potassium iodide in one pint of water, in order to make a solution which is sprinkled on 100 pounds of dry salt and well mixed by hand. This salt is then placed in boxes within reach of the sheep.

BARLEY VS. CORN FOR THE FATTENING OF LAMBS

The object of this experiment, started in 1923, was to compare ground barley with cornmeal for the fattening of lambs for the market. Corn is an imported feed here, while barley may be grown profitably in the district.

In the fall of 1925, two lots of 9 lambs each and of equal weights were selected for this experiment. The first lot received the following ration: 2 parts ground oats, 2 parts bran, 1 part cornmeal, and 1 part linseed cake. The second lot received a similar ration, with the exception that the cornmeal was replaced by ground barley.

The results for the year are given in the following table:—

BARLEY VS. CORN FOR THE FEEDING OF LAMBS—1925

	Lot 1 Corn	Lot 2 Barley
Number of lambs in the experiment.....	9	9
Total weight at beginning of experiment..... lb.	733	734
Total weight at the end of the experiment..... "	751	762
Total gain made during the period (22 days)..... "	18	28
Average weight at beginning..... "	81.4	81.5
Average weight at finish..... "	83.4	84.6
Average gain per lamb..... "	2	3.1
Hay at \$10 per ton..... "	326	326
Ensilage at \$3.33 per ton..... "	467	467
Corn at \$35.94 per ton..... "	390	—
Barley at \$33 per ton..... "	—	390
Cost of feeding per lot..... \$	10 00	9 82
Value of lambs before feeding at 10c. per lb..... \$	73 30	73 40
Total cost of lambs after feeding..... \$	83 30	83 22
Value of lambs after feeding at 12c. per lb..... \$	90 12	91 44
Profit per lot..... \$	6 82	8 22
Profit per lamb..... \$	0 76	0 91

BARLEY VS. CORN FOR THE FEEDING OF LAMBS
AVERAGES FOR 1923-24-25.

	Lot 1 Corn	Lot 2 Barley
Number of lambs in the experiment.....	32	32
Total weight at beginning..... lb.	2768	2768
Total weight at finish..... "	3023	2979
Total gain during period (average 25) days..... "	255	211
Average weight at beginning..... "	84.95	84.95
Average weight at finish..... "	91.05	90.5
Average gain per head..... "	6.1	5.55
Hay..... "	1449	1449
Ensilage..... "	1774	1774
Corn..... "	1513	—
Barley..... "	—	1513
Cost of fattening per lot..... \$	49 43	47 38
Value of lambs after feeding at 10c. per pound..... \$	276 80	276 80
Total cost of lambs after feeding..... \$	326 23	324 18
Value of lambs after feeding at 12c. per pound..... \$	362 76	357 48
Profit per lot..... \$	36 53	33 30
Profit per head..... \$	1 14	1 04

It will be seen from the first table that the lambs did not make heavy gains in 1925. This was on account of the fact that some of the lambs were castrated shortly after the experiment was started. They had been kept to be sold for breeding purposes, but as no purchaser could be found, they were castrated and included in this experiment.

In 1923, the lot receiving corn meal made a much heavier gain than the lot fed on ground oats. In 1924, lot 2 fed on barley made a gain of 4 pounds more than lot 1, and in 1925 a gain of 10 pounds more. However, the three-years' average shows an average gain of only about $\frac{1}{2}$ pound for lot 1 over lot 2 fed on barley. There is not, in any case, much difference between these two feeds; these results will be checked by further experiments.

This experiment also shows that feeding increases the value of the lambs by about \$1 each.

FIELD HUSBANDRY

Seeding was done a little earlier than last year, but a little later than the average of the preceding years. There was no delay, as the spring was rather favourable. The first seeding of grain took place on May 18 and seeding was general on the 25th. Although the season was very damp and comparatively cold, the oats, barley and wheat ripened well and gave yields above the average. The following varieties were sown: Alaska oats, Garnet wheat, O.A.C. 21 barley. It is interesting to note that although these varieties ripened well, late varieties ripened very late and gave a grain of poor quality, some being damaged by frost or incompletely ripened. The interest in Alaska oats was well shown by the rapidity with which 300 bushels of seed were sold to the farmers who wanted to replace their late strains by an earlier variety. An effort will also be made next year to introduce Garnet wheat in the district if the results already obtained are confirmed this year.

COST OF PRODUCTION OF CROPS

The following values were used to figure the cost of production of the various crops, as well as for the cultural and rotation experiments.

COST VALUES

	\$ cts.
Labour, per hour.....	0 25
Horsepower, per hour.....	0 10
Rent of land, per acre.....	4 50
Use of machinery, per acre.....	3 00
Value of manure, per ton.....	2 00
Seed, oats, per bushel.....	1 10
" wheat, per bushel.....	1 50
" barley, per bushel.....	1 80
" buckwheat, per bushel.....	1 60
" Swedes, per pound.....	50
" corn, per bushel.....	3 25
" O.P.V. mixture, per bushel.....	1 77
" sunflower, per pound.....	0 10
" red clover, per pound.....	0 39
" alsike clover per pound.....	0 21
" timothy, per pound.....	0 10½
" potatoes, per pound.....	1 25
Twine, per pound.....	0 18
Threshing, per bushel.....	0 06
Nitrate of soda, per ton.....	93 00
Acid phosphate.....	46 00

RETURN VALUES

Barley, per bushel.....	0 75
Oats, per bushel.....	0 60
Hay, per ton.....	10 00
Ensilage, per ton.....	3 33
Small potatoes, per ton.....	2 00
Potatoes, per bushel.....	2 00
Straw, per ton.....	4 00
Wheat, per bushel.....	1 00

COST OF PRODUCING OATS.—Sixteen acres were sown in Alaska oats from May 18 to 26; cutting took place from August 31 to September 5. This crop was sown at the rate of 2½ bushels on 3, 4, 5, and 6-year rotations.

The cost of production is as follows:—

Total cost per acre.....	\$21 48
Yield of grain per acre.....	29.5 bushels
Yield of straw per acre.....	1.13 ton
Value of the crop, per acre.....	\$22 22
Profit per acre.....	0 74
Cost per bushel of grain.....	0 58
Cost per ton of straw.....	3 87

COST OF PRODUCING OATS, PEA AND VETCH ENSILAGE.—Three acres were sown with a mixture of oats, peas and vetch. The cost of production of this fodder is as follows:—

Cost per acre.....	\$25 78
Yield per acre.....	3.58 tons
Value of the crop.....	\$11 92
Loss per acre.....	13 86
Cost per ton.....	7 02

COST OF PRODUCING SUNFLOWERS.—Seven and a half acres were sown in sunflowers from May 26 to May 29 at the rate of 8 pounds per acre. The cold and damp weather was the cause of the low yield. The cost of production and the average yield per acre are as follows:—

Cost per acre.....	\$44 98
Yield per acre.....	6.47 tons
Value of the crop.....	\$21 55
Loss per acre.....	23 43
Cost per ton.....	6 95

COST OF PRODUCING HAY.—Seventeen acres were cut green and put into the silo; the total yield was 56.5 tons or an average yield of 3.3 tons per acre. The crop cured on the balance of the 94 acres of hay gave a total yield of 180 tons, or an average yield of 1.92 ton per acre. The first hay was cut on July 17, two days later than last year, and haying was completed on August 15. A great

deal of difficulty was experienced in haying this year and not much of the crop was of good quality. There were 17 days of rain out of a total of 29 days during the haying period; the longest period without rain was only four days. A great deal of handling was necessary on this account to cure the hay, and the cost of production was higher for this reason. The cost of production per acre is as follows:—

Total cost per acre.....	\$14 13
Yield per acre.....	1.92 tons
Value of the crop.....	\$19 20
Profit per acre.....	5 07
Cost per ton of hay.....	7 35

The following mixture was used: 12 pounds timothy, 6 pounds red clover, and 4 pounds alsike clover.

There was a very good hay crop in this district and the market price of hay dropped \$6 per ton. The market price was \$22 in 1923; it fell to \$16 in 1924 and again dropped to \$10 in 1925. There was overproduction in 1924 and there will again be a surplus this year, although there has been an increase since 1924 of 25 per cent in the number of cattle kept. The farmers cannot export hay and they have not the necessary credit facilities to purchase cattle to consume the surplus.

ENSILAGE VERSUS ROOTS

The object of this experiment, started in 1922, was to compare corn, sunflowers and a mixture of peas, oats and vetches for silage with swedes and mangels. The corn and sunflowers were sown with a grain-drill at the rate of 28 and 8 pounds respectively, in rows 42 inches apart, and the plants thinned to 12 inches in the rows. The mixture O.P.V. was sown at the rate of 2 bushels of oats, $\frac{3}{4}$ bushel of peas, and $\frac{1}{4}$ bushel of vetches per acre. The swedes and mangels were sown in rows at the rate of 4 and 8 pounds respectively per acre.

A four-year rotation is followed: first year, a root or ensilage crop; second year, oats; third year and fourth year, clover and grass hay.

These experiments have been under way four years and roots and corn have been almost always a complete failure. The sunflowers gave a low-yielding average but, on the other hand, the mixture O.P.V. gave a good yield. The average yields for root and ensilage crops for a period of four years are as follows:—

Roots.....	2.52 tons per acre
Corn.....	0.25 "
Sunflowers.....	3.85 "
Mixture O.P.V.....	5.46 "

ROTATIONS

The object of the rotations and a description of each were given in this Station's report covering the year 1924, which may be procured free of charge by writing to the Superintendent of this Station or to the Publications Branch, Department of Agriculture, Ottawa, Ont.

These rotations have not all finished one complete cycle and the yields have not reached their maximum. However, a summary of each of these rotations with a few explanatory notes, is given for information.

THREE-YEAR ROTATION

SUMMARY of yields, value of the crop and loss or profit per acre, 1925

Year	Crop	Yield per acre	Value of crops	Cost of production per acre	Profit or loss per acre
			\$	\$	\$
1	Sunflowers.....	2.1 ton	6 99	38 22	-31 23
2	Oats (Alaska).....	25.5 bush.	19 50	21 65	- 2 15
3	Clover hay.....	1.04 ton	10 40	19 13	- 8 73
	Total.....		36 89	79 00	-42 11
	Average per acre.....		12 30	26 33	-14 03

This rotation, which yields only three crops, may be profitable for those who have a great deal of permanent pasture.

FOUR-YEAR ROTATION

SUMMARY of yields, value of crops and profit or loss per acre, 1925

Year	Crop	Yield per acre	Value of crops	Cost of production of crops	Profit or loss per acre
			\$	\$	\$
1	Sunflowers.....	2.8 ton	9 32	26 51	-17 19
2	Oats (Alaska).....	25.0 bush.	19 28	24 81	- 5 53
3	Clover hay.....	1.5 ton	15 00	18 60	- 3 60
4	Grass hay.....	1.2 ton	12 00	15 40	- 3 40
	Total.....		55 50	85 32	-29 72
	Average per acre.....		13 90	21 33	- 7 43

This rotation gave one more crop than the preceding one. It is a good rotation for live stock, specially for those who have permanent pasture. The production of hay is also more economical.

FIVE-YEAR ROTATION

SUMMARY of yields, value of crops and profit or loss per acre, 1925

Year	Crop	Yield per acre	Value of crops	Cost of production of crops	Profit or loss per acre
			\$	\$	\$
1	Oats (Alaska).....	39.7 bush.	29 90	19 94	9 96
2	Sunflowers.....	2.19 ton	7 29	31 08	-23 79
3	Barley.....	18.5 bush.	17 01	23 51	- 6 50
4	Clover hay.....	1.35 ton	13 50	16 86	- 3 36
5	Grass hay.....	1.52 ton	15 20	20 14	- 4 94
	Total.....		82 90	111 53	-28 63
	Average per acre.....		16 58	22 31	- 5 73

This rotation has the advantage over the preceding one of producing more grain and just as much hay. The loss was also \$2 less per acre.

The five-year rotation with winter grain includes a summer fallow, winter wheat and winter rye. Both crops were a complete failure, 70 per cent of the plants were winter-killed. The plan of this rotation is given herewith, as it has not been explained in the preceding report.

First year.—Red clover crop ploughed under, land summer-fallowed until ready to be sown in winter wheat and winter rye, near the middle of August; 8 tons of manure applied.

Second year.—Half the area in wheat and half the area in rye are harvested. Clover and grass seed is sown on the snow, at the end of April.

Third year.—Clover hay.

Fourth year.—Grass hay manured at the rate of 8 tons per acre.

Fifth year.—Oats seeded down with 8 pounds of red clover seed per acre.

No results are given because, as explained above, the main crops were a complete failure.

The six-year rotation including as it does a hoed crop, yields two crops of grain and three of hay; the last crop of which may be used as a pasture. A very good rotation for dairying.

SIX-YEAR ROTATION

SUMMARY of yields, value of crops and profit or loss per acre, 1925

Year	Crop	Yield per acre	Value of crops	Cost of production of crops	Profit or loss per acre
			\$	\$	\$
1	Potatoes.....	73.5 bush.	151 32	117 00	34 32
2	Wheat (Garnet).....	12.7 bush.	16 47	23 76	- 7 29
3	Barley.....	0.7 bush.	8 08	21 35	-12 37
4	Clover hay.....	1.55 ton	15 50	20 85	- 5 35
5	Grass hay.....	1.24 ton	12 40	15 98	- 3 58
6	Grass hay.....	1.13 ton	19 30	14 00	5 30
	Total.....		223 97	212 94	11 03
	Average per acre.....		37 33	35 49	1 84

It would be premature as yet to draw conclusions from these rotations. It may be noted, however, that the longest rotation is the most profitable of the lot. No doubt, the cost of seed, of manure, of rent, etc., are comparatively high, and the value of the different crops has dropped too low. This is due, in part, to the lack of balance between production and consumption. The increase in the number of live stock has not kept pace with the production of animal feed, especially of hay. The causes of the poor yield of sunflowers and wheat are the wet and cold. As to barley, the explanations given under the heading "Cost of production of barley" on another page of this report also apply to these tests.

HORTICULTURE

The season of 1925 was not fully satisfactory for horticulture. It was wet and cold and several vegetables did not do as well as the average for past years. No damage was caused by frosts, however, during the period extending from June 13 to September 13, a total of 91 days.

APPLES

No damage was done to fruit trees by the winter 1924-25, and most of the trees made a very satisfactory growth. Trees damaged during the winter of 1923-4 continued to grow and several of them made a growth of over 24 inches. The varieties Prince and Mecca gave some fruit, which fell, however, when they had reached the size of a hazelnut.

SMALL FRUITS

Gooseberries, currants and raspberries planted in 1923 did not make satisfactory growth during the year and gave poor yields. The old plantation of black currants gave a satisfactory yield. A new plantation of strawberries was established in the spring.

VEGETABLE GARDENING

BEANS—VARIETY TEST.—Twenty-three varieties of beans were sown on June 1 in rows 30 feet long and 30 inches apart. The plants were thinned out exactly 2 inches in the rows. The yield was generally poor on account of the cold, although the plants did not suffer from the frost, and the wet weather favoured the development of anthracnose to such an extent that few pods of the varieties could have been sold. The yields are given in the following table:—

BEANS—VARIETY TEST

Varieties	Source of seed	Number of days from sowing until ready to use	Yield per acre
			lb.
Henderson Bountiful.....	D. & F.....	74	4,066
Stringless Green Pod.....	0-3209.....	86	3,920
Hodson Long Pod.....	Rennie.....	90	3,630
Davis White Wax.....	0-6903.....	72	3,485
Interloper Challenge B. Wax.....	0-6876.....	72	3,049
Dwarf Plentiful.....	Sutton.....	72	3,049
Kentucky Wonder Wax.....	Will.....	74	2,904
Wardwell Kidney Wax.....	0-6878.....	72	2,831
Wardwell Kidney Wax.....	0-6877.....	72	2,759
Imp. Refugee.....	0-6904.....	89	2,332
Jones White.....	Manitoba College of Agriculture.....	72	2,178
Wardwell Kidney Wax.....	0-6879.....	72	1,742
Round Pod Kidney Wax.....	McDonald.....	73	1,307
Bountiful.....	Will.....	72	1,089
Davis Wax.....	McDonald.....	72	1,016
Wardwell Kidney Wax.....	Graham.....	72	944
Pencil Pod Black Wax.....	Burpee.....	72	581
Round Pod Kidney Wax.....	Burpee.....	72	581
Refugee 1000-1.....	Burpee.....	86	581
Yellow Eye.....	0-6950.....	89	581

The following varieties were late and did not give any crop:

Refugee or 1000-1, Steele-Briggs.
Plentiful French, Sutton.
Dwarf French, Will.

The hardiest varieties are the following:

Hodson Long Pod, Rennie.
Kentucky Wonder Wax, Will.
Imp. Refugee, 0-6904.

BEANS—DISTANCES APART IN THE ROWS.—The object of this experiment is to ascertain whether beans should be planted at a distance of 2, 4 or 6 inches in the rows for earliness and yield. The beans planted at 4 and 6 inches gave a better yield than the others this year, but for an average of 2 years those planted at 2 inches still head the list with 2,196 pounds per acre. There was no difference in the earliness between the various distances.

BROAD BEANS—VARIETY TEST.—Seventeen varieties were sown in rows 30 feet long and at a distance of 30 inches between each row. They were sown May 27 and harvested September 5. A record was kept of the quantity of

fodder given by these plants, number of pods and pounds of beans. However, none of these crops has yet ripened. Yields as well as the averages are given in the following table:—

BROAD BEANS—VARIETY TEST

Varieties	Source of seed	Number of days from sowing until ready for use	Yield per acre, pounds.				
			Seed, 1925	Pods		Fodder	
				1925	2-year average	1925	2-year average
Long Pod Hang Down.....	Sharpe.....	100	1,965	3,049	8,784	11,035	16,476
Long Pod Aquadulce.....	Sharpe.....	100	1,888	2,468	4,283	10,744	10,744
Long Pod Monarch.....	Sharpe.....	100	1,597	2,468	5,154	10,890	19,311
Windsor Broad Taylors.....	Sharpe.....	100	1,524	2,178	6,606	11,180	18,658
Long Pod Bunyard Exhibition.....	Sharpe.....	100	1,343	2,323	5,565	10,019	18,878
Long Pod Masterpiece Green.....	Sharpe.....	100	1,343	2,178	5,445	9,002	18,004
Long Pod Johnson Wonder.....	Sharpe.....	100	1,143	2,541	7,949	9,728	16,698
Windsor Green.....	Sharpe.....	100	1,125	2,032	5,662	10,890	20,110
Long Pod Green.....	Sharpe.....	100	1,089	1,597	4,523	8,712	17,183
Long Pod Early.....	Sharpe.....	100	1,016	1,742	4,727	9,002	17,137
Windsor Common.....	Sharpe.....	100	943	1,742	4,646	10,019	14,302
Harlington Windsor.....	SteeleBriggs	100	907	1,887	5,589	12,196	20,618
Windsor Giant Four Seeded.....	Sharpe.....	100	907	1,742	6,679	7,841	14,665
Early Mazagan.....	Sharpe.....	100	799	1,452	2,759	11,761	16,625
Dwarf Fan or Cluster.....	Sharpe.....	100	799	871	2,758	4,048	10,100
Long Pod Conqueror.....	Sharpe.....	100	798	1,887	4,718	8,131	15,541
Long Pod Seville.....	Sharpe.....	100	690	1,161	4,065	4,356	8,882

The quantity of fodder given by these plants is worthy of note; the yields are very much superior to those given by sunflowers or other fodder crops.

BEETS—VARIETY TEST.—Nine varieties were sown on May 26 in rows 30 feet long and 30 inches apart; the plants were thinned out to 3 inches in the rows.

BEETS—VARIETY TEST

Varieties	Source of seed	Number of days from sowing until ready for use	Average number of days for three years	Average yield per acre	Average yield for three years
Sunnybrook.....	Burpee.....	87	94	lb. 12,197	lb. 8,712
Detroit Dark Red.....	0-6050.....	87	.....	11,616	.....
Detroit Dark Red.....	Graham.....	87	88	11,035	9,873
Detroit Dark Red.....	McDonald..	87	95	10,745	10,164
Eclipse.....	McDonald..	87	97.2	10,455	10,926
Crosby Egyptian.....	D. & F.....	87	.....	8,712	.....
Crosby Egyptian.....	S.B.....	99	105.7	8,422	9,220
Columbia.....	Burpee.....	87	99.2	8,131	8,639
Black Red Ball.....	Burpee.....	87	101	6,098	5,702

The Eclipse comes first for an average of three years. For 1925, the Sunnybrook tops the list with 12,197 pounds per acre. Both these varieties are of good quality.

BEETS—THINNING EXPERIMENT.—A row 100 feet long of the Detroit Dark Red variety was sown May 26; one-third of the row was thinned to 2 inches, another third to 3 inches and the last third to 4 inches. The results for the last four years, as well as the average for the same period, are given in the following table:—

BEETS—THINNING EXPERIMENT

Year	Date of sowing	Yield per acre		
		Thinned to 2 inches	Thinned to 3 inches	Thinned to 4 inches
1921.....		28,456	22,176	12,672
1922.....	May 16.....	4,224	3,320	1,056
1924.....	May 14.....	13,341	10,310	18,042
1925.....	May 26.....	7,326	6,018	6,934
Four-year average.....		13,337	10,206	9,676

The beets thinned two inches apart yielded considerably more than the others, but those plants thinned out to 4 inches produced the most uniform beets.

BEETS—DIFFERENT DATES OF SEEDING.—A row 30 feet long of the variety Detroit Dark Red was sown as soon as possible in the spring and then at intervals varying from 5 to 9 days, covering a total period of 3 weeks. Half of the row was to be harvested as soon as the plants were fit for use and the other half at the end of the season, but as the first sowing was very late, the plants were not fit to be used before the end of the season.

The results for the year show that the earliest sowing is, by far, the most profitable. However, the date of sowing seems to have a marked influence on the yield, as the results for 1924 show that the second date of sowing, which was the same as the first date of sowing in 1925, also gave a better yield. It was also noted that the roots of the earliest seeding in 1925 and of the second in 1924, were of better quality than the others. This experiment will be continued.

BEETS—FALL SEEDING VERSUS SPRING SEEDING.—The object of this experiment was to compare sowing done in the fall, immediately before the freeze-up, with sowing done in the spring, as soon as the soil is ready, so as to compare yields and earliness. Sowing done in the fall was a complete failure, only a few seeds germinated; while the sowing done in the spring gave 11,606 pounds per acre. This partly confirms the results obtained in 1924, when the fall sowing had given 1,742 bunches weighing 5,372 pounds per acre and the spring sowing 4,065 bunches weighing 6,263 pounds. This experiment will also be continued.

BORECOLE—VARIETY TEST.—Two varieties only were tested, the Tall Green Curled (McDonald) and Dwarf Green Curled (Rennie). They were sown May 26 and were ready to be used August 10. Yield per acre: 28,750 and 7,841 pounds, respectively.

BRUSSELS SPROUTS—VARIETY TEST.—Four varieties were sown in hotbed May 13 and transplanted into the open June 2. Three varieties gave a crop; the yields are as follows:—

BRUSSELS SPROUTS—VARIETY TEST

Variety	Source of seed	Number of days until ready for use	Yield per acre
Amager Market.....	Ewing.....	156	lb. 1,815
Dalkeith.....	McDonald..	156	1,307
Paris Market.....	Ewing.....	156	581
Imp. Dwarf.....	Vaughan....	Complete loss	

CHINESE CABBAGE—VARIETY TEST.—The varieties Wong Bok (McDonald) and Pe-Tsai (Ewing) were sown in 60-foot rows 30 inches apart on April 15, and they were ready to be used July 8. The Wong Bok yielded 12,034 pounds and the Pe-Tsai 11,616 pounds per acre.

CABBAGE—VARIETY TEST.—Twenty varieties were sown in the hotbed on May 13 and transplanted into the open June 2. Two rows of each variety were sown or a total of 40 heads. This year's yield and the averages for a period of four years are given in the following table:—

CABBAGE—VARIETY TEST

Variety	Source of seed	Number of days until ready for use	Average number of days for four years	Average yield	Average yield
				per acre	for four years
				lb.	lb.
Enkhuisen Glory.....	Rennie.....	119	109	28,459	43,391
Dala.....	McDonald..	119	117 (b)	23,595	43,699 (b)
Golden Acre.....	Harris.....	102	84 (b)	22,506	29,983 (b)
Ballhead Early.....	S.B.....	132		21,562	
Danish Ballhead Middle Stem.....	Harris.....	159	142 (a)	20,328	27,078 (a)
Flat Swedish.....	D. & F.....	154	136	20,083	33,189
Copenhagen Market.....	McDonald..	133		20,082	
Fottlers Imp. Brunswick.....	S.B.....	150	151	19,483	29,712
Copenhagen Market.....	Graham....	109		18,731	
Copenhagen Market.....	James.....	109		17,206	
Danish Ballhead Long Stem.....	Harris.....	159		16,262	
Kildonan.....	S.B.....	159	137	15,219	27,883
Marblehead Mammoth.....	Ewing.....	163	136 (a)	13,358	34,750 (a)
Danish Ballhead Short Stem.....	Harris.....	159	139	11,616	31,488
Danish Ballhead.....	S.B.....	159	142 (a)	10,745	40,753 (a)
Imp. Amer. Curled Savoy.....	Ferry.....	163	146 (b)	10,164	26,812 (b)
Perfection Drumhead.....	Ewing.....	159		6,246	
Perfection Drumhead Savoy.....	McDonald..	159	146	5,229	23,885
Haco Red.....	D. & F.....	129		17,279	
Danish Stonehead.....	Graham....	129	129.5 (b)	9,148	26,354

(a) 3 year average only. (b) 2 year average only.

The Dala variety heads the list for two years but is closely followed by the Enkhuisen Glory. Both varieties are comparatively early. The Golden Acre is, without doubt, the earliest of all varieties and gives a firm head, of the best quality. Among the winter cabbages, the Danish Ballhead tops the list. This variety keeps perfectly during the winter.

CABBAGE—SOWING IN THE OPEN VS. SOWING IN HOTBEDS.—The object of this experiment was to find out whether it is better to start the plants in hotbeds or to sow in the open. Plants were started in hotbeds on April 13 then transplanted into the open on July 2; the first sowing in the open took place on May 26. The results obtained are given in the following table:—

CABBAGE—SOWING IN THE OPEN VS SOWING IN HOTBEDS

Varieties	Method of sowing	Date sown	Date ready for use	Per cent headed	Yield per acre
					lb.
Copenhagen Market.....	Hotbeds.....	April 13....	Aug. 15....	100	18,414
	In the open.....	May 26....	Sept. 4....	75	18,878
American Danish Ballhead....	Hotbeds.....	April 13....	Sept. 20....	100	28,459
	In the open.....	May 26....		45	

Only the Copenhagen Market gave a crop when sown in the open, and a rather astonishing fact is that it yielded a few hundred pounds more than the other varieties, although only 75 per cent of its cabbages were firm. Sowing late varieties in the open does not seem advisable, as although 40 per cent of the cabbages were firm, none were good enough to be sold or to keep. This is why no record of the yield was taken. The cabbages started in hotbeds were ready to be used twenty days earlier.

CABBAGE—DIFFERENT DATES OF SOWING.—The varieties Copenhagen Market and Danish Ballhead were sown in the open May 26, in a 30-foot row, as soon as the soil was ready, and later at different intervals, varying from five to nine days. The yields, the dates of sowing, and when ready for use, are given in the following table:—

CABBAGE—DIFFERENT DATES OF SOWING

Variety	Date of sowing	Date of germination	Date ready for use	Per cent headed	Yield per acre	
					Market-able	Unmarket-able
Copenhagen Market.....	May 26....	June 5....	Sept. 4....	75	18,878	4,065
	June 12....	June 12....	Sept. 28....	15	1,452	1,162
	June 11....	June 19....	Sept. 30....	15	3,630	581
	June 16....	June 25....	.....	0	.....	.....
American, Danish, Ballhead	May 26....	June 5....	.....	45	.....	2,904
	June 2....	June 12....	.....	0	.....	.....
	June 11....	June 19....	.....	0	.....	.....
	June 16....	June 25....	.....	0	.....	.....

CABBAGE—PROTECTION FROM ROOT-MAGGOTS.—The varieties Early Jersey Wakefield and Copenhagen Market were used in this experiment. A row 100 feet long of each variety was sown. One third of each row was protected by means of tar-paper disks, another third was sprayed with a solution of 1/1,500 bichloride of mercury, and the remaining third was not treated.

The results obtained are given in the following table.

PROTECTION FROM ROOT-MAGGOTS

Variety	Bichloride of mercury		Tar paper		Check (unprotected)	
	Per cent destroyed	Yield per acre	Per cent destroyed	Yield per acre	Per cent destroyed	Yield per acre
		lb.		lb.		lb.
Ey. Jersey Wakefield.....	0	15,677	0	12,690	0	20,660
Copenhagen Market.....	5.0	53,882	10	30,089	0	13,867
Average.....	2.5	34,779	5	21,389	0	17,263

For a two-year average, the solution of bichloride of mercury gave the best protection. The percentage of dead cabbages was lower and the yield higher than with the other two methods.

The following table gives the results for a period of five years from protected and unprotected cabbage, as well as the five-year average.

PROTECTION OF CABBAGES

Year	Varieties	Yield per acre	
		Protected	Unprotected
1921	Copenhagen Market.....	25,612	27,878
	Early Jersey Wakefield.....	25,960	22,302
1922	Copenhagen Market.....	26,486	22,304
	Early Jersey Wakefield.....	23,698	14,288
1923	Early Jersey Wakefield.....	16,843	28,429
	Danish Ballhead.....	17,424	22,651
1924	Early Jersey Wakefield.....	31,793	24,255
	Copenhagen Market.....	61,419	40,113
1925	Early Jersey Wakefield.....	14,183	20,660
	Copenhagen Market.....	41,985	13,863
	Averages.....	28,540	23,675

Although the results are not always consistent, the five-year average is in favour of protection by approximately 20 per cent.

CABBAGE—FALL SOWING VS. SPRING SOWING.—The fall sowing gave no promise as not a single seed germinated. The seed sown in the open in the spring gave a yield of 18,878 pounds per acre.

CAULIFLOWERS—VARIETY TEST.—Three varieties were sown on April 13 in hotbeds and transplanted into the open, on June 2, in rows 60 feet long and 30 inches apart. The results obtained are given in the following table:—

CAULIFLOWERS—VARIETY TEST

Varieties	Source of seed	Number of days until ready for use	Yield per acre
			lb.
Ey. Dwarf Erfurt.....	McDonald..	96	16,011
Henderson Snowball.....	Graham....	102	7,479
Ey. Snowball.....	Graham....	96	6,116

CAULIFLOWER—PROTECTION FROM ROOT-MAGGOTS.—A row 100 feet long of Early Snowball and one of Dwarf Erfurt were used for this experiment. One third of the row was protected by means of paper discs, another third was sprayed with a solution of bichloride of mercury 1/1,500, and the remainder of the row was left unprotected. The yields obtained under each method and the percentage of cauliflowers destroyed are given in the following table:—

CAULIFLOWERS—METHODS OF PROTECTION

Variety	Bichloride of mercury		Tar paper disks		Unprotected	
	Per cent destroyed	Yield per acre	Per cent destroyed	Yield per acre	Per cent destroyed	Yield per acre
Early Snowball.....	40	8,373	30.0	4,579	20.0	5,756
Dwarf Erfurt.....	10	11,120	5.0	9,681	5.0	9,681
Averages.....	25	9,746	17.5	7,139	12.5	7,723

Notwithstanding the protection given, the percentage of roots destroyed is very much higher among those that were protected. However, the protected cauliflowers gave a higher yield than the others. The yields obtained since 1921 as well as the average for these years are given in the following table. The

average still favours the unprotected cauliflowers but the difference is so small that protection is still recommended. This difference is explained by the fact that there were very few worms during the first few years. This experiment will be continued for a few more years.

CAULIFLOWERS PROTECTED—AVERAGE YIELD

Year	Variety	Yield per acre	
		Protected	Unprotected
1921	Early Snowball.....	17,598	16,726
	Dwarf Erfurt.....	10,366	17,598
1922	Early Snowball.....	13,392	10,455
	Dwarf Erfurt.....	5,925	5,218
1923	Early Snowball.....	6,762	13,794
	Dwarf Erfurt.....	6,982	9,460
1924	Early Snowball.....	10,055	4,782
	Dwarf Erfurt.....	8,839	6,316
1925	Early Snowball.....	8,476	5,756
	Dwarf Erfurt.....	10,401	9,681
Average.....		9,680	9,979

CARROTS—VARIETY TEST.—Seven varieties were sown May 26 in rows 30 feet long and 30 inches apart. Their yields are given in the following table:—

CARROTS—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Average number of days for 2 years	Yield per acre	
				1925	2-year average
Early Scarlet Horne.....	D. & F.....	76	82.5	lbs. 17,714	lbs. 21,925
Nantes Half Long.....	McD.....	78	83.5	17,714	20,473
Orheart.....	S.B.....	76	82.5	17,134	17,714
Chantenay.....	McD.....	78	83.5	15,972	.....
Red St. Valery.....	Rennie.....	78	83.5	15,536	.....
St. Valery.....	Ewing.....	86	87.5	15,101	18,150
Chantenay.....	O-3423.....	78	83.5	12,778	15,101

Early Scarlet Horne and Nantes Half Long yield well and are of good quality.

SOWING AT DIFFERENT DATES—A 30-foot row of the Chantenay variety was sown as soon as possible in the spring and then at intervals varying from 5 to 9 days; the last sowing was done three weeks later. Half the row was to be harvested when the carrots were ready for use and the other half at the end of the season, but as the first sowing was very late, the carrots were not ready to be used before the end of the season. The yields given in the following table were only obtained at the end of the season.

CARROTS—DIFFERENT DATES OF SOWING

Date of seeding	Date of harvest	Marketable per acre		Unmarketable per acre	
		Number of bunches	Number of pounds	Number of bunches	Number of pounds
May 26.....	Sept. 9.....	23,232	23,232	2,323	1,307
June 2.....	" 9.....	20,909	20,909	2,904	1,889
" 11.....	" 9.....	12,197	12,197	3,484	2,323
" 16.....	" 9.....	8,712	8,131	4,066	1,742

These results confirm those obtained in 1924, for the highest yield is obtained from the earliest seeding. The carrots are also of better quality and more uniform.

CARROTS—THINNING TEST.—A row 100 feet long of the Chantenay variety was sown on May 26 at a distance of 30 inches from the adjacent rows. One third of the row was thinned to 3 inches, one third to 2 inches and the remaining third to 1½ inches. The yields obtained in 1921, 1922, 1924 and 1925 as well as the four-year average are given in the following table.

CARROTS—THINNING TEST

Year	Thinned to 1½ inches	Thinned to 2 inches	Thinned to 3 inches
1921.....	9,504	12,672	10,560
1922.....	1,843	2,107	1,185
1924.....	9,279	12,887	10,310
1925.....	12,298	16,746	14,652
Average.....	8,231	11,103	9,177

Since these experiments were started in 1921, thinning to 2 inches has always given the best results each year. It was also noticed that the carrots were larger and more uniform when thinned to 2 and 3 inches.

CARROTS—FALL SEEDING VS. SPRING SEEDING.—A 30-foot row of the Chantenay variety was sown October 27 immediately before the freeze-up, and another row of the same variety was sown in the spring as soon as the soil was ready. The growth of the fall seeding was not as uniform but the carrots were a little larger and were ready for the market ten days earlier. The results obtained are as follows:—

CARROTS—FALL SEEDING VS. SPRING SEEDING

Seeding done in	Date of seeding	Date ready for use	Number of pounds per acre
Spring.....	May 26.....	Aug. 12..	12,778
Fall.....	Oct. 27.....	" 2..	10,309

CELERY—VARIETY TEST.—Nineteen varieties were tested in rows 30 feet long and 48 inches apart. None of them did very well and the irregular weather and also perhaps the heavy rains affected the growth of the plants considerably. The yields of the fifteen best varieties are given below.

CELERY—VARIETY TEST*

Variety	Source of seed	Date ready for use	Number of plants harvested per acre	Number of pounds per acre
• Giant Pascal.....	Graham.....	Aug. 10	18,150	8,893
Garahan Easy Blanching.....	Graham.....	Oct. 3	16,698	5,808
Evans Triumph.....	D. & F.....	Aug. 10	16,698	5,626
Fordhook B. Sel. New. Imp.....	Vaughan.....	Oct. 3	12,342	4,719
Rose Ribbed.....	Vaughan.....	" 3	14,520	4,356
Golden Plume.....	Morse.....	" 3	13,068	3,630
Rose Ribbed Paris.....	Bruce.....	" 3	12,342	3,267
Winter Queen.....	Graham.....	Aug. 10	10,164	3,267
Easy Blanching.....	Garahan.....	Oct. 3	12,342	3,085
Fordhook.....	Burpee.....	Aug. 10	10,890	2,904
Golden Self Blanching.....	O-3410.....	Oct. 3	15,972	2,904
Paris Golden Yellow.....	S.B.....	" 3	11,616	2,722
New Golden (Nov. List).....	Ferry.....	" 3	9,438	2,178
Winter Queen.....	Stokes.....	" 3	7,260	1,896
Golden Self Blanching.....	Stokes.....	" 3	6,534	1,452

*The following varieties were a failure: White Plume, Graham; Paris Golden Yellow, D. & F.; London Prize Red, S.B.

CELERIAC—VARIETY TEST.—Only two varieties were sown on April 1, Giant Prague (Harris) and Large Rooted (Steele-Briggs), and were harvested October 3. They gave the following yields: 14,068 and 13,794 pounds, respectively.

KOHL-RABI.—Two varieties were sown in 30-foot rows at 30 inches apart May 26. The Purple Vienna (McDonald) gave a yield of 7,696 pounds per acre while the White Vienna (Graham) yielded 6,244 pounds. The first-named variety was ready to be used in 94 days and the second in 87 days.

LETTUCE—VARIETY TEST.—Sixteen varieties were tested in rows 15 feet long and 15 inches apart; the plants were thinned 6 inches apart in the rows. Seeding was done on May 26. The results obtained are as follows:—

LETTUCE—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Yield per acre
			lbs.
Trianon Cos.....	Vaughan.....	63	64,917
All Heart.....	Dreer.....	66	38,774
Big Boston.....	McKenzie.....	66	38,340
Salamander.....	McD.....	66	31,806
Iceberg.....	Ewing.....	63	31,370
Crisp as Ice.....	Will.....	66	31,370
Grand Rapids.....	Burpee.....	62	30,488
Big Boston.....	Graham.....	66	29,191
Black Seeded Simpson.....	Ewing.....	60	23,774
Early Curled Simpson.....	Dreer.....	66	23,774
Imp. Hansen.....	Ewing.....	66	23,774
Black Seeded Simpson.....	Vaughan.....	63	22,874
Grand Rapids.....	McKenzie.....	63	21,785
Grand Rapids.....	O-3406.....	63	20,042
Tom Thumb.....	Burpee.....	66	18,735
Grand Rapids.....	O-3412.....	63	17,427

Among the loose-leaf varieties, the Trianon Cos tops the list for an average of several years; the All Heart, Salamander, Crisp as Ice and Grand Rapids gave the best yields and have the best quality among the head-lettuces.

LETTUCE—FALL SEEDING VS. SPRING SEEDING VS. SEEDING IN HOTBEDS.—The object of this test is to compare the earliness and the yields of lettuce when it is sown in the fall and in the spring, in hotbeds and in the open. The fall seeding was done on October 23 but not a single seed germinated in the spring. The spring seeding was done in the open on May 26 and the lettuce was ready to be used on July 25. Seeding in the hotbed was done on April 23, transplanted in the open on May 26 and the lettuce was ready to be used on July 3. The plants of the spring seeding suffered to a certain extent from the attacks of the cutworms but none were cut in the hotbed. The results obtained are as follows:—

LETTUCE—FALL SEEDING vs. SPRING SEEDING vs. SEEDING IN HOTBEDS

Seeding	Date of seeding	Date ready for use	Number of plants	Number of pounds	Two-year average
				lbs.	lbs.
Spring.....	Oct. 23	Complete loss			
Fall.....	May 26	July 25	48,787	20,042	17,471
Hotbed.....	April 23	" 3	69,697	31,363	29,620

ONIONS

None of the sixteen varieties under test or grown for experimental purposes (including the sowing of seed in the open) reached sufficient size to be harvested. However, the sets planted gave 2,790 pounds and 1,394 pounds for red and yellow onions, respectively. The onions started in hotbeds April 23 were set in the open on June 2 and were pulled on October 1, but were not completely developed at the latter date. Yields from the various varieties are as follows:—

Extra Early Flat Red.....	4532 pounds per acre
Select Large Red Wethersfield.....	4182 "
Yellow Danvers.....	4182 "
Giant Prize Taker.....	4182 "

PARSLEY—VARIETY TEST.—Two varieties of parsley, Triple Curled and Moss Curled (Ewing), were sown on May 26; they were ready to be used 78 days after sowing and they gave the following yields: 14,665 pounds and 11,025 pounds respectively.

PARSNIPS—VARIETY TEST.—The five varieties tested were sown on May 26 in rows 30 feet long and 30 inches apart; the plants were thinned 3 inches apart in the rows. The Hollow Crown (Ottawa) gave the highest yield. The results are as follows:—

PARSNIPS—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Yield per acre	2-year average
Hollow Crown.....	O-6048.....	87	7,550	9,293
Hollow Crown.....	McKenzie.....	87	6,970	6,970
Elcombes Imp. Hollow Crown.....	Graham.....	96	6,970	6,679
Guernsey XXX Half Long.....	Rennie.....	87	6,679	5,953
Dobbies Exhibition.....	Ewing.....	96	5,808	5,517

PARSNIPS.—THINNING EXPERIMENT.—A 100-foot row of the Hollow Crown variety was sown on May 26. One-third of this row was thinned 2 inches apart; another third 3 inches apart, and the remaining third 4 inches apart. The following table gives the results obtained in 1921, 1922, 1924 and 1925 as well as the four-year average.

PARSNIPS—THINNING EXPERIMENT

Year	Thinned to 2 in.	Thinned to 3 in.	Thinned to 4 in.
	lb. per acre	lb. per acre	lb. per acre
1921.....	13,075	10,460	5,753
1922.....	2,376	2,112	2,112
1924.....	15,465	8,764	7,217
1925.....	3,140	4,841	4,186
Four-year Average.....	8,514	6,544	4,817

PARSNIPS—DIFFERENT DATES OF SEEDING.—A row 30 feet long of the Hollow Crown was sown as soon as the soil was ready and again at different periods varying from five to nine days during three weeks' time. The parsnips were harvested in the fall and the yields obtained are given in the following table:—

PARSNIPS—DIFFERENT DATES OF SEEDING

Date of Seeding	Date of harvest	Marketable crop		Unmarketable crop pounds
		Bunches	Pounds	
May 26.....	Sept. 29....	11,035	11,035	726
June 2.....	" 29....	7,550	7,550	2,178
" 11.....	" 29....	4,646	4,646	2,904
" 16.....	" 29....	3,485	3,485	1,162

Last year, the first and second seedings gave equal yields, but this year the earliest seeding gave much better results. It should be noticed, however, that the first seeding is done twelve days earlier this year than last.

PEAS—VARIETY TEST.—Twenty-six varieties of peas were sown in 1925, in rows 30 feet long. The seed was sown on May 27; the results obtained are given in the following table:—

PEAS—VARIETY TEST

	Source of seed	Number of days from seeding until ready for use	Average number for two years	Yield per acre	Average for two years
Seeding No. 2.....	Invermere.....	81	98.5	17,908	19,541
Lincoln.....	Invermere.....	81	99.5	17,061	14,338
Gradus x Amer. Wonder.....	0-6267.....	82	97.5	15,993	14,107
Gradus.....	0-6739.....	76	.....	15,246	.....
English Wonder.....	0-6369.....	76	94.5	13,431	13,189
Bromefield Ey. 6 weeks.....	Child.....	76	.....	12,583	.....
Dandy Stratagem.....	0-6370.....	83	115.5	12,100	7,502
Prosperity.....	Rennie.....	76	87.0	11,979	11,874
Sutton Excelsior.....	Harris.....	76	93.5	11,979	11,605
Lincoln.....	Sharpe.....	76	114.0	11,495	9,498
Seedling No. 3.....	Invermere.....	81	99.5	11,253	12,947
Laxtonian.....	Graham.....	76	.....	11,132	.....
Gregory Surprise x English Wonder.....	0-2342.....	76	.....	10,769	.....
Maclean Advancer.....	Harris.....	88	103.5	10,285	13,128
Seedling No. 1.....	Invermere.....	84	101.0	9,559	14,883
Telephone.....	D. & F.....	91	101.0	9,559	7,744
Maclean Advancer.....	Livingston.....	82	100.0	9,438	7,623
Senator.....	D. & F.....	91	105.0	8,823	10,345
Extra Early Pedigree.....	Gregory.....	80	.....	8,370	.....
Seedling No. 6.....	Invermere.....	81	97.5	8,128	10,235
Gradus x English Wonder.....	0-2346.....	82	.....	8,107	.....
Thomas Laxton Progress.....	0-2334.....	81	.....	7,744	.....
Thomas Laxton.....	McDonald.....	74	.....	7,018	.....
American Wonder.....	McDonald.....	76	.....	6,292	.....
Stratagem.....	McDonald.....	91	.....	5,687	.....
English Wonder.....	Burpee.....	81	97.5	4,840	8,167

Seedling No. 2 and the Lincoln variety, obtained from the Invermere Experimental Station, head the list; they made a very strong growth and the peas were of excellent quality.

PEAS—LENGTHENING THE SEASON.—The object of this experiment is to compare the planting of a variety at different dates with plantings of early, medium, late and extra-late varieties, in order to find out if the former would have a longer season of production and yield more than the latter. A 100-foot row of each variety and of each planting was sown. The results obtained are shown in the following table.

PEAS—LENGTHENING THE SEASON

Variety	Season of variety	Date of sowing	Date ready for use	Yield per acre	
				Green peas	Ripe peas
Stratagem.....	Extra late....	May 27....	Aug. 21....	5,808	Did not ripen.
Maclean Advancer.....	Late.....	" 27....	" 21....	9,801	"
Gradus.....	Medium.....	" 27....	" 13....	8,059	4,937
Thomas Laxton.....	Early.....	" 27....	" 8....	8,276	2,614
Thomas Laxton.....	Early.....	June 6....	" 13....	7,042	2,033
Thomas Laxton.....	Early.....	" 11....	" 18....	6,026	1,162
Thomas Laxton.....	Early.....	" 16....	" 18....	6,389	436

Total for the 4 varieties.....	lbs.	31,944
Total for the 4 plantings of the early variety.....		28,733
Five-year average for the varieties.....		36,472
Five-year average for the plantings of four early varieties.....		30,919

Five years' results show that it is better to sow four varieties of different seasons. The average yield is higher and the season of production just as long.

PEAS—DISTANCE OF PLANTING.—The three varieties used in this experiment were sown on May 27. A 30-foot row of each variety was sown one inch apart in the row, one row at 2 inches and another row at 3 inches. Yields, as well as the three-year average, are given in the following table:—

PEAS—DISTANCES OF PLANTING

Variety	Date of sowing	Date ready for use	Yield per acre, quarts		
			1 inch	2 inches	3 inches
Thomas Laxton.....	May 27....	Aug. 8....	18,230	13,715	11,293
English Wonder.....	May 27....	Aug. 10....	19,386	13,229	14,520
Stratagem.....	May 27....	Aug. 18....	6,882	9,033	9,033
Average.....			14,834	11,992	11,615

THREE YEAR AVERAGE

Year	Yield for 3 years, quarts		
	1 inch	2 inches	3 inches
1923.....	28,616	24,393	24,182
1924.....	13,636	11,940	10,065
1925.....	14,834	11,992	11,615
.....	19,028	16,105	15,287

The three-year average shows that it is better to plant the peas 1 inch apart in the rows. This experiment will be continued.

POTATOES—DATES OF PLANTING.—The varieties Green Mountain and Irish Cobbler were used in this experiment. The first planting was done on May 26 and six successive plantings were done at one-week intervals. The rows were 2½ feet apart and the potato sets 12 inches apart in the row. Sets with three eyes only were used and weighed in each case. The results obtained are as follows:—

POTATOES—DATES OF PLANTING

	Date of planting	Quantity of seed per acre, bush.	Yield per acre, in bushels			
			1925		2-year average	
			Market-able	Unmarketable	Market-able	Unmarketable
Irish Cobbler.....	May 26....	23.1	404.8	66.0	.....	.....
	June 2....	25.3	400.4	81.4	.....	.....
	June 9....	22.0	334.5	114.4	.....	.....
	June 16....	22.0	197.9	140.8	.....	.....
	June 23....	22.0	193.6	154.0	.....	.....
	July 3....	22.0	79.2	105.6	.....	.....
Green Mountain.....	May 26....	24.2	558.8	118.8	530.0	92.4
	June 2....	22.0	532.4	114.2	512.6	118.7
	June 9....	22.0	290.5	136.4	356.4	121.0
	June 16....	22.0	176.0	180.5	301.4	145.2
	June 23....	22.0	180.4	122.6	226.6	131.7
	July 3....	22.0	105.6	66.0	70.4	112.2

The first date of planting for both varieties gave the highest yield; the Green Mountain gave the best results for an average of two years.

The results obtained with sets from planting done at different dates the previous spring is given in the following table. The object of this test was to find out if immature sets are better than well-ripened sets for seed.

POTATOES—SETS FROM DIFFERENT DATES OF PLANTING

Date of planting, 1924	Date of planting 1925	Quantity of seed per acre	Yield per acre	
			Market-able	Unmarketable
1 sowing June 2, 1924.....	May 30..	bush. 25.8	bush. 554.4	bush. 74.8
2 " " 9.....	" 30..	20.9	532.4	82.6
3 " " 16.....	" 30..	22.0	523.6	74.8
4 " " 23.....	" 30..	23.1	616.0	66.0
5 " " 30.....	" 30..	22.0	550.0	57.2
6 " July 7, 1924.....	" 30..	17.6	580.8	92.4

The results for one year show that the immature seed potatoes give a higher yield; however, it would be unsafe to draw conclusions as yet. This experiment will be repeated.

POTATOES—KINDS OF SETS.—The object of this experiment is to compare the value of sets having one, two or three eyes. The sets were all planted 12 inches apart in the rows, and the rows were 2½ feet apart. The seed was weighed in each case, so as to determine the quantity used per acre. The results are as follows:—

Variety	Number of eyes	Date of planting	Quantity of seed per acre	Yield per acre—Bushels			
				1925		Two-year average	
				Market-able	Unmarketable	Market-able	Unmarketable
Irish Cobbler.	1 eye	May 29..	bush. 11.0	bush. 378.4	bush. 39.6	.....	.....
	2 eyes	" 29..	14.8	510.4	61.6	.....	.....
	3 eyes	" 29..	19.6	576.4	44.0	.....	.....
Green Mountain....	1 eye	May 29..	12.1	417.8	83.6	540.9	50.0
	2 eyes	" 29..	17.6	426.8	70.4	480.6	64.9
	3 eyes	" 29..	19.6	528.0	57.2	530.2	146.8

The results of this experiment are quite the reverse of those obtained last year. The single-eye sets gave the best yield last year while this year the three-eye sets yielded the most. This test will be continued.

POTATOES—DISTANCES OF PLANTING.—Rows $2\frac{1}{2}$ and 2 feet apart and sets at 12 and 14 inches in the row were compared. The quantity of seed required per acre and the yields were recorded. The results obtained are given in the following table:—

POTATOES—DISTANCES OF PLANTING

Variety	Distance between rows	Distance between sets	Quantity of seed	Yield per acre, in bushels				
				1925		2-year average		
				Market-able	Unmarket-able	Market-able	Unmarket-able	
	feet	inches	bush.	bush.	bush.	bush.	bush.	bush.
Green Mountain....	$2\frac{1}{2}$	12	21.1	280.2	39.3	404.1	53.7	
	$2\frac{1}{2}$	14	18.2	260.1	41.4	396.9	53.6	
	3	12	17.3	237.5	40.0	369.2	51.1	
	3	14	15.3	235.7	42.6	393.5	55.1	

Judging from the results obtained, it would be wise to plant 12 inches apart in the row and to have the rows $2\frac{1}{2}$ feet apart, but the difference is not large. This test will be continued.

POTATOES—SELECTION FOR PURITY, YIELD AND IMMUNITY FROM DISEASE.—This selection is to be continued and it would be premature to give any results just now. However, the best hill selected gave a yield of 689 bushels while the poorest one yielded 413 bushels.

All the selections were affected by mosaic; new selections were made, special attention being paid to quality, etc.

POTATOES—LEVEL VS. RIDGE CULTIVATION.—One-half of the plantation was left level until ridged immediately after the last cultivation; the second half was ridged after planting and after each cultivation. The results are as follows:—

POTATOES—LEVEL VS RIDGE CULTIVATION

Method of cultivation	Date of planting	Quantity of seed	Yield per acre in bushels				
			1925		2-year average		
			Market-able	Unmarket-able	Market-able	Unmarket-able	
		bush.	bush.	bush.	bush.	bush.	bush.
Flat.....	May 30..	26.4	504.0	153.2	475.5	144.7	
In hills.....	" 30..	26.2	562.5	72.4	472.8	129.4	

This year, level cultivation gave a smaller yield than ridge cultivation; this may be attributed to the fact that the season was very wet. The two-year average is in favour of level cultivation by over 3 bushels.

POTATO—NUMBER OF CULTIVATIONS.—The object of this experiment is to find out if the number of cultivations has any influence on the yield. The results obtained are as follows:—

POTATOES—NUMBER OF CULTIVATIONS

Number of cultural operations	Date of planting	Quantity of seed	Yield per acre bushels	
			Large potatoes	Small potatoes
		bush.	bush.	bush.
3.....	May 30..	23.4	526	84
6.....	" 30..	21.2	522	70.4

POTATO—SPROUTED VS. UNSPROUTED TUBERS.—Two varieties were used in this test: Irish Cobbler and Green Mountain. The tubers were exposed to a subdued light, in order to grow strong sprouts. The tubers used for comparison had no sprouts. Whole tubers, two inches and over in size, were used for seed. The results are as follows:—

POTATOES—SPROUTED VS UNSPROUTED TUBERS

Variety	Sprouted or unsprouted	Quantity of seed	Date of planting	Date ready for use	Yield per acre in bushels			
					1925		2-year average	
					Market-able	Unmarketable	Market-able	Unmarketable
		bush.			bush.	bush.	bush.	bush.
Irish Cobbler...	Sprouted....	44.0	May 29..	July 29	518.6	90.2	488.1	82.5
	Unsprouted.	44.6	" 29..	Aug. 13..	550.0	180.4	508.2	160.1
Green Mountain.	Sprouted....	40.7	" 29..	July 29..	644.6	104.3	.....	.....
	Unsprouted.	42.0	" 29..	Aug. 13..	365.2	231.0	.....	.....

The sprouted tubers had a start of 15 days over the unsprouted ones. The market prices were 5 cents per pound on July 29 and 3 cents per pound on August 13.

PUMPKIN AND SQUASH—VARIETY TEST.—Three varieties of pumpkin and 10 of squash were tested in hills 9 feet apart. The following squashes gave no yield: New Acorn (Buckbee), Table Queen (Vaughan), Perfect Gem (Morse).

SQUASH—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Yield per acre
English Vegetable Marrow.....	S.B.....	87	18,816
Long White Bush.....	Ewing.....	93	8,989
Hubbard.....	Graham.....	93	5,914
Kitchenette.....	Wedge.....	93	4,301
Golden Hubbard.....	McD.....	93	2,867
Delicious.....	Graham.....	98	1,971
Golden Hubbard.....	Harris.....	93	1,254

PUMPKINS—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Yield per acre
King of the Mammoth.....	Graham.....	93	7,347
Connecticut Field.....	McD.....	93	5,734
Small Sugar.....	Graham.....	96	3,584

The varieties King of the Mammoth (pumpkin) and English Vegetable Marrow (squash) were the earliest and the highest yielders. Their quality was also very good.

RADISH—VARIETY TEST.—Eleven varieties were sown on May 26 in rows 30 feet long and 15 inches apart; the results are as follows:—

RADISHES—VARIETY TEST

Variety	Source of seed	Number of days from seeding until ready for use	Yield per acre
Imp. White Turnip.....	S.B.....	33	24,684
Chartier.....	Ewing.....	33	18,295
White Icicle.....	D. & F.....	32	12,052
Scarlet Turnip White Tip.....	Graham.....	31	11,682
Scarlet Turnip White Tip.....	McD.....	31	11,180
Early Scarlet Round.....	Moore.....	31	11,108
XXX Round Scarlet Oval.....	Rennie.....	30	10,164
French Breakfast.....	Patmore.....	31	9,438
Early Scarlet Globe.....	Vicks.....	29	7,623
Twenty Days.....	Vaughan.....	29	6,679
Early Scarlet Globe.....	S.B.....	30	6,098

RHUBARB—FORCING IN CELLAR.—Four methods were tried; plants exposed to frost before being placed in the cellar; plants not exposed to frost (that is to say, placed in the cellar as soon as they were pulled) roots covered with straw kept damp; roots covered with earth. The results are as follows:—

RHUBARB—FORCING IN CELLAR

Method	Number of plants	Placed in cellar		Yield
		1924	1925	
Plants exposed to frost and covered with earth.....	6	Dec. 5....	Feb. 10....	25½
Plants exposed to frost and covered with straw.....	6	" 5....	" 10....	9½
Plants not exposed to frost and covered with straw...	6	Nov. 27....	Mar. 17....	23½

Frosted plants were ready for use thirty-five days before the unfrosted ones. The plants covered with earth also gave a higher yield. Exposing plants to frost did not seem to affect the yield much.

SALSIFY—VARIETY TEST.—Two varieties were tested: Long White (Ewing) and Long Black (Dupuy & Ferguson). They were sown May 26 and were ready for use 87 days later. The former yielded at the rate of 6,679 pounds per acre and the latter 5,082 pounds per acre.

TURNIPS—VARIETY TEST.—Five varieties were sown on May 26 in 30-foot rows $2\frac{1}{2}$ feet apart. The plants were thinned 3 inches apart. The yields, in number of bunches, are given in the following table:—

TURNIPS—VARIETY TEST

Variety	Source of seed	Number of days from seeding until date ready for use	Yield per acre, in bunches
Extra Early Purple Milan.....	McD.....	55	30,782
Early Purple Top Milan.....	McD.....	55	22,070
Early White Milan.....	Harris.....	55	20,328
Early Snowball.....	Graham.....	55	12,778
Golden Ball.....	Graham.....	55	4,646

NITRATE OF SODA FOR VEGETABLES.—The object of this experiment was to find out if it was advisable to use nitrate of soda in addition to the usual application of manure. Nitrate of soda was applied on half the variety-test rows of all the vegetables, at the rate of 300 pounds per acre, divided in four applications. The first application was made when the plants started to grow and the three successive ones at 7- to 10-day interval. The results obtained are as follows:—

NITRATE OF SODA FOR VEGETABLES

Vegetables	Yield with nitrate and manure	Yield with manure only
	lbs.	lbs.
Beets.....	11,981	7,421
Winter cabbage.....	17,437	7,889
Summer cabbage.....	29,615	14,611
Carrots.....	17,217	16,428
Celery.....	4,261	3,689
Parsnips.....	8,015	5,776
Potatoes.....	299.6 (a)	221.5 (a)
Kohl-rabi.....	5,970	5,970
Salsify.....	5,953	5,808
Broad beans: Fodder.....	10,301	9,129
Pods.....	2,161	1,757
Seeds.....	1,271	1,033

(a) Bushels

The difference in favour of nitrate is very large as regards cabbage and beets, being over 100 per cent in some cases. It was also noticed that cabbages treated with nitrate of soda were earlier by a month or more, in some varieties. The earliness was not so noticeable with other kinds of vegetables.

FLOWERS

One hundred and seventy-nine varieties and kinds of flowers were tested in 1925. The balsams were the first to bloom and other flowers furnished, at regular intervals, a profusion of bloom which lasted throughout the season. The hardiest flowers may be classified as follows by order of merit: aster, phlox, stock, antirrhinum, zinnia, linaria, helichrysum, mignonette, calendula. Approximately 1,000 bulbs of narcissus, hyacinths and tulips were planted in the fall of 1924 but about 15 per cent were destroyed by the winter, although the soil had been kept well covered with strawy manure.

CEREALS

The variety tests of cereals were carried out under better conditions in 1925 than during the preceding year. Spring was earlier and the seed was sown at an earlier date. The rains and the heat of the first part of the season greatly helped growth and the germination was rapid from the start. The unusual amount of rain and the comparatively cool weather in July, August and September stimulated the growth but delayed maturity. Some plots suffered from an excess of moisture. Oats, in general, gave a good yield; barley, wheat, and rye an average yield; peas a medium yield, and beans did not ripen. These experiments are carried on in a four-year rotation, as follows: sunflowers, tests of cereals with grass and clover for hay, clover hay, and grass hay. Sixteen tons of manure were applied per acre to the sunflowers.

SPRING WHEAT

Five varieties were sown with the disk drill at the rate of $1\frac{1}{2}$ bushels to the acre, on May 26 in triplicate plots measuring 1-40th of an acre. The results are as follows:—

SPRING WHEAT—VARIETY TEST

Variety	Date of maturity	Number of days maturing	Average length of straw including head	Strength of straw; maximum 10 points	Yield of straw per acre	Yield in grain per acre	Average yield in grain for 2 years
			inches		pounds	bush.	bush.
Garnet Ottawa—652.....	Sept. 2....	99	33	9.0	1,992	19.7	14.9
Ruby Ottawa—623.....	" 2....	99	31	9.0	1,738	13.2	9.4
Huron Ottawa—3.....	" 12....	109	34	9.5	1,808	12.4	.....
Prelude Ottawa—135.....	Aug. 25....	91	30	9.0	1,786	11.6	11.4
Marquis Ottawa—15.....	Sept. 11....	108	30	9.0	1,752	10.7	7.8

Prelude is easily the earliest variety but Garnet Ottawa 652 gives the highest yield. This is a mid-season variety promising well for this district. Its wheat is hard and of good quality.

OATS

Seven varieties were tested in 1925; they were sown on May 26 in triplicate plots measuring 1-40th of an acre, at the rate of $2\frac{1}{2}$ bushels per acre. The results are as follows:—

OATS—VARIETY TEST

Variety	Date of maturity	Number of days maturing	Average length of straw including head	Strength of straw; maximum 10 points	Yield of straw per acre	Yield in grain per acre	
						1925	2-year average
			inches		pounds	bush.	bush.
Alaska.....	Aug. 29....	95	31.8	8.5	1,684	34.0	35.5
Abundance.....	Sept. 21....	118	33.0	8.0	1,764	32.6	29.8
Gold Rain.....	" 22....	119	36.5	8.0	2,218	29.2	26.2
Laurel Ottawa—477.....	" 9....	106	27.5	9.0	2,188	18.8	15.2
Banner Ottawa—49.....	Oct. 1....	128	32.5	8.0	Green		
Banner M.C. 44.....	did not ripen						
Victory.....	"						

Alaska tops the list easily for two years. This variety is the best for this district; it ripens without fail every year and gives a good yield. Banner Ottawa 49 did not ripen perfectly and it could not be cut before the snow fell. Banner M.C. 44 and Victory did not ripen.

BARLEY

Four varieties of six-rowed barley and one variety of two-rowed barley were tested. These were sown on May 26 at the rate of 2 bushels per acre in triplicate plots measuring 1-40th of an acre. As explained previously in this report, barley did not succeed very well. It may be that the date of seeding had something to do with this; an experiment will be undertaken in order to discover the cause or causes of the sudden stop in growth once the plants reach a height of 4 or 5 inches. The results are as follows:—

BARLEY—VARIETY TEST

Variety	Date of maturity	Number of days maturing	Average length of straw including head	Strength of straw; maximum 10 points	Yield of straw per acre	Yield in grain per acre	
						1925	2-year average
			inches		pounds	bush.	bush.
(a) Albert, Ottawa-54.....	Aug. 19.....	85	26.0	8.3	984	17.2	.....
(a) O.A.C. No. 21.....	" 27.....	93	30.0	8.3	1,600	15.9	12.7
(a) Himalayan Ottawa-59.....	" 20.....	86	20.3	8.7	1,144	13.1	
(a) Chinese Ottawa-60.....	" 27.....	93	28.5	8.8	1,324	11.9	15.9
(b) Duckbill Ottawa-57.....	Sept. 14.....	111	30.3	9.0	1,620	9.4	9.6

(a) Six-rowed. (b) Two-rowed.

It appears, by these tests, that six-rowed barley is the best. Albert Ottawa 54 was grown for the first time, and it will be necessary to wait a few years before drawing conclusions from these tests.

PEAS

Three varieties of peas were sown but none of them grew well on account of wet weather. The varieties Chancellor Ottawa 26 and Arthur Ottawa 18 ripened, but the stand was very poor and the respective yields were only 6.1 and 4.4 bushels per acre. Both varieties took 114 days to ripen. The variety Golden Vine ripened in 126 days but could not dry out on account of continuous rains and snow.

SPRING RYE

Only one variety was tried out; it was sown on May 26 and cut on September 4. The results are as follows:—

RYE—VARIETY TEST

Variety	Date of maturity	Number of days maturing	Average length of straw including head	Strength of straw; maximum 10 points	Yield of straw per acre	Yield in grain per acre	
						1925	2-year average
			inches		pounds	bush.	bush.
Ottawa Select 12.....	Sept. 4.....	101	50	8	2,868	20.2	14.5

FODDER PLANTS

The district of Quebec-north is very well adapted to the production of fodder plants, and specially grasses and clovers. Corn has been a complete failure during the last four years on account of weather conditions. Field roots gave poor yields on account of moisture conditions and destruction by cutworms. Sunflowers never gave a high yield on this Station, probably for the same unfavourable conditions as affected the corn.

SILAGE PLANTS

SUNFLOWERS.—Ten varieties of sunflowers were tested in 1925. The seed was sown on June 4 in plots measuring 1-82nd of an acre, and the ground was manured at the rate of 16 tons per acre. The rows were 42 inches apart and the plants were thinned 12 inches apart in the rows. All the crop was cut September 8. The results obtained are given in the following table:—

SUNFLOWERS—VARIETY TEST

Variety	Source of Seed	Per cent in flower when cut	Yield per acre	
			Green	Dry
			Tons Lb.	Lb.
Manteca.....	C.P.R.....	83.3	6 1,324	1,637
Russian Giant.....	Dakota Imp. Seed Co.....	0.0	6 864	1,522
Mixed.....	C.P.R.....	91.7	6 632	1,418
Manchurian.....	A. E. McKenzie.....	100.0	6 582	1,662
Mammoth Russian.....	C.P.R.....	75.0	6 442	1,537
Black.....	C.P.R.....	100.0	5 1,478	1,323
Ottawa-76.....	C.E.F.....	58.3	5 942	1,317
Manchurian.....	C.P.R.....	100.0	5 382	1,331
Mennonite.....	Exp. Farm, Rosthern.....	100.0	4 719	952
Mammoth Russian.....	McDonald.....	0	3 1,688	950

The Manteca yielded the heaviest weight of green fodder this year; 83 per cent of the plants were in flower when cutting was done.

CORN.—Twenty-five varieties were included in this test in 1925. The seed was sown on June 3 in triplicate plots, one-ninety-fifth of an acre. The rows were 36 inches apart and the plants were thinned 12 inches apart in the rows. The soil received an application of 16 tons manure per acre.

Germination was good and an even stand was obtained; however, the yield was very poor on account of cool, damp weather. Frost caused some slight damage on August 26 and the plots were cut on August 31.

The highest-yielding variety was Longfellow (Johnston) with 3 tons 1,763 pounds per acre and the poorest, North Western Dent (A. E. McKenzie) with 1 ton 20 pounds.

We have not as yet obtained a good yield of corn during the four years this test has lasted.

ROOTS

MANGELS.—Forty-one varieties of mangels and eight of sugar beets were tested in 1925. They were sown on June 8 in triplicate one-ninety-fifth acre plots on land which had received 16 tons of manure per acre. Germination was good and the crop promised to give a good stand, but it was attacked by cutworms and greatly damaged. Two applications of poisoned bran were made but the damage had been done and these tests lost all their value. The remaining roots did not make good growth on account of the cool and damp season.

SWEDES.—Thirty-three varieties were tested in 1925. The seed was sown June 11 in triplicate one-one-hundredth acre plots, on land which had been

manured at the rate of 16 tons per acre. The seed was sown on drills $2\frac{1}{2}$ feet apart and the plants were thinned to 12 inches apart in the rows. The plots were harvested September 28 and the results obtained are given in the following table:

SWEDES—VARIETY TEST

Variety	Source of Seed	Yield per acre Green	
		Tons	Lb.
Olsgaard Model.....	H. Hartmann.....	7	591
Shepherd.....	Trifolium.....	6	1,600
Bangholm.....	Ewing.....	6	962
Mammoth Clyde Purple Top.....	Ewing.....	6	537
Early Model.....	D. & F.....	6	395
Ditmars.....	H. McNutt.....	5	1,623
Improved Yellow Swedish.....	Gen. Swedish Seed Co.....	5	1,327
Bangholm Club Root Resistant.....	Exp. Farm, Charlottetown.....	5	837
Kangaroo.....	D. & F.....	5	349
Shepherd Golden Globe.....	H. Hartmann.....	5	200
Improved Lord Derby.....	Sutton.....	4	1,883
D. & F's Favorite.....	D. & F.....	4	1,074
Hall's Westbury.....	Burrows.....	4	1,073
Hall's Westbury.....	Ewing.....	4	1,053
Bangholm Club Root Resistant.....	Ex. Farm, Nappan.....	4	962
Bangholm.....	Gen. Swedish.....	4	925
Bangholm 1322.....	Trifolium.....	4	415
Mammoth Clyde.....	D. & F.....	4	287
Garton's Superlative.....	Ewing.....	3	1,969
Good Luck.....	Steele-Briggs.....	3	1,933
Elephant or Monarch.....	D. & F.....	3	1,565
Elephant.....	Sutton.....	3	1,225
Canadian Gem.....	J. A. Bruce.....	3	864
Laing's Improved Purple Top.....	D. & F.....	3	800
Kangaroo.....	Ewing.....	3	693
Best of All.....	Ewing.....	3	439
Bangholm 8312.....	McDonald College.....	3	304
Invicta Bronze Top.....	Ewing.....	3	227
Magnum Bonum.....	Sutton.....	2	1,950
Bangholm.....	D. & F.....	2	1,843
Elephant or Monarch Imp.....	Ewing.....	2	1,802
Jumbo.....	Steele-Briggs.....	2	1,737
Ne Plus Ultra.....	D. & F.....	2	958

The low yield may, in general, be attributed to damp, cool weather.

FALL TURNIPS.—Eleven varieties of fall turnips were sown on June 12 in triplicate one-one-hundredth-acre plots on land treated in the same manner as that for other root tests. These turnips were sown on ridges the same as the swedes, $2\frac{1}{2}$ feet apart and the plants were thinned 12 inches apart in the rows. Harvesting was done September 28. The results were as follows:—

FALL TURNIPS—VARIETY TEST

Variety	Source of Seed	Yield per acre Green	
		Tons	Lb.
Hardy Green Round.....	Sutton.....	11	1,380
Red Paragon.....	Sutton.....	10	187
Purple Top Mammoth.....	Ewing.....	9	1,465
Pomeranian White Globe.....	Ewing.....	9	1,337
Early Six Weeks.....	Sutton.....	8	1,914
Purple Top Mammoth or Improved Greystone S-744-25.....	Steele-Briggs.....	8	1,212
White Globe.....	Ewing.....	8	1,212
Aberdeen Yellow Purple Top.....	Steele-Briggs.....	7	1,512
Green Top Yellow Aberdeen.....	Ewing.....	7	25
Devonshire Greystone.....	Steele-Briggs.....	6	644
Purple Top Mammoth.....	Sutton.....	4	139

Each year, fall turnips have given us better results than all the other roots.

FIELD CARROTS.—Twelve varieties were sown in 1925. The seed was sown June 12 in triplicate plots which had been manured at the rate of 16 tons per acre. Seeding was done at the rate of 5 pounds per acre on ridges 2½ feet apart and the plants were thinned to 4 inches in the rows. The carrots were pulled on September 29 and gave the following results:—

FIELD CARROTS—VARIETY TESTS

Variety	Source of Seed	Yield per acre, Green	
		Tons	Lb.
Imp. Intermediate White.....	Ewing.....	3	1,077
Danish Champion.....	C. E. Farm.....	3	227
New Yellow Intermediate.....	Ewing.....	3	227
Yellow Belgian.....	Ewing.....	3	162
Large White Vosges.....	D. & F.....	2	1,015
White Belgian 9008.....	Trifolium.....	2	952
Danish Champion.....	Hartmann.....	2	887
Imp. Intermediate White.....	D. & F.....	2	802
White Belgian.....	Hartmann.....	2	675
White Belgian.....	D. & F.....	2	388
Half Long White.....	Gen. Swedish.....	2	165
White Belgian.....	Ewing.....	2	37

ANNUAL HAY CROPS

Four varieties of oats, three of peas, one of barley, one of rye, two of millet, one of Hubam clover, one of Teff grass, and two mixtures of peas, oats and vetches, and oats and peas were tested in order to determine the suitability and productivity of these plants for hay. These tests were carried out on triplicate one-eighth-acre plots plus a border of one foot all around the plot which was removed before harvesting. The following table gives the yields in green fodder, in dry matter, and the value of the hay per acre.

ANNUAL HAY CROPS

Plants	Yield per acre, Green matter		Yield of hay containing 15% moisture	
	Tons	Lb.	Tons	Lb.
Banner oats.....	6	1,704	1	1,907
Oats and peas.....	7	1,680	1	1,859
Golden Vine peas.....	8	1,784	1	1,828
Prussian Blue peas.....	8	424	1	1,782
Spring rye.....	4	24	1	1,705
Oats, peas and vetches.....	7	608	1	1,553
Victory Oats.....	5	1,416	1	1,356
Arthur peas.....	6	1,000	1	1,144
Gold Rain oats.....	5	1,976	1	969
O.A.C. 72 oats.....	5	536	1	834
Hulless barley.....	3	1,784	1	551
Golden millet.....	2	40	0	1,405
Japanese millet.....	5	—	1	312
Teff grass.....	1	1,760	0	1,062
Hubam clover.....	1	880	0	759

As shown by this table, good yields may be obtained from different varieties of oats; mixtures of peas and oats; and peas, oats, and vetches. Peas alone also give a good yield.

MIXTURES OF LEGUMES AND GRASSES

Various grasses in combination with various kinds of clover were tested. The object is to compare as to yield and quality, timothy, orchard grass, meadow fescue, Kentucky blue grass and red top, used in combination with red clover, alsike clover and white clover.

These experiments were conducted on triplicate plots measuring one-eighth of an acre, each plot having a border of one foot. The borders were removed before harvesting the plots, so that the yields represent exactly those obtained under field crop conditions. All these plots were sown with a nurse-crop. The results are as follows:—

MIXTURES OF GRASSES AND CLOVERS FOR HAY PRODUCTION

	Quantities of seed per acre	Yield per acre, Green Matter		Yield of hay containing 15% moisture	
		1925 plots sown in 1924		Tons	Lb.
	Lb.	Tons	Lb.	Tons	Lb.
Alfalfa.....	6				
Red clover.....	10				
Alsike clover.....	2				
Timothy.....	6	4	666	1	353
Alfalfa.....	3				
Red clover.....	5				
Timothy.....	6	5	1,600	1	431
Red clover.....	10				
Timothy.....	8	5	0	1	727
Red clover.....	10				
Timothy.....	8				
Blue grass.....	2				
Red top.....	2	5	1,746	1	574
Red clover.....	10				
Timothy.....	6				
Fescue.....	4	5	1,120	1	1,139
Red clover.....	10				
Timothy.....	6				
Fescue.....	4				
Blue grass.....	2				
Red top.....	2	3	24	0	1,766
Red clover.....	10				
Timothy.....	6				
Orchard grass.....	4	5	904	1	1,249
Red clover.....	10				
Timothy.....	6				
Orchard grass.....	4				
Blue grass.....	2				
Red top.....	2	5	1,144	1	1,007
Red clover.....	10				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2	5	776	1	771
Red clover.....	10				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2				
Blue grass.....	2				
Red top.....	2	8	1,144	1	1,402
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	8	6	1,064	1	1,925

MIXTURES OF GRASSES AND CLOVERS FOR HAY PRODUCTION—Continued

	Quantities of seed per acre	Yield per acre Green Matter 1925 plots sown in 1924		Yield of hay containing 15% moisture	
		Lb.	Tons Lb.	Tons Lb.	
Red clover.....	8				
Timothy.....	8				
Alsike clover.....	2				
Blue grass.....	2				
Red top.....	2	5	536	1	1,093
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Fescue.....	4	5	424	1	320
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Fescue.....	4				
Blue grass.....	2				
Red top.....	2	4	1,384	1	562
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Fescue.....	4	7	1,040	1	519
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Orchard grass.....	4				
Blue grass.....	2				
Red top.....	2	8	616	2	80
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2				
Blue grass.....	2				
Red top.....	2	7	800	1	1,313
Red clover.....	8				
Alsike clover.....	2				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2				
Blue grass.....	2				
Red top.....	2	6	480	1	796
Alsike clover.....	4				
Timothy.....	8	5	616	1	167
Alsike clover.....	4				
Timothy.....	8				
Blue grass.....	2				
Red top.....	2	2	1,144	0	1,228
White sweet clover.....	10				
Timothy.....	8	2	1,600	0	1,536
White sweet clover.....	10				
Timothy.....	6				
Orchard grass.....	4	3	1,720	0	1,825
White sweet clover.....	10				
Timothy.....	6				
Fescue.....	4	4	1,240	0	1,755
White sweet clover.....	10				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2				
Blue grass.....	2	2	1,240	0	1,193

MIXTURES OF GRASSES AND CLOVERS FOR HAY PRODUCTION—*Concluded*

	Quantities of seed per acre	Yield per acre, Green Matter 1925 plots sown in 1924		Yield of hay containing 15% moisture	
		Lb.	Lb. Tons	Tons	Lb.
Yellow sweet clover.....	10				
Timothy.....	8	3	760	0	1,467
Yellow sweet clover.....	10				
Timothy.....	6				
Orchard grass.....	4	3	104	0	1,488
Yellow sweet clover.....	10				
Timothy.....	6				
Fescue.....	4	2	1,088	0	1,799
Yellow sweet clover.....	10				
Timothy.....	6				
Orchard grass.....	2				
Fescue.....	2	1	1,864	0	1,012

NOTE.—White Dutch clover at 1 pound per acre was added to all seedings.

Although these results are for one year only, it is interesting to note that the best yield was obtained from a mixture of four different kinds of grasses and red clover, alsike clover and white clover. It is too early to draw any conclusions from these tests.

GRASSES FOR HAY PRODUCTION

Seven varieties of grasses were tried for hay production in triplicate plots measuring one-eightieth of an acre, in the same way as the preceding mixtures. The results are as follows:—

GRASSES FOR HAY PRODUCTION

Variety	Green matter in 1925 from plots sown in 1924		Yield of hay containing 15% moisture	
	Tons	Lb.	Tons	Lb.
Timothy.....	1	1,064	0	1,115
Red top.....	1	744	0	1,009
Perennial rye grass.....	1	136	0	880
Italian rye grass.....	1	560	0	871
Western rye grass.....	1	320	0	833
Fescue.....	1	320	0	811
Oats.....	1	744	0	756

Although these results are for one year only, timothy has shown itself superior to the other grasses. Orchard grass was a complete failure; this is the reason why it is not included in the preceding table.

TIMOTHY—VARIETY TESTS

Three varieties of timothy were tested in 1925 in plots measuring one-eightieth of an acre. These varieties were sown in 1924, with a nurse-crop, at the rate of 12 pounds per acre. A border of one foot all around the plot was removed before harvesting. The results are as follows:—

TIMOTHY—VARIETY TEST

Variety	Green Matter in 1925 on plots sown in 1924		Yield Hay containing 15% moisture
	tons	lbs.	lbs.
Ohio 9227.....	2	4	1,539
Commercial.....	1	1,064	1,115
"Boon".....	1	656	939

The highest yield was given by the Ohio 9227 and this variety was also the earliest by several days.

RED CLOVER—VARIETY TEST

Ten varieties were included in this test which was conducted in the same manner as that with timothy. They were sown with nurse-crops in 1924. The results are as follows:—

RED CLOVER—VARIETY TEST

Variety	Green Matter in 1925 from plots sown in 1924		Yield hay containing 15% moisture	
	tons	lbs.	tons	lbs.
Early Swedish (Sweden).....	8	1,224	1	918
Altaswede (Alberta).....	7	1,256	1	811
French (France).....	6	1,360	1	791
Chateauguay (Quebec).....	6	560	1	671
Ottawa (Ontario).....	5	800	1	334
Medium Late Swedish (Sweden).....	5	1,224	1	282
St. Clet (Quebec).....	4	344	1	20
Kenora (N. Ontario).....	3	768	-	1,491
Late Swedish (Sweden).....	2	1,760	-	1,204
Italian (Italy).....	-	1,336	-	289

The Early Swedish was the highest-yielding variety. Although the stand of all the plots was not very thick, this variety was the best. The following varieties gave two crops: Early Swedish, French, Chateauguay, Ottawa, Medium Late Swedish, and St. Clet.

WHITE DUTCH CLOVER—VARIETY TEST

Six varieties of White Dutch Clover were tested in plots measuring one-eighth of an acre, in the same manner as the test conducted on timothy. The yields, in general, were not very large and there was, in certain plots, a rather high percentage of grasses and clovers which were not included in the test. The Ladino took first place, and it is one of the hardiest varieties. The results are as follows:—

WHITE CLOVER—VARIETY TEST

Variety	Green matter in 1925 from plots sown in 1924		Yield of hay containing 15% moisture
	tons	lbs.	lbs.
Ladino.....	1	1,064	489
Commercial.....	1	936	480
Morso.....	1	80	376
Stryno.....	1	320	274
Wild Kentish.....	-	1,040	189
Scottish Wild.....	-	696	149

ALSIKE CLOVER—VARIETY TEST

One variety only was tested, in the same manner as the other clovers. It yielded 6 tons 400 pounds of green fodder, 1,746 pounds of dry matter and 1 ton 54 pounds of hay.

ALFALFA—VARIETY TEST

Four varieties were sown in plots, of the same size as in the preceding experiments. They were sown at the rate of 10 pounds per acre instead of 20 pounds. The percentage of plants which germinated was rather low. A satisfactory yield was obtained from two varieties only; the variegated variety gave two cuttings. The Turkestan and *Medicago falcata* are the two varieties which did not give a yield. The results for two varieties are as follows:—

ALFALFA—VARIETY TEST

Variety	Green matter in 1925 from plots sown in 1924		Yield in hay containing 15% moisture
	tons	lbs.	lbs.
Variegated.....	-	1,360	812
Grimm.....	1	80	501

SWEET CLOVER—VARIETY TEST

Five varieties of sweet clover were tried in 1925, they were sown in 1924 with a nurse-crop in triplicate plots measuring one-eightieth of an acre, at the rate of 20 pounds per acre. A border of one foot wide all around each plot was not counted, so as to approximate field crop conditions. The results are as follows:—

SWEET CLOVER—VARIETY TEST

Variety	Green matter in 1925 from plot sown in 1924		Yield hay containing 15% moisture
	tons	lbs.	lbs.
Grundy.....	2	1,976	1,233
Zouave 778.....	2	640	918
White flowered.....	1	320	518
Yellow flowered.....	-	1,016	227
Arctic.....	-	720	160

The Grundy gave the best results, but its yield was not very large; in fact it was inferior to that of red clover. Sweet clover does not seem to do well on this farm; since 1923, it has been sown in cultural tests and we have not, as yet, harvested one good crop.

HAY WITH DIFFERENT NURSE-CROPS

We have recorded the yields of hay obtained from a rotation covering four acres, with oats, barley, wheat, rye and peas as nurse-crops. The object of this experiment is to ascertain which cereal is the best to encourage the growth of grasses and clovers. The mixture used for hay was as follows: timothy 12 pounds, red clover 6 pounds, alsike clover 4 pounds. The following results are for the first crop only:—

HAY WITH DIFFERENT NURSE-CROPS

Nurse-crop	Yield of hay per acre	
	tons	lbs.
Rye.....	2	1,760
Wheat.....	2	1,226
Barley.....	2	773
Peas.....	2	27
Oats.....	1	1,949

These results cover one year only.

POULTRY

POULTRY-KEEPING IN THE DISTRICT

There has been a further marked development in poultry-keeping this year, although statistics show an increase of 7,601 dozen eggs imported in this district over 1924. The assistance lent by the Abitibi Agricultural Association through the district representative, and the promotion work by the Poultry Division of the Central Experimental Farm and this Station, including personal advice, competitions and distribution of breeders and eggs for hatching from good laying strains, have made this industry popular. Statistics dealing with the importation of eggs in the Abitibi district are given in the following table:—

IMPORTATION OF EGGS IN THE ABITIBI

Year	Population	Number of doz. eggs	Total value		Per capita value	
			\$	cts.	\$	cts.
1923.....	16,900	83,010	37,354	50	2	21
1924.....	16,900	53,730	24,178	50	1	43
1925.....	18,067	61,331	27,598	50	1	53

The quantity of eggs imported in 1925 was larger than in 1924 by 7,601 dozen, valued at \$3,420 or 10 cents per capita. This increase is explained by the fact that a rather large quantity of Abitibi eggs was shipped to the mining districts of Rouyn and Amos, for which it was impossible to obtain figures. Although the Abitibi was not the only source of these eggs, it is reasonable to believe that over 7,000 dozens were bought in this district, considering the fact that there are over five thousand prospectors in the district. The population given in the preceding table does not include these prospectors. The poultry industry must expand in order to supply the local market, and also the mining districts, which promise to furnish important markets in a few years.

POULTRY-KEEPING ON THE STATION

On December 31, 1925, our flock included 80 hens, 212 pullets and 21 cocks and cockerels, all barred Plymouth Rocks. At the present time, the buildings include 3 poultry-houses with a capacity of 100 birds, 6 colony-houses, one brooder, and an administration building comprising an incubation room, a killing-room, an office and a granary.

A number of experiments are being conducted on mating, incubation, raising and feeding. Good breeders and eggs for hatching are also sold at reasonable prices.

MATING

In 1924, the 24 best hens mated gave an average production of 151 eggs; in 1925, the 48 best hens mated gave an average of 165 eggs. For the next season's breeders, the 48 best hens which are to be mated have an average of 176 eggs; the average for the 20 best is 191, with productions varying from 177 to 215 eggs. This is the best average ever obtained here, and it shows the value of trap-nest selection and the influence of a good male. The cocks and cockerels used were from dams with records of 200 to 264 eggs.

BEST DATE FOR INCUBATION

The hatching results from eggs set for hatching in March, April and May are shown in the following table. The first incubation was begun on March 8 and the last on May 16. Twenty per cent of the eggs set in March hatched in March, the remainder in April; 20.2 per cent of those set in April hatched in April and the remainder in May; 46.8 per cent of those set in May hatched during the same month and the rest in June.

BEST INCUBATION DATES

Incubator	Total number of eggs set for incubation	Number fertile eggs	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Number of chicks alive at the age of 3 weeks	Per cent chicks alive at the age of 3 weeks	Total eggs required for one chick hatched	Total fertile eggs for one chick hatched	Total eggs required for a 3-weeks-old chick
Date of starting incubator											
March.....	445	381	85.6	109	24.5	28.6	104	95.4	4.08	3.5	4.28
April.....	1,508	1,359	90.1	708	46.9	52.1	680	96.0	2.13	1.9	2.2
May.....	865	778	89.9	473	54.7	60.9	431	91.1	1.82	1.8	2.0

The number of eggs required to be set to produce one chicken from the eggs set in April was 3.5 and in May 1.68. The fertility of the March eggs was not quite so high, but it was about even in the other months. The mortality of chicks was higher in May, but this is explained by the fact that the chicks were unduly crowded.

LOSS OF WEIGHT IN EGGS DURING INCUBATION

The object of this experiment was to determine the loss of weight in eggs during incubation. Eggs were weighed before being placed in the incubator and on the eighth and nineteenth day during incubation. The incubators used for this experiment were a Prairie State, hot-air heated, and a Canadian Queen, hot-water heated. The results are as follows: —

	Prairie State	Canadian Queen
	oz.	oz.
Original weight (per egg).....	1.96	1.97
Weight, 8th day (per egg).....	1.81	1.89
Weight, 19th day (per egg).....	1.63	1.77

The loss in weight is higher for the hot-air incubator; the loss is of 10.1 per cent for the Canadian Queen and 16.8 per cent for the Prairie State. This experiment will be repeated on other makes of incubators.

HATCHING EGGS VS. DAY-OLD CHICKS

The object of this experiment is to determine whether it is better for the farmer to purchase hatching eggs or day-old chicks. It was conducted in co-operation with the Kapuskasing Experimental Station. For this purpose, 60 eggs for hatching were shipped to Kapuskasing and the same quantity of eggs was forwarded to us by Kapuskasing on the same day. At the end of the hatching period, approximately 23 days, 60 day-old chicks were shipped to Kapuskasing and the same number was received in return. The eggs were hatched under hens and the chicks were brooded under hens. A statement covering the incubation of eggs received and the number of live chicks at the age of three weeks, as well as a summary of comparative cost, is given in the following tables.

HATCHING EGGS VS DAY OLD CHICKS

Lot		Number fertile eggs	Per cent fertile eggs	Chicks hatched	Per cent eggs hatched	Per cent fertile eggs hatched	Number of chicks alive at age of 3 weeks	Per cent of chicks alive at age of 3 weeks
1.....	60 eggs.....	51	85	37	61.6	72.5	25	67.7
2.....	60 chicks.....						42	70.0

Summary of cost

	Lot 1 eggs	Lot 2 chicks
Quantity bought.....	60	60
Cost (eggs at 10c. and chicks at 25c).....	\$6 00	\$15 00
Cost of Express (Kapuskasig-La Ferme).....	\$0 65	\$1 51
Cost of feeding sitting hens (25 lbs corn).....	\$0 75	
Cost of labour during incubation.....	\$3 15	
Number of chicks hatched or alive when received.....	37	60
Total cost.....	\$10 55	\$16 51
Cost of a day-old chick.....	28.4c	27.5c
Number of live chicks at age of 3 weeks.....	25	42
Cost per chick at age of 3 weeks (feeding of hen and of chicks during this period not included).....	42.5c	39.3c

The day-old chicks from eggs supplied by the Kapuskasing Experimental Station and hatched on this Station cost 28.4 cents each, while day-old chicks cost 27.5 cents. The percentage of living chicks at the age of three weeks was about the same. This experiment will need to be carried on a few more years before any definite conclusions can be drawn.

COST OF ARTIFICIAL INCUBATION

In order to know the cost of artificial incubation, a record was kept of the number of eggs placed in the incubators, of the coal-oil used, and of the labour. The eggs were valued at \$10 per hundred, coal-oil at 35 cents per gallon, and labour at 30 cents per hour. No account was taken of interest on the capital or of depreciation of equipment. The results are as follows:—

SUMMARY OF COST OF ARTIFICIAL INCUBATION

Number of eggs placed in the incubators.....	2,698
Number of chicks hatched.....	1,211
Cost of eggs used.....	\$269 80
Quantity of coal-oil used, gallons.....	60½
Cost of coal-oil used.....	\$21 09
Labour, number of hours.....	161
Cost of labour.....	\$48 30
Total cost.....	\$339 19
Cost per chick.....	28 cents

The quantity of coal-oil for the number of eggs hatched (about 9 quarts per 100 eggs) appears to be much too high; it is explained as follows: the machines were not filled to their full capacity before being started, as it was desired to keep more room for pedigree baskets. A record was kept of the quantity of oil used by the different makes of machines used on this farm in order to determine the exact quantity required and the cost of the oil; the results are as follows:—

OIL USED IN INCUBATORS

Incubator	Capacity	Total quantity of oil	Quantity per 100 eggs	Total cost	Cost per 100 eggs
		quarts	quarts	\$	\$
Canadian Queen (hot water).....	500	21	4.2	1 84	0 36
Buckeye No. 4 (hot water).....	350	23	6.8	2 01	0 57½
Prairie State (hot air).....	210	21	10.0	1 84	0 87½
Buckeye No. 2 (hot water).....	175	18	10.3	1 57	0 90

It is shown by these results that the cost of operating decreases in proportion with the capacity of the machine. There is little difference in total consumption between small and large machines, but the expense and the cost, as regards the number of eggs, are not so high in the case of machines having a larger capacity.

NATURAL VS. ARTIFICIAL INCUBATION

In order to ascertain the best method of hatching eggs, a record was kept of costs and of results in connection with natural and artificial incubation; that is, eggs set under hens and placed in incubators.

NATURAL VS ARTIFICIAL INCUBATION

	Natural incubation	Artificial incubation
Number of eggs set for hatching.....	120	2,698
Number of fertile eggs.....	107	2,411
Per cent fertile eggs.....	89.1	89.4
Number of chicks hatched.....	79	1,211
Total percentage of eggs hatched.....	65.9	44.9
Per cent fertile eggs hatched.....	73.9	50.2
Number of chicks alive at the age of 3 weeks.....	76	1,139
Per cent of chicks hatched alive at the age of 3 weeks.....	6.2	94.1
Total number of eggs required for 1 chick.....	1.5	2.23
Total number of fertile eggs required for 1 chick.....	1.36	1.99
Total number of eggs required for 1 chick alive at the age of 3 weeks.....	1.57	2.37
<i>Summary of cost</i>		
Cost of eggs at 10 cents each.....	\$12 00	\$269 80
Quantity of coal-oil used, gallons.....		60½
Cost of coal-oil used.....		\$21 09
Cost of feeding the sitting hens.....	\$1 50	
Labour, hours.....	21	161
Cost of labour.....	\$6 30	\$48 30
Total cost.....	\$19 80	\$339 19
Cost per chick hatched.....	\$0 25	\$0 28
Cost of incubation per chick at age of 3 weeks.....	\$0 26	\$0 297

Natural incubation was more satisfactory from all points of view. Although the percentage of fertility was lower, the number of eggs hatched out of the total number of eggs set was 21 per cent higher with hens; the percentage of mortality was also 2 per cent lower during the period of three weeks. The cost per chick, by means of natural methods, was 25 cents, and by means of the artificial method, 28 cents. It would be unwise to draw any definite deductions from this experiment, as it covers only one year. It should be stated, however, that if a person has sufficient experience, just as good results can be obtained from incubators as from hens. Another advantage in favour of artificial incubation is that the raising of chicks may be done earlier, at a time when hens will not set. It should be noted also that natural incubation was done under the best possible conditions, in May when eggs were of the best quality, while artificial incubation covers from March to the 15th of May.

COST OF ARTIFICIAL BROODING

The object of this experiment is to determine the cost of brooding of the chicks once they leave the incubator until they have no further need of artificial heat, at the age of six weeks. The results are as follows:—

COST OF ARTIFICIAL BROODING

Number of chicks.....	200
Quantity of coal used, lb.....	644
Cost of coal at \$17.35 per ton.....	\$5 59
Quantity of grain used, lb.....	75
Cost of grain used at \$2.04 per 100 lbs.....	\$1 53
Quantity of dry mash.....	65
Cost of dry mash at \$2.85 per 100 lbs.....	\$1 80
Quantity of skim-milk, lbs.....	210
Cost of skim-milk at 50 cents per 100 lbs.....	\$1 05
Labour, hours.....	24.5
Cost of labour at 30 cents per hour.....	\$7 35
Total cost.....	\$17 37
Cost per 100 chicks.....	\$8 68

In computing these figures, no account was taken of interest on capital or of depreciation of the equipment.

We found that it required 322 pounds of coal per 100 chicks; this coal was valued at \$2.80. We recommend strongly the use of coal-burning furnaces for this purpose.

ARTIFICIAL VS. NATURAL BROODING

In order to compare artificial brooding with natural brooding, a record was kept of all the expenses in connection with the two systems and the results are given in the following table:—

NATURAL VS ARTIFICIAL BROODING

	Artificial brooding	Natural brooding
Number of chicks.....	200	113
Quantity of coal used in 6 weeks, lb.....	644	.....
Cost of coal.....	\$5 59	.....
Quantity of grain used, lb.....	75	339
Cost of grain.....	\$1 53	\$6 93
Quantity of dry mash used, lb.....	65	.....
Cost of mash.....	\$1 85	.....
Skim-milk used, lb.....	210	170
Cost of skim-milk.....	\$1 05	\$0 85
Labour, hours.....	24½	10½
Cost of labour.....	\$7 35	\$3 15
Total cost.....	\$17 37	\$10 93
Cost per 100 chicks.....	\$8 68	\$9 77

Natural brooding costs \$1.09 more per 100 chicks than artificial brooding. In both cases, no account was taken of interest on capital, depreciation of equipment, or of the value of the eggs laid by the hens brooding the chicks. However, natural brooding requires less technical knowledge than artificial brooding, also less capital. The rate of mortality among the artificially-brooded chicks was 2 per cent higher than in the other case.

METHODS AND RATIONS FOR FATTENING COCKERELS

The object of this experiment was to demonstrate (1) the best method for the fattening of cockerels in crates or in pens; (2) the best ration for fattening (barley, corn, or a mixture of both); (3) the cost of fattening and the profit realized.

Forty-eight cockerels were selected for this experiment and were divided into lots of 8 each. The three first lots were put in crates and the other three lots were left in the pens. Lots 1 and 4 received the following ration: 5.3 parts of corn, 2.1 parts of ground oats and 1 part of middlings, and, in addition, 4½ pounds of whole grain composed of equal parts of corn and wheat, and a small quantity of charcoal. Lots 2 and 5 received exactly the same ration with the exception that barley was substituted for corn. Lot 3 was fed a ration composed of equal parts of cornmeal and of barley, with a small quantity

of whole grain made up of equal parts of barley, corn, and wheat. Lot 6 (check) received the regular ration. A dry mash composed of ground oats, cornmeal, meat, bran and middlings, in equal parts, was given in the self-feeder; whole grain, composed of equal parts of cracked corn and oats, was scattered in the litter. All the lots, with the exception of lot 6, received 48 pounds of skim-milk. This experiment was begun on November 12 and the birds were killed on December 2. The results are as follows:—

EXPERIMENT ON THE FATTENING OF COCKERELS

Lot and special feed	In pen or crate	Initial weight	Weight after fattening	Value at start of experiment at 35c. per pound	Value after fattening at 35c. per pound	Increase in value	Value of feed	Profit
Lot No. 1—		lb.	lb.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Corn.....	Crate.....	49½	58½	17 41	20 56	3 15	2 03	1 12
2-year average.....		44	52	14 40	17 03	2 63	1 29	1 33
Lot No. 2—								
Barley.....	Crate.....	49	57½	17 15	20 21	3 06	1 35	1 71
2-year average.....		43½	50	14 27	16 44	2 17	0 86	1 31
Lot No. 3—								
Corn and barley.....	Crate.....	47½	57	16 71	19 95	3 24	2 15	1 09
2-year average.....		42·8	49·5	14 05	16 27	2 22	1 30	0 92
Lot No. 4—								
Corn.....	Pen.....	50½	58½	17 76	20 38	2 62	1 91	0 71
2-year average.....		44·4	49·6	14 58	16 34	1 76	1 23	0 53
Lot No. 5—								
Barley.....	Pen.....	48½	57½	17 06	20 21	3 15	1 32	1 83
2-year average.....		43·4	49	14 23	16 19	1 96	0 84	1 12
Lot No. 6—								
Ordinary ration.....		45½	55½	16 01	19 33	3 32	2 52	0 80
2-year average.....		41·9	49·1	13 70	16 12	2 42	1 84	0 58

This year's results are somewhat contradictory. Lot 6, receiving the regular ration, made the largest gain. At first sight it would seem that nothing was gained by giving better rations. However, it was noticed that the cockerels of lot 6 had not gained very much in flesh but rather in size. The birds having the nicest flesh and the best appearance were those fed on corn, followed by the cockerels fed on corn mixed with barley. The cockerels receiving barley have a whiter flesh than the others. The lot fed in crates shows a bigger gain for an average of two years.

PULLET VS. HEN EGGS FOR INCUBATION

In order to determine the fertility, the number of chicks hatched and the number of chicks alive from hen and pullet eggs, a separate record of incubation, of hatching, and of the rate of mortality was kept in both cases. The results are given in the following table:—

PULLET VS. HEN EGGS FOR INCUBATION

	Hen	Pullet
Total number of eggs.....	1,138	120
Number of fertile eggs.....	1,027	86
Per cent fertile eggs.....	90·2	71·6
Number of chicks.....	451	44
Per cent of eggs hatched.....	39·6	36
Per cent fertile eggs hatched.....	43·9	51·2
Number of chicks alive at age of 3 weeks.....	431	41
Per cent of chicks alive at age of 3 weeks.....	95·6	93·2
Total number of eggs required for 1 chick.....	2·7	2·7
Total number of fertile eggs required for 1 chick hatched.....	2·27	1·9
Total number of eggs required for 1 chick 3 weeks old.....	2·6	2·9

In 1923, it required 4.3 hens' eggs and 7.9 pullets' eggs for a three-week-old chick; in 1924, 4.7 and 5.1 respectively; and in 1925, 2.6 and 2.9 respectively. The fertility of the pullets' eggs was, during these three years, inferior to that of hens' eggs; and the percentage of fertile pullets' eggs hatching was much higher, but the rate of mortality was also higher than for hens' eggs.

GENERAL NOTES

FIBRE PLANTS

The season 1925 was very unfavourable to the growing of flax and hemp; the temperature was lower than the average at the start and the heavy rains in July and August greatly affected the growth. For this reason, no data were recorded on the different varieties being tested and on the different date of seeding of flax and hemp. These experiments will be repeated next year.

BEEES

Eight hives were placed in the cellar for wintering in the fall of 1924 and six were taken out in the spring. The cause of the death of two colonies cannot be ascertained, but there still remained a sufficient quantity of feed in the hives.

Of the six colonies taken out in the spring, two were united on account of weakness. Two of the remaining four did not give any crop although they had increased sufficiently during the summer. The other two hives gave an average yield of 63 pounds each.

EXTENSION

Three Farmers' Field Days were organized with the co-operation of the parish priests of the district and of the agricultural representatives; the attendance was over 300 persons. The visitors inspected the fodder-crop plots; the cereal plots, the vegetable garden and the cultural experimental plots. Demonstrations were given on poultry-keeping and lectures on various subjects.

The growing interest of the farmers is demonstrated by the increase in number of the letters received asking for special information and for bulletins. The number of farmers who visit us in order to discuss their particular problems has also greatly increased.