DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL FARM
AGASSIZ, B.C.

REPORT OF THE SUPERINTENDENT

W. H. HICKS, B.S.A

FOR THE YEAR 1924

Sycamore maples lining the main entrance to the Dominion Experimental Farm at Agassiz, B.C.

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DOMINION EXPERIMENTAL FARM, AGASSIZ, B.C.

REPORT OF THE SUPERINTENDENT, W. H. HICKS, B.S.A.

SEASONAL NOTES

Except for the first three days the weather during the initial month of the year 1924 was mild and only moderately wet. February was also unusually mild but very wet with 14.92 inches of precipitation, which was the greatest ever recorded for that month at Agassiz. The weather during March was beautiful, being bright and dry with very little frosts and only 2.13 inches of rain, the least ever recorded here. With such a mild winter and delightful March, the prospects for an early spring appeared bright but such did not occur as the first eighteen days of April were wet and cold although the balance was fine. On the twentieth two degrees of frost were recorded which nipped the early potatoes but did them no serious harm. May and June were dry and hot, a temperature of 91 degrees registered on May twelfth being a record for this time, and a precipitation of only 1.03 inches was the least ever recorded for May. By the close of June, drought conditions were becoming serious but were somewhat relieved in July by 2.48 inches of precipitation although August again was short with 1.24 inches as compared to an average of 2.42 inches for the month during the twelve preceding years. The precipitation for the balance of the year was practically normal, making a total of 74.23 inches, almost eleven inches more than last year but only slightly greater than average. From March to October inclusive the total precipitation was only 26.87 inches as compared with 27.19 inches recorded during the very dry season of 1923. Very little snowfall and no cold weather occurred up to the night of December 14 when a characteristic strong wind arose with a corresponding drop in temperature, and during the following night a temperature of three degrees below zero was recorded. This is the lowest December temperature in the history of the farm, although during the month of January in the years 1909, '11, '16 and '17, five, three, two and one degree below zero respectively were registered.

Owing to the mild open winter some ploughing was accomplished in February and considerable work was done on the land in March. Early garden seeds were planted late in the month but no field crops were sown. At this time meadows and pastures showed quite green and shrubs and fruit trees were in bloom. Growth and farming operations were, however, so retarded in April that seeding was not completed till late. Owing to the mild winter very little heaving damage was done to the clover and an excellent first crop was harvested in June. On account of the dry growing season the second crop was light but was saved in excellent condition. Early pastures were fair but afterwards were dry and bare. Corn got a poor start and was a lighter crop than usual. In some localities light frosts caught the crop but there was no frost recorded here till October 11. In spite of the weather conditions, the grain crop yielded well and the quality was excellent. Root crops made a fair start in May and were easily thinned and weeded, but under drought conditions yields were poor.

METEOROLOGICAL RECORDS AT AGASSIZ, B.C., 1924

Month	Temperature F.			Precipitation			Sunshine
	Mean	Highest	Lowest	Rain	Snow	Total	
	F.°	°F.	°F.	Inches	Inches	Inches	Hours
January	35·72	52	6	9·09	6	9·69	26·9
February	42·53	57	30	14·92	.....	14·92	35·8
March	42·86	60	29	2·13	.....	2·13	131·4
April	47·80	80	30	3·93	.....	3·93	115·7
May	59·39	91	36	1·03	.....	1·03	182·2
June	59·29	94	42	2·20	.....	2·20	164·7
July	63·40	96	45	2·48	.....	2·48	216·1
August	62·99	90	43	1·24	.....	1·24	202·1
September	58·78	86	35	4·63	.....	4·63	139·6
October	50·19	64	30	9·23	.....	9·23	79·3
November	41·38	54	24	8·78	8	9·58	62·4
December	32·18	58	−3	12·17	10	13·17	62·4
Totals	.....	.....	.....	71·83	24	74·23	1,418·6

ANIMAL HUSBANDRY

DAIRY CATTLE

On December 31, 1924, the dairy herd numbered sixty-eight head of purebred Holstein-Friesian cattle as follows: one mature bull, one two-year-old bull, eight bull calves, twenty-seven mature cows, five three-year-olds, six two-year-olds, ten yearlings and ten heifer calves. During the year one of the senior herd sires, Maplecrest DeKol Henry, was sold and also five young bull calves for breeding purposes. Seventeen females of different ages were sold for breeding, while five others were disposed of for beef besides four bull calves for veal. Among those sold was a heifer calf from the former world's record butter producer, Agassiz Segis May Echo. This calf went to Japan at a good figure and should assist in opening up that market for Canadian Holsteins.

The entire herd successfully passed another annual double test for tuberculosis and continues on the accredited list.

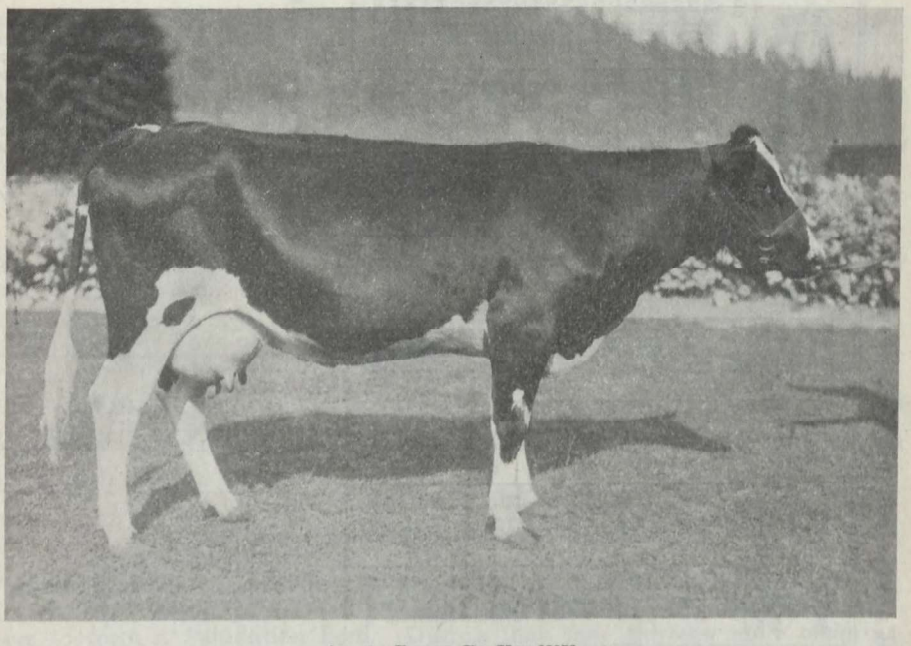
HERD SIRES

Sir Canary Pietje—22654—and Agassiz Champion Re-Echo—54809—are the two bulls being used. They are not only from high-producing cows but are of fair type and are leaving good calves.

EXHIBITION WORK

Sixteen head of Holsteins exhibited at Vancouver Exhibition in August in competition with the best herds in the province made a remarkable showing, the following placings being the most important won: two-year-old bull, first; junior bull calf, first; junior and reserve grand champion male; mature cow open class, second; mature dry cow, second; cow three years, first; cow two years dry, first; cow two years milking, second; senior heifer calf, second and third; graded herd, second; young herd, first; calf herd, first; get of sire, second; produce of cow, second; produce of cow with record, first. At the New Westminster Exhibition in September much the same placings were secured except that the two-year-old bull was not shown, and the cow in the open class was lame and secured only fourth place, while the dry cow won first. The senior yearling heifers won second and third, the junior yearling second, and the junior calves first and third.

The following list shows the performance of all cows finishing a lactation period during the year 1924. In this table feeds are charged at market value. Butterfat is computed at 50 cents per pound and skim-milk at 25 cents per one hundred pounds.



AGASSIZ FAFORIT DE KOL 93272

The first junior two-year-old in Canada to make 1,000 pounds of butter. She is sired by a seventy-five per cent brother to the first 1,600-pound cow.

Of the twenty-six calves raised during 1924 only ten were heifers, while of the twenty-two cows finishing a lactation period during the year, fifteen, or over sixty-eight per cent, gave birth to heifer calves. The average production of these cows was 13,480 pounds of milk and 452 pounds of fat per cow. The most sensation record reported is that of No. 176 Agassiz Faforit DeKol with 21,343 pounds of milk and 1001.25 pounds of butter. This record gives her the distinction of being the junior two-year-old champion of Canada and the youngest cow in Canada to produce 21,000 pounds of milk and 1,000 pounds of butter. She is sired by a seventy-five per cent brother to Agassiz Segis May Echo the first cow in the world to produce over 1,600 pounds of butter in a year.

MILKING RECORD—COWS WHICH HAVE COMPLETED LACTATION PERIODS DURING 1924

Cow Number	Number of period	Number of days	Total Amount of milk produced	Yield of milk per day	Percentage of fat in milk	Amount of fat in milk produced	Amount of butter in milk produced	Amount of meal consumed	Amount of roots and silage consumed	Amount of hay consumed	Amount of beet pulp and molasses consumed	Months on pasture at $2 per month	Total cost of feed	Total value of product	Profit
			lbs.	lbs.		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		$ cts.	$ cts.	$ cts.
176	1	365	21,343·0	58·57	3·75	801·0	1,001·25	4,931	16,196	1,774	1,774	.....	203 52	448 20	244 68
95	4	365	24,567·0	67·27	3·46	849·0	1,061·25	7,676	26,395	1,760	2,642	.....	314 64	479 78	165 14
153	2	365	19,827·0	54·32	3·61	716·0	895·0	6,616	24,169	1,265	1,639	.....	259 91	402 61	142 70
135	3	365	19,492·0	53·4	3·52	686·0	857·5	6,519	24,298	1,715	1,611	1·16	257 68	386 86	131 18
93	6	348	13,328·2	38·3	3·35	446·49	558·12	3,876	16,249	755	.....	7·84	122 97	253 21	130 24
77	6	359	13,968·7	38·91	2·9	405·09	506·36	3,883	17,020	755	.....	7·21	124 47	233 97	109 50
114	4	476	14,242·5	29·92	3·44	489·94	612·3	5,296	25,350	520	.....	5·33	169 27	277 02	107 75
156	2	305	16,205·0	53·13	3·31	536·0	670·0	5,001	19,890	1,375	1,289	0·66	201 65	304 44	102 79
126	3	407	13,254·3	32·56	3·08	408·23	510·3	4,280	20,965	125	.....	3·10	134 60	233 69	99 09
168	1	365	16,522·0	45·26	3·43	567·0	708·75	5,372	21,460	1,270	1,335	.....	221 65	320 67	99 02
46	8	286	11,063·1	38·68	2·72	300·91	376·14	2,768	14,743	755	.....	7·43	104 56	200 35	95 79
81	6	336	11,964·3	35·6	3·35	400·8	501·0	3,990	21,045	890	.....	1·30	133 88	227 31	93 43
118	4	302	10,310·2	34·14	3·52	362·92	453·65	3,682	19,980	415	.....	0·45	120 80	204 66	83 86
154	3	303	10,167·7	33·5	3·35	340·62	425·77	3,038	14,908	795	.....	11·70	109 26	193 19	83 83
155	2	305	15,082·0	49·49	3·75	566·0	707·5	5,939	25,338	1,755	1,486	0·23	240 76	316 93	76 17
169	1	365	10,373·0	28·41	3·79	393·0	491·25	4,312	19,460	130	230	1·10	144 50	219 34	74 84
56	7	323	9,386·6	29·06	3·23	303·19	378·98	3,063	14,935	55	.....	7·61	98 37	172 71	74 34
142	3	377	11,878·0	31·5	2·7	320·7	400·75	3,752	16,525	770	.....	5·17	118 54	187 08	68 54
70	7	306	8,323·9	27·2	3·23	268·86	336·07	2,835	13,020	445	66	5·65	91 56	153 16	61 60
137	4	282	9,268·7	32·86	3·23	299·38	374·2	3,644	19,390	460	.....	11·15	120 60	170 54	49 94
139	4	305	7,503·7	24·6	3·29	246·87	308·59	2,972	15,010	520	.....	5·50	99 04	140 32	41 28
167	2	355	8,496·5	23·93	2·87	243·84	304·81	3,139	15,688	460	.....	8·15	104 54	141 04	36 50

Average number of days lactation periods	days	344·0
Total amount of milk produced	lbs.	296,567·4
Average yield of milk per cow	"	13,480·0
Average yield of milk per cow per day	"	39·19
Average per cent of fat in milk produced	p.c.	3·355
Total amount of fat produced	lbs.	9,951·84
Average yield of fat per cow	"	452·3
Average feed cost to produce 100 pounds of milk	cents	111·16
Average feed cost to produce 1 pound of butter	"	28·11

LIST OF RECORDS COMPLETED BY COWS IN THE CANADIAN RECORD OF PERFORMANCE DURING THE YEAR 1924

Name of Cow	Age at start of test		Month starting test	Duration of test	Amount of milk	Amount of fat	Percentage of fat
	years	days		days	lbs.	lbs.	
Agassiz Pietje Priscilla Korndyke..	7	—	Feb., 1923	365	24,567	849	3·46
Agassiz Faforit DeKol.....	2	88	Sept., 1923	365	21,343	801	3·75
Agassiz Pietje Canary.....	3	217	Jan., 1923	365	19,827	716	3·61
Agassiz Aurora Sylvia.....	5	—	May, 1923	365	19,492	686	3·52
Agassiz Pietje DeKol.....	2	142	Jan., 1923	365	16,522	567	3·43
Agassiz Faforit Canary Posch.....	3	294	May, 1923	305	15,082	566	3·75
Colony Girl Newman.....	3	309	June, 1923	305	16,205	536	3·31
Agassiz Pietje Sylvia DeKol.....	2	197	April, 1923	365	10,373	393	3·79

LIST OF RECORDS COMPLETED IN THE HERD IN RECORD OF MERIT DURING THE YEAR 1924

Name	Duration of test	Age of cow	Milk	Fat	Butter
	days	yr. mos. d's	lbs.	lbs.	lbs.
Agassiz Faforit DeKol.....	7	2 2 25	431·3	14·015	17·52
Agassiz Lina Lula DeKol.....	7	3 1 30	373·5	11·64	14·56

A GOOD HERD RAISED FROM ONE COW

Pietje Priscilla Mechthilde—14123—was bred by J. M. Steves of Steveston, B.C., was born July 24, 1909, and purchased in 1912 along with two other half-sisters to form a foundation herd. During that time thirteen male offspring were reared, one of her sons going to Saskatchewan and another to Alberta. Two sons of her oldest daughter are heading pure-bred herds in British Columbia, and also a son each from her second, third and fifth daughter, which is also true of a grandson of her second daughter. Three of her distant male offspring were vealed while two others are on hand at the present time. Since the photograph was taken old Pietje has given birth to another son which has been sold to head a good herd in British Columbia. A great-grandson has also been sold for a herd sire. The family has been increased in the meantime to the extent of one female and two male calves.

Pietje has proved to be such a valuable breeder that it was deemed wise to secure, when opportunity offered, Sir Canary Pietje—52525—the present senior herd sire, a bull of similar breeding.

The illustration shows Pietje with nineteen of her female offspring consisting of five daughters, six granddaughters, four great-granddaughters and four great-great-granddaughters. Owing to an accident in 1920 two of her oldest daughters had to be slaughtered.

Not only has Pietje produced offspring with excellent producing qualities but of desirable type as well.

Pietje was only shown once and was then past her prime. In 1918 at Vancouver Exhibition, in a very strong class of sixteen cows, she was eighth with two daughters and three half-sisters above her. At this same exhibition two of her daughters won the produce of cow class. The following year at the same exhibition, a daughter was second in the open class, another was second in the record class, while the third won the three-year-old record

class. Two of them won the produce of cow with record class and the three daughters were second get of sire in a class with nine entries. The same year at New Westminster her oldest daughter was grand champion, and together with a sister won as produce of cow. At both fairs the oldest daughter won the two-day milk and butter test. In 1922 at Vancouver a granddaughter won second prize as a three-year-old, a grandson was junior champion and a great-great-granddaughter was junior champion female. These two together with other members of the herd won, first, young herd, calf herd, produce of dam, produce of dam with a record and second prize get of sire. In 1924 at Vancouver and New Westminster a son of the 1922 junior champion heifer was

PIETJE PRISCILLA MECHTHILDE 14123, AND NINETEEN OF HER FEMALE OFFSPRING

Cow
No. 87. Pietje Priscilla Mechthilde—14123—born July 24, 1909. Made 20.58 pounds of butter in 7 days as a mature cow; in a year, 15,556 pounds of milk and 681 of butter.

	Milk (lb.)	Butter (lb.)
52. Daughter, four-year-old R.O.P.*	19,935.0	933.75
70. Daughter, Mature R.O.P.†	20,399.0	940.0
95. Daughter, Mature R.O.P.	24,567.0	1,061.25
145. Daughter, Junior two-year-old R.O.P.	15,179.0	622.5
154. Grandaughter of No. 52, junior two-year-old R.O.M. 7 days	383.2	16.51
153. Daughter of No. 52, three-year-old R.O.P.	19,827.0	895.0
142. Daughter of No. 70, junior two-year-old R.O.P.	16,010.0	598.0
139. Grandaughter of No. 70, now on test.		
169. Daughter of No. 139, senior two-year-old R.O.P.	10,373.0	491.25
178. Daughter of No. 70, now on test.		
179. Daughter of No. 52, junior two-year-old R.O.P.	15,663.0	720.0
168. Daughter of No. 52, junior two-year-old R.O.P.	16,522.0	708.75
180. Daughter of No. 154, now on test.		
198. Daughter of No. 95.		
194. Daughter of No. 70.		
209. Daughter of No. 139.		
211. Daughter of No. 154.		
218. Daughter of No. 153.		
216. Daughter of No. 168.		

* Champion in class as 4-year-old, 1919.
† Champion of Canada 1919 as 3-year-old.

reserve grand champion bull. He is sired by Sir Canary Pietje. A daughter was second prize dry cow at the former exhibition and first at the latter. She, along with the first prize three-year-old made the first prize produce of cow with a record at both exhibitions.

CONTAGIOUS ABORTION

From January, 1921, to January 30, 1924, there appeared to to be a gradual recovery from abortion disease. In the nine months from April to December, 1921, inclusive, thirty-seven per cent of the calves born were abortions. In the year 1922, twenty-six cows calved, seven, or twenty-seven per cent being abortions. In the year 1923, twenty-three cows calved, four, or seventeen per cent being abortions. During the first twenty-six days of January, 1924, three more cows calved normally, the cows and calves all being in good condition. Since then to the end of the year, however, conditions have been worse. Twenty-nine cows calved, eight of these aborting or almost twenty-eight per cent, and many others retained afterbirths and showed discharge. Increased difficulty was also experienced in getting cows to conceive due to cystic ovaries.

At the close of the year 1923 considerable local publicity was given to Bowman's Abortion Remedy and it was deemed advisable to try it out on the Agassiz herd. The remedy consisted of a treatment of nine and one-half pounds in weight to be given in three equal doses forty-eight hours apart. The doses were placed in the mangers in front of the cattle when hungry and any that would not eat it were drenched. From January 26 to 30 fifty females and three bulls of breeding age were treated. From 20th to 24th of February eighteen younger heifers were given half treatments and periodically throughout the season repeat doses were given certain aborters or shy breeders as recommended by the Bowman Remedy Co. The treatments included another two doses given in April, ten days apart, to forty head in the mature herd.

In February blood samples were taken of all members of the herd in order to have a check later on of the results of the Bowman Remedy and also to test out the accuracy of the Agglutination test. The following table shows the calving results secured.

COWS CALVING BETWEEN JANUARY 29 AND DECEMBER 31, 1924

Cow No.	Blood test	Date due	Date calved	Result	Remarks
158	Pos.	July 6	June 30	Abortion	Aborted the day given last dose.
118	"	Mar. 18	Feb. 3	"	Cow re-treated and aborted again Nov. 14.
145	"	Feb. 17	Feb. 8	"	Calf lived, cow very sick and dirty.
95	"	April 13	" 20	"	Cow went dry, difficult to breed since.
180	Neg.	Feb. 23	" 24	Normal	Ovary trouble in cow, not in calf yet.
137	"	Mar. 18	Mar. 12	"	Cow dirty.
127	Pos.	" 22	" 17	"	" , did not milk as should.
153	"	" 25	" 19	"	" , milked well.
168	Neg.	April 15	" 19	Abortion	Calf lived but had scours, cow dirty.
181	Pos.	" 9	April 7	Normal	
173	"	" 9	" 8	"	
178	Neg.	" 17	" 14	"	Cow dirty, did not milk well.
81	Pos.	June 10	" 16	Abortion	Cow very dirty, not in calf yet.
155	"	May 16	May 13	Normal	Calf later scoured and sick.
143	Neg.	" 24	" 22	"	
142	Pos.	Dec. 14	July 2	Abortion	Cow not in calf yet.
151	Neg.	July 10	July 8	Normal	
77	Pos.	" 30	" 17	"	Doubtful conclusion as cow did not milk as usual.
114	Neg.	" 21	" 26	"	
139	Pos.	" 27	Aug. 1	"	
56	"	Sept. 2	" 31	"	
87	"	Aug. 22	Sept. 8	"	
154	"	Sept. 13	" 11	"	
70	"	" 23	" 13	"	
46	"	" 15	" 18	"	
188	Neg.	Oct. 5	" 1	"	
118	Pos.	Jan. 18	Nov. 14	Abortion	Cow very dirty.
135	"	Dec. 2	" 24	Normal	
93	Neg.	" 21	Dec. 23	"	Cow retained placenta.

Twenty-nine cows had eight abortions or almost twenty-eight per cent. Cow No. 118 was treated, aborted, was retreated, and aborted the second time.

Blood Test.—Of the twenty positive reactors, seven aborted and thirteen did not. Of the nine negative reactors, one aborted and eight did not.

Sterility.—At the time of giving the abortion remedy, a review of the herd showed it to contain nine shy breeders. Since then numbers 52 and 86 have been butchered for sterility. No. 142 conceived and aborted. No. 98, after refusing to breed after the Bowman treatment, is still being treated by a veterinarian for cystic ovaries. Nos. 93 and 135 had normal calves, although the former showed discharge, and Nos. 157 and 169 are pregnant and due shortly. No. 157 was bred regularly from July, 1922, to April, 1924, before she eventually became pregnant. This, however, is not an unusual case. In the interim report of this Farm for 1921, page 10, the following sentence is found, " Two cows that were at one time almost sacrificed for sterility are pregnant, and at time of writing one is just due while the other is not due for three months."

Vaccines.—It is interesting to note the results obtained from vaccinating ten cows on May 23, 1922, with the Health of Animals Branch vaccine. No. 175 died from lung trouble, No. 86 was butchered for sterility, No. 158 was bred regularly for over a year, finally conceived, aborted and was butchered. No. 159 had a mummified calf and was butchered, while the remainder, except 179, have been shy breeders but each has calved normally and none aborted.

CORN SILAGE VERSUS PULPED MANGELS

A comparison of corn silage with mangels as a feed for dairy cows was obtained by feeding six uniform cows for three periods of two weeks each. Each cow was fed ten pounds per day of a grain ration composed of three parts

oat chop, three parts bran, one part barley chop and one part oilmeal with some mineral added. They were also fed with ten pounds of alfalfa hay per cow daily, and fifty pounds of ensilage during the first and third periods, while during the second period, the ensilage was substituted by an equal quantity of pulped mangels.

CORN SILAGE VERSUS ROOTS

—		Corn silage	Roots
Number of cows in experiment		6	6
Total milk produced by all cows	lbs.	1,341·15	1,259·5
Amount of milk produced per day per cow	"	31·93	29·98
Percentage of fat in milk produced		3·01	2·57
Amount of fat produced per cow per day	lbs.	·9584	·7709
Grain consumed per 100 pounds of milk produced	"	31·382	33·346
Grain consumed per one pound butterfat produced	"	10·443	12·971
Alfalfa hay consumed per 100 pounds milk produced	"	31·382	50·019
Alfalfa hay consumed per one pound fat produced	"	10·443	12·971
Corn silage consumed per 100 pounds milk produced	"	156·919	.....
Corn silage consumed per one pound fat produced	"	52·216	.....
Roots consumed per 100 pounds milk produced	"	.....	166·732
Roots consumed per one pound fat produced	"	.....	64·858
Total cost of feed	$	17·15	19·51
Cost to produce 100 pounds of milk	cts.	128·36	154·9
Cost to produce one pound of fat	"	42·643	60·25
Cost to produce one pound of butter	"	34·11	48·2

The results secured are very much in favour of the ensilage. It produced more milk and butter at a less cost than the mangels, pound for pound. It took ten pounds more mangels than silage to produce a hundred pounds of milk, and twelve more pounds to produce a pound of butterfat.

MANGELS VERSUS SUGAR BEETS

This experiment was conducted during November and December. In view of the fact that the yield from sugar beets is lighter than from mangels and also much more difficult to harvest, they must give considerably better returns when fed, before it would be practicable to produce them in preference to the mangels. Four cows were fed ten pounds of grain per cow per day throughout the experiment, the mixture being three parts oat chop, three parts bran and one part oil meal. They were also given five pounds of clover hay, thirty pounds of clover silage, and forty pounds of whichever roots were being fed.

MANGELS VERSUS SUGAR BEETS

—		Mangels	Sugar beets
Number of cows in experiment		4	4
Total milk produced by all cows	lbs.	1,043·9	1,095·6
Amount of milk produced per cow per day	"	37·28	39·13
Percentage of fat in milk produced		3·4125	3·228
Amount of fat produced per cow per day	lbs.	1·27233	1·26307
Mangels consumed per 100 pounds milk produced	"	107·28	
Sugar beets consumed per 100 pounds milk produced	"	.....	102·23
Mangels consumed per 1 pound fat produced	"	31·44	
Sugar beets consumed per 1 pound fat produced	"	.....	31·67
Total cost of feed	$	11·13	11·13
Feed cost to produce 100 pounds of milk	cts.	106·62	101·588
Feed cost to produce 1 pound of fat	"	31·2433	31·4709
Feed cost to produce 1 pound of butter	"	24·9946	25·1767

When fed sugar beets, the cows produced almost two pounds of milk more daily per cow than when fed mangels. The milk was not so rich, however, so that the mangels yielded the best returns in butter production. These results would indicate that one would not be justified in growing sugar beets for dairy cattle where mangels give higher yields.

HOME GRAIN MIXTURE VERSUS V. & B. GRAIN MIXTURE

In order to determine the value of a dairy ration placed on the market by a local feed firm it was fed experimentally to four cows over three two-week periods. It was compared to the grain ration being used at that time, which was a mixture of 300 pounds oat chop, 300 bran, 100 barley chop, 100 oil meal, 20 bone meal and 10 pounds of rock phosphate. This ration cost $34.20 per ton compared to the V. & B. mixture, freight paid, at $36.20. Each grain was fed at the rate of ten pounds per cow per day in conjunction with sixty pounds of silage and five pounds of alfalfa hay.

HOME GRAIN MIXTURE VERSUS V. AND B. GRAIN MIXTURE

—		Home mixture	V. and B. mixture
Number of cows on trial		4	4
Total milk produced by all cows	lbs.	854·8	815·3
Amount of milk produced per cow per day	"	30·52	29·12
Percentage of fat in milk produced		3·1	2·91
Amount of fat produced per cow per day	lbs.	0·9467	0·8496
Grain consumed per 100 pounds milk produced	"	32·9135	34·3431
Grain consumed per 100 pounds fat produced	"	10·5938	11·77
Silage consumed per 100 pounds milk produced	"	179·8862	206·0586
Silage consumed per 1 pound fat produced	"	57·9742	70·6226
Alfalfa hay consumed per 100 pounds milk produced	"	16·4567	17·1715
Alfalfa hay consumed per 1 pound fat produced	"	5·2969	5·885
Total cost of feed	$	12·21	10·84
Cost to produce 100 pounds of milk	cts.	119·728	132·957
Cost to produce 1 pound butterfat	"	38·559	45·568
Cost to produce 1 pound butter	"	30·8472	36·4544

The results in this instance were decidedly in favour of the home mixture as the yields of milk and butter were greater at a less cost than when V. & B. mixture was fed.

DAIRY WORK

Cheese making during 1924 consisted chiefly of English Stilton and cream cheese, the manufacture of which, however, was intermittent owing to shortage of milk. During a great part of the year, in order to provide the quantity of skim-milk required for stock feeding, the whole output was separated, which precluded the making of milk cheese. The weekly shipment of cream cheese was continued regularly and both that and Stilton were sold at remunerative prices.

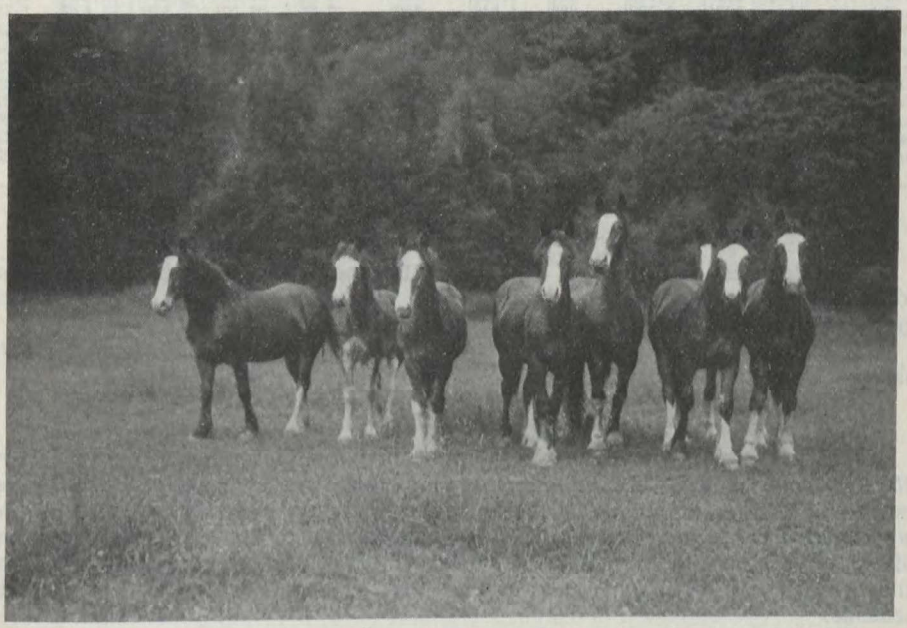
SHIPPING CREAM.—Sweet cream is shipped six days a week to Vancouver. With very few exceptions "Grade A" (less than 0.25 acidity) was reported from the consignee. The exceptions were during the hottest weather on days when some of the cream shipped was 48 hours old. On these occasions from 0.3 to 0.34 acidity was reported. It was found that more thorough chilling before shipping and additional precautions with utensils corrected this condition. Acidimeter tests made at this dairy from August 11 to September 10 inclusive showed from 0.23 to 0.15 acidity and satisfactory returns were received from Vancouver. The samples were allowed to stand in room tempera-

ture for several hours before testing so as to approximate the probable temperature of the can of cream during transit.

MILK TESTING.—This comprised the weekly composite test for each cow in the herd and two seven-day Record of Merit tests. Samples were also tested for any farmers who cared to submit them.

HORSES

The horses on December 31, 1924, totalled twenty-four head, twenty of them being pure-bred Clydesdales and the remainder grades. The pure-bred Clydesdales are, five stallions, five geldings, seven mature mares and three fillies. The health of the horses was excellent throughout the year. From the four mares



Drafters in the making. Dominion Experimental Farm, Agassiz.

that were in foal last year three good foals were reared. The foal from Melita Pride was weak and would not nurse and died when five days old. The other three foals averaged in weight at the end of the year 865 pounds and are sired by Bute Crown Imp. Of the three mares, Melita, Madge and Heather, bred last season, only the two former are in foal.

Madge, Diana and Heather each raised a foal on an average feed cost for the year of $70.23 and averaged 450 hours labour. Pete, Scotty, Melita, Craigie and Bell did most of the heavy work on an average feed cost of $108.10 for an average of 2,453 hours work accomplished, or 4.4 cents per hour. Bucklyvie, a three-year-old stallion, was broken in the spring and gave excellent satisfaction doing 822 hours work during the rush seasons. Bell, Madge, Chosen, Prince and Mike have not been stabled all winter but are fed outside with woods for shelter.

Seven horses were shown at Vancouver Exhibition and won the following prizes: Three-year-old stallion, first; two-year-old stallion, second; yearling stallion, first and reserve grand champion; brood mare, second; foal, first; yearling filly, second. Later, at New Westminster, six horses were shown but the yearling stallion and the brood mare and foal won lower placings.

HORSES—RECORDS OF FEED AND LABOUR FROM JANUARY 1, 1924, TO DECEMBER 31, 1924

Name	Date of birth	Oats consumed	Bran consumed	Hay consumed	Roots consumed	Pasture at $2 per month	Total cost of feed	Hours labour	Weight Dec. 31, 1923	Weight Dec. 31, 1924
		lbs.	lbs.	lbs.	lbs.	$ cts.	$ cts.		lbs.	lbs.
Pete	May, 1915	3,919	366	5,114	574	2 90	112 56	2,790	1,750	1,725
Scotty	May, 1920	3,458	373	4,748	435	3 90	101 71	2,180	1,660	1,685
Melita	June, 1909	3,753	398	5,092	679	2 90	110 08	2,535	1,770	1,900
Craigie	Aug., 1918	3,793	398	5,114	679	2 90	110 84	2,535	1,605	1,640
Bell	June, 1916	3,517	394	4,946	539	2 90	105 31	2,225	1,610	1,610
Madge	June, 1915	1,760	421	3,672	267	7 75	71 02	470	1,795	1,690
Diana	May, 1918	1,856	370	3,448	679	10 40	76 07	880	1,695	1,580
Heather	June, 1918	1,218	461	2,692	499	12 50	63 60	.....	1,665	1,560
Pride	Aug., 1919	2,849	543	4,760	679	2 90	95 71	1,290	1,850	1,700
Bucklyvie	June, 1921	2,728	620	4,648	680	3 90	94 07	822	1,620	1,730
Chosen	May, 1921	2,805	450	4,419	323	4 65	90 64	1,417	1,470	1,440
Cross	April, 1922	2,140	690	4,312	632	8 00	88 20	.....	1,350	1,640
Prince	May, 1922	762	231	1,268	155	16 50	42 96	.....	1,200	1,385
Mike	April, 1922	752	231	1,268	162	15 50	41 81	.....	1,185	1,350
Nellie	April, 1923	1,183	253	2,114	94	12 50	52 80	.....	850	1,210
Bob	May, 1923	1,267	296	2,114	94	11 00	55 84	.....	800	1,250
Pat	May, 1923	896	188	1,652	108	15 00	46 70	.....	780	1,120
Jerry	April, 1923	980	209	1,652	108	13 50	46 81	.....	900	1,235

SHEEP

The flock at the close of the year 1924 consisted of two Dorset rams, forty-eight pure-bred Dorset breeding ewes, eleven grade Dorset ewes and nine grade Oxford ewes, making a total of seventy head.

The fifty-eight ewes in the flock that proved to be in lamb gave birth to eighty-eight lambs and raised seventy-six or 130.3 per cent.

EASTER LAMB PRODUCTION

From the forty-four ewes that lambed between December 17 and January 25, fifty-nine lambs were reared; forty of them were selected for the Easter market. A few of the lambs were thin but twenty-eight graded No. 1 and weighed 2,050 pounds valued at 18½ cents per pound. The other dozen weighed 620 pounds and sold for 15 cents a pound. The average price per pound on these lambs was just slightly higher than that obtained during the two previous seasons.

The following statement shows the weights and values at which Easter lambs were sold during the past seven years:—

EASTER LAMB PRODUCTION

Year	Number of lambs sold	Total weight	Average weight	Price per pound	Average value per lamb
		lb.	lb.	c.	$ cts.
1918	8	440	55·0	20·0	11 00
1919	6	317	53·0	30·0	15 90
1920	10	440	44·0	40·0	17 60
1921	30	1,470	49·0	30·0	14 70
1922	35	2,380	68·0	17·0	11 56
1923	22	1,245	56·6	17·0	9 62
1924	40	2,670	67·0	17·67	11 80

GRADING UP THE FLOCK WITH A PURE-BRED DORSET RAM

The grading work started in 1915 with the Dorset rams has been continued. All of the second-cross females have been disposed of and the following detailed information is available. The 1921 report of this farm gives similar information regarding the original ewes and the first-cross Dorset ewes.

DORSET HORN SECOND-CROSS EWES

Ewe Number	Dam No.	Face colour	Horns	Average weight taken in autumn	Number of years average taken	Average weight of fleeces	Number of fleeces average	Number of Lambs				Number of lamb crops	Per cent of lambs per crop raised
								Born		Raised			
								Male	Female	Male	Female		
				lbs.		lbs.							
73	39	White	Yes	165	3	10·2	3	.....	4	.....	4	2	200·0
74	39	"	"	172	5	8·6	6	3	4	2	3	6	83·3
77	41	"	"	177	3	8·2	3	1	1	1	1	2	100·0
81	32	Spotted	No	202	5	9·3	5	7	1	4	1	5	100·0
111	65	White	"	184	2	10·0	2	1	1	.....	1	1	100·0
113	55	Brown	Yes	179	4	8·2	4	2	4	2	3	4	125·0
114	32	White	"	202	4	11·7	4	5	2	5	2	4	175·0
117	41	"	"	153	1	9·5	1	1	.....	1	.....	1	100·0
125	64	Brown	"	187	3	10·5	3	1	2	1	2	2	150·0
127	40	Grey, wooly	No	178	3	10·3	3	2	2	2	1	3	100·0
144	55	Brown	Yes	190	3	6·8	3	2	2	2	2	3	133·3
145	55	"	"	162	2	7·9	3	4	.....	3	.....	2	150·0
147	45	White	"	176	3	10·9	3	3	2	3	2	3	166·6
148	40	Brown	No	177	3	10·2	3	1	2	1	2	2	150·0
149	40	"	"	188	2	9·9	2	2	2	.....	1	2	50·0
152	32	White	Yes	189	3	9·5	3	.....	4	.....	3	3	100·0
154	56	Brown	"	184	3	8·5	3	2	2	2	2	3	133·3
156	56	White	"	177	3	9·1	3	3	2	3	2	3	166·6
161	39	"	"	195	3	11·2	3	1	1	.....	1	2	50·0
159	66	"	"	184	2	9·9	2	.....	.....	.....	.....	.....	.....
160	66	"	"	177	2	9·1	2	.....	.....	.....	.....	.....	.....
104	64	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
175	39	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
176	39	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
177	45	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
179	65	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
181	66	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
186	64	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
190	56	"	"	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total average	.....	.....	.....	180·9	.....	9·5	.....	.....	.....	.....	.....	.....	122·7

These results show that the second-cross ewes average 69 per cent white faces, and 82.7 per cent have horns. The average autumn weight of the ewes was 180.9 pounds while the average weight of the fleeces was 9.5 pounds. The percentage of lambs per crop raised is low and is less than that recorded from the original ewes and the first-cross group. It is anticipated that another year will complete this experiment when some interesting results will be available.

WOOL YIELDS

The grading work with the Dorset and Oxford rams was continued. Following are given the 1924 wool yields of the Dorset ewes and the different crosses.

Description	Number of ewes	Average weight per fleece
		lb.
Shearlings		
Pure-bred Dorsets	10	8·5
Dorset fourth-cross	2	7·3
Oxford third-cross	3	8·9
Mature Ewes		
Pure-bred Dorsets	29	7·7
Dorset third-cross	10	8·0
Oxford second-cross	3	9·5

The sheep with the Oxford crosses gave the best yields. The Dorset pure-bred shearlings, and the third-cross mature ewes also gave good results.

CO-OPERATIVE WOOL SELLING

The 1924 wool clip consisted of 62 fleeces, 475 pounds, making an average of 7.66 pounds per fleece.

WOOL CROP

Grade	Pounds	Value	Amount
	lb.	c.	$ cts.
Medium Staple (3-8 Blood Staple) Bright	47	36·5	17 15
Medium Staple (3-8 Blood Staple) Semi-bright	74	36·0	26 64
Medium Clothing (3-8 Blood Clothing) Semi-bright	6	33·0	1 98
Low Medium Staple (1-4 Blood Staple) Bright	121	30·0	36 30
Low Medium Staple (1-4 Blood Staple) Semi-bright	221	29·0	64 09
Low Staple (1-4 Blood Staple) Semi-bright	6	24·5	1 47
Total	475		147 63

Of this total amount it cost $32.91 for selling, grading, freight, membership and sacks, leaving $114.72 net for 475 pounds of wool, or just over 24 cents per pound, or $1.85 per sheep.

VALUE OF SILAGE FOR PREGNANT EWES

In an endeavour to solve the problem of weak and premature lambs that occurred last year and which was thought to be at least partly due to feeding ensilage, further experiments were planned. The group of forty-five ewes due to lamb between December 18 and January 26 were divided into three groups. From November first till they lambed, Lot 1 composed of ten ewes was given a bare field in which to exercise. They were fed 5 pounds sunflower silage, ½

pound of cut hay and 1 pound of grain per ewe daily. The grain consisted of two parts crushed oats and one part bran. Lot 2 with a similar number of ewes in the group was given identical conditions except that they were fed corn instead of sunflower silage. Lot 3 composed of 25 ewes was given natural conditions. They were not fed silage, but were given the run of pasture, corn and root fields and starting November first were fed three-fifths of a pound of the same grain per ewe daily. Then, owing to weather conditions, they were fed uncut hay until they lambed. One ewe in lot 1 proved not to be in lamb. The remaining ewes gave birth to 10 lambs and raised 8 or lambed 111 per cent and raised 80 per cent of them.

The ten ewes in lot 2 gave birth to 16 lambs and raised 14 or lambed 160 per cent and raised 88.71 per cent.

The twenty-five ewes in lot 3 gave birth to 41 lambs and raised 37 or lambed 164 per cent and raised 90.24 per cent.

Although lot 1 gave poorer results than either of the other groups, this was through no fault of the feed. The percentage of lambs raised in each group was good. Most of the lambs were strong and none premature.

SWINE

There were nineteen pure-bred Yorkshire swine on this Farm on December 31, 1924. They consisted of the following: One two-year-old imported boar, one boar nine months old, nine brood sows and eight young feeders. The breeding operations of the herd received a set-back in the loss on November 21 of Springdale Makepiece, and in the following month, of Pine Grove Jock 2nd, the two aged herd boars. The former died suddenly from paralysis and the latter was destroyed as he was of no further value as a breeder. The nine sows are daughters of one or the other of these boars and are a fine lot.

The demand for young breeding stock was quite good, although the supply was limited. An important sale was made in December of two eight months old boars for export to China. Other sales of breeding stock during the year totalled twelve sows and fifteen boars.

MINERAL MIXTURES, MANGELS AND SELF-FEEDERS

With some alterations and additions, a duplicate experiment to that carried on last year was planned with eight pens of six pigs each. The objects in view were: To secure data on the value of feeding mineral matter to feeder pigs; to determine the value of self-feeders for winter use in small pens for feeder pigs; to substitute ashes and mangels for mineral matter with the same grain ration.

The grain mixture fed consisted of: shorts four parts, barley chop two parts and oat chop one part. This ration cost 1.5 cents per pound. The mineral mixture was fed at the rate of three per cent of the grain ration and cost 2.7 cents per pound, and was made up of the following: ground bone meal, 8 pounds; ground charcoal, 5 pounds; ground rock phosphate, 5 pounds, and salt, 3 pounds. Rock phosphate alone cost 1.5 cents per pound.

In comparing lot 1 with lot 2 the mineral mixture showed up well, lot 1 making much greater gains and cheaper gains than lot 2. Where the same ration was given by the usual trough method the results are different. Lot 3 made greater gains than lot 4 but on account of consuming more, the profit with lot 4 was the greater. These results together with those secured last year indicate that mineral added to a grain ration improves it. By referring to lot 7 which gave the greatest gains and ranked second in profit, it would appear that ordinary ashes are a suitable source of mineral supply. Mangels were not so satisfactory. The result secured with lot 5 is quite conclusive evidence that

six per cent of this mineral mixture is too strong at least for pigs of this size. During the first twenty-nine days of the trial this lot only gained 87 pounds or 3 pounds per day. The pigs went off feed and did not look thrifty. The feed was then changed to the three per cent mixture and in the next sixty-one days they gained almost 6 pounds per day.

PIG FEEDING EXPERIMENT—MINERAL MIXTURES, MANGELS AND SELF-FEEDERS

—	Lot 1 — Grain with 3p.c. mineral in self-feeder	Lot 2 — Grain without mineral in self-feeder	Lot 3 — Grain with 3p.c. mineral fed wet in trough	Lot 4 — Grain without mineral fed wet in trough	Lot 5 — Grain with 6p.c. mineral fed wet in trough	Lot 6 — Grain with 2 p.c. gr. rock phosphate fed wet in trough	Lot 7 — Grain without mineral fed wet in trough ashes on floor	Lot 8 — Grain without mineral fed in trough mangels fed
Number of pigs in each group.....	6	6	6	6	6	6	6	6
Total weight Dec. 1..... lb.	425·0	421·0	430·0	424·0	422·0	425·0	425·0	429·0
Total weight Feb. 29..... "	943·0	800·0	923·0	905·0	870·0	875·0	964·0	891·0
Total gain in weight in 90 days "	518·0	379·	493·	481·0	448·0	450·0	539·0	462·0
Average gain per pig per day... "	0·9593	0·7018	0·913	0·8907	0·8296	0·8333	0·9981	0·8855
Value of total gain 7½c. per lb... $	38·85	28·42	36·97	36·07	33·60	33·75	40·42	34·65
Feed Consumed								
Pounds milk at 25c. per 100 lbs. lb.	912·0	912·0	912·0	912·0	912·0	912·0	912·0	912·0
Pounds mineral mixture at 2·7c. per lb..... "	57·0	.....	63·0	.....	86·0	.....	.....	.....
Pounds rock phosphate at 1·5c. per lb..... "	.....	.....	.....	.....	.....	24·0	.....	.....
Pounds *meal mixture* at 1·5c. per lb..... "	1,874·0	1,770·0	2,040·0	1,978·0	1,986·0	1,772·0	2,138·0	1,884·
Pounds mangels at $5 per ton.. "	.....	.....	.....	.....	.....	.....	.....	600·0
Total cost of feed consumed... $	31·93	28·83	34·58	31·95	34·39	29·22	34·35	32·04
Total profit or loss over cost of feed..... $	6·92	—0·41	2·39	4·12	—0·79	4·53	6·07	2·61

A change had also to be made in the feeding of lot 6, as two per cent of ground rock phosphate had much the same effect as experienced with the six per cent mixture. During the first twenty-six days of the test the six pigs did not gain quite 2.7 pounds per day. The phosphate was then eliminated during the next thirty days and the lot gained 7.2 pounds daily. The phosphate was again added to the grain for the balance of the experiment and the gain was hardly 4.9 pounds per day. These results would indicate that two per cent of rock phosphate is too strong to add to the grain ration for feeder pigs.

Regarding the value of the use of self-feeders in fattening pigs in confined winter quarters during the winter, previous results along with those secured in this experiment indicate that they are unsatisfactory. Although lot 1 did better than lot 3 the reverse result occurred with lots 2 and 4, the latter making more and cheaper gains. Occasionally pigs will do well when fed with the self-feeder, but so often do they become stiff and unthrifty that it is not recommended for winter use in confined quarters.

GRAIN VS. GRAIN WITH MILK VS. GRAIN WITH POTATOES

In November twelve uniform pigs were divided in three groups to be finished, with the object in view of determining the value of skim-milk and boiled potatoes as an addition to the grain ration. The grain ration consisted of three parts shorts, two parts oat chop and one part bran, and cost 1.55 cents per pound. Lot 1 was fed grain only in the form of a slop, as much as they would eat. Lot 2 was fed all they would eat of the same grain and sixteen pounds of skim-milk daily besides, although there were a few days when the milk was not available. Lot 3 was also fed all the grain they would eat and eight pounds of small, boiled potatoes daily in addition. This lot went off feed several times during the trial and should have made better gains.

GRAIN VS. GRAIN WITH MILK VS. GRAIN WITH POTATOES

—		Lot 1 — Grain	Lot 2 — Grain and milk	Lot 3 — Grain and potatoes
Number of pigs in each group		4	4	4
Total weight Nov. 4	lbs.	525·0	525·0	513·0
Average weight Nov. 4	"	131·25	131·25	128·25
Total weight Dec. 21	"	628·0	769·0	618·0
Average weight Dec. 21	"	157·0	192·25	154·5
Total gain in 48 days	"	103·0	244·0	105·0
Average gain per pig per day	"	0·5365	1·2708	0·5469
Feed consumed				
Pounds of grain at 1·55c. per lb		1,034·0	1,197·0	883·0
Pounds of milk at 25c. per 100 lbs		.....	656·0	.....
Pounds of potatoes at $10 per 100 lbs		.....	.....	384·0
Total cost of feed consumed	$	16·03	20·19	15·61
Feed cost to produce 1 pound of gain	c.	15·563	8·275	14·867

The results show a distinct advantage in favour of the skim-milk group, as they made much the better and cheaper gains. Although lot 3 did not gain as rapidly as lot 1 their gain was slightly the cheaper. All groups lost money, as the pigs were sold for eight cents per pound which is less than the cost of production.

FIELD HUSBANDRY

ROTATION WORK

The four-year rotation, in existence at this Farm for a number of years now, was continued on the same general plan as formerly. It consists of: First year, hoed crop; second year, grain seeded down; third year, hay; fourth year, pasture.

HOED CROPS.—The crops grown in this section were mangels, potatoes, corn and sunflowers. Farm manure at the rate of 12 tons per acre was applied to the land during the autumn and winter on the sod. That portion set aside for the root crop was ploughed in the fall, reploughed in the early spring and well worked. The portion reserved for corn and sunflowers was ploughed just prior to seeding. The varieties of mangels grown were Danish Sludstrup and White Sugar, the varieties of corn being Longfellow, Golden Glow and North-western Dent, while the sunflower grown was Giant Russian.

The mangel seed was sown at the rate of ten pounds per acre on drills set up with a double mould board plough thirty inches apart. At the same time commercial fertilizers, in the proportion of two of superphosphate of lime to one of nitrate of soda, at the rate of 500 pounds per acre were applied. The roots were thinned early and kept weeded, but the long spell of dry weather during the growing season affected the ultimate yields considerably. The same applies to the corn and sunflowers. These were grown in hills three feet apart each way and in a portion of the field, inferior in soil conditions to those where the roots were grown. Except for farm manure previously mentioned, the field corn and sunflowers received no fertilizers.

The total root crop harvested amounted to 183 tons 1,160 pounds, while 218 tons 1,890 pounds of corn and 12 tons 59 pounds of sunflowers were stored for ensilage.

GRAIN.—The grain was grown on land that had been in hoed crop the previous year. It was ploughed in the spring and well worked, the seed was

sown the middle of April and harvested early in August. The same grass and clover mixture was used for seeding down as in previous years, viz., 9½ pounds red clover, 3½ pounds alsike clover, 1½ pounds White Dutch clover, 2 pounds Italian rye grass, 2 pounds orchard grass per acre.

HAY.—The first cutting from the hay field produced 338 tons 310 pounds clover ensliage, and 11 tons 400 pounds of hay. The second crop yielded 32 tons 800 pounds of hay.

PASTURE.—Excellent feed was produced in the early part of the pasture season. The stock was put on pasture early and did well, up to the middle of July. From then on drought conditions prevailed and pastures were bare and dry.

COST OF PRODUCTION.—The following table shows the cost prices and return values used in determining the cost of producing the various crops of the four-year rotation.

ROTATION SUMMARY—1924

Rotation, 4 Years

SUMMARY OF YIELDS, VALUE AND PROFIT AND LOSS (per acre)

	Crop	Yields, 1924	Value	Cost of production	Profit or loss (−)
			$ cts.	$ cts.	$ cts.
1	Mangels	20 tons	54 40	115 27	−60 87
1	Corn	11 tons	75 02	69 15	5 87
2	Grain, oats	32 bush.	21 00	48 81	−27 81
3	Hay	2½ tons	51 12	40 09	11 03
4	Pasture		8 40	28 92	−20 52

COST PRICES

Rent including taxes	$24 00 per acre
Manure	2 00 per ton
The cost of the manure is distributed as follows: 40% to the first crop of the rotation, 30% to the second, 20% to the third and 10% to the fourth.	
Manual labour	0 27½ per hour
Teamster labour	0 30 per hour
Horse labour	0 15 per hour
Machinery	3 00 per acre
Twine	0 20 per pound
Threshing	0 04¼ per bushel
Oats	0 85 per bushel
Corn	0 08 per pound
Mangel seed	0 50 "
Red clover	0 27 "
Alsike clover	0 18 "
Italian rye grass	0 19 "
White Dutch clover	0 70 "
Orchard grass	0 28 "

RETURN VALUES

Oats	$ 0 50 per bushel
Hay	20 45 per ton
Oat straw	4 00 "
Corn	6 82 "
Roots	2 72 "

YIELDS OF CORN AND SUNFLOWERS FOR ENSILAGE PURPOSES

Giant Russian sunflowers sown in drills yielded 9 tons 575 pounds per acre as compared to 10 tons 730 pounds of Longfellow corn grown under similar conditions.

FERTILIZER EXPERIMENTS WITH CORN

Three one-acre plots of Longfellow were laid out and received the same general treatment except that fertilizer was applied to one plot and none to the others. The application of fertilizer was at the rate of 500 pounds per acre in the proportion of two of superphosphate of lime to one of nitrate of soda. The fertilizer plot yielded 11 tons, 1,146 pounds, while the two unfertilized plots averaged 9 tons 137 pounds.

GYPSUM EXPERIMENTS WITH MANGELS

Two one-acre plots of White Sugar mangels were sown and handled under similar conditions during the season. One plot was broadcast with gypsum at the rate of 500 pounds per acre. The other plot received no gypsum. The gypsum plot yielded 23 tons 490 pounds, while the other yielded 20 tons 140 pounds, or a difference of 3 tons 150 pounds in favour of the gypsum plot.

GYPSUM EXPERIMENTS WITH CORN

Two one-acre plots of Golden Glow were reserved for this experiment. One plot received an application of 500 pounds of gypsum while the other plot received no gypsum. The plot without gypsum yielded 13 tons 1,211 pounds, while the treated plot yielded only 11 tons 1,411 pounds.

GYPSUM EXPERIMENTS WITH CLOVER

Two acres of the hay field were measured off; one acre was top-pressed with 500 pounds of gypsum on April 1, while the other acre remained untreated. The first crop was harvested June 10, was weighed green and put in the silo. The gypsum plot yielded 15 tons 330 pounds while the untreated plot yielded 14 tons 455 pounds. The second crop was harvested August 4 and cured for hay. The treated plot produced 1 ton 765 pounds while the other yielded 1 ton 600 pounds. Allowing for 80 per cent moisture in the green clover of the first cutting, there would only be 375 pounds more cured hay from the treated plot. Add to this 165 pounds greater yield from the second cutting and the total is 540 pounds of cured hay, which just about equals in value the cost of the gypsum applied.

HORTICULTURE

The horticultural work done this year consisted of variety tests of vegetables, flowers and fruits, and experiments in the culture of various vegetables and potatoes. The extremely dry growing season was not conducive to heavy crop yields of many of the vegetables but such crops as corn, tomatoes, and melons were of excellent quality and well matured. Considerable seed of garden produce was harvested in excellent condition.

VEGETABLES

POTATO-VARIETY TEST

The U.B.C., a large, late, round, white potato of good quality was the first in point of production, and can be recommended for this district. This variety has been one of the biggest yielders for three years. Agassiz Special came second in yield. It is a medium early, long, white potato and a good keeper. Other favourite varieties that have yielded well of late years are, Jones White Irish Cobbler, Gold Coin, Dreer Standard and Wee MacGregor.

Name of Variety	Size	Season	Date of planting	Date of digging	Yield per acre marketable		Yield per acre unmarketable		Form and colour
					tons	lbs.	tons	lbs.	
U.B.C., 1920	Large	Late	May 7	Sept. 15	12	1,872	5	1,616	Round, white.
Agassiz Special	Medium	Medium	" 7	" 9	12	1,608	1	1,168	Large, white.
Empire State	"	"	" 7	" 15	12	24	2	752	Long, white.
Rawlings Kidney	"	Late	" 7	" 15	11	1,760	3	1,920	Round, white.
Irish Cobbler	"	Medium	" 7	" 9	11	1,496	3	336	Round, white.
Jones White, U.B.C. 1920	Large	Late	" 7	" 15	11	1,496	6	144	Round, white.
Arran Chief	"	"	" 7	" 15	11	968	4	1,504	Oval, white.
Manitoba Wonder	"	Medium	" 7	" 15	11	176	3	44	Round, pink.
American Wonder	Medium	"	" 7	" 15	10	1,120	1	1,696	Long, white.
Wee MacGregor	Large	"	" 7	" 15	10	1,120	4	1,240	Oblong, white.
Dreer Standard	"	"	" 7	" 15	10	856	4	1,240	Round, white.
Late Puritan	Medium	"	" 7	" 15	10	592	2	752	Long, white.
Carman No. I	Large	"	" 7	" 9	10	328	3	600	Round, white.
Green Mountain	Medium	"	" 7	" 15	10	328	3	600	Round, white.
Eureka, U.B.C., 1923	Large	Late	" 7	" 26	10	328	5	1,088	Round, white.
Table Talk	Medium	"	" 7	" 15	10	64	4	1,504	Oblong, white.
Houlton Rose	"	Early	" 7	" 9	9	744	1	1,960	Round, Rose.
Up-to-Date, U.B.C., 1920	"	Medium	" 7	" 26	9	480	4	184	Round, white.
May Queen	Small	"	" 7	" 9	9	216	4	712	Oblong, white.
Dalmeny Beauty	Large	"	" 7	" 15	8	1,688	5	1,088	Oblong, white.
Eureka, U.B.C., 1924	"	Late	" 7	" 26	8	896	1	1,168	Round, white.
Sir Walter Raleigh, U. B.C., 1923	Medium	"	" 7	" 26	7	1,840	1	908	Flat, round, white.
Dakota Red	"	Medium	" 7	" 9	7	1,840	3	1,656	Round, red.
Early Ohio	"	Early	" 7	" 15	7	1,576	1	1,168	Round, pink.
Ormandy	Large	Late	" 7	" 9	7	1,312	3	1,392	Oval, white.
Gold Coin, A.E.F	Medium	Medium	" 7	" 26	7	1,048	3	44	Round, white.
Bermuda Early	"	Early	" 7	" 9	7	520	1	904	Round, red.
Sir Walter Raleigh, U. B.C., 1924	"	Late	" 7	" 26	6	1,728	–	1,584	Flat, round, white.
Morgan Seedling	Large	Medium	" 7	" 9	6	936	3	864	Oval, white.
Eureka Extra Early	Medium	Early	" 7	" 15	6	936	3	600	Flat, round, white.
Sutton Reliance	Large	Medium	" 7	" 9	6	872	1	640	Oblong, white.
Vick Extra Early	Medium	Early	" 7	" 9	6	872	1	904	Round, pale pink.
Sil Walter Raleigh	"	Late	" 7	" 26	6	404	–	1,320	Flat, round, white.
Gold Coin, U.B.C., 1924	"	Medium	" 7	" 26	6	144	2	224	Round, white.
Jersey Royal, U.B.C., 1923	"	Early	" 7	" 26	5	1,850	3	336	Oblong, white.
Jersey Royal, U.B.C., 1924	"	"	" 7	" 26	5	1,116	1	1,696	Oblong, white.
Gold Coun, U.B.C., 1923	"	Medium	" 7	" 26	5	1,352	3	1,920	Round, white.
Rural Russett, Inv., 1924	Large	Late	" 7	" 26	5	1,088	2	752	Flat, round, russet.
Early St. George	Medium	Early	" 7	" 9	5	824	–	1,584	Round, white.
Up-to-Date, U.B.C., 1924	"	Medium	" 7	" 26	5	560	1	1,696	Round, white.
Gold Coin, Inv., 1923	"	"	" 7	" 26	4	1,240	4	448	Round, white.

COMMERCIAL FERTILIZER APPLIED TO EARLY POTATOES

An experiment was made to determine the value of applying commercial fertilizer to the growing of early potatoes for the market at a time when the highest prices are obtainable. The number of varieties used was seven. Twenty sets of each were planted and all had been sprouted before being planted. The sets, which were whole small potatoes, were planted in drills 30 inches apart and 14 inches apart in the drills. The ground had been ploughed in the previous autumn and manured with 16 tons of farm manure per acre in the spring and then ploughed again. The sets were planted two inches deep and then slightly hilled up to shed surplus moisture. All seed was planted on March 17 and the potatoes were harvested on June 5.

Two-thirds of the fertilizer was applied when the tops were up, on April 19, and one-third just before hilling up on May 6. Cultivation was conducted in the usual manner.

In the following table, No. 1 represents an application of 560 pounds of superphosphate of lime per acre; No. 2 an application of 374 pounds of superphosphate of lime and 187 pounds nitrate of soda per acre; No. 3 an application of 280 pounds superphosphate of lime, 140 pounds nitrate of soda and 140 pounds muriate of potash per acre; No. 4, check row, and no fertilizer.

The crop suffered from a late frost on April 20, when all the tops were frozen. They recovered from the effects of this, but the yield was considerably delayed in consequence.

FERTILIZERS FOR POTATOES

Name of Variety	No. 1 — Yield per acre	No. 2 — Yield per acre	No. 3 — Yield per acre	No. 4 — Yield per acre
	lb.	lb.	lb.	lb.
Early Hero	5,781½	8,019½	8,392½	5,781½
Early St. George	6,714	8,206	7,273½	6,341
Early Ohio	6,527½	10,257½	9,138½	6,061½
Early Rose	6,341	9,325	9,325	7,087
Eureka Extra Early	5,781½	7,273½	6,341	5,035½
Vick Extra Early	6,807½	9,418¼	7,833	7,553¼
Six Weeks	3,543½	4,849	4,103	3,357
Totals	41,496½	57,348¾	52,406½	41,216½
Average yield per acre	5,928	8,192	7,486	5,888

Eleven cents per pound were secured for the potatoes. Plot No. 2 gave the greatest yield followed by No. 3. The plot receiving superphosphate gave but little better results than the check plot.

POTATO-SPROUTING EXPERIMENT

Sixty-six sets each of sprouted and dormant potatoes of Early Rose and Gold Coin varieties were planted on April 7. They were sown in drills thirty inches apart and fourteen inches in the rows. The sprouting was done by exposing the potato to subdued light for six weeks at a temperature of between 40 and 50 degrees. The Early Rose sprouted sets yielded 111 pounds as compared to 90 pounds from the unsprouted sets. The Gold Coin sprouted sets produced 130 pounds as compared to 65 pounds from the dormant ones. The sprouted sets in each instance produced a larger and superior quality potato. The sprouted Gold Coin were ten days earlier than the dormant Early Rose and from seventeen to twenty days earlier than the dormant Gold Coin.

BEANS

Varieties.—Beans as usual did well. Of the green pod varieties, Masterpiece, Canadian Wonder, Stringless Green Pod and Bountiful Green Bush were the best. Of the wax varieties Hodson Wax, Davis White Wax, Wardwell Kidney Wax and Extra Early Red Valentine are the favourites. The wax bean is much more popular than the green. Thirty-one different varieties or strains were tested.

Cultural.—In order to determine the distance apart at which beans should be planted in the row to produce most satisfactory results, two varieties, Round Pod Kidney Wax and Stringless Green Pod were used. All seed was sown May 4 in thirty-foot rows. Throughout this experiment the results show that

the closer the seed is planted the better the yield and in most cases the quicker the crop matures. Plantings two inches apart gave the best yields while four inches apart gave better yields than six inches.

BEETS

Varieties.—Eight varieties of beets were tested. Detroit Dark Red, Ottawa seed, gave the heaviest yield. This is a good-coloured beet with a good flavour and one that can be recommended. Sutton Globe was second in yield and is also a good variety. Brand Exhibition is a variety that can be recommended although it gave somewhat lower yields than the two first mentioned varieties. All suffered from dry rot at the surface of the ground.

Cultural.—This experiment consisted of planting beets on different dates in order to test their storing qualities during the winter. Six plantings were made ten days apart, the first being sown on March 27. The last, sown on May 15, gave the highest yield, while the third sowing on April 15, gave the second highest yield. It would appear from this that real early sowing is not advisable. The last three plantings were fresher when harvested and stored in better condition during the winter.

BRUSSELS SPROUTS

Varieties.—Two varieties of Brussels sprouts were tried this year, Lulu Island, Brand, and Sutton Matchless, the former giving slightly better results than the latter, but neither being really successful, as the buttons formed only in a few cases and were loose and open.

CABBAGE

Varieties.—Notwithstanding the attack of flea beetle followed by a dry summer the cabbage did very well. Improved Flat Dutch was the heaviest yielder. This always does well here although it is a somewhat coarse variety. Copenhangen Market is one of the best varieties here both for early and late use. Glory of Enkhuizen is also an excellent variety and has been tested for some time. The heads are large and firm. This can also be said of Danish Ball Head. Of the new varieties tested this year Dalla, Golden Acre and Babyhead are the most promising and are of the Copenhagen Market type.

Cultural.—In this experiment seven varieties were used. They were sown in the hotbed on March 1 and transplanted April 19. Those in the open were sown on March 13 and transplanted May 19. Copenhagen Market gave a much heavier yield sown in the hotbed, than any other variety, followed by Fordhook Forcing; while of those sown in the open, Early Winnigstadt and Etampes gave the heaviest yields. All the varieties sown in the hotbed were ready for use in July, Fordhook Forcing being the earliest. None of the varieties sown in the open were ready till a month later, the same variety again being the earliest.

Dates of Seeding for Storage Purposes.—In this experiment two varieties, Copenhagen Market and Extra Amager Danish Ball Head were used and the seed was sown at intervals of ten days between sowings, commencing March 27. Six sowings were made. With the Copenhagen Market the fourth sowing gave the best yield, while with the late variety, Extra Amager Danish Ball Head, the first sowing gave the best results.

STORING CABBAGE

On November 21 five varieties of cabbage were pitted, namely Danish Ball Head, Copenhagen Market, Glory of Enkhuizen, Early Winnigstadt and Large Blood Red. Several methods of storing were followed, *i.e.*, cutting heads

from stems, leaving heads on, drying slightly in the sun, rolling in paper, pitting without straw and also putting a layer of straw between layers of cabbage. When the pit was opened late in January it was found that Early Winnigstadt had not kept well as the heads were soft and rotted badly, while the Ball Head, Glory of Enkhuizen, Danish Ball Head and Copenhagen Market varieties kept in the order named.

The cabbage rolled in paper came out in good condition, being better when stored between layers of straw than where no straw was used. Drying in the sun gave good results, as the outer leaves turned brown instead of black as was the case with the undried ones. Those stored between layers of straw kept better than those only covered with straw. There was little to choose between the heads cut from the stems and those left on, so that it would appear unnecessary to store with stems on. For best results firm, not over mature, heads of the Ball Head variety should be used. The pit should keep out moisture and frost and yet permit ventilation.

CAULIFLOWER

Varieties.—Eight varieties were sown in the open on March 13, the best returns being obtained from Magnum Bonum which is a good variety and can be well recomended. The second best yielder was Early Snowball, which is always a good early variety and all strains of it did well.

Cultural.—Three varieties were used in this experiment. Those sown in the hotbed were ready for use in July, while those sown in the open were practically a month later.

CARROTS

Varieties.—Eight varieties were tested. Half Long Scarlet Nantes and XXX, two Rennie varieties, failed to germinate. Chantenay and New Intermediate gave excellent yields, the former being of fair quality. Early Scarlet Nantes is of excellent quality and although only an average yielder, is one to be recommended. Champion Scarlet Horn is the best early variety and of good quality.

Cultural.—Selected Chantenay was sown on six different dates. In yield, the early sowings were the most satisfactory. All sowings were in excellent condition for storing except the last, which produced carrots too small for this purpose.

CELERY

Varieties.—Of the fourteen strains of celery grown, Easy Blanching (Burpee) was probably the most desirable, especially for early use. Rennie Giant White also gave a good yield, but it is a later variety and valuable for winter use. Winter Queen is also a desirable winter variety. The Rose Ribbed varieties are unsuitable here, as they suffer more or less from rust, which is prevalent here during the fall rains.

Blanching.—A comparison was made betwen the use of soil and boards for blanching purposes. Owing to the fact that the plants are more subject to rust where the soil is used, the boards gave the more satisfactory results.

TABLE CORN

Varieties.—Howling Mob was the largest yielder followed by Delicious, Early Malcolm and White Evergreen. Golden Bantam, although not as heavy a yielder as some of these varieties, is of excellent flavour and the universal favourite. Golden Giant is also a good variety, being somewhat like the Golden Bantan but hardly of as good a quality. Pickaninny is the earliest of all,

being ready for use two weeks before the next variety, Early Molcolm. All the varieties tried were good.

TABLE CORN

Cultural.—The object of this experiment was to determine the advisability of pruning the lateral stalks. In one case all the suckers were removed as they appeared and in the other all were allowed to grow. Two varieties were used in this experiment, the seed being planted on May 1. The results secured were practically the same in yield, so that apparently there was no advantage in removing the suckers.

CUCUMBERS

Varieties.—Of the five lots tested, Davis Perfect is the earliest and best all round variety and can be highly recommended. Fordhook Pickling and Fordhook Famous are also two good varieties, but did not yield as well as the former.

LEEKS

Varieties.—Of the two varieties of leeks experimented with, Improved Musselburg, a variety tested for the first time, gave better yields than the popular variety Prizetaker. These two varieties were about equal in quality and are each valuable.

LETTUCE

Varieties.—Of the eleven strains tested, New York is probably the most satisfactory. It yields well, has a firm well-shaped head and is of excellent quality, being tender, crisp and well flavoured. Although later than some varieties, Hanson also gave a good yield and is a desirable variety. Big Boston is the best early head variety, while Grand Rapids is also a good early variety.

Cultural.—Two varieties, Big Boston and Grand Rapids were sown in the hotbed and transplanted and compared with lettuce sown in the open. The latter system gave the most satisfactory results, as the yields were much heavier and were just as early. The transplanting appears to check the growth, so that they lose any advantage they might have up to that time.

MUSK MELONS

Varieties.—Three varieties with seed from different sources were tested, Emerald Gem being the favourite. It is a small green variety weighing from one to four pounds, and practically all fruit will ripen here. Montreal Green Nutmeg is a much heavier yielder than Emerald Gem, is a large variety of green flesh two weeks later, but not as popular as Emerald Gem. Spicy cantaloupe is medium early, has a pink flesh and weighs between four and five pounds. Seed selected here from the most desirable fruit last year of each variety gave excellent results.

WATER MELONS

Varieties.—One variety, Kleckley Sweet, was grown with excellent results. The first fruit ripened September 27 and all ripened satisfactorily. This variety is a good yielder with a fine flavour.

CITRON

Varieties.—Colorado Preserving was the only variety tested. It is good in quality and yield, and the size of the fruit is of the best, one citron weighing 20 pounds.

SQUASH

Varieties.—Burpee Hubbard gave the highest yield of the four strains grown and is preferred by many to the Golden Hubbard, although both are popular.

VEGETABLE MARROW

Varieties.—Three varieties of vegetable marrow were tested, Long Green giving much the best yields followed by White Bush and Long Cream. White Bush is of excellent flavour and is also more economical in ground space, taking up less than half the space of the trailing varieties.

PUMPKIN

Varieties.—Small sugar was the only variety tested and is a very popular one. It is medium in size, of good flavour and a good keeper.

ONIONS

Varieties.—Giant Yellow Prizetaker was the heaviest yielder, followed by Southport Yellow Globe, Southport Red Globe and Selected Ailsa Craig. This latter is a prime favourite, is a good yielder, large and of good shape. Both the Southport Globes are good onions. The heaviest yielder this year is a little coarse, with a thick neck and does not compare in quality with some of the other varieties. The old popular varieties, Danvers Yellow Globe and Large Red Wethersfield are not among the highest yielders. Australian Brown, although a somewhat small onion, is one of the best keepers.

Owing to the ravages of the onion maggot the stand was not as uniform as usual.

Cultural.—This experiment to test the advisability of sowing onion seed in a frame and transplating the young plants to the open instead of sowing in the open and thinning, was continued. The advantage of the former method is that the crop is a little earlier and there is less labour in keeping the ground clean early in the season. Three varieties, Selected Ailsa Craig, Southport Yellow Globe and Southport Red Globe were used. The yields from Ailsa Craig were identical under each system, while the Southports gave a total yield of 12 pounds more when sown in the open, from a 30-foot row.

GARDEN PEAS

Varieties.—Of the large number of strains and varieties of peas grown this year, the tall varieties gave the heavier yields, Duke of Albany, Lincoln, Telephone, Gladstone, V.C., and the old favourite Thomas Laxton being the highest yielders. Of the dwarf varieties Little Marvel and Stratagem are favourites.

Five seedlings, originated at the Invermere Experimental Station were tested, all tall varieties and good yielders, and of these No. 3 gave an excellent yield.

Cultural.—In order to determine the best distance in the row at which to plant peas, seed was planted at intervals of one inch, two inches and three inches apart in the rows. Two varieties were used in this experiment. All seed was planted on March 29. The highest yields were secured from the closest planting, and observations made showed very little difference in the quality.

PARSNIPS

Varieties.—Two strains of Hollow Crown variety were sown on March 26. The Sutton seed gave a considerably higher yield than Ottawa seed. This is a good variety and satisfactory in every respect.

Cultural.—Seed was sown at intervals of ten days, the first planting being on March 27, the variety used being Hollow Crown. The seed sown April 15 gave the highest yield, although the early-sown seed came second. Generally speaking, the middle of April is a good time in this district to sow parsnips.

PARSLEY

Varieties.—Two varieties of parsely were grown in this test, Champion Moss Curled and Imperial Curled. Both of these are good and yielded well, the quality of the former being somewhat the better.

PEPPERS

Varieties.—Owing to the hot, dry weather the conditions for growing peppers were good. The plants grew strongly and there was no difficulty in ripening them. The Tomato variety yielded a better crop than Ruby King or New Neapolitan, but the fruit is small and not so well flavoured as that of the two latter. All three are good varieties.

RADISH

Varieties.—Of the three varieties of radish sown in the variety and cultural tests, the only one that produced a crop was French Breakfast when it was grown in the hotbed. The ravages of flea beetle make it impossible to grow this crop outside with any degree of success. French Breakfast is an excellent radish for table use.

RHUBARB

Growing From Seed.—Two lots of seed of the Victoria variety were sown, the object being to determine the length of time required before roots are ready for forcing. This work will have to continue for a few years before any definite results can be announced.

TOMATOES

Varieties.—Of the large number of varieties and strains of tomatoes tested, Victoria Whole Salad, Bonny Best, Earliest Market, Chalk's Early Jewel, Best of All and Pink are the best varieties, and can be recommended.

Methods of Training.—In order to determine the best method of pruning tomato plants to one stem to increase the earliness of producing ripe, marketable fruit, yield at different pickings and total yield of entire crop, two varieties Alacrity and Bonny Best, twenty-five plants of each variety, were used in this experiment. Rows were two feet apart and plants were one foot apart in the rows. Seed was sown on March 29 and plants set out on May 15. The plants were headed back to one truss, two trusses, three trusses, and not headed back. The result of this experiment as a whole shows that earliness in producing ripe fruit is obtained where the plants are headed back to one, two and three trusses, in the order mentioned. In all instances the more trusses the more ripe fruit was obtained as a total yield. It was found that where only one truss was left, the fruit sun-scalded badly, and thus a larger percentage was unmarketable.

AUTUMN AND SPRING SOWING

One variety each of carrots, beets, onions and lettuce was planted on October 13, to compare with plantings of the same varieties in the spring. All fall-planted seeds germinated, but owing to severe weather about Christmas time everything except the lettuce was destroyed. The fall-sown lettuce was very successful, being seventeen days earlier than the spring-sown as well as being crisp and of good quality.

TREE FRUITS

APPLES

Varieties.—The season of 1924 was favourable to the growing of apples. The fruit was cleaner than usual and the yields of the best varieties were good. The orchard was sprayed twice with lime sulphur solution and once with arsenate of lead when the tent caterpillar threatened. Some of the varieties were affected with core rot. The young trees planted in 1923 made satisfactory growth.

Of the early apples, Yellow Transparent, Duchess of Oldenburg, Gravenstein and Wealthy did well. One tree of the former yielded 276 pounds. Of the winter varieties Northern Spy, King, Grimes Golden, Ontario, Delicious and Jonathan are the most satisfactory. The Spy is just beginning to bear well now, and produced a fair crop of good apples. Grimes Golden has been bearing for some years and is now more subject to disease and hence does not keep as well as many others. Ontario is a hardy apple, resistant to disease, a heavy cropper and a good cooking apple. Delicious is a general favourite but a shy cropper. Belle de Boskoop was useless again this year.

PEARS

Varieties.—The most satisfactory pear tested is the Bartlett. It is a good yielder with good flavour and an excellent shipper. Boussock is a heavy cropper, a large pear and good for canning. Dr. Jules Guyot is the earliest variety, a heavy cropper but of only fair quality. Clapp Favourite is an excellent table pear but of little value for canning and a poor yielder.

PLUMS

Varieties.—This was not a good year for plums; the crop was light but the quality was better than the previous year. The fruit was apparently more resistant to the Brown Rot. Willard and Bradshaw gave the heaviest yields, one tree of the latter yielding 120 pounds. Bradshaw is a large red plum of fair quality and is just beginning to bear well and is a good variety. Washington is one of the best of the yellow plums. It is excellent in quality but not a heavy cropper. Italian Prune is always satisfactory. The small Damson did not yield as well as usual but was resistant to disease and is of good quality.

CHERRIES

Varieties.—The cherry crop was more satisfactory than last year, there being less damage from rot and hence a heavier crop harvested. Of the sweet varieties Bing was again the prime favourite. It is resistant to disease, a large yielder and an excellent shipper. Lambert is later than the Bing and possibly the best substitute for it. The Windsor cherry is also of this class but is more subject to rot. Royal Anne is suitable for table use but is unsatisfactory for shipping. Black Tartarian should be in every orchard for pollenization purposes. It is early but a light cropper here as the birds usually attack it. The sour varieties recommended are Morello, Olivet and Belle Magnifique. These are all good shippers and suitable for canning.

SMALL FRUITS

STRAWBERRIES

Varieties.—Owing to the dry season the strawberry crop was light. Of the varieties tested Magoon is the variety recommended for commercial use. A new plantation of twelve varieties set out during the autmun of 1923 made fair growth and should yield well next spring.

CURRANTS

Varieties.—The black currants yielded only a light crop; Booskoop Giant, Buddenborg and Victoria are all satisfactory varieties. The red currants yielded well; Perfection, Pomona, Cherry and Wilder are good varieties.

RASPBERRIES

Varieties.—Of the two varieties of raspberries in full bearing, Cuthbert is the general favourite. A one-hundred-foot row of this variety yielded 197 pounds as compared to 99 pounds of Fillbasket, and is of much better quality.

BLACKBERRIES

Varieties.—The blackberry canes are bearing well and are in good healthy condition. Snyder yielded 58 pounds to a fifty foot row; Erie yielded 34 pounds to a fifty foot row. Snyder is the best variety for this district in point of yield and quality.

LOGANBERRIES

Varieties.—The Loganberries yielded well this year, a fifty foot row producing 42½ pounds. Where weather conditions are severe during the winter the canes should be protected.

GOOSEBERRIES

Varieties.—Small bushes of the Red Jacket variety averaged four pounds of fruit. The crop was absolutely free of mildew.

FARM MANURE VERSUS COMMERCIAL FERTILIZERS FOR SMALL FRUITS

A comparison is being made of the effect of farm manure and commercial fertilizers for the production of small fruits. The fertilizer mixture consists of two parts superphosphate of lime, one part nitrate of soda and one part muriate of potash. This mixture was applied at the rate of 500 pounds per acre. The manure was applied at the rate of ten tons per acre. The results so far would indicate that the manure is more valuable on the raspberries, loganberries and gooseberries, as it has produced heavier yields of fruit and the canes are stronger. On the currants there is little difference so far.

FLOWERS

ROSES—VARIETIES

Roses did not bloom as well this year as usual owing to the dry summer. The climbing Gloire de Dijon and Papa Gontier were good, while of the varieties newly planted Alberic Barbier, Excelsior, American Pillar, Paul Scarlet, Hiawatha, Mrs. Van Fleet and Caroline Testout were admired. Of a good lot of bush roses, the following made a beautiful showing, Margaret Molyneaux, James Cory, Killarney, Hugh Dickson, George Dickson, Mrs. J. J. Lang, Frau Karl Druschki, Mamam Cochet and La France.

SWEET PEAS—VARIETIES

Twenty-eight varieties of sweet peas were sown and all did well, the best being Jack Cornwall, V.C., Valentine, King White, Wedgewood, Royal Purple, Mrs. A. Hitchcock, Hope and President Harding.

ANNUAL FLOWERS—VARIETIES

The annuals made a beautiful showing this year, those grown from seed produced here being equal to flowers from imported seed. The most admired were: Clarkia, Godetia, Portulacas, Nasturtiums, Salpiglosis, Malope, Larkspur, Zinnias and a host of others.

ASTERS—VARIETIES

Fifty-three varieties or strains of asters were started in the hotbed and afterward set out on land that had produced a crop of early potatoes. The bloom was beautiful, some of the more attractive varieties being Southcote, Beauty, King of the Belgians, Peerless, Pink, Peach Blossom, Dark Violet, Rochester White, Royal Purple and King Violet.

BULBS

All bulbs made a good showing; of the early tulips, Keiserskroon, Duchesse de Parma, Artus, Cottage Maid and La Reine were the best. Of the late ones Gesneriana spathulata, Clara Butt, Inglescombe Yellow and Picotee were the most admired. The Narcissi were better than usual; four newly tested varieties, Irene, Klondyke, Merveille and Majestic compared very well with the older popular Pheasant Eye. Of the fourteen varieties of daffodils grown the Trumpets were the most popular, Van Waveren Giant, Duke of Bedford, Olympia, Madame de Graaff and Glory of Sassenheim doing well.

PERENNIALS

The perennial border was very brilliant in the early part of the season, but later on drought conditions caused a falling off in bloom. Doronicum, Irises, Phlox, Paeonies, Delphiniums Aquilegias, Rudbeckia and Poppies making a great showing in their seasons.

CEREALS

LAND AND TREATMENT

The land upon which the cereal plots were located is a sandy loam. It had been in sod the previous year, ploughed in the fall and again in the spring and well worked. All grains were treated with formalin as a smut preventive before sowing. The first seeding took place on April 29, most of the harvesting being done in late July and early August.

OATS—VARIETIES OR STRAINS

There were fifteen varieties of oats sown on April 29 under what is known as the "Rod-Row" system. Each plot consisted of three rows one rod in length, each row being six inches apart from the adjacent row. Each variety was sown in triplicate, *i.e.* three plots of three rod-rows in each plot.

During the season, characteristics peculiar to each variety were noted. At the end of the season the two outside rows of each variety were discarded, while the grain for future work was taken only from the middle row. The intention is that after a reasonable length of time has elapsed to allow of selection being made of varieties which appear to have characteristics suitable to local conditions, these varieties will be sown in larger plots and later, under field conditions. At this early stage no conclusions can be made.

BARLEY—VARIETIES OF STRAINS

Fifteen varieties of barley were sown on the same date and under the same conditions as the oats. Similarly to the oats, this work has to be continued for some time before any definite conclusions can be reached.

BEANS—VARIETIES OR STRAINS

Five varieties of beans were tested in duplicate plots, each $\frac{1}{200}$ acre in size. The beans were sown in drills 28 inches apart on May 9, and harvested September 16, the results being based on the average of two plots. Navy and Norwegian ranked first and second in yield. This is in keeping with results obtained for a number of years.

BEANS—TESTS OF VARIETIES

Variety	Number of days maturing	Average yield per acre
		lb.
Navy, Ottawa 711	130	2,440
Norwegian, Ottawa 710	130	1,600
Beauty, Ottawa 712	130	1,300
Large White, Ottawa 713	130	1,200
Carleton, Ottawa 718	130	1,100

PEAS—VARIETIES OR STRAINS

Two varieties of peas were tested, Arthur and Solo, sown on April 26, cut August 4 and harvested on August 12. Arthur yielded only 600 pounds per acre while Solo yielded 900 pounds per acre. They were grown in single $\frac{1}{100}$ acre plots and the difference in yields was possibly due to difference in the soil conditions rather than superiority of Solo over Arthur.

MIXED PEAS AND OATS

A mixture of Arthur peas and Banner oats was compared with Solo peas and Banner oats, the former giving a yield of 1,700 pounds per acre as against 1,900 pounds from the latter.

OATS AND BARLEY FOR HAY

Six plots of oats for hay in duplicate and one plot for barley were grown, the size of the plots being $\frac{1}{100}$-acre. Seed was sown on April 26 and hay cut on July 4, the yields per acre being based on the average of two plots.

Banner, Ottawa 49 gave the highest yield, with Columbian Ottawa 78 a close second. Daubeney, Ottawa 47 gave the lighest yield but with a straw of nice, fine quality.

WHEAT

Only one variety of wheat was grown, a $\frac{1}{100}$-acre plot of Marquis for the "Influence of Environment" work. It was sown on April 26, cut August 11 and harvested on August 23. The plot yielded at the rate of 900 pounds of grain per acre. The low yield was largely due to the dry season.

FORAGE CROPS

The long spell of dry weather during the growing season showed its influence in the resulting low yields of all forage crops.

An attempt was made to secure the weights of total dry matter from each of the different crops grown, but it was not possible in all cases owing to the amount of work and time entailed.

SOIL AND TREATMENT

The hoed crops were grown on land that had been in pasture the previous year. The root land was ploughed in the fall, reploughed in the spring and well

worked. Farm manure was applied in the spring at the rate of twelve tons per acre and commercial fertilizer consisting of two of superphosphate of lime to one of nitrate of soda, at the rate of 500 pounds per acre. The corn and sunflower land was ploughed only in the spring and well worked previous to planting. There was no commercial fertilizer applied to this area.

CORN FOR ENSILAGE

Twenty-five varieties of corn were grown in quadruplicate, yields being based on an average of four plots. The corn was sown in hills three feet apart each way.

The yields were low in many cases largely owing to the dry growing season. A strain of Northwestern Dent from Duke, Ontario, did very well and two strains of Wisconsin No. 7 are also worthy of note. Corn was sown on May 23 and harvested September 24.

CORN FOR ENSILAGE—TEST OF VARIETIES

Variety	Yield per acre		Dry matter content	Yield per acre dry matter	
	tons	lb.	p.c.	tons	lb.
Northwestern Dent (Duke)	22	800	15·26	3	836
Wisconsin No. 7, Parks	21	1,250	12·88	2	1,571
Wisconsin No. 7, Duke	19	1,200	16·78	3	578
Leaming (Burr), Carter	18	1,200	11·33	2	215
Leaming, Parks	18	750	13·96	2	1,130
White Dent (Disco) (90 days), Dak. Imp. S. Co	18	500	13·28	2	847
White Cap Yellow Dent, Steele Briggs	17	200	13·47	2	607
Yellow Dent, Wimple	16	1,800	14·09	2	762
Golden Glow, Duke	16	1,200	13·23	2	392
Leaming, Duke	16	1,200	13·39	2	445
Northwestern Red Dent (Disco), Dak. Imp. S. Co	16	600	19·58	3	383
Longfellow, Duke	15	1,900	15·66	2	996
Hybrid (Wimple)	15	1,200	11·75	1	1,666
North Dakota, Steele Briggs	15	1,200	17·11	2	1,338
Longfellow (Disco), Dak. Imp. S. Co	15	350	13·47	2	88
Yellow Dent (Disco Pride), Dak. Imp. S. Co	14	1,200	17·07	2	984
Longfellow, Duke	14	1,100	16·98	2	941
Compton's Early, Duke	13	950	12·84	1	1,460
Golden Glow, Duke	13	700	13·5	1	1,605
Quebec 28, McDonald College	11	200	23·44	2	1,204
Twitchell's Pride, Fredericton	10	1,050	24·15	2	1,084
Northwestern Dent (Nebraska), McKenzie	10	1,000	18·85	1	1,959
Northwestern Dent, N. Dakota, McKenzie	10	650	19·03	1	1,930
Northwestern Dent, Brandon	9	1,450	23·57	2	584
Amber Flint, Wimple	5	400	17·69	–	1,840

SUNFLOWERS

Ten varieties of sunflowers in $\frac{1}{200}$-acre quadruplicate plots sown in hills three feet apart each way were planted on May 23 and the crop harvested on September 4. Owing to the very dry growing season, yields of all varieties were low. The Giant and Mammoth Russian varieties gave the highest yields.

SUNFLOWERS FOR ENSILAGE—TEST OF VARIETIES

Variety	Yield per acre	Dry matter content	Yield per acre dry matter
	tons lb.	p.c.	tons lb.
Giant Russian (Dak. Imp. S. Co.)	20 1,300	15·32	3 327
Mammoth Russian (K. McDonald & Son)	16 1,000	13·82	2 561
Black, C.P.R.	16 200	14·02	2 514
Manchurian, C.P.R.	14 1,450	13·78	2 58
Mixed, C.P.R.	14 500	12·17	1 1,468
Mammoth Russian, C.P.R.	12 1,800	14·11	1 1,640
Manteca, C.P.R.	12 1,500	12·17	1 1,103
Manchurian (McKenzie)	12 1,100	14·06	1 1,529
Ottawa 76 (C.E.F.)	11 850	12·57	1 872
Mennonite (Rosthern)	5 500	13·32	– 1,399

MANGELS

Thirty-seven varieties of mangels in $\frac{1}{200}$-acre quadruplicate plots, were sown on May 3 and the crop pulled October 20, yields per acre being based on an average of four plots. Owing to the extremely long dry season the yields were not heavy and the roots were small in all varieties.

Green top White Sugar (Ewing) giving a yield of 10 tons 300 pounds per acre and 22.6 per cent dry matter content, turned out to be a sugar beet and not a sugar mangel as presumably supposed to have been.

MANGELS—TEST OF VARIETIES

Variety	Yield per acre
	tons lb.
Barres Sludstrup (General Swedish)	24 900
Barres Stryno (D.L.F. Denmark, last year's seed)	24 700
Barres Half Long (General Swedish Co.)	23 250
Red Eckendorfer (General Swedish Co.)	22 1,800
Red Eckendorfer (Hjalmar Hartmann)	22 1,050
Barres Oval (General Swedish Co.)	22 950
Barres Stryno (Hjalmar Hartmann)	22 250
Danish Sludstrup (Dup. and Ferguson)	21 1,500
Giant Yellow Globe (Ewing)	21 350
Perfection Mammoth Long Red (Rennie)	20 1,950
Jumbo White Sugar (Rennie)	20 1,750
Barres Rosted (Hjalmar Hartmann)	20 1,500
Barres Tarroje (Hjalmar Hartmann)	20 1,100
Barres Tystotle (D.L.F. Denmark, last year's seed)	20 650
Special Yellow Globe (Sutton, last year's seed)	20 –
Yellow Leviathan (Rennie)	19 1,050
Barres Fjerritslev (Hjalmar Hartmann)	19 650
Danish Sludstrup (Ewing)	19 –
Yellow Intermediate (C.E.F.)	18 1,500
Danish Sludstrup (K. McDonald & Son)	18 1,200
Elvetham Mammoth (Hjalmar Hartmann)	18 300
Giant Yellow Globe (Rennie)	17 1,800
Leviathan (Rennie)	17 1,450
Yellow Eckendorfer (General Swedish Co.)	17 650
Barres Sludstrup (D.L.F. Denmark)	17 500
Long Red Mammoth (Ewing)	16 1,050
Select Giant Rose Intermediate Sugar (Ewing)	16 800
Yellow Eckendorfer (Hjalmar Hartmann)	16 150
Svalof Orig. Half Sugar White (General Swedish Co.)	15 1,550
Svalof Red Half Sugar Rose (General Swedish Co.)	15 1,000
Barres Sludstrup (Hjalmar Hartmann)	14 1,450
White Green Top Half Sugar (Hjalmar Hartmann)	14 350
White Red Top Half Sugar (Hjalmar Hartmann)	14 350
Golden Tankard (Rennie)	12 1,600
Long Yellow (Ewing)	12 850
Golden Tankard (Ewing)	11 1,000
Sugan Mangel (D.L.F. Denmark, last year's seed)	11 900

CARROTS

Fifteen varieties of carrots in 1/200-acre quadruplicate plots were sown on May 7 and the crop pulled on October 24, yields per acre being based on an average of four plots.

Despite the dry season, the yields were good. In support of the experience of previous years the Short White and White Intermediate varieties are very satisfactory to grow.

CARROTS—TEST OF VARIETIES

Variety	Yield per acre	
	tons	lb.
Improved White Intermediate (Ewing)	47	300
Large White Belgian	41	100
Mammoth White Intermediate (Rennie)	39	1,100
Mammoth Short White (Rennie)	37	1,150
White Belgian (French) (Ewing)	32	1,700
White Belgian (Hjalmar Hartmann)	32	1,600
Danish Champion (C.E.F.)	29	1,350
Yellow Belgian (Ewing)	29	....
White Belgian No. 120 (Trifolium)	28	50
Champion Carrot (General Swedish Co.)	26	1,850
New Yellow Intermediate (Ewing)	26	1,700
New Yellow Intermediate (Halifax)	26	1,400
White Belgian (Halifax)	26	1,000
Half Long White (Gen. Swedish Co.)	20	1,450
James B. L. 781 Danske Landboforeningers Frofor-Syning Roskilde	13	1,950

SUGAR BEETS

Eight varieties of sugar beets were sown in 1/200-acre quadruplicate plots on May 5 and the crop pulled on October 23. Vilmorin's Improved "B" was highest in yield and second in dry matter content. Dr. Burgman was second in yield and first in sugar content, with Schrieber & Son following second in both items.

SUGAR BEETS—TEST OF VARIETIES

Variety	Yield per acre	
	tons	lb.
Vilmorin's Improved "B"	15	550
Dr. Burgman	14	1,900
Schreiber & Son	12	1,950
Kitchener	12	200
Henning & Harving	11	700
Horning	10	1,900
Dieppe	10	1,550
Sluice Bros	2	1,600

Owing to the extremely long, dry season the roots of all varieties were rather small.

SUGAR VALUE OF BEETS

Variety	Sugar in juice	Coefficient of purity
	per cent	per cent
Dr. Burgman	17·84	87·38
Schreiber & Son	17·33	90·05
Sluice Bros	17·18	85·84
Dieppe	16·93	87·14
Kitchener	16·70	86·02
Henning & Harving	16·66	87·54
Vilmorin's Improved "B"	16·20	86·98
Horning	15·17	85·09

GRASSES AND CLOVERS

The following results of perennial plots are from the same plots of timothy and White Dutch as reported last year. The plots were sown in 1922, the present results being from the crop of the second year and from one cutting only. The White Dutch plots were cut from June 6 to June 16, while the timothy plots were cut on June 30. There were six plots of timothy in duplicate and six of White Dutch in duplicate and also one plot of Reed Canary grass which was a failure. Results per acre of the timothy and White Dutch were based on the average of two plots.

TIMOTHY

Variety	Average yield per acre					
	Green		Hay		Dry matter	
	tons	lb.	tons	lb.	tons	lb.
Ohio 3937 (Huron)	8	....	3	960	3	302
Ottawa B.K. 1921	7	1,800	3	952	3	234
Grand Prairie	7	400	3	624	2	1,958
Ohio 6779	7	150	3	226	2	1,592
Ohio 9647	6	1,100	3	222	2	1,625
Ohio (Commercial)	6	550	2	1,961	2	1,396

WHITE DUTCH CLOVERS

Variety	Average yield per acre					
	Green		Hay		Dry matter	
	tons	lb.	tons	lb.	tons	lb.
Danish Morso	12	650	1	1,697	1	1,253
Danish Stryno	11	1,000	1	1,335	1	909
Kentish	10	1,500	1	1,547	1	1,160
Commercial	10	1,050	1	1,683	1	974
Scottish	10	600	1	1,296	1	912
Ladino	9	1,200	1	1,168	1	799

ANNUAL HAY CROPS

Six plots of oats for hay in duplicate, one plot of barley and one plot of Tangier pea were grown, the size of plots being $\frac{1}{100}$-acre. Tangier pea failed completely. Yields per acre of the oat plots are based on the average of two plots, the seed being sown on April 26 and the hay cut on July 4.

TEST OF VARIETIES OF OATS AND BARLEY FOR HAY

Variety	Yield per acre green weight		Yield per acre, hay		Dry matter content	
	tons	lb.	tons	lb.	tons	lb.
Oats						
Banner, Ottawa 49	10	550	2	1,137	2	599
Columbian, Ottawa 78	9	650	2	1,128	2	559
Prolific, Ottawa 77	9	300	2	575	2	126
Longfellow, Ottawa 478	8	750	2	1,025	2	413
Daubeney, Ottawa 47	7	450	2	587	2	17
Barley						
Success	5	600	2	240	1	1,721

POULTRY

The stock on hand at the end of the year consisted of the following: Three hundred and sixteen Barred Plymouth Rocks and one hundred and eighty-one S. C. White Leghorns, or a total of four hundred and ninety-seven birds. All hens were trap-nested, accurate egg records being kept of each individual bird.

INCUBATION

The first chicks were hatched on March 9 and the last on May 4, the incubators used being the 1,200-egg Candee and the 100-egg Jubilee.

The average fertility was 87.57 per cent; the number of chicks hatched was 38.75 per cent of the total eggs, or 44.25 per cent of the fertile eggs. Of the chicks hatched 85·1 per cent were alive when wing-balanced.

In a comparison of hatching results from the different makes of incubators, *i.e.* the 1,200-egg Candee and the 100-egg Jubilee, the following figures are of interest. With 87·67 per cent of fertile eggs in the Candee as against 84·07 per cent in the Jubilee, the former hatched only 43.46 per cent of these fertile eggs, as against 61.53 per cent for the latter. Of the total eggs set, the Jubilee hatched 51.32 per cent and the Candee only 38.37. When wing-banded, 100 per cent of the Jubilee-hatched chicks were alive as against 84·57 per cent of those hatched in the Candee.

With 94 per cent fertile Leghorn eggs and 85.27 per cent fertile Barred Rock eggs, 64 per cent of the former hatched as against 36.4 per cent of the latter. Only 31 per cent of the total number of Barred Rock eggs set, hatched, as compared with 60.1 per cent of the Leghorn eggs. Of the chicks hatched there were alive when wing banded, 79.3 per cent Rocks as against 93.6 per cent Leghorns.

A comparison was made in hatching results from hens and pullets. Out of the total eggs set 39.03 per cent hen eggs hatched as compared to 31.42 per cent pullet eggs. Out of 87·8 per cent fertile hen eggs, 44·43 per cent hatched, while from 80 per cent fertile pullet eggs 39·3 per cent hatched.

EGGS SOLD FOR HATCHING

Seventy settings of Barred Rock eggs were sold but there was little demand for Leghorn eggs. It was impossible to meet the demand for Barred Rocks.

BREEDING STOCK SOLD

Thirty-five Barred Rock cockerels were disposed of for breeding purposes but no white Leghorn cockerels were sold. The demand from this Farm is for the general purpose type of bird.

PEDIGREE BREEDING

All breeding stock is pedigreed. All hens are trap-nested while pedigree and mating records are carefully kept. By these means and careful selection with rigid adherence to Standard type, the purpose is to maintain birds typical of the breed they represent and yet conform to high standards of egg production at the same time. The breeding stock largely consists of hens that have laid 200 eggs and over in their pullet year.

EGG STORAGE EXPERIMENT

During 1924, from May 16 until December 4, a commercial storage experiment was carried on in order to obtain information on results of storing eggs in a commercial cold storage plant. Eight cases of eggs were obtained for the purpose. The eggs were all Experimental Farm eggs with the exception of one 26-dozen case obtained from a local store, the latter being the ordinary type of eggs delivered for storage purposes. The eggs were packed in various forms of cases, graded by a Government egg grader, shipped to Vancouver and stored in a commercial storage plant there for the period as already stated, and again graded by the same grader after they were taken out of storage. All the eggs graded extras at the outset with the exception of case No. 6 which contained 15 dozen extras, and 15 dozen firsts and the store case which was comprised of 12 dozen extras, 9 dozen firsts and 5 dozen seconds.

The following figures will be of interest in relation to the state of the eggs on being taken out of storage.

In the table, items particularly worthy of note are the results in connection with the " store " eggs, and the comparison between eggs placed with small end up and small end down.

STORAGE OF EGGS

Case No.	Contents	Extras	Firsts	Seconds	Cracks	Rots	Total	Flavour when taken out	Remarks
1	Tight case.....	2-8	19-0	8-3	-1	.....	30	Good	
2	Commerical case.	3-4	19-7	6-11	-2	.....	30	Good	
3A	Dirty eggs.....	2-10	11-5	-7	-2	.....	15	Fair	Dirt had no effect on candling quality.
3B	Washed eggs....	.....	13-5	1-7	.....	.....	15	Good	Washing showed effect in there being no extras.
4	Clean.....	5-6	15-10	8-7	1	.....	30	Good	
5A	Clean fillers....	2-0	9-1	3-10	1	.....	15	Good	
5B	Dirty fillers....	2-0	9-4	3-5	3	.....	15	Fair	Dirty fillers and flats had no effect in lowering quality
6	Farm eggs.....	3-6	17-6	8-5	-3	-4	30	Good	Mould caused through cracked eggs.
7	Store eggs—								
	5 sec.....	.....	.....	5-					
	9 1st.....	.....	6-2	2-10	.....	.....	26	Good	Very weak and watery and shrinkage heavy.
	12 extras.....	-9	7-8	3-7					
8A	Small end up...	-9	4-4	9-11	.....	.....	15	Good	Very marked difference in position of yolk.
8B	Small end down	4-9	9-7	-8	.....	.....	15	Good	

CONFINEMENT VS. RANGE

This experiment, which was commenced on November 29, 1921, to be carried on yearly for five or more years, has now completed its third period, this stage

dating from December 1, 1923, until September 30, 1924. For this period two pens of Barred Rocks were chosen, comprising ten pullets in each pen. In the following table, results for the third year are shown.

It may be observed from the tabular statement that the confined pen had better results. There was only one death in each pen during the year.

CONFINEMENT VS. RANGE

—	Eggs	Value of eggs	Cost of feed	Gain
		$ cts.	$ cts.	$ cts.
Barred Rocks, Confined	1,778	44 45	21 67	22 78
Barred Rocks, Range	1,435	35 88	18 91	16 97

PRICES.—Scratch grain, $40; mash, $47; shell, $38; grit $36; green feed, $5; milk, 25 cents per 100 pounds. Grain consisted of equal parts wheat, oats and cracked corn. Mash consisted of 100 parts bran, 100 shorts, 100 corn meal, 100 crushed oats, 75 beefscrap and 5 charcoal.

EFFECT OF CONFINEMENT VS RANGE ON HATCHING RESULTS

The average fertility of eggs from Barred Rocks on range was 88·09 per cent while that from Barred Rocks confined the previous year was 60·04 per cent, and the number of chicks hatched in the former case was 36·5 per cent of the total eggs set and in the latter 21·19 per cent of the total eggs. Of the fertile eggs 41·44 per cent were hatched from the range birds and 30·7 per cent from the confined. When wing-banded, 54·34 per cent of chicks hatched were alive from birds on range the previous season, and 56·41 per cent from birds confined the previous season.

REGISTRATION

Out of twenty Barred Rocks entered in the British Columbia Egg Laying Contest, eight qualified for registration.

FEEDING

Commencing December 21, 1923, and for nine months up to the end of September, 1924, the following feeding experiment was put under way. This consisted of thirteen pens containing ten pullets in each case. All the birds were Barred Rocks.

All pens received milk and green feed unless where specified otherwise, and all pens received shell and grit. Where the term "Standard" is used in reference to grain or mash, it indicates the following: The "Standard" grain consisted of equal parts wheat, oats, and cracked corn; the "Standard" mash being bran, 100; shorts, 100; ground oats, 100; corn meal, 100; beefscrap, 75; charcoal, 5.

The accompanying table gives an indication of the various rations and results for the period.

—	Eggs	Value of eggs	Cost of feed	Gain
		$ cts.	$ cts.	$ cts.
1 Grain: Standard; Mash: Gr. wheat 4, Gr. corn 1, beefcrap 1, Soybean meal ½, Oilcake ½, charcoal ½	1,875	46 88	19 60	27 28
2 Grain: Standard; Mash: Standard without beefscrap	1,747	43 68	18 21	25 47
3 Grain: Standard; Mash: Standard	1,778	44 45	21 67	22 78
4 Grain: wheat 2, oats 1; Mash: Standard	1,553	38 82	16 57	22 25
5 Grain: equal parts wheat and oats; Mash: Standard	1,654	41 35	20 98	20 37
6 Grain: oats 2, wheat 1; Mash: Standard	1,496	37 40	17 63	19 77
7 Grain: Standard; Mash: Standard	1,488	37 20	18 78	18 42
8 Grain: Standard; Mash: Standard; clover leaves 25 per cent by measure; no green feed	1,438	35 95	18 96	16 99
9 Grain: Standard; Mash: Standard	1,435	35 88	18 91	16 97
10 Grain: Standard; Mash: Standard; no green feed	1,410	35 25	19 77	15 48
11 Grain: Standard; Mash: Standard; alfalfa meal 25 per cent; no green feed	1,261	31 52	20 29	11 23
12 Grain: Standard; Mash: Standard; Epsom salts 1 oz. per pen per day in drinking water; no green feed; no milk	1,071	26 78	18 06	8 72
13 Grain: Standard: Mash: Standard without beefscrap; no milk	1,015	25 38	16 82	8 56

Prices:			
1 Grain	$40	Mash	$57
2 "	40	"	36
3 "	40	"	47
4 "	37	"	47
5 "	35	"	47
6 "	33	"	47
7 "	40	"	47
8 "	40	"	47
9 "	40	"	47
10 "	40	"	47
11 "	40	"	47
12 "	40	"	47
13 "	40	"	36

Clover leaves, $15.

Alfalfa meal, $46

Epsom salts (7 cents per lb.)

Pen 1 gave the greatest net returns although they ate the most expensive feed.

Pen 2 gave much better results than could be expected as it had no beefscrap and yet stood above check lots 7 and 9 in production and profit. It also stood above pen 3 in net profit although not in production. This was due to no charge for beefscrap.

Pen 2 with milk gave much better results than pen 13 without milk.

Clover leaves, alfalfa and Epsom salts gave poor results as substitutes for green feed.

Pens 4, 5 and 6 without corn in the scratch gave greater and cheaper production than pens 7 and 9, although pen 3 excelled them.

EGG LAYING CONTEST

The fourth British Columbia Egg Laying Contest conducted at Agassiz by the Experimental Farms Branch terminated October 30, 1924. The results of this contest were even more satisfactory than those of the third which had eclipsed the first two.

Thirty-six pens of ten pullets each comprising five of the various general-purpose and light breeds were represented as follows:—

	Pens
Anconas	2
S. C. White Leghorns	24
White Wyandottes	4
S. C. Rhode Island Reds	2
Barred Plymouth Rocks	4

A detailed description of the method of housing, handling and feeding the birds may be found in the 1922 report of the Agassiz Experimental Farm. For

full information on the laying contest see the 1922-23 annual report of the Canadian National Egg Laying Contests.

The most important feature in the fourth British Columbia Contest is the high average of 206.78 eggs, or almost 207 eggs per bird. The leading pen was a S.C. White Leghorn with an average of 242 eggs per bird. Highest individual honours go to a S.C. White Leghorn with a score of 308 eggs. One hundred and seven birds qualified for Registration.

BEES

Seven colonies of bees were wintered outside, one hive containing two nuclei, which after the first spring examination on March 3 were united as one colony. The bees wintered well but two colonies had to be re-queened March 7. The seven colonies produced 979 pounds of extracted honey and 8 one pound sections, the best yield from one hive being 210½ pounds. The natural increase amounted to four colonies, making eleven hives to store in the autumn. The yields are less than secured during the two previous years; due possibly to the very dry summer, and the fact that queens were not introduced satisfactorily the preceding fall; hence there was a dearth of young bees early in the spring; and lastly there were larger amounts left with the bees for winter stores than formerly.

Apiary at the Experimental Farm. One colony produced 210½ pounds of honey in the season.

VALUE OF A GOOD QUEEN

On March 7 No. 2 hive was re-queened at the same time as No. 4 with queens from the same source. No. 2 hive was queenless all winter and was a much weaker colony than No. 4 when re-queened. At the end of the season it was found that No. 2 produced 131 pounds of honey, net, while No. 4 gave only 64 pounds. This result is directly traceable to the queens.

QUEEN REARING

A start was made this year in the rearing of queens for domestic use. The colony selected for that purpose was No. 1 because it was the highest producer, the bees being gentle and of good golden colour. Queen cells were obtained by raising all the brood and young bees possible from the brood chamber and leaving the queen in the lower chamber which was filled with empty combs. A wire scren was placed betwen the parent hive and the super containing the brood, with an entrance made at the rear. Two days later a number of cells were found and on the ninth day the queen cells were grafted to frames. These frames were then placed in de-queened colonies. From the eight colonies treated in this manner, six queens emerged, two failed to mate while the remaining four were large and mated well with pure drones as the young bees produced were golden and uniform.

SINGLE-WALL HIVES VS. KOOTENAY HIVES

Following out the plan of last year it was decided to provide the single-wall hives with a double case for wintering in, thus giving them all the advantages of the Kootenay cases for the winter period. This double case permitted of three inches of packing all around the single hives and had the effect of wintering them in excellent condition. As soon as weather permitted in April, this double case was removed and a comparison of two Kootenay hives was made with a similar number of the single-wall hives during the summer.

The two Kootenay hives used in the experiment (numbers 1 and 3) gave a net yield of 271.5 pounds, while numbers 6 and 8, the single-wall hives, yielded 332.5 pounds. It must be noted that the queen in No. 3 failed and that this colony only produced 66 pounds.

EARLY BROOD REARING

In order to have the colonies build up strong and ready to take advantage of the early bloom they were carefully fed in the spring. Two colonies were given sugar syrup, care being taken not to give more than would be consumed. For comparison, two other colonies were given an equal amount of liquid honey. The two sugar-fed colonies produced an average of 185 pounds, while the honey-fed colonies yielded an average of only 116 pounds, due partly to queen trouble. A check hive produced 135 pounds.

HEMP AND FLAX FOR FIBRE

Experimental work pertaining to the suitability of this district for growing hemp and flax for fibre was carried on. Four varieties of flax were grown and two varieties of hemp. Plots were $\frac{1}{60}$-acre in size, and were in triplicate. They were sown April 28 and harvested the last week in July.

FLAX

VARIETY TESTS.—Of the four varieties tested, Pure Line 5, Longstem, Saginaw and Riga Blue, Longstem gave the highest yield of total crop per acre, with Pure Line 5 second and the others in the order named.

DATES OF SOWING.—In order to determine the most satisfactory date to sow flax four different sowings of Riga Blue were made on April 28, May 5, 12 and 19. The following yields of total crop per acre are interesting.

DATES OF SOWING FLAX

	tons	lb.
Riga Blue, 1st sowing	1	200
Riga Blue, 2nd sowing	1	1,620
Riga Blue, 3rd sowing	1	1,960
Riga Blue, 4th sowing	2	1,400

HEMP

VARIETY TESTS.—Of the two varieties tested, Minnesota No. 8 and Chington, the former gave the higher total crop yield per acre.

DATES OF SEEDING.—Three different sowings of Minnesota No. 8 were made on April 29, May 1 and 8 respectively with results of total crop per acre as follows:—

DATES OF SOWING HEMP

Minnesota No. 8, 1st sowing	7,980 pounds
Minnesota No. 8, 2nd sowing	2,640 "
Minnesota No. 8, 3rd sowing	4,800 "

GENERAL NOTES

In co-operation with the Summerland and Invermere Farms an agricultural exhibit was staged at Vancouver Exhibition in charge of the Agassiz Experimental Farm Assistant. A small exhibit of flowers was made at the Agassiz Flower Show. Seven Clydesdale horses and sixteen Holstein cattle were shown at Vancouver and New Westminster Exhibitions. This Farm's head teamster was adjudged the champion ploughman at the Chilliwack annual Ploughing Match, and later was chosen to do the judging at the Ladner Match. The Superintendent, besides attending the exhibitions where the stock was shown, visited some of the large American Holstein herds en route to the Royal Show at Toronto. Ten days were spent in giving talks at field day meetings on the Illustration Stations in central British Columbia. Numerous other opportunities were taken advantage of to attend Seed Board meetings, Short Courses, Conventions, Fairs and of visiting stock breeders and poultrymen by the Superintendent or other officers of the farm.

Under the auspices of the Local Branch of the Fraser Valley Milk Producers Association, a monster picnic was held on the Farm June 14, which some 1,500 people attended. Stock judging demonstrations and a stock parade were held besides an open air business meeting of the Association at which several interesting and instructive addresses were given. The appetizing dinner provided on the lawn by the combined Ladies Aids of the local churches, the ideal weather conditions and the true community spirit demonstrated on all sides, resulted in a very excellent day being spent.

On July 19 a poultrymen's picnic was held. Those attending had the opportunity of inspecting the different phases of the Laying Contest. In the afternoon interesting addresses were given on different branches of the poultry business.

The piggery and bull barn were painted outside. A medium-sized bungalow was built for the use of the Assistant Superintendent. Another sixty feet was added to the contest house to accommodate the ever increasing demand for space in this building. A small feed room with cement floor was erected on the poultry plant. Considerable repair work wase done to leaky roofs and old fences. No permanent fencing was done. A new and larger smoke stack was procured for the dairy boiler which is giving excellent satisfaction and has eliminated the periodical cleaning of flues. Little land clearing was attempted other than what was necessary in securing fuel. The newly cleared area south of the centre road on the east side of the farm was levelled, cultivated and cropped for the first time.