DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL FARM
NAPPAN, N.S.

INTERIM REPORT OF THE SUPERINTENDENT

W. W. BAIRD, B.S.A.

FOR THE YEAR ENDING MARCH 31, 1921

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THE SEASON

The winter of 1919 and 1920 was a very severe one; from November 21 until February 29 the weather was extremely cold for the district. During this period there were over thirty-one days of zero weather. The thaws were very light; consequently the frost penetrated deeply into the ground. March and April were average spring months. May and June were fine and warm, but lacked sufficient precipitation for good germination of seed. July was favourable for good growth, but poor for the harvesting of crops. Much damage was caused to the early cut grain from sprouting while in stook, due to the long, wet, muggy period in August and September. Rainfall was recorded on eleven days in August and thirteen in September.

The rainfall was most beneficial to the late sown grain, also to root and corn crops, as a very rapid growth was noted in these after the middle of August. October was a splendid harvest month. The first half of November likewise was a good harvest month and late grain, roots, corn and fruits were stored in excellent condition. After November 13 heavy frosts were recorded, and the freeze-up occurred somewhat earlier than usual, thereby shortening the fall ploughing period. Not more than two-thirds of the fall ploughing was accomplished on account of this early frost.

Snow fell on November 23 and remained until the last of the month. December was an ideal winter month throughout.

SOME WEATHER OBSERVATIONS TAKEN AT EXPERIMENTAL FARM, NAPPAN, N.S., 1920.

1920	Temperature			Precipitation					Sunshine	
Month	Highest °	Lowest °	Mean °	Days No.	Rainfall Inches	Days No.	Snowfall Inches	Total Inches	Days No.	Hours Total
January	26	−21	7·05	1	·13	7	12·75	1·41	25	92·1
February	50	−16	19·77	4	2·89	4	21·00	4·99	12	70·0
March	64	−14	34·85	5	3·38	1	2·00	3·58	23	119·4
April	60	18	36·71	6	1·94	3	18·00	3·74	20	138·9
May	75	24	48·30	1	1·72	.....	.....	1·72	27	249·7
June	78	30	56·54	9	2·68	.....	.....	2·68	25	211·0
July	83	44	64·49	8	2·63	.....	.....	2·63	30	258·2
August	87	39	66·02	10	5·70	.....	.....	5·70	25	205·3
September	78	31	57·43	8	2·21	.....	.....	2·21	22	135·7
October	75	26	50·04	4	·50	.....	.....	·50	25	146·6
November	60	10	31·79	7	1·48	1	7·00	2·18	21	111·2
December	50	−7	24·84	7	2·98	2	5·00	3·48	18	84·6

Summary

Days of rainfall	70	Inches of rainfall	28·24	
Days of snowfall	18	Inches of snowfall	65·75	(10 inches snow is equivalent to 1 inch of rain).
Days of sunshine	273	Hours of sunshine	1,822·70	Total precipitation for year 34·82 inches.

FARM IMPROVEMENT

Fences.—All farm fences were repaired, and some 3,600 feet of new No. 950 woven fence was erected on the south line of the Roach property; also 700 feet of new pole fence was erected on the southeast side.

Farm Roads.—The split log drag was used on all farm roads several times during the season; also on the main road adjacent to the Experimental Farm.

EXCURSIONS AND VISITORS

The Cumberland County Farmers' Association held their annual picnic at the Farm on July 16, and some 2,500 people were in attendance. A number of students from New Brunswick judging teams were here on July 6, and had several classes in the various breeds of cattle, horses and sheep, also swine. A number of small picnics from different parts of Cumberland and Westmoreland counties visited the Farm at various times during the season. Everything possible was done to make these visits enjoyable as well as valuable.

MEETINGS AND EXHIBITIONS

Throughout the year the Superintendent and the assistant attended as many agricultural meetings as possible and gave addresses. A good vegetable, grain and flower show was put up at the Amherst Vegetable and Floral Fair on September 22. An interesting poultry exhibit was shown at the Maritime Winter Fair at Amherst, held from December 13-16 inclusive. An excellent exhibit of live stock was sent to the Maritime Winter Fair in beef cattle, dairy cattle and sheep. The following are the winnings:—

DAIRY CATTLE

BREED, GUERNSEYS

Class—Senior calf, male—
1st, Mixter May Raider, 2142.

Class—Junior calf, male—
1st, Glamour's Fisherman of Nappan.

Class—Junior calves, females—
1st, Princess Daisy.
2nd, Patricia.
3rd, Dairymaid.
Sweepstakes, Princess Daisy.

BEEF CATTLE

BREED, SHORTHORNS

Class—Senior calf—
1st, White Rose, 159528.

Class—Junior yearling—
1st, Sarah's Pride, 150657.
2nd, Anne of Evergreen, 150660.

Class—Mature cows—
1st. Lily of Bright 3rd, 108217.
2nd, Kentville Blossom 2nd, 117530.
6th, Kentville Victoria 2nd, 114063.

SHEEP

BREED, SHROPSHIRES

Class—Mature ewes—
Awarded 4th and 6th.

Class—Yearlings—
Awarded 1st and 4th.

Class—Ewe lamb—
Awarded 1st, 2nd and 3rd.

Class—Wether lamb—
Awarded 1st and 2nd.

BREED, GRADES

Class—Ewe lamb—
Awarded 4th.
Class—Wether lamb—
Awarded 1st, 3rd, 4th and 5th.
Class—Dressed carcasses—
Group of three lambs, awarded 1st.
Class—Single lamb—
Awarded 2nd.
Class—One year and over—
Awarded 2nd.

The following meetings and fairs were attended and addressed during the past year: Cap Rouge Experimental Station, June 22; Guernsey Meeting, Truro, June 16; Cumberland County Farmers' Picnic, July 16; Experimental Station, Charlottetown, July 3-6; Amherst Fruit and Floral Show, September 22; Oxford Fair, September 23; Pictou Fair, September 27-29; Port Elgin Fair, September 30; Sackville Fair, October 6; Poultry Association Meeeting, Amherst, October 11; Dorchester Fair, October 12; Cumberland County Ploughing Match, Amherst, October 20; Poultry Show, Truro, November 9; Commercial Club, Amherst, December 20; Guernsey Breeders' meeting, Amherst, January 17; Fruit Growers' meeting, Windsor, January 21-22; Kentville Experimental Station, January 23-24; Ayrshire Breeders' meeting, Montreal, March 22-23; Ayrshire Sale at Macdonald College, March 24.

The Superintendent acted as judge at the following fairs: Fruit and vegetable show, Amherst, Oxford Fair, Pictou Fair, Port Elgin Fair, Sackville Fair, and Dorchester. The Assistant acted as judge at Amherst, Oxford, Port Elgin, and Dorchester.

ANIMAL HUSBANDRY

BEEF CATTLE

A herd of Shorthorns, consisting of seven mature cows, two two-year-old heifers, one yearling heifer and a yearling male, was established at this Farm during the season of 1920.

The object of establishing this herd of Shorthorns was threefold.

First.—To study the problems relative to successful breeding and feeding of beef cattle, and the application of such principles as have already been established.

Second.—To improve the beef stock in the district by demonstrations in breeding and development; also by the sale of good sires.

Third.—To ascertain the cost of production.

The herd is headed by Lancaster Lad 134612, sire Beaufort Wellington (Imp.) dam Gartley Ena Lancaster (Imp.). Though not a large bull, he possesses a great deal of quality, and should mate up well with the foundation cows which are large, with plenty of bone.

To date, five nice calves have been dropped, one female and four males. The males are for sale.

The following table is a record of the feeds consumed with the amount and value of each. It also shows the total cost of feed for three hundred and sixty-five days together with the average cost for the whole herd.

COST OF FEED—SHORTHORN COWS

Name	Meal at $3.18 per cwt.		Roots at $3 per ton		Hay at $20 per ton		Green feed at $3 per ton		Pasture at $2 per month		Total cost
	lbs.	cost	lbs	cost	lbs	cost	lbs.	cost	days	cost	
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
Lily of Bright	1,877	59 69	3,920	5 88	4,243	42 43	.....	.....	106	7 06	115 06
Kentville Blossom	1,665	52 95	4,178	6 27	3,836	38 36	144	0 22	105	7 00	104 80
Kentville Victoria	1,888	60 04	4,668	7 00	3,811	38 11	1,186	1 78	105	7 00	113 93
Jessamine	1,850	58 83	4,918	7 38	4,145	41 45	1,186	1 78	105	7 00	116 44
Meadow Blossom	2,039	64 84	5,058	7 59	3,811	38 11	1,244	1 87	105	7 00	119 41
Kentville Blossom 2nd	1,085	34 50	3,735	5 60	3,344	33 44	.....	.....	134	8 93	82 47
Kentville Blossom 3rd	1,085	34 50	3,735	5 60	3,344	33 44	.....	.....	134	8 93	82 47
Averages	1,641·3	52 19	4,316	6 47	3,790·6	37 91	537·1	0 81	113·4	7 56	104 94

The following table gives the cost of Feed of Shorthorn Heifers from 1-year-old to 2-year-olds; also Shorthorn Calf (White Rose) from date of birth to 1-year-old.

Name	Meal at $3.18 per cwt.		Roots at $3 per ton		Hay at $20 per ton		Green feed at $3 per ton		Pasture at $2 per month		Total cost
	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	days	cost	
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
Sarah's Pride	1,186	37 71	4,500	6 75	2,250	22 50	.....	.....	140	9 33	76 29
Ann of Evergreen	1,186	37 71	4,500	6 75	2,250	22 50	.....	.....	140	9 33	76 29
Averages	1,186	37 71	4,500	6 75	2,250	22 50	.....	.....	140	9 33	76 29

Name	Whole milk at $3.20 per cwt.		Skim-milk at 20c. per cwt.		Meal at $3.18 per cwt.		Roots at $3 per ton		Hay at $20 per ton		Green feed at $3 per ton		Total cost
	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
White Rose	2,787	89 18	127	0 25	1,055	33 55	649	0 97	1,101	11 01	398	0 60	135 56

STEER FEEDING EXPERIMENT

ENSILAGE AND MARSH HAY VERSUS ROOTS AND CLOVER HAY

Twenty-six steers of average beef type were fed during the past winter, 1920-21. The twenty-six steers were divided into two lots: lot 1, fourteen steers averaging 1059.7 pounds; lot 2, twelve steers averaging 966 pounds. Lot 1 was was fed on roots and fair clover hay. Lot 2 was fed on good ensilage and marsh hay of only a fair quality. The meal mixture was the same for both lots, and was made up as follows: 200 pounds bran, 100 pounds cotton seed, 100 pounds oil cake, 100 pounds crushed oats. At the start of the test they received seven pounds per steer per day; this was increased gradually until the last four weeks, when they received ten pounds per steer per day. Lot 1 received forty pounds of good ensilage per steer per day at the beginning of the test, and this was gradually decreased toward the end of the test. Lot 2 received thirty pounds of roots at start, and this was gradually decreased toward end of feeding period. In addition, each steer consumed fourteen pounds of hay per day.

The meal cost $3.18 per hundred, the clover hay was valued at $20 per ton, the marsh hay at $12 per ton, while roots and ensilage were valued at $3 per ton.

The following tables give a summary of the ninety-day test:—

STEER FEEDING EXPERIMENT

LOT 1

Total live weight of steers January 11, 1921	Lbs.	14,837
Total live weight of steers, April 11, 1921	"	17,540
Increase to April 11, 1921	"	2,703
Original weight of 14 steers—14,837 pounds at 8½ cents	$	1,261.15
Weight of finished steers, 14—17,540 pounds at 9·13 cents	$	1,601.40
Gross profit	$	340.25
Amount of hay consumed	Lbs.	17,640
Amount of meal consumed	"	10,906
Amount of roots or ensilage consumed	"	37,800
Cost of feed	$	274.55
Net profit or loss	$	65.70
Daily rate of gain	Lbs.	2,145
Cost of 1 pound of gain	Cts.	10.16
Cost of feed per steer per day	Cts.	21·75
Profit per steer	$	4·692

STEER FEEDING EXPERIMENT

LOT 2

Total live weight of 12 steers, January 11, 1921	Lbs.	11,591
Total live weight of 12 steers, April 11, 1921	"	13,549
Increase April 11, 1921	"	1,958
Original weight of 12 steers—11,591 at 8½ cents	$	985.24
Weight of 12 finished steers—13,549 pounds at 9·13 cents	$	1,237.04
Gross profit	$	251.79
Amount of hay consumed	Lbs.	15,120
Amount of meal consumed	"	9,228
Amount of ensilage consumed	"	43,200
Cost of feed	$	184.87
Net profit or loss	$	66.91
Daily rate of gain	Lbs.	1·813
Cost of 1 pound gain	Cts.	9·44
Cost of feed per steer, per day	Cts.	17·117
Profit per steer	$	5.58

METHOD OF CONDUCTING EXPERIMENTS

All steers were dehorned on the 1st of December. When properly done this takes but very little out of the steers, it makes them easier to handle, and they feed more contentedly in box stalls; while it prevents bruising both in stable and in transit. The latter is a very important feature when shipping long distances. The dehorned stock will reach a distant market in very much better shape than will horned stock; and furthermore, the shrinkage is less.

Individual weights of all steers were taken on three consecutive days at the beginning and finishing of period, and they were weighed once a month during test. The three days' average gives a very accurate weight of steers. A variation of from 50 to 60 pounds in a steer in two consecutive weighings has been noted.

Object of Experiment.—1st. To study the feeding value of fattening steers on good ensilage and marsh hay of fair quality versus fattening on roots and clover hay.

2nd. To ascertain the cost of finishing beef under present-day conditions.

3rd. To ascertain the profit realized in finishing beef under present-day conditions.

Feeding Period.—After steers were dehorned, a preparatory feeding period was given in order to get the steers in shape for the test, and to allow sufficient time for steers to become familiar with the new surroundings and with strange steers. At first they were given about 2 pounds of meal per steer per day, along with 5 pounds of roots. This was increased gradually until the 11th of January, on which date the test was started. All steers were then receiving 7 pounds of meal, 30 pounds of roots, and 14 pounds of hay per steer per day, except those that received ensilage. They received 40 pounds of good ensilage per steel per day.

Data From Experiment

Lot 1 made the best daily gains, averaging 2·145 pounds per steer per day. Lot 2 averaged per steer 1·813 pounds, a difference of 0·332 pounds per steer in favour of lot 1.

The fact that lot 1 averaged per steer 93·7 pounds more than lot 2, and were larger framed steers, gave them a slight advantage, so far as daily gains go, it being generally an accepted rule that the larger steer will make the better gains. When the cost of one pound gain is compared, it will be noted from the foregoing table that lot 1 cost 10·16 cents per pound, against 9·44 for lot 2, a difference of 0·72 cents per pound in favour of the latter. Therefore, it would appear that cheaper gains can be made by feeding a cheap grade of hay along with ensilage corn, and that ensilage corn has a higher feeding value in fattening steers than has roots. The test goes farther and shows that profitable returns can be realized from the poor hay on the farm, if one has a small silo of ensilage corn to feed with the hay.

From the above table it will be noted that under present-day prices of feed, the profits realized from feeding cattle are very small, yet sufficient to realize the feeder a fair price for his farm commodities, and enable him to keep up the fertility of the soil, which cannot be done successfully and efficiently without live stock.

GUERNSEYS

A foundation herd of pure-bred Guernseys, made up of eight mature cows, three young females, and one male, was established at this Farm during the season of 1920.

The object of establishing this herd was fourfold.

First:—To study the problems relating to the successful breeding of pure-bred Guernseys and the application of such principles of breeding as are already established.

Second.—To improve the dairy stock in the district by demonstrating the value of careful breeding and development of stock, and by the sale of good bulls.

Third.—To ascertain the cost of production under present-day conditions.

Fourth.—To carry on Record of Performance work.

Since the establishment of the herd at the Farm, four of the cows entered in the Record of Performance have completed their lactation periods and have made the necessary production record. Two have not dropped their second calves within the allotted time to permit of their being recorded, except in the appendix. Two are well on in their year's work, and are making a creditable showing. The following table gives the number of days in milk and the production and cost for the full lactation period of Cabbage Rose of Hillside, King's Blanch of Hillside, Princess Dairymaid 2nd, and Princess Daisy of Hillside.

RECORD OF PERFORMANCE OF 4 PURE-BRED GUERNSEYS

Name	Date of dropping calf	Number of days in milk	Total lbs. of milk for period	Daily average yield of milk	Average per cent fat in milk	Lbs. of butter produced in period	Value of butter at 65c. per lb.	Value of skim-milk at 30c. per cwt.	Total value of product	Amount of meal eaten at $3.18 per cwt.	Amount of roots eaten at $3 per ton	Amount of hay eaten at $20 per ton	Amount of green feed at $3 per ton	Months on pasture at $2 per month	Total cost of feed for period	Cost to produce 100 lbs. of milk	Cost to produce 1 lb. of butter, skim-milk neglected	Profit on 1 lb. of butter, skim-milk neglected	Profit on cow labour and calf neglected
		lbs.	lbs.	lbs.	p.c.	lbs.	$ c.	$ c.	$ c.	lbs.	lbs.	lbs.	lbs.		$ c.	$ c.	$ c.	$ c.	$ c.
King's Blanche of Hillside	Dec. 2, 1919	571	15,230	26·7	6·35	1,137·82	739 58	42 79	782 37	8,006	11,815	7,094	880	5⅔	355 36	2 33	0 31	0 34	427 01
Princess Daisy of Hillside	Mar. 5, 1920	348	8,025·9	23·1	5·9	557·09	362 11	22 80	384 91	3,658	5,260	3,612	880	4⅖	170 85	2 12	0 32	0 33	214 06
Princess Dairymaid 2nd	Feb. 25, 1920	357	7,569·6	21·2	6·1	543·23	353 10	21 41	374 51	3,819	5,620	3,747	880	4⅖	177 88	2 35	0 32	0 33	196 63
Cabbage Rose of Hillside	Feb. 26, 1920	356	7,337	20·6	5·2	448·8	291 72	20 81	312 53	3,804	5,580	3,732	880	4⅖	177 18	2 41	0 39	0 26	135 35
Average	.....	408	9,540·8	.....	5·9	671·73	.....	.....	.....	.....	.....	.....	.....	.....	220 32	.....	.....	.....	243 26

Fom the above table it will be noted that all four cows made a very good showing, and that a good profit over cost of feed was realized from each individual cow. Feed was charged up at market prices, viz:—$3.18 per hundred for meal; $20 per ton for hay; $3 per ton for roots and green feed. The market value allowed for butter was 65 cents per pound, and for skim-milk 30 cents per hundred. King's Blanche of Hillside 1048 (sire Fillmore's King of Berwick 260; dam Buttercup Blanche of Hillside 1045) is one of the outstanding cows in the herd. Her official record for three hundred and sixty-five days is 12,230 pounds of milk, with an average butter fat test of 6·23 per cent, yielding 752 pounds of fat for the year. Her full lactation period ran for five hundred and seventy-one days, in which time she produced 15,230·7 pounds of milk, testing, on an average, 6·35 per cent, yielding 967·15 pounds of fat, or 1,137·82 pounds of butter. A profit of $427.01 was thus realized over cost of feed.

From the preceding table it can be seen that if one has a herd of cows with an average production of 9,540·8 pounds of milk, giving an average test of 5·9 per cent, good prices can be realized from farm produce; also a good wage for labour invested. Therefore the farmer's aim should be to raise his present dairy standard of production from 3,000 pounds to not less than 7,000 pounds per year, with an average test of 4·5 per cent.

COST OF PRODUCTION

The following costs are taken from the past year's records of the four Guernseys that completed their full lactation period. The average cost to produce 100 pounds of whole milk was $2.80. The average cost to produce one pound of butter was 33·5 cents. The average cost of feeding was $220.32 per cow; and the average profit was $243.26.

The following table gives the cost of raising three pure-bred Guernsey females and one pure-bred Guernsey male from birth to one year of age.

GUERNSEY CALVES—COST OF REARING TO ONE YEAR OF AGE

Name	Whole milk at $3.20 per cwt.		Skim-milk at 20c. per cwt.		Meal at $3.18 per cwt.		Roots at $3 per ton		Hay at $20 per ton		Green feed at $3 per ton		Total cost
	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	lbs.	cost	
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
L.R. Princess Daisy 2nd	1,060	33 92	2,227	4 45	689	21 91	690	1 04	1,555	15 55	522	0 78	77 97
L.K. Princess Dairymaid 4th	1,060	33 92	2,337	4 67	697	22 10	690	1 04	1,555	15 55	522	0 78	78 12
Patricia Stannox of Nappan	1,055	33 76	2,210	4 42	729	23 18	690	1 04	1,556	15 56	522	0 78	78 74
Glamour's Fisherman of Nappan	1,290	41 28	2,846	5 69	550	17 49	390	0 49	1,021	10 21	120	0 18	78 95
Averages	1,116·3	35 72	2,405	4 81	666·3	21 18	615	0 90	1,421·8	14 22	421·5	0 63	78 45

In the above table note the amount and value of each food fed; also the cost for each individual animal, which averaged $78.45. To some this may appear to be high; yet if the amounts of the different feeds are reckoned for three hundred and sixty-five days, it will be found that they are within reason. It must always be borne in mind that if any female or male is to be a profitable producer he or she must be well fed in order to develop properly.

DAIRY CATTLE

GRADING EXPERIMENT

The data compiled in this report are the result of nine years' work in grading up dairy cows at the Experimental Farm, Nappan. The object of this experiment is to show the value of using a pure-bred sire of good milking qualities on the average dairy cow. Two breeds are used, Ayrshire and Holstein.

The three six-year-old, second-cross Ayrshire heifers gave a yearly average of 6,429·1 pounds of milk with an average test of 4·4 per cent fat. Only one five-year-old, third-cross Ayrshire was in milk, her yearly production being 4,464·4 pounds, averaging 4·2 per cent fat. Three four-year-old, first-cross Holsteins gave a yearly average of 5,988·6 pounds of milk, testing 3·9 per cent fat. The second-cross Holsteins, four-year-old, gave an average of 7,164·8 pounds of milk, testing 3·9 per cent fat. Out of seventeen two-year-old heifers, Ayrshire and Holstein grades, eleven gave a yearly average of 4,599·3 pounds of milk, testing 4·2 per cent butter fat.

From the above figures it may be taken that a very high percentage of the heifers are good producers.

The first crop of second-cross Ayrshires 1.A.1's, of which there were four, have dropped their first, second, third, fourth, fifth and sixth crops of calves (third-cross Ayrshires) 1.A.1.1., yielding in 1915-16, one female, 1916-17, one female, 1917-18, two females, 1918-19, one female, 1919-20, one female, 1920-21, no females, thus completing their fifth lactation period. The second crop of Ayrshires from foundation cows (first-cross Ayrshires) 1.A.S., of which there were four, reacted and were disposed of.

The second crop of second-cross Ayrshires from first-cross Ayrshires, of which there were four, reacted and were sold.

The second crop of Holsteins from foundation cows (first-cross Holsteins) 1.H.S., of which there were three, dropped their first, second, third, and fourth crops of calves (second-cross Holsteins) 1.H.S.1. yielding in 1917-18, two females; 1918-19, three females, 1919-20, three females; and 1920-21, one female.

The second-cross Holstein from first-cross Holsteins, of which there were three, dropped in 1916-17, no females; in 1917-18, two females; and in 1918-19, reacted and were disposed of.

The second crop of second-cross Holsteins 1H.2, of which there were two, dropped their first, second, third and fourth crops of calves (third-cross Holsteins) 1.H.2.1., yielding in 1917-18, one female; 1918-19, two females; 1919-20, one female; 1920-21, one female; thus completing their fourth lactation period.

The fourth crop of Ayrshires from second-cross, of which there were three, have dropped their first, second, third and fourth crops of calves (third-cross Ayrshires) 1.A.3.1., yielding in 1917-18, no females; 1918-19, no females; 1919-20, one female; 1920-21, one female; thus completing their fourth lactation period.

The fourth crop of Ayrshires from second-cross, of which there were three, have dropped their first, second and third crops of calves (third-cross Ayrshires) 1.A.4.1., yielding in 1918-19, one female; 1919-20, two females; 1920-21, no females; thus completing their third lactation period.

The first crop, third-cross Ayrshires, of which there is one, dropped its first, second, third and fourth crop of calves (fourth-cross Ayrshires) 1.A.1.1.1., yielding

in 1917-18, no females; 1918-19, one female; 1919-20, one female; 1920-21, no females; thus completing its third lactation period.

The first crop from the second crop of the first-cross Ayrshires, of which there is one, dropped its first, second and third crop of calves (third-cross Ayrshires) 1.A.S.1., yielding in 1918-19, one female; 1919-20, one female; 1920-21, no females; thus completing its second lactation period.

The fourth crop of second-cross Holsteins, of which there are four, have dropped their first, and second crops of calves (third-cross Holsteins) 1.H.4.1., yielding in 1919-20, two females; 1920-21, one female.

The second crop of third-cross Ayrshires, of which there is one, dropped its first calf (fourth-cross Ayrshires) 1.A.2.2.1., yielding in 1920-21, one female. Dam disposed of.

The third crop of the third-cross Ayrshires, of which there is one, dropped its first crop of calves (fourth-cross Ayrshires) 1.A.1.3.1., yielding in 1920-21, one female.

The second crop of second-cross Ayrshires from the first-cross Ayrshires, but second crop from foundation cows, of which there is one, has dropped her first and second calf (third-cross Ayrshires) 1.A.S.2.1., yielding in 1919-20, no females; 1920-21, one female.

The second crop of third-cross Holsteins, of which there are two, dropped their first, and second crops of calves (fourth-cross Holsteins) 1.H.1.2.1., yielding in 1919-20, one female; 1920-21, one female; thus completing their first lactation period.

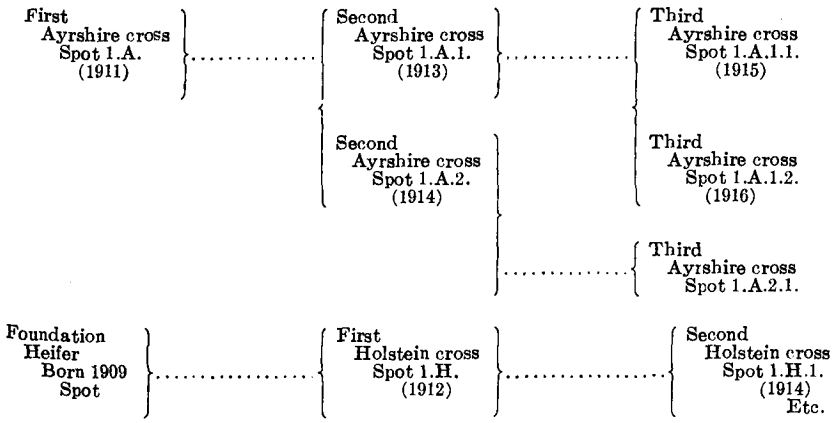
The first crop of second-cross Holsteins, but second crop from foundation cows, of which there is one, has dropped its first crop of calves (third-cross Holsteins) 1.H.S.1.1., yielding in 1919-20, no females. Sold in 1920.

The first crop of third-cross Holsteins, of which there is one, dropped its first calf (fourth-cross Holstein) 1.H.2.1.1., yielding in 1919-20, no females, thus starting her first lactation period.

The fifth crop of second-crop Ayrshires, of which there are six, have dropped their first and second crops of calves (third-cross Ayrshires) 1.A.5.1., yielding in 1919-20, four females, and in 1920-21 one female, thus completing their first lactation period.

To aid the reader in following each individual breeding, a short diagram showing the naming of the progeny from one cow is inserted before the tables of production. Each individual is given a name; this name is carried on to each one of her progeny with the addition of a Roman numeral and a letter. The name gives one the name of the original foundation cow, the letter A. or H. designating Ayrshire or Holstein respectively. The Roman numeral following the letter A. or H. designates a cross, also 1st, 2nd, 3rd calf, as the case may be. For instance, foundation cow Spot is bred to an Ayrshire bull; her first offspring is a female; it will receive Spot 1.A. for its name (first-cross Ayrshire). Spot 1.A.'s offspring would be called Spot 1.A.1. (second-cross Ayrshire). Her second calf would be called Spot 1.A.2. (second-cross Ayrshire). For the Holstein crosses the letter H. replaces the letter A. in Ayrshire crosses. When the letter S. follows the letter A. in Ayrshire crosses or H. in Holstein crosses, it means the second crop of calves from the original foundation stock. This makes it a little more difficult to follow out the different crosses. Therefore, it is well to study the nomenclature of the individual as given in the following diagram, which will make it much more easy to follow the breedings.

NOMENCLATURE OF PROGENY



FIRST AYRSHIRE CROSS (SECOND CROP)

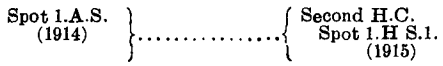


TABLE I.—GRADING-UP EXPERIMENT

Name	Date of dropping calf	Number of days in milk	Total pounds of milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds of butter produced in period	Value of butter at 30c. per lb.	Value of skim-milk at 20c. per cwt.	Total value of product	Amount of meal eaten at 1½c. per lb.	Amount of roots eaten at $2 per ton	Amount of hay eaten at $7 per ton	Amount of green feed eaten at $3 per ton	Months on pasture at $1 per month	Total cost of feed for period	Cost to produce 100 lbs. of milk	Cost to produce 1 lb. butter, skim-milk neglected	Profit on 1 lb. butter, skim-milk neglected	Profit on cow during period, labour and calf neglected
				lbs.			$ c.	$ c.	$ c.	lbs.	lbs.	lbs.	lbs.		$ c.	c.	c.	c.	$ c.
Spot 1.H.2	Feb. 12, 1920	435	6,722·8	15·5	4·1	324·28	97 28	12 89	110 17	2,994	5,776	5,170	911	3½	66 16	0·9841	0·204	0·096	42 01
Vera 1.H.2	May 22, 1920	334	7,406·9	22·14	3·7	322·42	96 73	14 27	111 00	2,856	4,731	3,884	911	4½	59 89	0·81	0·1857	0·1143	51 11
Spot 1.H.3	April 12, 1920	265	4,045·8	15·26	3·5	166·59	49 98	7 81	57 79	1,895	3,746	3,514	1,020	4½	45 76	1·13	0·2746	0·2540	12 03
Maggie 1.H.S	July 16, 1920	124	2,887·3	23·28	3·4	115·49	34 65	5 58	40 23	1,182	1,068	520	1,092	3½	22 80	0·79	0·1973	0·1027	17 43
Myrtle 1.H.S	Dec. 15, 1919	252	5,315·1	21·08	4·2	262·63	78 79	10 18	88 97	2,419	3,543	4,376	.....	3	52 09	0·98	0·1975	0·1025	36 88
Jessie 1.H.S	June 28, 1920	388	9,763·6	25·3	4·1	470·95	141 29	18 73	160 02	3,405	6,273	4,748	1,092	4	71 43	0·73	0·15	0·15	88 59
Jean 1.A.1	Nov. 12, 1919	287	6,504·0	22·66	4·3	329·02	98 70	12 45	111 15	2,717	4,216	4,561	450	2¾	57 57	0·88	0·1649	0·1350	53 58
Lessie 1.A.1	Nov. 6, 1919	242	6,357·8	25·0	4·2	314·15	94 25	12 18	106 43	2,546	3,960	4,543	325	2	54 17	0·85	0·1724	0·1276	52 26
Myrtle 1.A.1	Nov. 8, 1919	290	6,425·5	22·15	4·8	362·85	108 85	12 23	121 08	2,699	4,546	4,561	450	4	58 92	0·9168	0·1623	0·1377	62 16
Ella 1.A.3	Jan. 21, 1920	249	4,380·1	17·47	4·5	231·89	69 57	8 37	77 94	2,479	2,811	4,555	25	4½	54 25	1·24	0·2341	0·0659	23 66
Myrtle 1.A.3	Nov. 2, 1919	296	4,582·1	15·48	4·2	226·41	67 92	8 78	67 70	2,549	4,098	4,561	.....	4½	56 67	1·24	0·25	0·05	20 03
Jean 1.A.4	Feb. 20, 1921	266	4,487·3	17·86	4·2	221·73	66 53	8 60	75 13	2,543	3,471	3,896	1,120	4½	55 07	1·23	0·2484	0·0516	20 06
Mossy 1.A.4	Nov. 30, 1919	349	5,707·6	16·35	4·6	308·88	92 66	10 89	103 55	3,095	4,376	4,645	1,116	4½	65 49	1·15	0·2120	0·088	38 06
Spot 1.A.4	Nov. 30, 1919	326	4,653·4	14·26	4·4	240·88	72 26	8 90	81 16	2,534	4,346	4,280	1,162	4½	57 24	1·23	0·2376	0·0624	23 92
Myrtle 1.A.11	Nov. 16, 1921	282	4,464·4	15·80	4·2	220·58	66 17	8 55	74 72	2,559	4,166	4,561	450	4	56 79	1·27	0·2574	0·0426	18 93
Jessie 1.A.12	Feb. 28, 1920	266	4,102·2	15·42	4·7	226·83	68 04	7 82	75 86	2,249	2,931	2,833	1,210	4½	47 27	1·15	0·2083	0·0917	28 59
Bell 1.A.S.1	Dec. 10, 1919	242	3,620·7	14·95	4·6	195·94	58 78	6 91	65 69	2,061	3,668	4,301	336	3	47 99	1·33	0·2449	0·0551	17 70
Bell 1.H.4	Feb. 13, 1920	365	4,304·3	11·76	3·9	197·49	59 25	8 27	67 52	2,918	5,631	4,653	1,202	4½	64 69	1·50	0·33	−0·03	2 83
Jessie 1.H.4	Sept. 28, 1920	214	6,529·3	30·50	3·4	261·17	78 35	12 61	90 96	2,085	3,435	3,312	430	4½	46 23	0·71	0·18	0·12	44 73
Myrtle 1.H.4	Jan. 6, 1920	299	5,343·0	17·86	4·0	251·44	75 43	10 26	85 69	2,746	3,471	3,266	1,078	4½	55 34	1·04	0·44	0·08	30 35
Vera 1.H.4	Jan. 5, 1920	411	7,101·6	17·28	3·2	267·35	80 21	13 75	93 96	3,542	5,796	5,318	1,078	4½	74 80	1·05	0·28	0·02	19 16
Lessie 1.A.13	Jan. 5, 1920	231	3,052·9	13·21	4·7	168·81	50 64	5 82	56 46	1,687	3,231	3,266	436	3	39 20	1·28	0·23	0·07	17 26
Queen 1.A.22	Feb. 20, 1920	136	2,867·9	21·0	4·1	138·33	41 50	5 50	47 00	1,565	2,745	2,651	.....	1	32 59	1·13	0·24	0·06	14 41

Myrtle 1.A.S.2....	*Dec. 29, 1919*	*364*	*4,460·9*	*12·31*	*4·3*	*225·67*	*67 70*	*8 54*	*76 24*	*2,980*	*4,496*	*3,731*	*1,020*	*4½*	*60 84*	*1·36*	*0·27*	*0·03*	*15 40*
Spot 1.H.12.....	Mar. 17, 1920	378	4,805·5	12·71	4·1	231·79	69 54	9 22	78 76	2,712	5,055	7,064	1,310	.....	65 66	1·37	0·28	0·02	13 10
Mossy 1.H.12.....	Jan. 21, 1920	291	4,404·5	15·13	3·8	196·91	59 08	8 47	67 54	2,435	3,191	3,688	1,020	4½	52 57	1·19	0·27	0·03	14 97
Maggie 1.H.S.1....	Jan. 15, 1920	302	4,838·1	16·02	3·9	221·98	66 59	9 30	75 89	2,639	3,501	4,059	956	3½	55 63	1·15	0·25	0·05	20 26
Spot 1.H.21.....	Mar. 12, 1920	232	1,602·4	6·9	3·6	67·87	20 36	3 09	23 45	1,484	2,430	2,061	1,020	4½	34 22	2·13	0·50	−0·20	−10 77
Ella 1.A.5.....	Mar. 19, 1920	238	3,515·4	14·77	4·5	186·11	55 83	6 71	62 54	1,866	2,221	2,588	1,119	4½	40 78	1·16	0·22	0·08	21 76
Jean 1.A.5.....	Feb. 2, 1920	271	4,292·2	15·83	4·9	247·43	74 23	8 16	82 39	2,380	3,646	3,120	1,078	4½	50 43	1·17	0·20	0·10	31 96
Jessie 1.A.5.....	Feb. 19, 1920	295	4,292·2	14·5	4·9	247·43	74 23	8 16	82 38	2,440	4,031	3,600	1,078	4½	53 25	1·24	0·215	0·085	29 13
Lessie 1.A.5.....	Feb. 2, 1920	280	4,123·0	14·73	5·4	261·93	78 58	7 80	86 38	2,140	3,481	2,801	1,202	4½	46 34	1·12	0·18	0·12	40 04
Myrtle 1.A.5.....	Jan. 8, 1920	315	2,941·0	9·33	4·5	155·7	46 71	5 62	52 33	1,708	3,506	3,601	1,202	4½	43 76	1·48	0·28	0·02	8 57
Queen 1.A.5.....	Jan. 5, 1920	289	3,558·6	12·3	4·5	188·4	56 52	6 80	63 32	1,857	3,471	3,266	1,092	4½	44 25	1·24	0·23	0·07	19 07

TABLE II.—The following table gives the comparative, also average two-year-old records of the Grade foundation heifers and their progeny, the first-cross Ayrshires and the first-cross Holsteins.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean	Grade Foundation Heifers	389	5,794	3·5	238·59	56 56	26 18	3rd.
Vera	" "	395	5,369	3·5	221·07	56 26	20 42	4th.
Bell	" "	330	5,465	3·9	250·75	54 15	31 58	1st.
Mossy	" "	368	3,004	4·8	171·40	42 73	14 42	8th.
Jessie	" "	335	3,113	3·9	142·83	39 99	8 84	10th.
Ella	" "	264	3,312	3·7	146·12	38 40	11 82	9th.
Queen	" "	304	4,303	3·9	197·43	47 31	20 19	5th.
Myrtle	" "	384	3,997	4·1	192·79	48 48	17 03	6th.
Spot	" "	398	4,060	4·1	195·84	50 29	16 21	7th.
Maggie	" "	369	4,981	3·9	228·54	50 64	27 49	2nd.
Averages		354	4,339	3·9	198·53	48 48	19 42	
Jean 1.A	1st Cross Ayrshire	343	5,014	4·0	234·76	49 37	30 68	2nd.
Mossy 1.A	"	380	3,301	4·8	187·63	49 29	13 28	6th.
Jessie 1.A	"	416	4,279	4·8	239·43	61 18	18 80	5th.
Ella 1.A	"	362	4,641	4·5	245·70	52 83	29 74	3rd.
Queen 1.A	"	377	4,038	4·7	223·76	48 93	25 84	4th.
Myrtle 1.A	"	422	2,066	4·1	99·65	53 70	−19 75	7th.
Spot 1.A	"	338	4,249	4·6	229·96	45 05	32 04	1st.
Averages		377	3,941	4·5	208·70	51 48	18 66	
Bell 1.A.S	1st Cross Ayrshire	203	3,391	3·9	155·57	48 88	4 31	
Vera 1.H	1st Cross Holstein	346	5,161	3·8	230·74	50·98	28 17	2nd.
Bell 1.H	"	413	3,599	3·8	160·91	53 23	1 97	6th.
Mossy 1.H	"	375	4,922	4·6	266·35	52 91	36 39	1st.
Jessie 1.H	"	372	4,677	3·6	198·09	52 80	15 60	3rd.
Myrtle 1.H	"	362	4,217	3·4	168·68	49 87	8 89	4th.
Spot 1.H	"	365	3,677	3·8	164·39	48 86	7 53	5th.
Averages		372	4,376	3·8	198·19	51 44	16 43	
Jessie 1.H.S	1st Cross Holstein	271	5,088	4·4	263·39	56 19	32 56	1st.
Maggie 1.H.S	"	299	4,057	4·4	210·01	53 43	17 26	2nd.
Myrtle 1.H.S	"	277	4,116	3·0	145·28	52 21	−0 64	3rd.
Averages		282	4,420	3·9	206·22	53 94	16 39	

Table III.—The following table gives the comparative yield of the dams and their progeny and their merit of standing as two-year-olds

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jessie	Grade Foundation Heifers	335	3,113	3·9	142·83	39 99	8 84	4th.
Jessie 1.A	1st Cross Ayrshire	416	4,279	4·8	239·43	61 18	18 80	2nd.
Jessie 1.H	1st Cross Holstein	272	4,677	3·6	198·09	52 80	15 60	3rd.
Jessie 1.H.S	1st Cross Holstein	271	5,088	4·4	263·39	56·19	32 56	1st.
Ella	Grade Foundation Heifers	264	3,312	3·7	146·12	38 40	11 82	2nd.
Ella 1.A	1st Cross Ayrshire	362	4,641	4·5	245·70	52 83	29 74	1st.
Queen	Grade Foundation Heifers	304	4,303	3·9	197·43	47 31	20 19	2nd.
Queen 1.A	1st Cross Ayrshire	377	4,038	4·7	223·76	48 93	25 84	1st.
Myrtle	Grade Foundation Heifers	384	3,997	4·1	192·79	48 48	17 03	1st.
Myrtle 1.A	1st Cross Ayrshire	422	2,066	4·1	99·65	53 70	−19 75	4th.
Myrtle 1.H	1st Cross Holstein	362	4,217	3·4	168·68	49 87	8 89	2nd.
Myrtle 1.H.S	1st Cross Holstein	277	4,116	3·0	145·38	52 21	− 0 64	3rd.
Spot	Grade Foundation Heifers	398	4,060	4·1	195·84	50 29	16 21	2nd.
Spot 1.A	1st Cross Ayrshire	338	4,249	4·6	229·96	45 05	32 04	1st.
Spot 1.H	1st Cross Holstein	365	3,677	3·8	164·39	48 86	7 53	3rd.
Maggie	Grade Foundation Heifers	369	4,981	3·9	228·54	50 64	27 49	1st.
Maggie 1.H.S	1st Cross Holstein	299	4,057	4·4	210·01	53 43	17 26	2nd.
Jean	Grade Foundation Heifers	389	5,794	3·5	238·59	56 56	26 18	2nd.
Jean 1.A	1st Cross Ayrshire	343	5,014	4·0	234·76	49 37	30 68	1st.
Vera	Grade Foundation Heifers	395	5,369	3·5	221·07	56 26	20 42	2nd.
Vera 1.H	1st Cross Holstein	346	5,161	3·8	230·74	50 98	28 17	1st.
Bell	Grade Foundation Heifers	330	5,465	3·9	250·75	54 15	31 58	1st.
Bell 1.H	1st Cross Holstein	413	3,599	3·8	160·91	53 23	1 97	3rd.
Bell 1.A.S	1st Cross Ayrshire	203	3,391	3·9	155·57	48 88	4 31	2nd.
Mossy	Grade Foundation Heifers	368	3,004	4·8	171·40	42 73	14 42	2nd.
Mossy 1.H	1st Cross Ayrshire	380	3,301	4·8	187·63	49 29	13 28	3rd.
Mossy 1.H	1st Cross Holstein	375	4,922	4·6	266·35	52 91	36 39	1st.

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TABLE IV.—The following table gives the comparative, also the average three-year-old records of the grade foundation heifers and their progeny, namely, first-cross Ayrshires and first-cross Holsteins. Three-year old records of foundation cows and progeny.

Name	Breed	No. of days	Lbs. Milk	Per Cent Fat	Lbs. Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean	Grade Foundation Heifers	373	7,016	4·1	338·41	67 36	47 63	3rd.
Vera	" "	338	7,561	3·7	329·11	57 94	55 36	1st.
Bell	" "	289	6,057	3·9	277·90	56 23	38 79	4th.
Mossy	" "	387	5,120	5·3	319·23	56 76	48 70	2nd.
Jessie	" "	353	6,221	3·9	286·18	67 31	30 50	7th.
Ella	" "	304	4,527	4·0	213·04	40 95	31 65	6th.
Queen	" "	307	5,201	4·0	244·77	54 31	29 12	8th.
Myrtle	" "	337	3,629	3·9	166·48	45 71	11 20	9th.
Spot	" "	383	5,630	4·3	284·85	61 14	35 10	5th.
Averages		342	5,662	4·1	277·33	56 41	36 45	
Jean 1.A	1st Cross Ayrshire	252	4,710	3·9	216·14	43 25	30 64	3rd.
Mossy 1.A	"	322	3,638	4·3	184·18	49 23	12 89	6th.
Jessie 1.A	"	222	3,947	4·1	190·42	47 32	17 38	5th.
Ella 1.A	"	295	5,671	4·2	280·75	52 28	42 67	1st.
Queen 1.A	"	322	4,698	4·0	221·10	56 45	18 90	4th.
Myrtle 1.A	"	221	2,805	4·0	132·03	46 20	− 1 20	7th.
Spot 1.A	"	287	6,185	4·1	289·36	61 58	39 79	2nd.
Averages		274	4,522	4·1	217·47	50 90	23 01	
Mossy 1.H	1st Cross Holstein	368	3,589	3·3	139·36	36 48	11 92	4th.
Vera 1.H	"	285	5,311	2·6	162·47	44 03	15 01	3rd.
Jessie 1.H	"	279	5,205	3·5	214·34	43 87	30 47	1st.
Myrtle 1.H	"	243	4,828	3·1	176 09	39 58	21 64	2nd.
Spot 1.H	"	221	3,108	3·1	113·35	44 92	− 4 89	6th.
Bell 1.H	"	222	2,630	2·9	89·74	34 67	− 2 64	5th.
Averages		269	4,111	3·1	149·23	40 59	11 92	

TABLE V.—The following table gives the average three-year-old records of second crop but first-cross Holsteins.

Name	Breed	No. of days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jessie 1.H.S.	1st Cross Holstein	471	9,703	3·9	445·17	93 02	59 18	1st.
Maggie 1.H.S.	"	402	7,551	3·9	346·47	95 61	22 84	2nd.
Myrtle 1.H.S.	"	264	5,066	3·6	214·57	52 80	21 34	3rd.
Averages		379	7,440	3·8	335·40	80 47	34 45	

TABLE VI.—The following tables give the comparative yields of dams, their progeny, and their merit of standing as three-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean	Grade Foundation Heifers	373	7,016	4·1	338·41	67 36	47 63	1st.
Jean 1.A	1st Cross Ayrshire	252	4,710	3·9	216·14	43 25	30 64	2nd.
Vera	Grade Foundation Heifer	338	7,561	3·7	329·11	57 94	55 36	1st.
Vera 1.H	1st Cross Holstein	285	5,311	2·6	162·47	44 03	15 01	2nd.
Bell	Grade Foundation Heifers	299	6,057	3·9	277·90	56 23	38 79	1st.
Bell 1.H	1st Cross Holstein	222	2,630	2·9	89·74	34 67	−2 64	2nd.
Mossy	Grade Foundation Heifers	387	5,120	5·3	319·23	56 76	48 70	1st.
Mossy 1.A	1st Cross Ayrshire	322	3,638	4·3	184 18	49 23	12 89	2nd.
Mossy 1.H	1st Cross Holstein	368	3,589	3·3	139·36	36 48	11 92	3rd.
Jessie	Grade Foundation Heifers	352	6,221	3·9	286·18	67 31	30 50	2nd.
Jessie 1.A	1st Cross Ayrshire	222	3,947	4·1	190·42	47 32	17 38	4th.
Jessie 1.H	1st Cross Holstein	279	5,205	3·5	214·34	43 87	30 47	3rd.
Jessie 1.H.S	1st Cross Holstein	471	9,703	3·9	445·17	93 02	59 18	1st.
Ella	Grade Foundation Heifers	304	4,527	4·0	213·04	40 95	31 65	2nd.
Ella 1.A	1st Cross Ayrshire	295	5,671	4·2	280·25	52 28	42 67	1st.
Queen	Grade Foundation Heifers	307	5,201	4·0	244·77	54 31	29 12	1st.
Queen 1.A	1st Cross Ayrshire	322	4,698	4·0	221·10	56 45	18 90	2nd.
Myrtle	Grade Foundation Heifers	337	3,629	3·9	166·48	45 71	11 20	3rd.
Myrtle 1.A	1st Cross Ayrshire	221	2,805	4·0	132·03	46 20	− 1 20	4th.
Myrtle 1.H	1st Cross Holstein	243	4,828	3·1	176·09	39 58	21 64	2nd.
Myrtle 1.H.S	1st Cross Holstein	264	5,066	3·6	214·57	52 80	21 34	1st.
Spot	Grade Foundation Heifers	383	5,630	4·3	284·85	61 14	35 10	2nd.
Spot 1.A	1st Cross Ayrshire	287	6,185	4·1	298·36	61 58	39 79	1st.
Spot 1.H	1st Cross Holstein	221	3,108	3·1	113·35	44 92	− 4 89	3rd.
Maggie	Grade Foundation Heifers	365	8,713	4·5	461·12	75 09	27 49	1st.
Maggie 1.H.S	1st Cross Holstein	402	7,551	3·9	346·47	95 61	22 84	2nd.

TABLE VII.—The following table gives the comparative also the average four-year-old records of the grade foundation of heifers and their progeny, namely, first-cross Ayrshires and first-cross Holsteins.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell	Grade Foundation Heifers	380	7,259	4·1	350·13	60 83	58 19	1st.
Ella	" "	359	6,771	4·1	325·17	67 62	42 92	7th.
Jean	" "	289	5,961	3·9	273·54	43 95	49 58	4th.
Jessie	" "	445	5,149	4·2	254·43	48 74	37 46	8th.
Maggie	" "	283	6,666	4·0	319·54	55 71	52 95	2nd.
Mossy	" "	325	4,886	4·8	280·09	50 18	43 16	6th.
Myrtle	" "	407	5,066	3·7	225 87	56 18	21 33	9th.
Queen	" "	292	6,111	4·3	309·15	54 59	49 85	3rd.
Vera	" "	347	6,841	3·6	293·16	56 48	44 46	5th.
Averages		347	6,079	4·1	292·34	54 93	44 46	
Ella 1.A	1st Cross Ayrshire	238	4,561	4·4	240·76	39 15	41 97	3rd.
Jean 1.A	"	269	6,509	3·4	260·35	52 77	37 91	5th.
Jessie 1 A	"	290	5,239	4·4	273·97	52 62	39 69	4th.
Mossy 1.A	"	255	4,412	3·3	171·30	54 94	4 73	7th.
Myrtle 1.A	"	177	2,871	3·5	118·22	36 09	4 92	6th.
Queen 1.A	"	307	5,929	4·0	278·99	49 85	45 23	2nd.
Spot 1.A	"	318	6,659	4·4	344·70	54 09	62 05	1st.
Averages		265	5,189	3·9	241·18	48 50	33 78	
Bell 1.H	1st Cross Holstein	309	3,494	3·2	130·33	52 77	− 6·91	5th.
Jessie 1.H	"	354	6,324	3·5	260·38	57 12	33 19	2nd.
Mossy 1.H	"	280	5,113	4·1	247·59	47 68	36 45	1st.
Myrtle 1.H	"	260	4,660	3·6	197·35	41 59	26 60	4th.
Spot 1.H	"	247	2,356	3·1	85·92	55 55	−25 20	6th.
Vera 1.H	"	279	4,984	3·5	205·20	42 11	29 07	3rd.
Averages		288	4,488	3·5	187·79	49 47	15 53	
Jessie 1.H.S	1st Cross Holstein	388	9,764	4·1	470·95	71 43	88 59	1st.
Maggie 1.H.S	"	124	2,887	3·4	115·49	22 80	17 43	3rd.
Myrtle 1.H.S	"	252	5,315	4·2	262·63	52 09	36 88	2nd.
Averages		282	5,989	3·9	283·02	48 77	47 63	

TABLE VIII.—The following table gives the comparative yields of the dams, their progeny and their merit of standing as four-year olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell	Grade Foundation Heifers	380	7,259	4·1	350·13	60 83	58 19	1st.
Bell 1.H	1st Cross Holstein	309	3,494	3·2	130·33	52 77	— 6 91	2nd.
Ella	Grade Foundation Heifers	359	6,771	4·1	325·17	67 62	42 92	1st.
Ella 1.A	1st Cross Ayrshire	238	4,651	4·4	240·76	39·15	41·97	2nd.
Jean	Grade Foundation Heifers	289	5,961	3·9	273·54	43 95	49 58	1st.
Jean 1.A	1st Cross Ayrshire	269	6,509	3·4	260·35	52 77	37 91	2nd.
Jessie 1.H.S	1st Cross Holstein	388	9,764	4·1	470·95	71 43	88 59	1st.
Jessie	Grade Foundation Heifers	445	5,149	4·2	254·43	48 74	37 46	3rd.
Jessie 1.A	1st Cross Ayrshire	290	5,293	4·4	273·97	52 52	39 69	2nd.
Maggie	Grade Foundation Heifers	283	6,666	4·0	319·54	55 71	52 95	1st.
Maggie 1.H.S	1st Cross Holstein	124	2,887	3·4	115·49	22 80	17 43	2nd.
Mossy	Grade Foundation Heifers	325	4,886	4·8	280·09	50 18	43 16	1st.
Mossy 1.A	1st Cross Ayrshire	355	4,412	3·3	171·30	54 94	4 73	3rd.
Mossy 1.H	1st Cross Holstein	280	5,113	4·1	247·59	47 68	36 45	2nd.
Myrtle	Grade Foundation Heifers	407	5,066	3·7	225·87	56 18	21 33	3rd.
Myrtle 1.A	1st Cross Ayrshire	177	2,871	3·5	118·22	36 09	4 92	4th.
Myrtle 1.H	1st Cross Holstein	260	4,660	3·6	197·35	41 59	26 60	2nd.
Myrtle 1.H.S	1st Cross Holstein	252	5,315	4·2	262·63	52 09	36 88	1st.
Queen	Grade Foundation Heifers	292	6,111	4·3	309·15	54 59	49 85	1st.
Queen 1.A	1st Cross Ayrshire	307	5,929	4·0	278·99	49 85	45 23	2nd.
Vera	Grade Foundation Heifers	347	6,841	3·6	293·16	56 48	44 66	1st.
Vera 1.H	1st Cross Holstein	279	4,984	3·5	205·20	42 11	29 07	2nd.

TABLE IX.—The following table gives the comparative, also average five-year-old records of the grade foundation heifers and their progeny, namely, the first-cross Ayrshires and first-cross Holsteins.

Name	Breed	No. of Days	Lbs. Milk	Per cent Fat	Lbs. Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell	Grade Foundation Heifers	297	5,892	3·9	270·35	46 80	45 64	3rd.
Ella	" "	233	5,492	4·0	258·44	50 83	37 24	6th.
Jean	" "	333	6,901	3·9	316·62	50 42	57 83	1st.
Jessie	" "	369	5,955	4·0	280·25	56 25	39 26	5th.
Myrtle	" "	316	4,667	3·7	203·15	46 25	23 67	8th.
Mossy	" "	377	5,153	4·9	297·07	54 77	44 15	4th.
Queen	" "	339	5,076	4·0	238·86	51 97	29 47	7th.
Vera	" "	395	7,485	3·8	334·63	62 94	51 85	2nd.
Averages		332	5,828	4·0	274·92	52 53	41 14	
Ella 1.A	1st Cross Ayrshire	270	4,938	4·4	255·62	46 66	39 46	3rd.
Jean 1.A	"	230	5,409	4·0	254·54	44 33	42 38	1st.
Jessie 1.A	"	273	5,353	4·2	264·49	45 13	41 48	2nd.
Myrtle 1.A	"	209	3,365	4·2	166·27	44 19	12 14	6th.
Mossy 1.A	"	274	3,280	4·3	165·90	42 19	13 86	5th.
Queen 1.A	"	338	4,557	4·1	219·80	47 90	26 78	4th.
Averages		266	4,484	4·2	221·10	45 57	29 35	
Jessie 1.H	1st Cross Holstein	236	5,417	2·2	140·19	52 27	− 0·34	5th.
Mossy 1.H	"	279	4,862	3·2	183·05	57 42	6 91	4th.
Myrtle 1.H	"	260	5,195	3·1	189·46	55 79	11 12	3rd.
Bell 1.H	"	273	3,901	2·7	123·92	55 79	13 02	2nd.
Vera 1.H	"	241	5,759	2·9	196·26	53 45	16 56	1st.
Averages		258	5,027	2·8	166·58	54 94	9 45	

TABLE X.—The following table gives the comparative yields of the dams, their progeny and their merit of standing as five-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella	Grade Foundation Heifers	233	5,492	4·0	258·44	50 83	37 24	2nd.
Ella 1.A	1st Cross Ayrshire	270	4,938	4·4	255·66	46 66	39 46	1st.
Jean	Grade Foundation Heifers	333	6,901	3·9	316·62	50 42	57 83	1st.
Jean 1.A	1st Cross Ayrshire	230	5,409	4·0	254·54	44 33	42 38	2nd.
Jessie	Grade Foundation Heifers	369	5,955	4·0	280·25	56 25	39 26	2nd.
Jessie 1.A	1st Cross Ayrshire	273	5·353	4·2	264·49	48 13	41 48	1st.
Jessie 1.H	1st Cross Holstein	236	5,417	2·2	140·19	52 27	— 0 34	3rd.
Mossy	Grade Foundation Heifers	377	5,153	4·9	297·07	54 77	44 15	1st.
Mossy 1.A	1st Cross Ayrshire	274	3,280	4·3	165·90	42 19	13 86	2nd.
Mossy 1.H	1st Cross Holstein	279	4,862	3·2	183·05	57 42	6 91	3rd.
Myrtle	Grade Foundation Heifers	316	4,667	3·7	203·15	46 25	23 67	1st.
Myrtle 1.A	1st Cross Ayrshire	209	3,365	4·2	166·27	44 19	12 14	2nd.
Myrtle 1.H	1st Cross Holstein	260	5,195	3·1	189·46	55 79	11 12	3rd.
Queen	Grade Foundation Heifers	339	5,076	4·0	238·86	51 97	29 47	1st.
Queen 1.A	1st Cross Ayrshire	338	4,557	4·1	219·80	47 90	26 78	2nd.
Bell	Grade Foundation Heifers	297	5,892	3·9	270·35	46 80	45 64	1st.
Bell 1. H	1st Cross Holstein	273	3,901	2·7	123·92	55 79	13 02	2nd.
Vera	Grade Foundation Heifers	395	7,485	3·8	334·63	62 94	51 85	1st.
Vera .H	1st Cross Holstein	241	5,759	2·9	196·26	53 45	16 56	2nd.

TABLE XI.—The following table gives the comparative, also average six-year-old records of the grade foundation heifers and their progeny, namely, the first-cross Ayrshires and first-cross Holsteins.

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Bell	Grade Foundation Heifers	293	6,089	2·9	207·75	56 57	17 59	7th.
Ella	" "	328	4,599	3·9	211·04	48 91	23 24	5th.
Jean	" "	257	6,342	3·7	276·05	49 25	45 78	2nd.
Jessie	" "	260	5,366	3·3	208·30	46 19	26 68	4th.
Myrtle	" "	292	5,262	3·4	210·47	52 14	21 17	6th.
Mossy	" "	244	3,075	4·5	162·79	37 65	17 06	8th.
Queen	" "	296	4,694	4·0	220·89	46 67	28 61	3rd.
Vera	" "	375	7,999	3·3	310·56	58 33	50 22	1st.
Averages		293	5,428	3·6	255·94	49 46	28 79	
Ella 1.A	1st Cross Ayrshire	212	4,978	3·2	187·39	52 71	13 15	3rd.
Jean 1.A	"	216	5,400	4·1	260·47	56 87	25 26	2nd.
Jessie 1.A	"	273	5,545	4·0	260·93	60 23	28 70	1st.
Mossy 1.A	"	317	4,006	3·7	174·38	57 27	2 76	4th.
Myrtle 1.A	"	199	2,113	2·9	72·07	52 05	−27 43	5th.
Averages		243	4,408	3·5	191·04	55 82	8 44	
Bell 1.H	1st Cross Holstein	247	4,250	3·9	195·00	44 85	21 82	4th.
Jessie 1.H	"	228	6,600	3·6	279·51	55 54	41 03	2nd.
Mossy 1.H	"	291	6,575	3·9	301·68	67 06	36 08	3rd.
Myrtle 1.H	"	260	4,821	3·3	187·18	54 53	10 94	5th.
Vera 1.H	"	288	7,590	3·7	330·38	64 43	49 30	1st.
Averages		262	5,967	3·6	258 75	57 28	31 83	

TABLE XII.—The following table gives the comparative yields of the dams, their progeny and their merit of standing as six-year-olds.

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Ella	Grade Foundation Heifers	328	4,599	3·9	211·04	48 91	23 24	1st.
Ella 1.A	1st Cross Ayrshire	212	4,978	3·2	187·39	52 71	13 15	2nd.
Jean	Grade Foundation Heifers	257	6,342	3·7	276·05	49 25	45 78	1st.
Jean 1.A	1st Cross Ayrshire	216	5,400	4·1	260·47	56 87	25 26	2nd.
Jessie	Grade Foundation Heifers	660	5,366	3·3	208·30	46 19	26 68	3rd.
Jessie 1.A	1st Cross Ayrshire	273	5,545	4·0	260·93	60 23	28 70	2nd.
Jessie 1.H	1st Cross Holstein	228	6,599	3·6	279·51	55 54	41 03	1st.
Mossy	Grade Foundation Heifers	244	3,075	4·5	162·79	37 65	17 06	2nd.
Mossy 1.A	1st Cross Ayrshire	317	4,006	3·7	174·38	57 27	2 76	3rd.
Mossy 1.H	1st Cross Holstein	291	6,575	3·9	301·68	67 06	36 08	1st.
Myrtle	Grade Foundation Heifers	292	5,262	3·4	210·47	52 14	21 17	1st.
Myrtle 1.A	1st Cross Ayrshire	199	2,113	2·9	72·07	52 05	−27 43	3rd.
Myrtle 1.H	1st Cross Holstein	260	4,821	3·3	187·18	54 53	10 94	2nd.
Bell	Grade Foundation Heifers	293	6,089	2·9	207·75	56 57	17 59	2nd.
Bell 1.H	1st Cross Holstein	247	4,250	3·9	195·00	44 85	21 82	1st.
Vera	Grade Foundation Heifers	375	7,999	3·3	310·56	58 33	50 22	1st.
Vera 1.H	1st Cross Holstein	288	7,590	3·7	330·38	64 43	49 30	2nd.

TABLE XIII.—The following table gives the comparative, also the average two-year-old records of the first-cross Ayrshires and their progeny, namely, the second-cross Ayrshires.

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing.
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	362	4,641	4·5	245·70	52 83	29 74	3rd.
Jean 1.A	"	343	5,014	4·0	234·76	49 37	30 68	2nd.
Jessie 1.A	"	416	4,279	4·8	239·43	61 18	18 80	6th.
Lessie 1.A	"	334	3,885	4·0	182·82	37 19	25 11	5th.
Mossy 1.A	"	380	3,300	4·8	187·63	49 29	13 28	7th.
Myrtle 1.A	"	422	2,066	4·1	99·65	53 70	−19 75	8th.
Queen 1.A	"	377	4,038	4·7	223·76	48 93	25 84	4th.
Spot 1.A	"	338	4,349	4·6	229·96	45 05	32 04	1st.
Averages		371	3,934	4·4	205·46	49 69	21 93	
Jean 1, A.1	2nd Cross Ayrshire	292	2,607	2·8	85·88	43 66	−12 83	4th.
Jessie 1, A.1	"	278	3,306	3·3	123·34	41 90	2 99	3rd.
Lessie 1, A.1	"	302	3,882	3·8	173·53	47 07	12 46	1st.
Myrtle 1, A.1	"	253	3,045	4·1	146·88	41 62	8 28	2nd.
Averages		281	3,210	3·5	133·66	43 56	2 72	
Ella 1, A.2	2nd Cross Ayrshire	279	2,256	4·1	116·75	45 10	−5 76	4th.
Jessie 1, A.2	"	219	2,270	4·4	117·49	35 60	3 99	2nd.
Queen 1, A.2	"	268	3,126	4·3	158·12	44 74	8 68	1st.
Spot 1, A. 2	"	269	2,522	4·4	130·55	42 19	1 80	3rd.
Averages		256	2,543	4·3	130·73	41 91	2 18	
Ella 1. A.3	2nd Cross Ayrshire	232	2,704	3·5	111·32	49 40	−10 79	2nd.
Myrtle 1, A.3	"	232	2,999	3·5	123·50	49 40	−6 60	1st.
Averages		232	2,851	3·5	117·41	49 40	−8 69	
Jean 1, A.4	2nd Cross Ayrshire	254	3,691	4·0	173·71	53 59	5 61	2nd.
Mossy 1, A.4	"	250	3,270	4·0	153·87	49 19	3 25	3rd.
Spot 1, A.4	"	283	3,977	4·4	205·84	54 60	14 75	1st.
Averages		262	3,646	4·1	177·80	52 46	7 97	
Ella 1, A.5	1st Cross Ayrshire	238	3,515	4·5	186·11	40 78	21 76	4th.
Jean L, A.5	"	271	4,292	4·9	247·43	50 43	31 96	2nd.
Jessie 1, A.5	"	295	4,292	4·9	247·43	53 25	29 13	3rd.
Lessie 1, A.5	"	280	4,123	5·4	261·93	46 34	40 04	1st.
Myrtle 1, A.5	"	315	2,941	4·5	155·70	43 76	8 57	6th.
Queen 1, A.5	"	289	3,559	4·5	188·40	44 25	19 07	5th.
Averages		281	3,687	4·8	214·50	48 14	25 09	

TABLE XIV.—The following table gives the comparative yields of the dams and their progeny also merit of standing as two-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	362	4,641	4·5	245·70	52 83	29 74	1st.
Ella 1.A.2	2nd Cross Ayrshire	279	2,256	4·1	116·75	45 10	− 5 76	3rd.
Ella 1.A.3	"	232	2,704	3·5	111·32	49 40	−10 79	4th.
Ella 1.A.5	"	238	3,515	4·5	186·11	40 78	21 76	2nd.
Jean 1.A	1st Cross Ayrshire	343	5,014	4·0	234·76	49 37	30 68	2nd.
Jean 1.A.1	2nd Cross Ayrshire	292	2,607	2·8	85·88	43 66	−12 82	4th.
Jean 1.A.4	"	254	2,691	4·0	173·71	53 59	5 61	3rd.
Jean 1.A.5	"	271	4,292	4·9	247·43	50 43	31 96	1st.
Jessie 1.A	1st Cross Ayrshire	416	4,279	4·8	239·43	61 18	18 80	2nd.
Jessie 1.A.1	2nd Cross Ayrshire	278	3,306	3·3	128·34	41 90	2 99	4th.
Jessie 1.A.2	"	219	2,270	4·4	117·49	35 60	3 99	3rd.
Jessie 1.A.5	"	295	4,292	4·9	247·43	53 25	29 13	1st.
Lessie 1.A	1st Cross Ayrshire	334	3,885	4·0	182·82	37 19	25 11	2nd.
Lessie 1.A.1	2nd Cross Ayrshire	302	3,882	3·8	173·53	47 07	12 46	3rd.
Lessie 1.A.5	"	280	4,123	5·4	261·93	46 34	40 04	1st.
Mossy 1.A	1st Cross Ayrshire	380	3,300	4·8	187·63	49 29	13 28	1st.
Mossy 1.A.4	2nd Cross Ayrshire	250	3,270	4·0	153·87	49 19	3 25	2nd.
Myrtle 1.A	1st Cross Ayrshire	422	2,066	4·1	99·65	53 70	−19 75	4th.
Myrtle 1.A.1	2nd Cross Ayrshire	253	3,045	4·1	146·88	41 62	8 28	2nd.
Myrtle 1.A.3	"	232	2,999	3·5	123·50	49 40	−6 60	3rd.
Myrtle 1.A.5	"	315	2,941	4·5	155·70	43 76	8 57	1st.
Queen 1.A	1st Cross Ayrshire	377	4,038	4·7	223·76	48 93	25 84	1st.
Queen 1.A.2	2nd Cross Ayrshire	268	3,126	4·3	158·12	44 74	8 68	3rd.
Queen 1.A.5	"	289	3,556	4·5	188·40	44 25	19 07	2nd.
Spot 1.A	1st Cross Ayrshire	338	4,249	4·6	229·96	45 05	32 04	1st.
Spot 1.A.2	2nd Cross Ayrshire	259	2,522	4·4	130·55	42 19	1 80	3rd.
Spot 1.A.4	"	283	3,977	4·4	205·84	54 60	14 75	2nd.

TABLE XV.—The following table gives the comparative, also average three-year-old records of the first cross Ayrshires and their progeny, namely the second cross Ayrshire.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	295	5,672	4·2	280·25	52 28	42 67	1st.
Jean 1.A	"	252	4,711	3·9	216·14	43 25	30 64	4th.
Jessie 1.A	"	222	3,947	4·1	190·42	47 32	17 38	6th.
Lessie 1.A	"	278	5,399	3·9	247·71	49 58	35 12	3rd.
Mossy 1.A	"	322	3,639	4·3	184·18	49 23	12 98	7th.
Myrtle 1.A	"	221	2,805	4·0	132·03	46 20	−1 20	8th.
Queen 1.A	"	322	4,698	4·0	221·10	56 45	18 90	5th.
Spot 1.A	"	287	6,186	4·1	298·36	61 58	39 79	2nd.
Averages		250	4,632	4·1	221·27	50 74	24 42	
Jean 1.A.1	2nd Cross Ayrshire	234	3,459	4·0	162·78	40 50	14 97	3rd.
Jessie 1.A.1	"	253	3,193	3·8	142·88	43 46	5 60	4th.
Lessie 1.A.1	"	321	4,222	4·0	198·66	57 26	10 45	1st.
Myrtle 1.A.1	"	259	4,046	4·1	195·15	46 02	22 29	2nd.1
Averages		267	3,730	4·0	174·87	46 81	13 33	
Ella 1.A.3	2nd Cross Ayrshire	230	4,332	3·9	198·78	56 99	10 97	1st.
Myrtle 1.A.3	"	258	3,437	3·8	153·64	52 39	0·31	2nd.
Averages		244	3,884	3·8	176·21	54 69	5·64	
Jean 1.A.4	2nd Cross Ayrshire	266	4,487	4·2	221·73	55 07	20 06	3rd.
Mossy 1.A.4	"	349	5,708	4·6	308·88	65 49	38 06	1st.
Spot 1.A.4	"	326	4,653	4·4	240·88	57 24	23 92	2nd.
Averages		313	4,949	4·4	290·49	59 26	27 35	

TABLE XVI.—The following table gives the comparative yields of the dams and their progeny, and their merit of standing at three-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	295	5,672	4·2	280·25	52 28	42 67	1st.
Ella 1.A.3	2nd Cross Ayrshire	230	4,332	3·9	198·78	56 99	10 97	2nd.
Jean 1.A	1st Cross Ayrshire	252	4,710	3·9	216·14	43 25	30 64	1st.
Jean 1.A.1	2nd Cross Ayrshire	234	3,459	4·0	162·78	40 50	14 97	3rd.
Jean 1.A.4	"	266	4,487	4·2	221·73	55 07	20 06	2nd.
Jessie 1.A	1st Cross Ayrshire	222	3,947	4·1	190·42	47 32	17 38	1st.
Jessie 1.A.1	2nd Cross Ayrshire	253	3,193	3·8	142·88	43 46	5 60	2nd.
Lessie 1.A	1st Cross Ayrshire	278	5,399	3·9	247·71	49 58	35 12	1st.
Lessie 1.A.1	2nd Cross Ayrshire	321	4,222	4·0	198·66	57 26	10 45	2nd.
Mossy 1.A	1st Cross Ayrshire	322	3,639	4·3	184·18	49 23	12 98	2nd.
Mossy 1.A.4	2nd Cross Ayrshire	349	5,708	4·6	308·88	65 49	38 06	1st.
Myrtle 1.A	1st Cross Ayrshire	221	2,805	4·0	132·03	46 20	−1 20	3rd.
Myrtle 1.A.1	2nd Cross Ayrshire	259	4,046	4·1	195·15	46 02	22 29	1st.
Myrtle 1.A.3	"	258	3,437	3·8	153·64	52 39	0 31	2nd.
Spot 1.A	1st Cross Ayrshire	287	6,186	4·1	298·36	61 58	39 79	1st.
Spot 1.A.4	2nd Cross Ayrshire	326	4,653	4·4	240·88	57 24	23 92	2nd.

TABLE XVII.—The following table gives the comparative, also the average four-year-old records of the first cross Ayrshires and their progeny, namely, the second cross Ayrshires.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean 1.A	1st Cross Ayrshire	269	6,509	3·4	260·35	52 77	37 91	3rd.
Ella 1.A	"	238	4,651	4·4	240·76	39 15	41 97	2nd.
Lessie 1.A	"	319	7,127	3·5	294·05	60 01	42 41	1st.
Myrtle 1.A	"	177	2,871	3·5	118·22	36 09	4 92	4th.
Averages		250	5,290	3·7	228·34	47 01	31 80	
Jean 1.A.1	2nd Cross Ayrshire	227	4,037	3·7	175·73	53 41	7 10	2nd.
Lessie 1.A.1	"	269	5,021	3·1	183·13	54 00	10 67	1st.
Myrtle 1.A.1	"	256	4,114	4·1	198·43	29 50	8 88	3rd.
Averages		251	4,390	3·6	185·76	45 63	8 88	
Ella 1.A.3	2nd Cross Ayrshire	249	4,380	4·5	231·89	54 28	23 66	1st.
Myrtle 1.A.3	"	296	4,582	4·2	226·41	56 67	20 03	2nd.
Averages		272	4,481	4·4	229·15	55 48	21 85	

TABLE XVIII.—The following table gives the comparative yields of the dams and their progeny also merits of standing as four-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	238	4,651	4·4	240·76	39 15	41 97	1st.
Ella 1.A.3	2nd Cross Ayrshire	249	4,380	4·5	231·89	54 28	23 66	2nd.
Jean 1.A	1st Cross Ayrshire	269	6,509	3·4	260·35	52 77	37 91	1st.
Jean 1.A.1	2nd Cross Ayrshire	227	4,037	3·7	175·73	53 41	7 10	2nd.
Lessie 1.A	1st Cross Ayrshire	319	7,127	3·5	294·05	60 01	42 41	1st.
Lessie 1.A.1	2nd Cross Ayrshire	269	5,021	3·1	183·13	54 00	10 67	2nd
Myrtle 1.A	1st Cross Ayrshire	177	2,871	3·5	118·22	36 09	4 92	3rd.
Myrtle 1.A.1	2nd Cross Ayrshire	256	4,114	4·1	198·43	29 50	8 88	2nd.
Myrtle 1.A.3	" "	296	4,582	4·2	226·41	56·67	20 03	1st.

TABLE XIX.—The following table gives the comparative, also the average five-year-old records of the fist-cross Ayrshires and their progeny, namely the second-cross Ayrshires.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean 1.A	1st Cross Ayrshire	230	5,409	4·0	254·54	44 33	42 38	2nd.
Lessie 1.A	"	260	6,488	3·9	297·67	44 94	56 83	1st
Myrtle 1.A	"	209	3,365	4·2	166·27	44 19	12 14	3rd.
Averages		233	5,087	4·0	239·49	44 48	37 11	
Jean 1.A.1	2nd Cross Ayrshire	286	5,759	3·7	257·45	59 06	29 26	2nd.
Lessie 1.A.1	"	279	5,542	4·0	260·81	52 07	36 81	1st.
Myrtle 1.A.1	"	274	5,039	4·2	248·99	58 86	25 49	3rd.
Averages		279	5,480	3·9	255·41	56 66	30 52	

TABLE XX.—The following table gives the comparative yields of the dams and their progeny, also their merit of standing as five-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean 1.A	1st Cross Ayrshire	230	5,409	4·0	254·54	44 33	42 38	1st.
Jean 1.A.1	2nd Cross Ayrshire	286	5,759	3·7	257·45	59 06	36 81	2nd.
Lessie	1st Cross Ayrshire	260	6,488	3·9	297·67	44 94	56 83	1st.
Lessie 1.A.1	2nd Cross Ayrshire	279	5,542	4·0	260·81	52 07	36 81	2nd.
Myrtle 1.A	1st Cross Ayrshire	209	3,365	4·2	166·49	44 19	12 14	2nd.
Myrtle 1.A.1	2nd Cross Ayrshire	274	5,039	4·2	248·99	58 86	25 49	1st.

Table XXI.—The following table gives the comparative, also average six-year-old records of the first-cross Ayrshires and their progeny, namely, the second-cross Ayrshires.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Ella 1.A	1st Cross Ayrshire	212	4,978	3·2	187·39	52 71	13 15	4th.
Jean 1.A	"	216	5,400	4·1	260·47	56 87	25 26	3rd.
Jessie 1.A	"	273	5,545	4·0	260·93	60 23	28 70	2nd.
Mossy 1.A	"	317	4,006	3·7	174·38	57 27	2 76	5th.
Myrtle 1.A	"	199	2,113	2·9	72·07	52 05	−27 43	6th.
Spot 1.A	"	229	5,032	4·7	278·22	51 81	41 20	1st.
Averages		241	4,512	3·8	205·57	55 16	13 94	
Jean 1.A.1	2nd Cross Ayrshire	287	6,504	4·3	329·02	57 57	53 58	2nd.
Lessie 1.A.1	"	242	6,358	4·2	314·15	54 17	52 26	3rd.
Myrtle 1.A.1	"	290	6,426	4·8	362·85	58 92	62 16	1st.
Averages		273	6,429	4·4	335·34	56 89	56 00	

Table XXII.—The following table gives the comparative yields of the dams and their progeny, also the merit of standing at six years old.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Jean 1.A	1st Cross Ayrshire	216	5,400	4·1	260·47	56 87	25 26	2nd.
Jean 1.A.1	2nd Cross Ayrshire	287—	6,504	4·3	329·02	57 57	53 58	1st.
Myrtle 1.A	1st Cross Ayrshire	199	2,113	2·9	72·07	52 05	−27 43	2nd.
Myrtle 1.A.1	2nd Cross Ayrshire	290	6,426	4·8	362·85	58 92	62 16	1st.

TABLE XXIII.—The following table gives the comparative two-year-old records of the first-cross Ayrshires second crop with their progeny, namely, second-cross Ayrshires.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell 1.A.S	1st Cross Ayrshire	279	3,220	4·5	170·51	47 03	10 27	1st.
Bell 1.A.S.1	"	258	3,503	4·4	181·32	51 83	9 27	2nd.

TABLE XXIV.—The following table gives the comparative three-year-old records of the first-cross Ayrshires second crop and their progeny, namely, second-cross Ayrshires.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell 1.A.S	1st Cross Ayrshire	203	3,391	3·9	155·57	48 88	4 31	2nd.
Bell 1.A.S.1	"	242	3,621	4·6	195·94	47 99	17 70	1st.

TABLE XXV.—The following table gives the comparative, also average, two-year-old records of the second-cross Ayrshires and their progeny, namely, third-cross Ayrshires.

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Jessie 1, A.1	2nd Cross Ayrshire	278	3,306	3·3	128·34	41 90	2 39	3rd.
Lessie 1, A.1	"	302	3,882	3·8	173·53	47 07	12 46	1st.
Myrtle 1, A.1	"	253	3,045	4·1	146·88	41 62	8 28	2nd.
Averages		278	3,411	3·5	149·58	43 53	7 91	
Myrtle 1.A.1.1	3rd Cross Ayrshire	300	3,465	3·7	150·84	56 63	−4 71	3rd.
Jessie 1.A.1.2	"	308	5,030	4·4	269·39	55 45	32 29	1st.
Lessie 1.A.1.3	"	231	3,053	4·7	168·81	39 20	17 26	2nd.
Averages		280	3,849	4·3	196·18	50 43	14 95	

TABLE XXVI.—The following table gives the comparative yields of the dams and their progeny, also merit of standing as two-year-olds

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Queen 1.A.2	2nd Cross Ayrshire	268	3,126	4·3	158·12	44 74	8 68	2nd.
Queen 1.A.2.2	"	136	2,868	4·1	138·33	32 59	14 41	1st.
Jessie 1.A.1	2nd Cross Ayrshire	278	3,306	3·3	128·34	41 90	2 99	2nd.
Jessie 1.A.1.2	"	308	5,030	4·4	269·39	55 45	32 29	1st.
Lessie 1.A.1	2nd Cross Ayrshire	302	3,882	3·8	173·53	47 07	12 46	2nd.
Lessie 1.A.1.3	3rd "	231	3,053	4·7	168·81	39 20	17 26	1st.
Myrtle 1.A.1	2nd Cross Ayrshire	253	3,045	4·1	146·88	41 62	8 28	1st.
Myrtle 1.A.1.1	3rd "	300	3,465	3·7	150·84	56 63	−4 71	2nd.

TABLE XXVII.—The following table gives the comparative, also the average, records of the second-cross Ayrshires and their progeny, namely, the third-cross Ayrshires, as three-year-olds.

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Jessie 1.A.1	2nd Cross Ayrshire	253	3,193	3·8	142·88	43 46	5 60	2nd.
Myrtle 1.A.1	"	259	4,046	4·1	195·15	46 02	22 29	1st.
Averages		256	3,620	3·9	169·02	44 74	13 95	
Myrtle 1.A.1.1	3rd Cross Ayrshire	224	3,494	4·0	164·41	48 21	7 92	2nd.
Jessie 1.A.1.2	"	266	4,102	4·7	226·83	47 27	28 59	1st.
Averages		245	3,798	4·3	195·62	47 74	18 20	

TABLE XXVIII.—The following table gives the comparative yields of the dams and their progeny, also merit of standing as three-year-olds

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Jessie 1.A.1	2nd Cross Ayrshire	253	3,193	3·8	142·88	43 46	5 60	2nd.
Jessie 1.A.1.2	3rd "	266	4,102	4·7	226·83	47 27	28 59	1st.
Myrtle 1.A.1	2nd Cross Ayrshire	259	4,046	4·1	195·15	46 02	22 29	1st.
Myrtle 1.A.1.1	3rd "	224	3,494	4·0	164·41	48 21	7 82	2nd.

TABLE XXIX.—The following table gives the comparative, also average, four-year-old record of second-cross Ayrshires and their progeny, namely, third-cross Ayrshires

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Jean 1.A.1	2nd Cross Ayrshire	227	4,037	3·7	175·73	53 41	7 10	3rd.
Lessie 1.A.1	"	269	5,021	3·1	183·13	54 00	10 67	1st.
Myrtle 1.A.1	"	256	4,114	4·1	198·43	58 53	8 88	2nd.
Averages		251	4,391	3·6	185·76	55 31	8 88	
Myrtle 1.A.1.1	3rd Cross Ayrshire	282	4,464	4·2	220·58	56 79	18 93	

TABLE XXX.—The following table gives the comparative yields of the dams and their progeny, also merit of standing as four-year-olds

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Myrtle 1.A.1	2nd Cross Ayrshire	256	4,114	4·1	198·43	58 53	8 88	2nd.
Myrtle 1.A.1.1	3rd "	282	4,464	4·2	220·58	56 79	18 93	1st.

TABLE XXXI.—The following table gives the comparative, also average, two-year-old records of the first-cross Holsteins and their progeny, namely the second-cross Holsteins

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Bell 1.H	1st Cross Holstein	413	3,599	3·8	160·91	53 23	1 97	6tb.
Jessie 1.H	"	372	4,677	3·6	198·09	52 80	15 65	3rd.
Mossy L.H	"	375	4,922	4·6	266·35	52 91	36 39	1st.
Myrtle 1.H	"	362	4,217	3·4	168·68	40 87	8 89	4th.
Spot 1.H	"	365	3,677	3·8	164·39	48 86	7 53	5th.
Vera 1.H	"	346	5,161	3·8	230·74	50 98	28 17	2nd.
Averages		372	4,376	3·8	198·19	51 44	16 43	
Bell 1.H.1	2nd Cross Holstein	338	4,760	3·4	190·39	54 53	11 79	2nd.
Mossy 1.H.1	"	293	4,683	3·8	209·33	46 98	24 83	1st.
Spot 1.H.1	"	300	4,057	3·6	171·82	48 74	10 63	3rd.
Averages		310	4,500	3·6	190 51	50 08	15 75	
Spot 1.H.2	2nd Cross Holstein	299	2,859	3·8	127·81	52 50	−8 66	2nd.
Vera 1.H.2	"	415	6,133	3·6	259·89	73 00	16 72	1st.
Averages		357	4,496	3·7	193·85	62 75	3 52	
Spot 1.H.3	2nd Cross Holstein	262	3,573	3·8	159·70	49 57	5 21	
Bell 1.H.4	2nd Cross Holstein	365	4,304	3·9	197·49	64 69	2 83	4tb.
Jessie 1.H.4	"	214	6,529	3·4	261·17	46 23	44 73	1st.
Myrtle 1.H.4	"	299	5,343	4·0	251·44	55 34	30 35	2nd.
Vera 1.H.4	"	411	7,102	3·2	267·35	74 80	19 16	3rd.
Averages		322	5,819	3·6	244.36	60 25	24 27	

TABLE XXXII.—The following table gives the comparative yields of the dams, their progeny, and their merit of standing as two-year-olds

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Bell, 1.H	1st Cross Holstein	413	3,599	3·8	160·91	52 23	1 97	3rd.
Bell, 1.H.1	2nd Cross Holstein	338	4,760	3·4	190·39	54 53	11 79	1st.
Bell, 1.H.4	"	365	4,304	3·9	197·49	64 69	2 83	2nd.
Jessie 1.H	1st Cross Holstein	372	4,677	3·6	198·09	52 80	15 65	2nd.
Jessie 1.H 4	2nd "	214	6,529	3·4	261·17	46 23	44 73	1st.
Mossy 1.H	1st Cross Holstein	375	4,922	4·6	266·35	52·91	36 39	1st.
Mossy L.H.1	2nd "	293	4,683	3·8	209·33	46 98	24 83	2nd.
Myrtle 1.H	1st Cross Holstein	362	4,217	3·4	168·68	49 87	8 89	2nd.
Myrtle 1.H.4	2nd "	299	5,343	4·0	251·44	55 34	30 35	1st.
Spot 1.H	1st Cross Holstein	365	3,677	3·8	164·39	48·86	7·53	2nd.
Spot 1.H.1	2nd Cross Holstein	300	4,057	3·6	171·82	48 74	10 63	1st.
Spot 1.H.2	"	299	2,857	3·8	127·81	52 50	−8 66	4th.
Spot 1.H.3	"	262	3,573	3·8	159·70	49 57	5 21	3rd.
Vera 1.H	1st Cross Holstein	346	5,161	3·8	230·74	50 98	28 17	1st.
Vera 1.H.2	2nd Cross Holstein	415	6,134	3·6	259·89	73 00	16 72	3rd.
Vera 1.H.4	"	411	7,102	3·2	267·35	74 80	19 16	2nd.

TABLE XXXIII.—*The following table gives the comparative, also average, three-year-old records of the first-cross Holsteins and their progeny, namely, the second-cross Holsteins*

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Spot 1.H	1st Cross Holstein	221	3,108	3·1	113·35	44 92	−4 89	5th.
Vera 1.H	"	285	5,312	2·6	162·47	44 03	15 01	3rd.
Bell 1.H	"	222	2,630	2·9	89·74	34 67	−2 64	6th.
Jessie 1.H	"	279	5,205	3·5	214·34	43 87	30 47	1st.
Mossy 1.H	"	368	3,590	3·3	139·36	36 48	11 92	4th.
Myrtle, 1.H	"	243	4,329	3·1	176·09	39 58	16 17	2nd.
Averages		270	4,029	3·1	149·23	40 59	11 01	
Spot 1.H.2	2nd Cross Holstein	308	3,567	3·9	163·64	57 25	−4 31	2nd.
Vera 1.H.2	"	298	5,003	3·8	223·68	61 98	14 75	1st.
Averages		303	4,285	3·9	193·66	59 61	5 22	
Spot 1.H.3	2nd Cross Holstein	265	4,046	3·5	166·59	45 76	12 03	

TABLE XXXIV.—The following table gives the comparative yields of the dams and their progeny, and their merit of standing as three-year olds

Name	Breed	No. of days	Lbs. of milk	Per cent fat	Lbs. of butter	Cost of feed	Profit	Standing
						$ cts.	$ cts.	
Spot 1.H	1st Cross Holstein	221	3,108	3·1	113·35	44 92	−4 89	3rd.
Spot 1.H.2	2nd Cross Holstein	308	3,567	3·9	163·64	51 98	−4 31	2nd.
Spot 1.H.3	"	265	4,046	3·5	166·59	45 76	12 03	1st.
Vera 1.H	1st Cross Holstein	285	5,312	2·6	162·47	44 03	−15 01	2nd.
Vera 1.H.2	2nd "	298	5,003	3·8	223·68	61 98	14 75	1st.

TABLE XXXV.—The following table gives the comparative, also the average four-year-old records of the first cross Holsteins and their progeny, namely, the second-cross Holsteins.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Bell 1.H.	1st Cross Holstein	309	3,494	3·2	130·33	52·77	−6 91	5th.
Jessie 1.H.	" "	354	6,324	3·5	260·38	57 12	33 19	2nd.
Mossy L. H.	" "	280	5,113	4·1	247·59	47 68	36 45	1st.
Myrtle 1.H.	" "	260	4,660	3·6	197·35	41 59	26 60	4th.
Spot 1.H.	" "	247	2,356	3·1	85·92	55 55	−25 20	6th.
Vera 1.H.	" "	279	4,984	3·5	205·20	42 11	29 07	3rd.
Averages		288	4,489	3·5	187·80	49 47	15 53	
Spot 1.H.2.	2nd Cross Holstein	435	6,723	4·1	324·28	66 16	42·01	2nd.
Vera 1.H.2.	" "	334	7,407	3·7	322·42	59 89	51 11	1st.
Averages		385	7,065	3·9	323·85	63 03	46 56	

TABLE XXXVI.—The following table gives the comparative yields of the dams and their progeny, and their merit of standing as four-year-olds

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Spot 1.H.	1st. Cross Holstein	247	2,356	3·1	85·92	55 55	−25 20	2nd.
Spot 1.H.2.	2nd. Cross Holstein	435	6,723	4·1	324·28	66·16	42·01	1st.
Vera 1.H.	1st. Cross Holstein	279	4,984	3·5	205·20	42·11	29 07	2nd.
Vera 1.H.2.	2nd. Cross Holstein	334	7,407	3·7	322·42	59 89	51 11	1st.

TABLE XXXVII.—The following table gives the comparative yields of the first cross Holsteins and their progeny namely the second cross Holsteins (second crop)

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Maggie 1.H.S.	1st. Cross Holstein	299	4,057	4·4	210·01	53 43	17 26	2nd.
Maggie 1.H.S.I.	2nd. Cross Holstein	302	4,838	3·9	221·98	55 63	20 26	1st.

TABLE XXXVIII.—The following table gives the comparative average two-year-old records of the second and third cross Holsteins.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Mossy 1.H.1.	2nd. Cross Holstein	293	4,683	3·8	209·33	46 98	24 83	1st.
Spot 1.H.1.	" "	300	4,057	3·6	171·82	48 74	10 63	2nd.
Spot 1. H.2.	" "	299	2,859	3·8	127·81	52 50	−8 66	3rd.
Averages.		297	3,533	3·7	169·65	49 47	8 93	
Mossy 1.H.1.2.	3rd. Cross Holstein	291	4,405	3·8	196·91	52 57	14 97	1st.
Spot 1.H.1.2.	" "	378	4,806	4·1	231·79	65 66	13 10	2nd.
Spot 1.H.2.1.	" "	232	1,602	3·6	66·87	34 22	−10 77	3rd.
Averages.		300	3,604	3·8	165·69	50 82	5 77	

TABLE XXXIX.—The following table gives the comparative yields of the dams and their progeny, also their merit of standing as two-year-olds.

Name	Breed	No. of Days	Lbs. of Milk	Per cent Fat	Lbs. of Butter	Cost of Feed	Profit	Standing
						$ cts.	$ cts.	
Mossy 1.H.1.	2nd. Cross Holstein	293	4,683	3·8	209·33	46 98	24 83	1st.
Mossy 1.H.1.2.	" "	291	4,405	3·8	196 91	52 57	14 97	2nd.
Spot 1.H.1.	2nd. Cross Holstein	300	4,057	3·6	171·82	48 74	10 63	2nd.
Spot 1.H.1.2.	3rd. Cross Holstein	378	4,806	4·1	231·79	65 66	13 10	1st.
Spot 1.H.2.1.	" "	232	1,602	3·6	66·87	34 22	−10 77	3fd.

In summarizing the data up to the present the following notations were made from the foregoing tables.

First, the only fair basis of comparison is that of butter fat production. In previous reports comparisons were made in milk production and profits realized. Therefore, all the tables above have been revised, and the percentage of superiority taken on the basis of butter fat.

The results to date are as follow: In the case of the first-cross Ayrshires as two-year-olds, 62·5 per cent were superior to their dams. As three-year-olds, 28·6 per cent were superior; as four-year-olds, 16·6 per cent were superior; as five-year-olds, none were superior; and as six-year-olds, 40 per cent were superior to their dams.

In comparing the first-cross Holsteins with their dams on a butter-fat basis, it will be noted that as two-year-olds, 44·4 per cent were superior to dams; as three-year-olds, 33·3 per cent were superior; as four-year-olds, 28·6 per cent were superior; as five-year-olds, none were superior; and as six-year-olds, 60 per cent were superior.

Comparing the progeny, second-cross Ayrshires, with their dams, (first-cross Ayrshires) on the butter-fat basis, as two-year-olds, 31 per cent were superior; as three-year-olds, 44·4 per cent were superior, as four-year-olds, 40 per cent were superior; as five-year-olds, 66·6 per cent were superior; and as six-year-olds, 100 per cent were superior.

Comparing the progeny (third-cross Ayrshires) with their dams (second-cross Ayshires), as two-year-olds, 50 per cent were superior; as three-year-olds, 50 per cent were superior; and as four-year-olds, 100 per cent were superior.

Comparing the progeny (second-cross Ayrshires, but second crop) with their dams (first-cross Ayrshires), as two-year-olds, 100 per cent were superior; and as three-year-olds also 100 per cent were superior.

Comparing the progeny, second-cross Ayrshires, with their dam (first-cross Holsteins), as two-year-olds, 70 per cent were superior; as three-year-olds, 100 per cent were superior; and as four-year-olds, 100 per cent were superior.

Comparing the progeny (second-cross Holsteins, but second crop) with their dams (first-cross Holsteins), as two-year-olds, 100 per cent were superior.

Comparing the third-cross Holsteins with their dams (second-cross Holsteins), as two-year-olds, 33·3 per cent were superior.

COST OF REARING GRADE CALVES

The following table gives the cost of rearing grade dairy heifers to the age of one year. All feeds have been charged at market prices at the stable. It will be noted from the table that the cost ranged from $55.08 to $64.33 per head or an average of $60.45.

GRADE DAIRY CALVES—COST OF REARING TO 1 YEAR OF AGE.

Name and Breed	Whole Milk at $3.20 per cwt.		Skim-Milk at 20c. per cwt.		Meal at $3.18 per cwt.		Roots at $3 per ton		Hay at $20 per ton		Green Feed at $3 per ton		Total Cost
	Lbs.	Cost	Lbs.	Cost	Lbs.	Cost	Lbs.	Cost	Lbs.	Cost	Lbs.	Cost	
		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	$ cts.
Lessie 1.A.1.5	964	30 85	1,928	3 86	482·0	15 33	352	0 53	614	6 14	398	0 60	57 31
Myrtle 1.A.1.1.3	843	26 98	1,928	3 86	528·0	16 79	471·6	0 71	614	6 14	398	0 60	55 08
Mossy 1.A.4.2	992	31 74	1,508	3 02	494·0	15 71	416	0 62	756	7 56	398	0 60	59 25
Spot 1.A.4.2	992	31 74	1,508	3 02	554·0	17 62	416	0 62	743	7 43	398	0 60	61 03
Bell 1.A.S.1.2	949	30 37	1,185	2 37	577·2	18 35	496	0 74	871	8 71	398	0 60	61 14
Myrtle 1.H.S.3	889	28 45	1,518	3 04	586·7	18 66	536	0 804	887	8 87	398	0 60	60 42
Vera 1.H.4.1	948	30 34	1,311	2 62	583·6	18 56	704	1 056	1,116	11 16	398	0 60	64 33
Lessie 1.A.1.3.1	948	30 34	1,311	2 62	579·6	18 43	475	0 712	953	9 53	398	0 60	62 23
Ella 1.A.3.3	850	27 20	1,127	2 254	609·8	19 39	542	0 813	1,021	10 21	367	0 55	60 42
Jessie 1.A.5.1	805	25 76	820	1 64	684·5	21 77	743	1 114	1,002	10 02	367	0 55	60 85
Queen 1.A.2.2.1	550	17 60	1,404	2 81	620	19 72	919	1 38	1,504	15 04	367	0 55	57 10
Jean 1.A.4.2	550	17 60	1,404	2 81	620	19 72	919	1 38	1,497	14 97	367	0 55	57 03
Jean 1.A.5.1	620	19 84	1,254	2 51	625	19 88	935	1 40	1,514	15 14	367	0 55	59 32
Jessie 1.A.2.2.1	705	22 56	1,162	2 32	591	18 79	983	1 47	1,547	15 47	367	0 55	61 16
Ella 1.A.5.1	505	19 36	980	1 96	633·8	20 15	1,119	1 68	1,772	17 72	367	0 55	61 42
Spot 1.H.2.1.1	645	20 64	980	1 96	621·2	19 75	1,135	1 70	1,712	17 12	367	0 55	61 72
Vera 1.H.2.3	578	18 50	887	1 77	647·5	20 59	1,207	1 81	1,844	18 44	367	0 55	61 66
Spot 1.H.3.2	548	17 53	984	1 97	662	21 05	1,265	1 90	1,994	19 94	367	0 55	62 94
Jessie 1.H.S.3	677	21 66	3,307	6 61	672	21 36	784	1 18	1,326	13 26	.....	.....	64 07
Averages	771·5	24 69	1,395·1	2 79	598·5	19 03	758·8	1 14	1,225·6	12 26	360·7	0·54	60 45

HORSES

Sixteen horses are kept at the Nappan Farm, consisting of five pure-bred Clydesdale brood mares; two pure-bred Clydesdale stallions; one three-year-old Clydesdale gelding; one span of grade Clydesdale mares; one span of grade Clydesdale geldings; one aged Clydesdale gelding; two light horses, one for express work and the other a driver; and also one light three-year-old gelding.

The stallion Baron Begg (20119), which heads the stable, was obtained from the Central Experimental Farm, Ottawa. He was sired by Baron Stanley Imp. (14980) (16466) and out of Darling of Begg Imp. (26401) (28372). Baron Stanley was sired by Barons Pride (3067) (9122) and out of Water Lily (14802) (18070). Darling of Begg was sired by Sir Spencer Imp. (9655) (13211) and out of Dumure Lily (21590). Baron Begg is a very fine type of Clydesdale, with good quality and fair size; he was first at Toronto and Ottawa as a two-year-old, and stood second at Chicago with strong competition against him in the two-year-old class. This horse should do much toward improving the stock of the district.

SHEEP

PURE-BRED FLOCK

The pure-bred flock of Shropshire sheep maintained at this farm consists at the present time of fifteen mature ewes, four three-shear, four two-shear, ten shearlings, and one stock ram.

The object of maintaining this stock is to study, first, breeding and feeding problems, and the application of well-established principles already practised; second, to ascertain the cost of maintaining a pure-bred flock and the profit realized from sheep under present-day conditions; third, to supply good breeding stock to breeders.

During the past season, satisfactory results and returns were recorded. The twenty-eight breeding ewes dropped thirty-seven lambs, or, in other words, the lamb crop was 132 per cent of ewes bred. Following is a financial statement of the year's work:—

SHEEP—FINANCIAL STATEMENT

No. of sheep	Period	Hay	Roots or Ensilage	Meal	Pasture	Total cost
		Lbs.		Lbs.	Days	$ cts.
23 Ewes.....	April 1, 1920, to March 31, 1921.....	5,957	5,589	5,750	3,519	284 94
9 Ewes.....	April 1, 1920, to January 25, 1921.....	1,442	1,264	1,309	1,224	70 19
3 Rams.....	April 1, 1920, to March 31, 1921.....	681	1,179	855	459	53 63
10 Lambs....	April 1, 1920, to March 31, 1921.....	1,035	3,105	1,467	1,377	75 44
26 Lambs....	April 1, 1920, October and November, 1920.....	266	640	811	3,746	66 87
						$ 551 06

BALANCE SHEET

Breed	—	April 1, 1920		April 1, 1921		Returns including sales	Gross returns made up
		No.	Value	No.	Value		
Shropshires	All ages	35	$1,400 00	37	$1,480 00	$410 72	Sales and increased value, $490.72.

By increase value of stock		$ 80 00
By sale of lambs		165 07
By sale of rams		96 57
By sale of mutton		91 54
By sale of 266 lbs. wool at 32·91 c		87 54
By sale of pelts		1 00
By value of 32 tons manure at $3.50 per ton		112 00
		$ 603 72
To feed consumed	$ 551 06	
Interest on investment $1,400 at 6 per cent	84 00	
To loss of 3 ewes	90 00	
To labour 180 hours at 28c	50 40	
To balance		161 74
	$ 775 46	$ 775 46

The above deficit is due to the decline in the price of breeding stock when sold as mutton; to the heavy drop in price of wool from seventy-three cents in 1919 to thirty-two cents in 1920; and to the high prices of feed.

The meal ration cost 3·18 cents per pound; hay was valued at market price, $20 per ton; roots were $3 per ton. It will also be noted that interest on investment has been charged at six per cent, and labour at twenty-eight cents per hour. Taking everything into account, the above may be considered as representative of present-day conditions.

THE GRADE FLOCK

Since 1917, grading work has been carried on with sheep. The object has been to study the problems relating to good breeding, and also to demonstrate the value of using pure-bred sires on the common stock of the country.

The foundation ewes were Shropshire and Leicester crosses. Seventy-five per cent of these were a very inferior class of ewes. A pure-bred Shropshire ram has been used with this flock each year. After the first year selection began, and only the promising ewes have been retained.

The improvement to date has been most marked. The wool clip the first year gave an average per ewe of six and one-quarter pounds; and a gradual increase has been noted each year, both in quantity and quality. The wool clip this spring averaged, per fleece, eight and nine-twentieths pounds, and graded 85·6 medium combing, 11·6 per cent low-medium combing, and only 2·8 per cent low combing.

A marked improvement has been noted in the breeding stock retained and in the lambs sold. Each cross has brought heavier and better developed stock. The lambs have been more uniform, fuller in quarters and brisket, and with a nicer coating of flesh. The result has been that the majority of the lambs now dropped can hardly be distinguished from the pure-bred stock.

The following table gives a record of the cost of feed eaten, also returns credited to the flock for the season 1920-21:—

GRADE FLOCK—FINANCIAL STATEMENT

Number of sheep	Period	Hay	Roots or Ensilage	Meal	Pasture	Total cost
		lbs.	lbs.	lbs.		
14 ewes	April 1, 1920–Mar. 31, 1921	3,626	3,402	3,500	2,142	174 09
17 ewes	April 1, 1920–Jan. 15, 1921	3,145	2,499	2,652	2,601	145 55
15 lambs	April 1, 1920–Jan. 31, 1921	110	160	448	2,082	26 00
10 lambs	April 1, 1920–Mar. 31, 1921	1,150	3,450	1,630	1,530	76 17
						421 81

BALANCE SHEET

Breed		April 1, 1920		April 1, 1921.		Returns, including sales	Gross returns made up of sales and increase value
		No.	Value	No.	Value		
Grades of all ages	Cross Leicester and Shropshires	31	775 00	24	$500 00	$363 69	$363 69

By sale of lambs		$126 47
By sale of pelts		1 00
By sale of mutton		153 38
By sale of 262 lbs. wool at 32c		83 24
By values of 24 tons manure at $3.50		84 00
		448 09
To food consumed	$421 81	
To interest on investment $775 at 6 per cent	46 50	
To labour, 180 hours at 28c	50 40	
	518 71	
By balance		70 62
	518 71	518 71

SWINE

Two herds of swine are maintained at this farm, Yorkshire and Berkshire. The Yorkshire herd consists of twelve sows and a boar; the Berkshire of three sows and a boar. Very satisfactory progress has been made during the year. Eight Yorkshire sows gave an average of 9·36 pigs per litter, and raised an average of seven. Three sows gave an average of 8·5 per litter and raised 6·6 pigs.

Only one of the Berkshire sows was bred; she gave two litters during the year with an average of 7·5 pigs, and raised 4·5 per litter.

The object of maintaining these herds is twofold: first, to study the problems relating to successful swine husbandry, and the application of well-established principles; second, to supply the surrounding district with sires so that the stock may be improved and greater profits be realized from the swine industry.

The following table gives the financial statement of the swine department for the year:—

SWINE—FINANCIAL STATEMENT

Average Number of Pigs all ages for each month of the year	Kinds of feed fed	Pounds	Cost price per ton	Value	
			$ cts.	$ cts.	
April, 1920, 70·25; May, 1920, 75.....	Ground oats.....	16,879	76 47	645 41	
June, 1920, 72; July, 1920, 77.....	Ground barley.....	2,600	62 40	81 12	
August, 1920, 84; Sept., 1920, 85.....	Ground screenings.....	7,174	34 10	122 49	
Oct., 1920, 67; Nov., 1920, 75.....	Ground buckwheat.....	962	62 40	30 02	
Dec., 1920, 69; Jan., 1921, 67·5.....	Bran.....	10,600	44 20	234 26	
Feb., 1921, 52·7; Mar., 1921, 45·3....	Shorts or middlings.....	10,600	62 00	328 60	
	Oil cake.....	4,100	76 75	157 34	
	Corn meal.....	2,070	95 00	98 32	
Total cost.....	.....	.....	.....	.....	1,776 99

Breed	April, 1920		April, 1921		Returns including sales,	Gross returns including increase in value
	No.	Value	No.	Value		
Berkshires, including 1 boar.....	2	$80 00	4	$200 00		
Yorkshires, including 1 boar.....	9	450 00	12	600 00		
Berkshires and Yorkshires—Young stock.....	88	616 00	48	480 00	$2,326 58	$2,460 50
		1,146 00		1,280 00		

By increase in value of stock.....		$134 00
By sale of young porkers.....		584 00
By sale of finished porker.....		1,706 00
By service of boar.....		36 00
By value of 25 tons of manure at $3.50.....		87 50
		2,547 50
To cost of feed consumed.....	$1,776 99	
To 5 tons bedding at $5.....	25 00	
To interest on investment $1,146 at 6 per cent.....	68 76	
To 1,825 hours labour at 31 cts.....	565 75	
By balance.....	$2,436 50	
	111 00	
	$2,547 50	$2,547 50

COST OF PORK PRODUCTION

Twenty-eight young feeders were fed during the year, in order to study the problems related to pork production and its cost. The meal ration fed to these pigs was as follows: 400 pounds shorts; 100 pounds ground barley; 100 pounds corn meal; 25 pounds oil meal. The little pigs were weaned when six weeks old and fed on skimmed milk and shorts until they were about two months old; they were then weighed and given a full meal ration, which was increased as the pig grew older.

The following table gives the results obtained, and cost of pork production from twenty-three of the twenty-eight started. One pen of five went off their feed, making their records of no value.

Pigs No.	Date started	No. of days	Live weight at start	Live weight at finish	Dressed weight	Per cent dressed weight	Gain	Total lbs. meal	Total lbs. milk	Total cost	Daily rate of gain	Cost of lb. gain
			lbs.	lbs.	lbs.	lbs.	lbs.			$ cts.	lbs.	cts.
1	Aug. 2, 1920	192	41	200	159	75	150	336	120	11 88	0·83	0·0747
2	" 2, 1920	192	44	203	147	72·4	159	336	120	11 88	0·83	0·0747
3	" 2, 1920	192	56	217	153	70·5	161	336	120	11 88	0·84	0·0738
4	" 2, 1920	192	35	173	130	75·2	138	336	120	11 88	0·72	0·0860
5	" 2, 1920	192	32	180	143	79·4	148	336	120	11 88	0·77	0·0800
6	" 2, 1920	192	33	165	124	75·2	132	336	120	11 88	0·69	0·0900
7	" 2, 1920	192	32	160	118	73·7	128	336	120	11 88	0·67	0·0928
8	" 2, 1920	221	29	168	125	74·4	139	387	120	13 63	0·63	0·0980
9	" 2, 1920	267	22	181	140	77·3	159	468½	120	16 43	0·60	0·1033
10	" 2, 1920	221	28	187	140	74·8	159	387	120	13 63	0·72	0·0856
11	" 2, 1920	221	25	159	117	73·6	134	387	120	13 63	0·61	0·1017
12	" 2, 1920	248	28	195	147	75·4	167	436	120	15 31	0·68	0·0917
13	" 2, 1920	221	30	173	124	71·6	143	387	120	13 63	0·65	0·0953
14	" 2, 1920	221	27	179	132	73·7	152	387	120	13 63	0·70	0·0896
15	Sept. 7, 1920	231	27	160	123	76·8	133	406	120	14 20	0·58	0·1074
16	" 7, 1920	184	29	167	127	76	138	323¾	120	11 47	0·75	0·0831
17	" 7, 1920	213	31	175	131	74·9	144	373	120	13 15	0·68	0·0913
18	" 7, 1920	213	29	155	116	74·8	126	373	120	13 15	0·59	0·1043
19	" 7, 1920	231	26	170	127	74·7	144	406	120	14 29	0·63	0·0992
20	" 7, 1920	213	24	173	129	74·6	149	373	120	13 15	0·70	0·0882
21	" 7, 1920	184	25	180	143	79·4	155	465½	120	16 33	0·84	0·1053
22	" 7, 1920	184	21	190	134	70·5	169	323¾	120	11 47	0·92	0·0678
23	" 7, 1920	184	26	168	125	74·4	99	323¾	120	11 47	0·54	0·1155

BEES

THE SEASON

The summer season, when considered from a bee-keeper's point of view, was somewhat above the average. In spite of the 47 per cent winter mortality, the remaining colonies built up rapidly, producing an average of 81·8 pounds of extracted honey (spring count), while at the same time they were increased 112½ per cent.

The fourteen colonies that were placed in the bee cellar on December 2, 1919, were removed to the apiary on May 1, 1920. It was found that six were dead, while two additional colonies succumbed from lack of sufficient stores.

The weather during May was exceptionally fine and dry. Twenty-seven days of bright sunshine, aggregating 249·7 hours, were recorded, while rainfall was recorded only on the 9th. A small quantity of sugar syrup was fed to each colony on the 6th of May as a means of stimulating the production of brood. Good flights were possible for the bees as soon as they were removed from storage, while willow, maple and some of the earlier flowering shrubs supplied a little nectar.

Twenty-five days of bright sunshine, aggregating 211· hours, together with 2·68 inches of precipitation, falling on nine days and well distributed, made the month of June favourable. The available sources of nectar were fruit bloom, from the 1st to 10th inclusive, and clover from the 24th to the end of the month, while dandelions and flowering shrubs yielded additional supplies of nectar throughout the month. In spite of these conditions, the gain in weight of the colony on scales was only 18 pounds, the majority of which was produced during the latter part of the month. This would go to show that the early part of the month was devoted to brood rearing rather than to honey production.

Thirty days of bright sunshine, together with showers aggregating 2·63 inches falling on eight days, well distributed throughout the month, gave a continuous flow of nectar, and made July the best month for honey production during the season, 108 pounds being stored by the colony on the scales during the month.

The weather conditions during August, although only slightly unfavourable, there being excessive rainfall on eleven days, aggregating 5·70 inches and being particularly wet and dull from the 11th to the 16th inclusive, were not conducive to heavy honey production, only 27½ pounds being stored.

The first thirteen days of September were practically without sunshine, while eight of these were accompanied by rainfall aggregating 2·21 inches. These unfavourable conditions seriously curtailed the gathering of nectar from the autumn blooming flowers, such as goldenrod, buckwheat and autumn dandelions, and resulted in the storing of only eighteen pounds of honey during the month. All the colonies were fed up to the winter weight from the 14th to the 29th of the month.

October was an ideal month for the apiary, it being exceptionally fine and mild throughout, thus enabling the bees to make good flights during the month and to be in a good, healthy condition before going into storage.

Bright dry weather without severe frost continued during the first half of November; fairly cold and steady weather prevailed during the balance of the month. The bees were packed for winter in shavings in the honey house, on November 11.

COLONY INCREASE

Eight colonies remained alive of those put in storage in December, 1919. Brood rearing was stimulated in these by feeding each a small amount of sugar syrup on May 7, no combs of honey being on hand. The majority of these colonies were rather weak, but they built up rapidly. Seven of these were allowed to swarm from July 4

to 14 inclusive, one of which afterwards united to one of the original colonies on August 21, while a colony that swarmed on July 4 was divided into four nuclei, making an apiary of seventeen colonies at the end of the season, about half of which were below full strength.

HONEY PRODUCTION

The total aggregate honey production from the seven colonies from which honey was extracted was 604½ pounds, or an average production of 86·4 pounds, while an additional 50 pounds was extracted from four of the strongest swarms, making a total honey production of 654½ pounds. The highest production from a single colony was 135½ pounds.

The following table gives the production of the seven colonies, both of extracted honey and swarms:—

Extracted Honey	Swarm produced
135·5	No
123·0	Yes
82·0	"
75·0	"
75·0	"
58·5	"
55·5	"

WINTERING

Seventeen colonies of bees were fed and prepared for winter between September 14 and October 2. They remained on their stands in the apiary until November 11, when they were stored in the honey house in the following manner:—

After all apiary supplies had been removed from the floor of the honey house, a covering of planer shavings three inches deep was placed on its floor, after which the colonies were placed around the inside of the house with their entrances facing the walls, through which a bee flight hole was provided for each colony. A space of four inches was allowed from the walls of the building, both in front of the colonies and at the sides, while the same space was left between each colony. After all the colonies were arranged in position and spaced as stated above, a rough partition of boards was erected six inches from the rear of the colonies, after which the openings between the wall and colonies at the front, back and sides, as well as the spaces between the colonies, were packed with planer shavings, while a covering of six inches was put over the top.

After the bees were put into winter quarters the weather remained sufficiently cold to prevent the bees from taking further flight, which would have only resulted in some of the bees returning to the old stands, and in their consequent loss.

The following table gives the apparent strength of the various colonies, estimated from the number of frames covered with bees, together with their weights both before and after autumn feeding:—

AUTUMN WEIGHTS OF COLONIES

Number of colony	Number of frames covered with bees	Weight of colony including bottom board, but not cover before feeding	Weight of colony after feeding
		lbs.	lbs.
1	9	57	70
2	6	49	57½
3	7	49½	55
4	9	52	63
5	8	53	66
6	9	59	68
7	10	50	60
8	8	39	49
9	10	55	66
10	9	61	69
11	6	53	64
12	10	54	65
13	7	52½	60
14	8	56	59
15	8	49	55
16	8	48	54
17	10	57	67

SUMMARY OF PROFIT AND LOSS ACCOUNT

To 9 colonies increase at $10		$ 90 00
To 654½ lbs. honey (extracted) at 35 cts		229 07
To 10 lbs. wax		5 00
		$324 07
By six colonies lost in winter at $10	$60 00	
By apiary labour—May to November inclusive	46 17	
By 200 lbs. sugar for feeding	44 00	
By 131 honey pails (5 lb.) at 13 cts	17 03	
By profit	156 87	
	$324 07	$324 07

Cellar Wintering of Bees.—Fourteen average strength colonies were fed with sugar syrup from September 30 to October 8, and put in the bee cellar under the Superintendent's house on December 2, 1919. These remained here undisturbed until May 1, 1920, when they were removed to the apiary. Upon examination, it was found that six of these had died. On May 6, when the first thorough examination was given, it was found that practically all colonies had suffered more or less from improper wintering. Six of them had exhausted their stores, and there was excessive moisture which caused the growth of mould throughout the hives, in spite of the fact that all colonies were blocked up from the bottom board during the entire period in storage. When summing up the losses sustained by colonies wintered in this cellar, from the year 1914 to 1919 inclusive, it is found that the percentage of loss ranges from 13.3 to 73.3, or an average of 34.7 per cent, which should condemn it for wintering bees. Much loss, however, was probably due to unwholesome stores.

CEREALS

The weather during April was normal. Nine inches of snow was recorded. Operations on the land commenced fairly early. The first ploughing was done on May 7. Seeding became general by the 15th.

Lack of sufficient moisture during May and June was detrimental to good growth for all crops. On the other hand, the continuous fine weather facilitated farming operations, and most farmers were able to get their crops seeded in good time.

Good growing weather prevailed throughout July, August and September. The early seeded grain was cut before September 11; this suffered damage from sprouting in stook during this dull period, which was accompanied by relatively high temperatures. The later cut grain was harvested in good condition. Wheat and Barley filled well. Oats were only fair. The Buckwheat crop was below the average. Root crop made rapid growth during the latter part of the season and was harvested in good condition.

VARIETY TESTS OF GRAIN

These tests included duplicate one-sixtieth acre plots of eight varieties of spring wheat; ten varieties of oats; five six-rowed and three two-rowed varieties of barley; and twelve varieties of buckwheat. The field used for these tests, with the exception of the buckwheat plots, falls in rotation C, field No. 4. The rotation is as follows: 1st year hoed crop (ensilage corn), manured at the rate of twenty tons of barnyard manure applied to clover sod and ploughed under to a depth of four inches in the spring, after which an application of two and one half tons of ground limestone was applied broadcast and thoroughly incorporated with the soil; 2nd year grain (variety tests and elite stock); 3rd year clover hay; 4th year pasture. This field has a soil of medium clay texture in good tilth, and was ploughed after the corn crop was harvested in the autumn of 1919, and thoroughly worked up by means of two cuts in opposite directions with the double cutaway harrow, and one with the spring tooth harrow. This made an excellent seed bed. Before seeding, an application of two hundred pounds of fertilizer salt per acre, a product of the Malagash salt mine, was sown broadcast and the area to be used for these plots, as a means of checking the growth of weeds and liberating the supply of inert potash. The plots of wheat and barley were sown on the 19th, while the oat plots were sown on the 20th of May.

SPRING WHEAT

Eight varieties of spring wheat were sown in duplicate one-sixtieth acre plots, on the 19th of May. The seed was treated with formalin for stinking smut before sowing. It germinated quickly, and was up on the 25th; and, in spite of lack of precipitation, grew rapidly to an average height of forty-two inches, was ready for harvest on August 26, and was cut on that date without suffering from lodging or other injury. All wheat plots were threshed on September 7.

WHEAT—TEST OF VARIETIES

	Date of Ripening	Number of days Maturing	Average length of Straw including Head	Strength of Straw on a Scale of 10 points	Average Length of Head	Actual Yield of Grain per Acre	Per cent. Stand
			Inches		Inches	Pounds	
Early Red Fife	Aug. 28	101	48	10	3	2,340	100
" "	" 28	101	48	10	3	2,250	100
Bishop	" 27	100	47	10	3	2,310	100
"	" 27	100	47	10	3	2,160	100
Marquis (Chemist)	" 26	99	44	10	3	2,520	100
" "	" 26	99	44	10	3	1,770	100
White Russian	" 30	103	50	10	4	2,190	100
"	" 30	103	50	10	4	2,100	100
Huron	" 26	99	46	10	4	2,250	100
"	" 26	99	46	10	4	1,980	100
Red Fife	" 28	101	46	10	3	2,160	100
"	" 28	101	46	10	3	1,980	100
Marquis	" 26	99	44	10	3	1,860	100
"	" 26	99	44	10	3	1,740	100
Ruby	" 23	96	43	10	2	1,890	100
"	" 23	96	43	10	2	1,680	100

Average..... 2,070 lbs.

WHEAT—SIX YEAR AVERAGES

Eight strains of wheat have been tested for six years and the following table gives the average yield per acre, also average number of days maturing.

Variety	Average number of days maturing	Average yield per acre	
		Bus.	Lbs.
Huron	111	34	20½
White Russian	116	33	20
Marquis	112	31	..
White Fife	115	30	50
Red Fife	115	29	43
Early Red Fife	113	29	21
Pioneer	111	28	15
Bishop	110	25	41

Huron, a bearded wheat, has proven to be one of the most suitable varieties for this district; it is a heavy producer, is more free from rust and glume spot than any other variety, and has always given a very satisfactory crop. White Russian is the next heaviest yielder, but it is a very soft wheat, and is not very satisfactory for flour making. Early Red Fife is possibly the most widely grown wheat, and, from reports, gives a better yield than Marquis throughout this district, but at the Nappan Farm equally good results have been obtained from Marquis. The latter is a superior flour wheat, and is to be recommended in those sections where good yields can be obtained.

BARLEY

Five six-rowed and with three two-rowed varieties of barley were sown in duplicate plots of one-sixtieth of an acre each on the 19th of May. The soil was comparatively free from weeds, and the barley germinated quickly and grew well, reaching a height ranging from 36 to 46 inches by August 18. Of the varieties listed, the six-

rowed vareity, Albert, matured fully one week earlier than did any of the others, but was also the lowest in yield of threshed grain. The variety Stella was the highest producer of the six-rowed varieties, yielding over 59 bushels per acre. Of the two-rowed varieties, Duckbill was shortest in length of head, but longer in straw, and the highest producer of grain, yielding 68¾ bushels per acre. These plots did not suffer any loss either from birds or weather conditions.

BARLEY—TEST OF VARIETIES

Name of Variety	Date of Ripening	Number of Days Maturing	Average length of Straw, including Head	Strength of Straw on a Scale of 10 points	Average Length of Head	Actual Yield of Grain per Acre	Per cent. Stand
			Inches		Inches	Pounds	
2-ROWED VARIETIES							
Ch'town No. 80	Aug. 21	93	43	8	4	3,120	100
" No. 80	" 21	93	43	8	4	3,480	100
Duckbill	" 21	93	44	8	3½	3,360	100
"	" 21	93	44	8	3½	3,240	100
French Chevalier	" 21	93	42	7	3½	3,060	100
"	" 21	93	42	7	3½	2,880	100
	Average			3,148 lbs.			
6-ROWED VARIETIES							
Stella	Aug. 18	90	42	10	3	3,060	100
"	" 18	90	42	10	3	2,610	100
Manchurian	" 20	92	41	10	3	2,580	100
"	" 20	92	41	10	3	2,520	100
Odessa	" 18	90	46	9	3	2,820	100
"	" 18	90	46	9	3	2,160	100
O.A.C. No. 21	" 20	92	45	8	3	2,460	100
" No. 21	" 20	92	45	8	3	1,800	100
Albert	" 10	82	36	10	2	2,400	100
"	" 10	82	36	10	2	1,800	100

Average..... 2,421 lbs.

BARLEY—SIX-YEAR AVERAGE

Four varieties of barley have been tested for six years, and the following table gives the average yield per bushel for each, also average number of days maturing. French Chevalier is a two-rowed barley, the remander are six-rowed varieties.

Variety	Average number of days maturing	Average yield per acre	
		Bus.	Lbs.
French Chevalier	101	40	45
Manchurian	103	40	23
O.A.C. No. 21	103	28	44
Stella	105	26	45

French Chevalier has given the highest average production for six years, and is very well suited to this district. Manchurian is the second highest producer, yields a grain of good quality, and, of the six-rowed, can be recommended as a good yielder. O.A.C. No. 21 is also a good yielder, but has not given the yields that either of the former two varieties have, as will be noted from the table.

OATS

Ten varieties of oats were sown in duplicate plots of one-sixtieth of an acre each. The seed of all varieties were treated with formalin, a very essential procedure. Plots were sown on May 20, and harvested on August 24. The season was a favourable one for growth and an excellent stand was recorded. Banner was the most productive variety, yielding at the rate of 116 bushels per acre. The average was taken from two plots.

The following yields were obtained:—

OATS—TEST OF VARIETIES

Name of Variety	Date of Ripening	Number of Days Maturing	Average length of Straw, including Head	Strength of Straw on a Scale of 10 points	Average Length of Head	Actual Yield of Grain per Acre	Per cent. Stand	Remarks
			Inches		Inches	Pounds		
Banner	Aug. 24	96	50	10	8	4,320	99	Badly lodged.
"	" 24	96	50	10	8	3,600	99	"
Lincoln	" 24	96	46	10	8	3,750	99	Standing up
"	" 24	96	46	10	8	3,450	99	good.
Ligowo	" 24	96	50	10	8	3,480	99	"
"	" 24	96	50	10	8	3,570	99	"
Daubeney	" 24	96	51	10	9	3,720	99	Badly lodged.
"	" 24	96	51	10	9	3,510	99	"
Gold Rain	" 25	97	53	8	8	3,420	100	"
"	" 25	97	53	8	8	3,360	100	"
Danish Island	" 24	96	51	10	8	3,540	99	"
"	" 24	96	51	10	8	3,180	99	"
O.A.C. No. 72	" 24	96	54	9	9	3,360	100	"
" No. 72	" 24	96	54	9	9	3,300	100	"
Pioneer	" 21	93	48	10	9	2,730	99	Slightly
"	" 21	93	48	10	9	2,466	99	lodged.
Liberty (Hulless)	" 21	93	45	9	7	2,130	96	"
" "	" 21	93	45	9	7	1,980	96	"
Victory	" 25	97	46	9	7	3,570	100	"
"	" 25	97	46	9	7	3,450	100	"

Average..... 3,296 lbs.

OATS—SIX-YEAR AVERAGE

Eleven varieties of oats have been tested for six years, and the following table gives the average yield of each, also average number of days maturing.

Variety	Average number of days maturing	Average yield per acre	
		Bus.	Lbs.
Victory	109	70	32
Pioneer	105	68	20
Danish Island	108	66	8
Lincoln	109	65	18
Banner	108	64	1
Ligowo	109	62	9½
Banner McKay	108½	57	17
Gold Rain	108	60	27
20th Century	109	57	9
Abundance	108	54	15
Daubeney	100	51	16

Victory leads in production, but lacks in quality. Daubeney is the earliest maturing oat, but very weak in the straw, and cannot be recommended in this district for sowing alone. It would, however, make a good oat to sow with barley for a grain mixture. Banner, while not the heaviest yielder, is nevertheless one of the best varieties. It is suitable for most soils and conditions, and is a splendid feeding oat, having medium weight of hull and being more widely grown than any other variety in this district.

BUCKWHEAT

Twelve varieties of buckwheat were sown in duplicate one-sixtieth acre plots. The soil on this field is a medium clay loam that previously had been used for garden purposes, although the crop in 1919 was potatoes. This was ploughed the previous autumn, well worked up in the spring, and given a thorough cultivation for weed eradication, up to June 8th, upon which date the buckwheat was sown. All seed of the varieties tested germinated well, and the growth was luxuriant, resulting in good average yields.

BUCKWHEAT—TEST OF VARIETIES

Name of Variety	Date of Ripening	Number of Days Maturing	Actual Yield of Grain per Acre	Per cent. Stand	Per cent. Loss from any cause which did not affect the Stand	Actual Yield of Grain per Acre
			Pounds			Pounds
Japanese J.	Sept. 8....	92	1,680	Duplicate plot		1,350
Japanese M.	" 8....	92	1,560	"		1,320
Tartarian G.	" 8....	92	1,350	"		1,320
Tartarian D.	" 8....	92	1,110	"		1,560
Silverhull J.	" 8....	92	1,200	"		1,320
Grey D.	" 8....	92	1,470	"		1,020
Grey F.	" 8....	92	1,200	"		1,080
Rye F.	" 8....	92	1,080	"		1,140
Russian M.	" 8....	92	1,050	"		1,080
Rye A.	" 8....	92	840	"		810
Rye H.	" 8....	92	900	"		720
Petrograd.	" 8....	92	780	"		720

Average..... 1,152 lbs.

Plots threshed Sept. 25, 1920.

BUCKWHEAT—SIX-YEAR AVERAGES

Five strains of buckwheat have been tested for six years, and the following table gives the average yield per acre, and the average number of days maturing.

Variety	Average number of days maturing	Average yield per acre	
		Bus.	Lbs.
Rye	84	29	10
Grey	84	29	1
Japanese	84	28	..
Tartarian	84	27	21½
Silverhull	84	26	12

Rye has given the highest average for six years. Grey is the second highest producer, and is an excellent buckwheat to sow in poorest land, as it will thrive and do fairly well where others will not. Silverhull has not been a high producer on the Station, but is an excellent flour grain, possibly superior to all the other varieties; and it is very widely grown in this district.

ELITE STOCK GRAIN

WHEAT

Two acres of elite stock wheat, an acre each of Huron and Early Red Fife, were grown on the same field as were the test plots of wheat, barley and oats, the soil being given the same treatment. These areas germinated well and made excellent growth, but suffered slightly from lodging during the latter part of August, while a period of wet, dull weather, with high temperature immediately after harvest, resulted in much of the grain sprouting in stook. The Huron variety yielded 31½ bushels, while the Early Red Fife yielded 27 bushels per acre.

BARLEY

An acre each of elite stock Charlottetown No. 80 and Manchurian barley was sown on the same field adjacent to the Elite stock oats on plots which had been previously in buckwheat. This was not manured, but top dressed with an application of 500 pounds of acid phosphate per acre. The same lack of growth and vigour was experienced on these tests as in the Elite stock oats. The Charlottetown No. 80 produced 36½ bushels, while the Manchurian produced only 17½ bushels of grain per acre.

FIELD HUSBANDRY

ROTATIONS

Of the many methods of following out a complete and systematic rotation of crops, with a view to maintaining the fertility of the soil, three only have been carried out at this Farm, these being considered the most suitable for conditions in the Maritime Provinces. It is well to state that a slight modification of any one of the three can be made to suit local conditions.

The following are the rotations:—

Three-year rotation, D.—

First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.

Four-year rotation, C.—

First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.
Fourth year—Pasture.

Five-year rotation, B.—

First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.
Fourth year—Grain.
Fifth year—Clover hay.

Rotations D and B are suitable where there is plenty of rough pasture available. C is an excellent rotation for a dairy farm where the best of pasture is so essential to a profitable production of milk.

Owing to rearrangements of these rotations, records were only kept in part of them last year, a new set of plots being laid out on another part of the Farm.

The cost of producing various farm crops was compiled from these fields, and is as follows:—

COST OF PRODUCING HAY AFTER OATS—FIVE-YEAR ROTATION

Area of field, eight acres.
Preceding crops: turnips, clover hay and oats.

Items of Cost—	
Rent of land, 8 acres at $6	$ 48 00
Use of machinery	4 80
Seed: 80 lbs. timothy at 19 cents; 64 lbs. red clover at 54 cents; 16 lbs. alsike at 35 cents	55 36
Manure, ¼ of 200 tons at $2 per ton	100 00
Mowing, 10 hours, 3 horses and 1 man at 60 cents	6 00
Raking, 6 hours, 1 man and 1 horse at 40 cents	2 40
Coiling, 14 hours, 1 man at 35 cents	4 90
Shaking out, 14 hours, 1 man at 35 cents	4 90
Tedding, 6 hours, 2 horses and man at 60 cents	3 60
Hauling to barn, 9 hours, 2 horses and man at 60 cents	5 40
Hauling to barn, 9 hours, 2 men at 35 cents	6 30
Total cost of field	$241 66

Total yield of eight acres, 16 tons 40 lbs.
Yield per acre, 2 tons 5 lbs.
Cost per acre, $30.21.
Cost per acre, $15.09.

NOTE.—This was an excellent field of clover, but was badly damaged by wet weather at time of cutting. The crop was good for 2¾ tons per acre.

COST OF PRODUCTION—HAY, SECOND CROP—FIVE-YEAR ROTATION

Area of field, eight acres.
Preceding crops: turnips, clover hay, oats, clover hay.

Items of Cost—	
Rent of land, 8 acres at $6 per care	$ 48 00
Use of machinery, 8 acres at 60 cents per acre	4 80
Seed: 80 lbs. timothy at 19 cents; 64 lbs. red clover at 54 cents; 16 lbs. alsike at 55 cents	55 36
Manure, ¼ of 200 tons at $2 per ton	100 00
Mowing, 10 hours, 2 horses and man at 60 cents per hour	6 00
Raking, 6 hours, 1 horse and man at 40 cents	2 40
Coiling, 14 hours, 1 man at 35 cents	4 90
Shaking out, 14 hours, 1 man at 35 cents	4 90
Tedding, 6 hours, 2 horses, 1 man at 60 cents per hour	3 60
Hauling to barn, 10 hours, 2 horses and man at 60 cents	6 00
Hauling to barn, 10 hours, 2 men at 35 cents	7 00
Total cost for eight acres	$242 96

Yield of eight acres, 21.64 tons.
Yield per acre, 2 tons 1,409 pounds.
Cost per acre, $30.37.
Cost per ton, $11.25.

COST OF PRODUCTION—HAY AFTER MIXED GRAIN—THREE-YEAR ROTATION

Area of field, five acres.
Preceding crops: clover hay, turnips, oats and barley.

Items of Cost—	
Rent of land, 5 acres at $6 per acre	$ 30 00
Use of machinery, 5 acres at 60 cents	3 00
Seed: 50 lbs. timothy at 19 cents; 40 lbs. red clover; 10 lbs. alsike at 35 cents	44 60
Manure: ¼ of 75 tons at $2 per ton	50 00
Mowing, 6 hours, 2 horses and man at 60 cents per hour	3 60
Raking, 4 hours, 1 horse and man at 40 cents per hour	1 60
Coiling, 8.2 hours, 1 man at 35 cents per hour	2 87
Shaking out, 8.2 hours, 1 man at 35 cents per hour	2 87
Tedding, 2 hours, 2 horses, 1 man at 60 cents	1 20
Hauling to barn, 6 hours, 2 horses, 1 man at 60 cents	3 60
Hauling to barn, 6 hours, 2 men at 35 cents	4 20
Total cost of field	$147 54

Total yield of five acres, 13 tons, 1,310 lbs.
Yield per acre, 2 tons, 1,462 lbs.
Cost per acre, $29.50.
Cost per ton, $10.81.

COST OF PRODUCTION OF FIELD CROPS

The following table gives the cost of production of various farm crops as compiled from data collected from the various field operations, and the yield obtained from field in 1920:

COST OF PRODUCING WHEAT

Preceding crops: clover hay, pasture and corn.
Area of field, 5 acres.

Manure, ½ of 100 tons at $2 per ton	$ 50 00
Spreading manure, 25 hours, 3-horse team at 75 cents	18 75
Spreading manure, 25 hours (2 men), 50 hours at 35 cents	17 50
Rent of land, 5 acres at $6 per acre	30 00
Use of machinery at 60 cents per acre	3 00
Ploughing, spring 1920—23 hours, 3 horses at 75 cents	17 25
Harrowing, double cutaway—13 hours, 4 horses at $1	13 00
Harrowing, smoothing harrow—2.5 hours, 2 horses at 60 cents	1 50
Picking stone, 3 hours, 2 horses at 60 cents per hour	1 80
Picking stone, 3 hours, 1 man at 35 cents per hour	1 05
Sowing grain, 6 hours, 2 horses at 60 cents per hour	3 60
Reaping grain, 6 hours, 2 horses at 60 cents per hour	3 60
Stooking, 6 hours, 1 man at 35 cents per hour	2 10
Twine	5 65
Hauling grain to barn, 5 hours, 2 horses at 60 cents	3 00
Hauling grain to barn, 1 man, 5 hours at 35 cents	1 75
Threshing, 117 bushels at 10 cents per bushel	11 70
Seed, 10 bushels at $3 per bushel	30 00
Total cost for 5 acres	$215 25
Cr. 21,990 lbs. straw at $5	54 95
Cost of grain	$160 30

Total yield for 5 acres, 117 bushels.
Yield per acre 23.4 bushels.
Cost per acre, $32.06.
Cost per bushel, $1.37.

COST OF PRODUCING OATS

Area of field, twenty-six acres.
Preceding crops: clover hay, turnips and potatoes.

Items of Cost—	
Rent of land, 26 acres at $6 per acre	$156 00
Use of machinery at 60 cents per acre	15 60
Ploughing, 130 hours, 3 horses at 75 cents per hour	97 50
Manuring, ½ of 520 tons—130 tons at $2 per ton	260 00
Spreading manure, 130 hours, 2 men at 35 cents per hour	91 00
Spreading manure, 130 hours, 2 men at 35 cents per hour	91 00
Harrowing, double cutaway, 67.5 hours, 4 horses at $1	67 50
Harrowing, smoothing harrow, 13 hours, 2 horses at 60 cents pr.	7 80
Picking stone, 15 hours, 2 horses at 60 cents	9 00
Picking stone, 15 hours, 1 man at 35 cents	5 25
Sowing grain, 32 hours, 1 man, 2 horses at 60 cents	19 20
Reaping grain, 32 hours, 1 man, 3 horses at 75 cents	24 00
Stooking grain, 32 hours, 1 man at 35 cents	11 20
Twine, 195 lbs. at 23 cents	44 85
Hauling grain to barn, 26 hours, man, 2 horses at 60 cents	15 60
Hauling grain to barn, 26 hours, 1 man at 35 cents	9 10
Threshing, 929 bushels at 5½ cents	51 10
Seed, 78 bushels at $1.50 per bushel	117 00
Total cost	$1,099 20
Cr.: To 7,410 lbs. straw at $5 per ton	177 75
	$921 45

Total yield of 25 acres, 929 bushels.
Yield per acre, 35.7 bushels.
Cost per acre, $35.44.

COST OF PRODUCING BARLEY

Preceding crops: grain and clover hay.
Area of field, five acres.

Items of cost—	
Rent of land, 5 acres at $6 per acre	$ 30 00
Use of machinery at 60 cents per acre for 5 acres	3 00
Ploughing field, 25 hours, 3 horses at 75 cents	18 75
Manure, ¼ 100 tons at $2 per ton	50 00
Spreading manure, 24 hours, 3 horses at 75 cents	18 00
Spreading manure, 24 hours, 2 men at 35 cents	16 80
Harrow, double cutaway—26 hours, 4 horses at $1	26 00
Harrowing, smoothing harrow—2.5 hours, 2 horses at 60 cents	1 50
Picking stone, 2 hours, 2 horses at 60 cents	1 20
Picking stone, 2 hours, 1 man at 35 cents	70
Seeding grain, 5 hours, 2 horses at 60 cents	3 00
Reaping grain, 5 hours, 3 horses at 75 cents	3 75
Stooking grain, 5 hours, 1 man at 35 cents	1 75
Twine, 25 lbs. at 23 cents	5 75
Hauling grain to barn, 5 hours, 2 horses at 60 cents	3 00
Hauling grain to barn, 5 hours, 1 man at 35 cents	1 75
Threshing, 110 bushels at 10 cents	11 10
Seed, 10 bushels at $1.75 per bushel	17 50
Total cost	$213 55
Credit of straw—12,430 pounds of straw at $5 per ton	31 05
Cost of grain	$182 50

Total yield of five acres, 110 bushels.
Yield per acre, 22 bushels.
Cost per acre, $36.50.
Cost per bushel, $1.66.

COST OF PRODUCING MIXED GRAIN

Area of field, twenty acres.
Preceding crops: hay, hay, hay.

Items of cost—	
Rent of land, 22 acres at $6	$132 00
Use of machinery, 22 acres at 60 cents per acre	13 20
Ploughing, 22 acres—3 horses, 75 cents per hour	97 50
Manure, ¼ of 330 tons at $2	164 00
Spreading manure, 110 hours, 3 horses at 75 cents per hour	82 50
Spreading manure, 110 hours, 2 men at 35 cents per hour	77 00
Harrowing, double cutaway—37 hours, 4 horses at $1	37 00
Harrowing, smooth harrow—11 hours, 2 horses at 60 cents	6 60
Picking stone, 11 hours, 2 horses at 60 cents	6 60
Picking stone, 11 hours, 1 man at 35 cents	3 85
Sowing grain, 27 hours, 2 horses at 60 cents	16 20
Reaping grain, 27 hours, 3 horses at 75 cents	20 25
Stooking grain, 27 hours, 1 man at 35 cents per hour	9 45
Twine, 165 lbs. at 23 cents per lb	37 95
Hauling grain to barn, 27 hours, 2 horses at 60 cents	16 20
Hauling grain to barn, 27 hours, 1 man at 35 cents	9 45
Threshing, 440 bushels at 10 cents	44 00
Seed, 66 bushels at $2	132 00
Total cost per 20 acres	$905 75
Credit of straw—31,080 pounds of straw at $5 per ton	77 50
	$828 25

Total yield of 22 acres, 440 bushels.
Yield per acre, 20 bushels.
Cost per acre, $37.65.
Cost per bushel, $1·883.

COST OF PRODUCING ENSILAGE CORN

Area of field, five acres.
Preceding crops: wheat, clover hay and pasture.

Items of cost—	
Rent of land, 5 acres at $6	$ 30 00
Use of machinery, 5 acres at $1 per acre	5 00
Ploughing, 25 hours, 3 horses at 75 cents per hour	18 75
Manure, ¼ of 100 tons at $2 per ton	50 00
Spreading manure, 25 hours, 3 horses at 75 cents	18 75
Spreading manure, 25 hours, 2 men at 35 cents	17 50
Harrowing, double cutaway—20 hours, 4 horses at $1	20 00
Harrowing, smoothing harrow—3 hours, 2 horses at 60 cents	1 80
Seeding—Iron Age Planter—30 hours, 2 horses at 60 cents	18 00
Harrowing with smoother, 3 hours, 2 horses at 60 cents	1 80
Cultivating, 3 times—30 hours, 1 horse at 40 cents	12 00
Hoeing, 210 hours at 35 cents	73 50
Cutting corn, 13 hours, 2 horses at 60 cents	7 80
Hauling to silo, 13 hours, 3 men, 3 horses at 40 cents per hour	15 60
Loading in field, 13 hours, 2 men at 35 cents	8 10
Cutting silage and storing, 65 hours at 35 cents	21 75
Gasoline engine and man, 13 hours at $1	13 00
Total cost of five acres	$333 35

Total yield of field, 79 tons, 1,230 pounds.
Yield per acre, 15 tons, 1,615 pounds.
Cost per acre, $66.67.
Cost per ton, $4.22.

COST OF PRODUCING SWEDE TURNIPS, 1920

Area of field, eight acres.
Preceding crops: mixed grain, clover hay, barley and oats, clover hay.

Items of cost—	
Rent of land, 8 acres at $6	$ 48 00
Use of machinery, 8 acres at $1 per acre	8 00
Ploughing, 40 hours, 3 horses at 75 cents	30 00
Manuring, ¼ of 200 tons at $2 per ton	100 00
Spreading, 40 hours, 3 horses at 75 cents	30 00
Spreading manure, 40 hours, 2 men at 35 cents	28 00
Harrowing, 10 hours, 4 horses at $1	10 00
Cross plowing, 40 hours, 3 horses at 75 cents	30 00
Harrowing, 20 hours, 4 horses at $1 per hour	20 00
Smoothing, 4 hours, 2 horses at 60 cents	2 40
Picking stone, 4 hours, 2 horses at 60 cents	2 40
Picking stone, 4 hours, 1 man at 35 cents	1 40
Drilling rows, 15 hours, 2 horses at 60 cents	9 00
Seeding, 8 hours, 1 horse at 40 cents	3 20
Cultivating, 3 times—60 hours, 1 horse at 40 cents	24 00
Hoeing, 320 hours at 35 cents	112 00
Pulling, 320 hours at 35 cents	112 00
Carting to root cellar, 160 hours, 2 horses at 60 cents	96 00
Carting to root cellar, 160 hours, 1 man at 35 cents	56 00
Total cost per acre	$722 40

Total yield of 8 acres, 5,827 bushels, 20 pounds.
Yield per acre, 728 bushels, 21 pounds.
Cost per ton, $4.92.
Cost per bushel, 12.3 cents.

FIELD CROPS

HAY

Eighty-two acres of upland yielded 120 tons 1,780 pounds, or an average of 1 ton 949 pounds per acre of good hay. Ninety acres of marsh yielded 102 tons 880 pounds of fair marsh hay, or an average per acre of 1 ton, 214 pounds. The new land purchased in 1919 cut down the average of the upland hay. Most of this land is in a poor state of fertility; for instance, twenty-six acres which have been under a five and a three-year rotation yielded 63 tons 755 pounds, or an average of 2 tons 875 pounds—a difference of nearly one ton per acre in favour of the fields which have been under a proper rotation of crops.

The marsh average has been reduced these last three years, owing to the heavy flooding received by the dykes breaking in 1917, 1918 and 1919, which killed much of the grass, and also filled all ditches and drains, the latter all very essential to a productive marsh.

ENSILAGE CORN

Six and one-quarter acres of Longfellow corn yielded 95 tons 1,960 pounds, or an average per acre of 15 tons, 7,136 pounds.

Five acres were part of a four-year rotation which runs as follows: First year, hoed crop (corn); second year, grain (wheat); third year, clover hay; fourth year, pasture. This makes an excellent rotation on a farm where rough pasturage is not available, or on a dairy farm where good pasture is so essential to profitable milk production. This field receives one application of twenty tons of barnyard manure every four years. The soil is a clay loam with heavy clay subsoil, and is underdrained. The land was ploughed in the fall of 1919 after the pasture season was over. Manure was applied in the spring and harrowed in with the double cutaway harrow. This operation, however, did not give a satisfactory seed bed, as the heavy coating of manure prevented the harrow from cutting sufficiently deep. The method found here to be the most satisfactory and economical in preparing land for corn is as follows:—After the pasture season is over, spread the manure on if it is available; and if not, do so during the winter. Then, just before it is time to sow the corn in the spring, plough the manure under to a depth of four or five inches, roll, give it two or three good cuts with a double cutaway harrow, and one with the smoothing harrow, to level up the surface. Sow the corn with a seed drill which will sow three rows at once; that is, use a thirteen-disc seed drill. Twenty-five pounds of good seed should be sufficient to sow an acre if the land is in good tilth.

OATS, PEAS AND VETCHES

Six acres were sown to oats, peas and vetches for silage. The total yield was 29 tons, 240 pounds or an average of 4 tons 1,707 pounds.

The field had previously been in turnips. In the spring of 1919 it received an application of twenty tons of barnyard manure, applied to clover sod, and, therefore, should have produced twice the above quantity, but dry weather throughout June apparently checked the growth. Seed was sown at the rate of three bushels per acre, made up as follows: Oats 1¾ bushels, peas ¾ bushel, vetches ½ bushel.

SUNFLOWERS

One and a half acres were sown to sunflowers. Cutworms destroyed one acre so badly that the yield was not worth recording. The half-acre lot yielded at the rate of 25 tons 620 pounds per acre.

The seed was sown on May 29 with an Iron Age planter in rows 2½ feet apart, at the rate of about fifteen pounds per acre. It germinated quickly and grew rapidly, smothering out all weeds. The stalks reached an average height of eleven feet; some lodging was caused by a heavy wind storm on September 1. The sunflowers were cut when sixty per cent of the flowers were showing petals. This made an excellent silage, which was fed to a bunch of grade heifers. Although the quantity was limited, it may be said that the stock seemed to relish the sunflower silage more than the corn silage.

ROOTS

Eight acres of swede turnips were sown for stock feeding. The total yield was 5,827 bushels, 20 pounds, or an average per acre of 729 bushels 21 pounds.

The root crop at this Farm has always followed a hay crop. The land is never allowed to stay in sod more than two years. Barnyard manure is applied to the root crop at the rate of twenty tons per acre in the case of a four-year rotation, twenty-five tons to a five-year rotation, and fifteen tons for a three-year rotation. Usually one good clover math is ploughed down during that period. This method keeps up the fertility of the soil.

Five acres were planted to potatoes. The yield from this field was 980·5 bushels, or an average of 196·1 bushels per acre. The total yield of marketable potatoes was 747 bushels, or an average per acre of 149 bushels 24 pounds.

The land had been in grain the previous year, but was very weedy, and after the grain was removed it was ploughed and harrowed. From May 15 to June 10 the field was harrowed repeatedly in an endeavour to eradicate the noxious weeds. An application of 1·63-2-10 fertilizer was applied at the rate of 800 pounds per acre. The sets were planted in rows two and one-half feet apart and 12 to 14 inches apart in the rows. The weeds were kept well in check by frequent cultivation. Although spray was applied, late blight attacked the crop during the wet period in the latter part of August and the first part of September. This not only cut down the yield, but accounted for the high percentage of unmarketable potatoes.

FORAGE CROPS

INDIAN CORN

The tests with ensilage corn covered thirteen varieties. These were planted in duplicate plots of one-forty-fifth of an acre each, on May 26. The soil upon the field devoted to the test was a medium clay loam which had previously been in clover hay. An application of twenty tons of barnyard manure was applied to a heavy aftermath of clover in September, 1919, and ploughed down to a depth of six inches. This was ploughed again in the spring and harrowed. These operations, due to lack of rain with drying winds, made the soil perfect for a seed bed. The seed was dropped in rows two and one-half feet apart, using the Iron Age potato planter complete with the corn attachment. These plots suffered slightly during the early part of the season, from irregular germination, cutworms, lack of sufficient precipitation and, at the close of the season, from night visitors who were desirous of testing the culinary properties of the different varieties. In spite of all these handicaps, good yields were recorded, which would have been materially augmented had it been possible to forecast the weather that followed the harvesting of the crop on September 25, when it was harvested for fear of injury from frost. (The weather, however, remained fine and mild, and without frosts, until late in October). The following table gives the varieties tested and the yields recorded.

INDIAN CORN FOR ENSILAGE—TEST OF VARIETIES

Number	Variety	Average Height	Stage of Maturity	Yield per Acre					
				1st Plot		2nd Plot		Average	
		Inches		Tons	Lbs.	Tons	Lbs.	Tons	Lbs.
1	Duke's Golden Glow	105	Soft dough	24	600	22	1,900	23	1,250
2	Duke's Improved White Cap	101	Soft dough	23	350	21	1,650	22	1,000
3	Leaming Improved	102	Soft dough	21	1,200	20	1,400	21	300
4	Longfellow	96	Soft glazed	21	175	20	1,625	20	1,900
5	North Dakota	96	Soft dough	20	1,850	20	950	20	1,400
6	Twichel's Pride	94	Soft glazed	20	275	19	1,825	20	50
7	Bailey	103	Soft dough	18	1,800	18	900	18	1,350
8	Compton's Early	96	Soft glazed	18	900	18	900	18	900
9	Quebec No. 28	94	Soft dough	17	1,600	17	600	17	1,100
10	White Cap Yellow Dent	96	Soft dough	18	225	16	625	17	425
11	Wisconsin No. 7	96	Soft dough	17	875	16	1,525	17	200
12	Yellow Flint	90	Glazed	16	1,500	17		16	1,750
13	Ewing's Yellow Flint	84	Glazed	13		12	1,350	12	1,675
			Average	19	719	18	1,481	19	100

SWEDE TURNIPS

Thirty strains of twenty-three varieties of swede turnips were tested on soil adjacent to the plots of corn, and which received the same treatment. The rows were ridged up and raked off before sowing. The seed was sown with the Planet Junior seed drill on May 25. Outbreaks of cutworms were controlled by baits of poison bran mash before any damage was done. After the danger of this pest was past, the plants were thinned to one foot apart. These suffered but little from club-root, were free from aphids or other insects, and withstood the dry weather of the early summer well. They were harvested on October 25th.

SWEDE TURNIPS—TEST OF VARIETIES

No.	Name of Variety	Source	Variety		Yield per acre				Per cent Club root
			Colour	Shade	tons	lb.	bush.	lb.	
1	Kangaroo	Steele Briggs	Bronze	Oval	28	1,150	1,143	..	1·9
2	Canadian Gem	Steele Briggs	Purple	Round	26	200	1,044	..	2·2
3	New Century	Rennie	Purple	Round	25	850	1,017	..	1·4
4	Monarch	Ottawa	Purple	Oval	25	1,750	1,035	..	7·5
5	Good Luck	Ste. Anne	Purple	Oval	24	1,635	992	35	
6	Sltd. Magnum Bonum	Rennie	Purple	Round	23	1,250	945	..	1·4
7	Magnum Bonum	Sutton	Purple	Oval	23	1,250	945	..	4·3
8	Imperial Purple T	Steele Briggs	Purple	Round	22	1,080	901	30	5
9	Mammoth Clyde	Ewing	Purple	Oval	22	1,000	900	..	0·9
10	Caledonian	Sutton	Bronze	Oval	22	1,000	900	..	3
11	Kentville G. Top	Kentville	Green	Round	22	100	882	..	4·3
12	Elephant	Ewing	Purple	Oval	21	1,875	877	25	1·9
13	Bangholm	Steele Briggs	Purple	Oval	21	1,650	873	..	8
14	Purple Top	Steele Briggs	Purple	Round	21	1,650	873	..	4·3
15	Jumbo	Steele Briggs	Purple	Oval	21	1,650	873	..	6
16	Magnum Bonum	Ewing	Purple	Oval	21	1,425	868	25	1·9
17	Up to Date	Sutton	Bronze	Oval	21	780	855	30	3
18	Hardy White	Sutton	Bronze	Oval	21	750	855	..	6·3
19	Imp. Lord Derby	Sutton	Bronze	Oval	20	1,850	837	..	6
20	Best of All	Rennie	Bronze	Oval	20	950	819	..	3
21	Ditmar's	Kentville	Bronze	Round	20	725	814	25	5·3
22	Champion	Sutton	Purple	Round	20	500	810	..	4
23	Crimson King	Sutton	Purple	Round	19	1,790	795	40	5
24	Good Luck	Fredericton	Purple	Oval	19	1,750	795	..	1·2
25	Green Top	Sutton	Green	Oval	19	1,150	783	..	2·4
26	Drummond's Imp	Ewing	Purple	Round	19	700	774	..	3·4
27	Monarch	Sutton	Purple	Oval	17	1,190	703	40	2·4
28	Monarch	Nappan	Purple	Oval	17	1,100	702	..	4·1
29	Canadian Gem	Kentville	Purple	Round	17	650	693	..	3·4
30	Champion	Charlottetown	Purple	Oval	17	200	684	..	3·4
	Average				21	1,320	866	20	

MANGELS

Twelve varieties of mangels were tested alongside the variety test of turnips, upon soil of a similar character, and receiving the same fertilization and cultural methods. They were planted on May 25. The seed germinated very poorly and unevenly, some of the plants being large enough to thin while others were just breaking through the ground. However, during the latter part of the season these grow rapidly, and a fair crop of mangels was harvested on October 25.

MANGELS—TEST OF VARIETIES

Name of Variety Mangels	Type		Colour		Yield of		Yield of Roots				Remarks
	True	Untrue	True	Untrue	Tons	Lbs.	Tons	Lbs.	Bush.	Lbs.	
1G. Half Sugar White	100		98	2	6	1,728	24	70	961	20	Characteristic.
2Ideal	100		100		6	1,464	23	1,840	956	40	Very characteristic
3Yellow Leviathan	100		100		9	1,008	21	380	847	30	Very characteristic
4Giant Yellow Globe	98	2	95	5	5	560	21	240	844	40	Mixed, orange long type
5Danish Sludstrup	99	1	100		5	1,672	21	140	842	40	Characteristic
6Mammoth Saw Log	97	3	100		7	1,744	19	1,150	783		Characteristic
7P. Mam. Long Red	100		98	2	7	784	17	1,880	717	30	Characteristic
8Mammoth Long Red	100		100		7	1,840	17	1,000	700		Very characteristic
9Yellow Intermediate	88	12	94	6	3	1,128	17	800	696		Mixed red globe type
10Perf. Long Red	90	10	90	10	8	1,160	16	340	646	40	Mxd. yellow variety
11Golden Tankard	87	13	94	6	3	864	12	1,920	518	20	Mxd. long variety
Average							19	706	774	6	

CARROTS

Four varieties of field carrots were planted along with the above mentioned tests. They were planted on the 25th of May, and pulled on October 27th. The germination of the seed was very poor, and a serious breakout of aphids was experienced on August 9th, which, although partly controlled by an application of nicotine sulphate, gave the test a check from which it never fully recovered. At the time of the harvest fully forty per cent of the crop was producing seed stalks.

The following table gives the varieties and yields recorded:—

CARROTS—TEST OF VARIETIES

Variety	Yield per acre			
	bush.	lb.	tons	lb.
Improved Short White	345	30	8	1,280
Red Surrey	278	20	6	1,920
White Belgian	220	40	5	1,040
White Intermediate	211	10	5	560
Average	240	..	6	1,200

SUGAR BEETS

Four varieties of sugar beets were grown in this division, under instructions from the Dominion Chemist. These were planted on May 25th, upon the same field on which the variety tests of corn, mangels, turnips and carrots were conducted. The land was ridged up, the ridges smoothed down and the seed sown with the Planet Junior. The roots were thinned to a distance of nine inches apart.

SUGAR BEETS—TEST OF VARIETIES

Variety	Yield per plot	Yield per acre			
	lb.	bush.	lb.	tons	lb.
Chatham grown	483	463	34	11	1,184
Rennie's Improved Tankard Cream	470	451	10	11	560
British Columbia grown	460	441	30	11	80
Kitchener grown	430	412	40	10	640
Average		442	16	11	116

SWEDE TURNIP SEED PRODUCTION

Half an acre of Swede turnip stecklings were grown in 1919 for seed purposes in 1920. These were carefully pitted and, in spite of the exceedingly severe winter of 1919-20, came through without loss. They were carefully planted out on May 8, on a field that had been manured the previous autumn. They grew rapidly, were kept free from weeds, and were ready for harvest on August 18 and 19. They were left to dry until August 25, when they were threshed by hand, producing 1,255 pounds of recleaned seed per acre.

TURNIP SEED—COST OF PRODUCTION

To rent ½ acre land at $15	$ 7 50
Manure, 5 tons at $2 per ton	10 00
Ploughing at $4 per acre	2 00
Harrowing, drilling and sowing, 6⅝ hours at 60 cents	4 00
Seed, 2 pounds at 90 cents	1 80
Thinning, 20⅝ hours at 60 cents	6 20
Hoeing, 13⅓ hours at 30 cents	4 00
Cultivating, twice, 4⅘ hours at 45 cents	2 00
Pulling stecklings, 18 hours at 34 cents	6 12
Pitting stecklings, 18 hours at 34 cents	6 12
Covering pits, 42¾ hours at 33 cents	13 86
Covering pits, horse labour, 8 hours at 30 cents	2 40
Pitting stecklings, horse labour, 5 hours at 30 cents	1 50
Manure, ⅝ of 20 tons at $2 per ton	20 00
Ploughing at $4 per acre	4 00
Harrowing 7¼ hours at 60 cents	4 68
Rent of land, 1 acre at $15	15 00
Planting, 84 hours at 33 cents	27 72
Planting team, 12 hours at 60 cents	7 20
Cultivating, 15 hours at 30 cents	4 50
Hoeing, 45 hours at 33 cents	14 85
Harvesting, 147 hours at 33 cents	48 51
Harvesting, 8 hours at 60 cents	4 80
Twine, 7 1/12 balls at 24 cents	1 82
Threshing, 123 hours at 33 cents	40 59
Cleaning seed, 30 hours at 33 cents	9 90
Total cost	271 07

Total yield of recleaned seed, 1,255 pounds.
Cost to product, 1 pound, 21.6 cents.

GRASS, CLOVER AND ALFALFA EXPERIMENTS

Twenty-four plots, all in duplicate, were sown to grasses and clovers, the object being to study the relative value of the principal hay grasses used in Eastern Canada and to ascertain the relative value of various grass and clover mixtures. Thus, timothy, meadow fescue, and orchard grass were sown alone, as well as in a few combinations with red clover and red clover and alsike. The seeding took place on May 31 upon a piece of heavy clay loam that previously had been in oats, peas and vetches, and turnip stecklings. The land was manured and ploughed the previous autumn. Owing to lack of rain the seed germinated slowly, thus allowing the weed seeds, which seemed unlimited in numbers, to get a start which was not overcome by the grasses during the season. The plots were mown when the weeds, composed chiefly of hemp-nettles, were still in flower. After this operation the grasses came on fairly well.

An experiment was started for the purpose of ascertaining, in the first place, whether in ordinary timothy, red and alsike clover mixtures, a certain amount of red clover seed could be advantageously substituted by a corresponding amount of alsike clover seed, and secondly, whether in the said mixture a certain amount of red top and meadow fescue could profitably be used. This experiment was placed alongside the grass and clover experiment mentioned in the preceding paragraph. Adjoining was also placed an Alfalfa experiment with a view to ascertaining finally whether alfalfa, which so far has not been successfully grown at this farm, has a future in this section of the Maritime Provinces.

HORTICULTURE

The weather during April was normal. The lack of sunshine during the latter part made hot-bed operations more difficult than usual. The spring season opened earlier than usual; the first ploughing was done on May 7. Turnip stecklings were planted on the 8th; onions planted on the 15th; peas, beans, beets, carrots and parsnips were set out on the 21st. Most garden seeding and planting was well advanced by the end of May. First spraying of orchards was accomplished on the 29th.

Lack of precipitation during May and June caused uneven germination and slow growth. Only a very fair bloom was recorded from the fruit trees. Cucumbers, squash and pumpkins were planted on June 2; tomatoes and celery on the 9th. All annuals were transplanted into beds on the 9th; the third spray to orchard was applied on the 16th. Light frost on the 24th damaged the more tender plants.

During July, August and September weather conditions improved and the vegetables made good growth. Cutworms were kept well in check by the use of poisoned bran. Strawberries were ripe by the 10th July; garden peas on the 17th; currants were picked on the 31st. The dull period during the last part of August and first of September was accompanied by relatively high temperature and was detrimental to beans and potatoes, facilitating the spreading of anthracnose on beans and late blight on potatoes. The early potatoes and apples were ready for market on the 14th and 25th respectively; apples were a light crop but of good quality.

October was an ideal harvest month; this enabled the farmer to store fruit and vegetables in good condition.

Winter set in much earlier than usual, heavy frosts were recorded on the 12th and 17th of November and the weather continued cold, thus curtailing fall ploughing.

COMMERCIAL ORCHARD

All vacancies for this orchard were filled in with trees of the desired variety during the month of May; the majority of these grew in spite of the dry weather, and improved the appearance of the orchard.

No experimental work was conducted in this orchard, owing to a portion of it being used for the variety test of strawberries. However, it was ploughed early in June and cultivated until early in July. No cover crop was sown. The orchard was sprayed thoroughly with Bordeaux mixture.

The crop ranged from light to medium. Duchess, Wealthy, Charlamoff, Grimes Golden, McIntosh, and Golden Russet yielded good average crops, while the others were light. Practically all fruit was of good quality, although undersized. The demand for all fruit was good.

ORCHARDS

The hillside orchard was ploughed in the autumn of 1919, and again in the spring of 1920. The major part of it was intercropped with small fruits, vegetables, and turnips for seed. Both this orchard and the Wood orchard were thoroughly pruned in the spring, and kept practically free from insects and fungous diseases. The most troublesome insect in this district was the Forest Tent caterpillar, which completely defoliated the orchards in some districts. The crop was light generally throughout both of these orchards, while the fruit was above the average in quality. Practically all of this fruit was packed in boxes and commanded good prices. All crab apples were put up in 11-quart baskets, and sold readily.

FLORICULTURE

ANNUAL FLOWERS

The display of annual flowers taken collectively was exceptionally good. The seed was started early in April in hot beds, germinated, was pricked off and grew rapidly, with few exceptions, until planted out on the borders on June 9. A light frost on the 18th destroyed the more tender annuals, viz: Balsams, Clarkia, and Salvias. Asters, antirrhinum, nemesia, phlox, pansies, nicotiana, calendula, kochia, lobelia, marigold, lavatera, malope, nigella, nasturtium, mignonette, petunia, salpiglossis, stocks, sweet sultan, verbena, and zinnia all made good displays. Lack of sufficient precipitation, together with heavy winds which twisted and broke down and eventually killed some of the more upright annuals, were the chief obstacles. Sweet peas were a failure, partly due to preparing the trenches in the spring, poor germination, prevalence of cutworms, and lack of precipitation.

PERENNIAL FLOWERS

The display of perennial flowers taken collectively in the perennial border was poor. This condition resulted from some of the more hardy and dominant varieties overrunning the vacancies left by the weaker and less hardy varieties which have died, giving the border a neglected appearance which is difficult to remedy without renovating the whole border. This is contemplated for the spring of 1921. Gladioli, dahlia, pæonies, delphinium, aquilegia, phlox, rudbeckia, and lupins were the outstanding perennials.

Nursery for Perennial Flowers.—In view of the fact that the perennial border requires renovation, a small nursery was prepared in which seeds of numerous varieties and species of perennial flowers were sown on June 14. Some of these failed to germinate, but the majority grew well.

LAWNS AND SHRUBS

Approximately one-half acre of new lawn was prepared about the assistants cottage. This involved considerable work, due both to the heavy clay soil which had to be worked at the proper time if it was not to remain lumpy and rough, and to the sloping nature of the site, which involved considerable work in grading. In spite of these handicaps, a good surface was made and seeded, which resulted in an excellent lawn by midsummer. This lawn was interspersed with a choice collection of shrubs, while the rear and north side of the lawn was bordered by a hedge of barberry. The general landscape effect of this dwelling and surroundings was commented upon by visitors.

All lawns about the superintendent's house and along the highway were kept in good condition; the shrubs planted thereon were pruned and vacancies replanted.

SMALL FRUITS

STRAWBERRIES

This test was conducted in 1920 on a portion of the commercial orchard, as an intercrop, and included forty-nine varieties. The soil upon which this test was conducted is a light sandy loam, lacking in fertility, which, combined with a very dry May and June, resulted in light crops of berries. The plants were set in rows three feet apart on June 5. These were allowed to form a matted row two feet wide, all flowers and fruit being removed as it formed during the first season. The plantation was mulched after the ground became frozen in November, and was removed on May 17.

The accompanying table gives the names and yields of the varieties tested:—

VARIETY TEST OF STRAWBERRIES 1920 Variety	Yield in pounds from 33 ft. row
Nick Ohmer	7,920
Grenville	6,864
Glen Mary	6,336
Joe	5,805
Coles Seedling	5,544
James Veck	5,280
Haverland	5,280
John Little	5,280
Seedling No. 15	5,280
Success	5,280
Equinox	4,752
Crescent	4,752
Bomba	4,752
Captain Jack	4,356
Entrance	4,356
Barton's Eclipse	4,620
Ida	4,488
Howard No. 41	4,488
Gandy	4,224
Senator Dunlap	4,224
Thompson Late	4,224
G. H. Coughill	4,224
Excelsior	4,224
Seedling No. 12	4,224
Beverly	4,224
Carleton	4,092
Hood River	3,960
Pearl	3,960
Williams	3,960
Cyclone	3,828
Michael Early	3,960
Wm. Bell	3,696
Barton's	3,696
Ste. Antone De Parde	3,696
Swindle	3,696
Semple	3,564
Howard	3,432
Grenville	3,300
Brandywine	3,168
Early Brand	3,168
Jeanne D'Arc	3,168
Saunders	2,904
Cannie	1,848
Morgan Favorite	1,716
Vessie	1,584
Bissel	1,584

STRAWBERRIES FOR 1921

Approximately three acres of land of a heavy clay loam was set aside in the autumn of 1919 for small fruits. This was manured with stable manure at the rate of 25 tons per acre, which, owing to an early freeze up, was not ploughed under until the spring. The ground was thoroughly prepared, and approximately one and one-half acres of strawberries were set out on May 21; comprised of one-half acre each of Senator Dunlop and Semple, together with fifty-six variety test plots.

CURRANTS

The plantation of currants that has been reported upon for the past five seasons gave a very light crop of fruit this season. The bushes were pruned in the spring, cultivated and sprayed, and made good growth. The following gives the tabulated yields:—

RED CURRANTS Variety	Yield per acre Pounds
Cherry	10,880
Pomona	10,880
Victoria	8,840
Cumberland Red	7,480
Red Dutch	6,800
Red Grape	6,460
Rankin's Red	2,040

BLACK CURRANTS	Yield in pounds from 33 ft. row
Kerry	9,180
Victoria	8,840
Saunders	6,800
Magnus	5,780
Climax	4,760
Buddenburg	5,780
Clipper	3,400
Boskoop Grant	2,720

WHITE CURRANTS	
White Cherry	10,540
Large White	7,920
White Grape	5,440

NEW CURRANT PLANTATION

Fifteen varieties of red and black currants were planted on the new small fruit plantation mentioned previously. This land received the same treatment as that given for strawberries. The bushes were set in rows 6 x 6 feet apart and, without exception, made good growth.

RASPBERRIES

Fifteen varieties of red raspberries were started on a new plantation adjacent to the strawberries in the spring of 1920. The land used for this test was given the same treatment as the strawberries received. These were planted in rows six feet apart, while the canes were set one foot apart in the row. The majority of these grew well, but some of the canes received from nurserymen in Ontario seemed to have dried out in transit, resulting in many of them failing to start.

No records were taken from the old plantation.

GOOSEBERRIES

The old plantation of gooseberries, the majority of which were English varieties which had never become well established owing to their susceptibility to Downy mildew, was removed. The site was afterwards used for a perennial flower nursery. Ten newer varieties of gooseberries were planted on the new small fruit plantation and made vigorous growth.

VEGETABLE GARDEN

The soil utilized for this purpose was a medium clay loam which had been previously in clover; an application of twenty tons of well rotted manure was applied to a heavy aftermath of clover in September, 1919, and ploughed down to a depth of six inches. This was cross-ploughed in the spring of 1920 and harrowed, making a perfect seed bed.

GARDEN PEAS

Eighteen strains of fourteen varieties of garden peas were planted on May 19, in rows three feet apart, and the seed dropped approximately one inch apart in the rows. These were cultivated frequently and kept free from weeds, were supported by birch brush, and during the fruiting season were picked bi-weekly. The three varieties that were best suited to a general farm garden in regard to productiveness and length of season were: Gregory's Surprise, American Wonder, and McLean's Advancer. The following yields were recorded from 100 foot row:—

GARDEN PEAS—TEST OF VARIETIES

Variety	Season	Ready for use	End of season	Yield in lbs.
McLean's Advancer	Medium	Aug. 4	Aug. 16	76
American Wonder	Medium	July 29	" 16	53
Gregory's Surprise	Early	" 23	" 16	53
Stratagem	Late	Aug. 8	" 20	52
Blue Bantam	Medium	July 29	" 10	49
English Wonder	Medium	" 29	" 10	48
Sutton's Excelsior	Medium	" 29	" 10	44
Gregory's Surprise	Early	" 23	" 10	44
Thos. Laxton	Early	" 25	" 4	40
Early Morn	Early	" 26	" 10	39
Pioneer	Medium	" 29	" 10	36
Eight Weeks	Early	" 26	" 4	22
Laxtonian	Medium	" 29	" 4	21
Gradus	Medium	" 29	" 10	21
Little Marvel	Early	" 25	" 4	21
				619

Average, 41 lbs.
N.B.—25 lbs. green peas in pod equal one bushel.

GARDEN BEANS

Eighteen varieties of garden beans were planted in rows two and one-half feet apart, and the seed dropped approximately one inch apart in the row. These were planted on May 26 and in the majority of cases germinated well, though not very uniformly. These grew favourably until they were badly attacked by the anthracnose about mid-August, which resulted from heavy precipitation combined with relatively high temperature, seriously reducing the yield in many varieties, while others were completely destroyed. Wardwell's Kidney Wax and Pencil Pod Black Wax were the outstanding producers. The following table gives the results recorded:—

GARDEN BEANS—TEST OF VARIETIES

Variety	Ready for use	Anthracnose	Yield in the green pod from 100 ft. row
Wardwell's Kidney Wax	July 31	None	58
Pencil Pod Black Wax	" 31	None	51
Bountiful Green Pod	Aug. 5	Medium	35
Wardwell's Kidney Wax	July 31	Bad	32
Round Pod Kidney	" 31	None	31
Long Pod Forcer	Aug. 5	None	28
Davis Kidney Wax	July 31	None	27
Masterpiece	Aug. 5	Bad	27
Early Red Valentine	" 5	Bad	27
Stringless Green Pod	" 5	Bad	25
Stringless Green Pod	" 9	Bad	25
Extra Early Red Valentine	" 4	Bad	22½
Giant Green Pod	" 4	Medium	22
Fordhook's Favorite	" 5	Bad	21
Webber Wax	" 4	Medium	16½
Tipary	Did not mature.		
Refugee	Completely destroyed by anthracnose.		548

Average, 34·2.

CARROTS

Five varieties of garden carrots were sown with the Planet junior hand seed drill, in rows two and one-half feet apart, at the rate of one ounce per hundred feet, on May 18. These were slow and uneven in germination, but grew fairly well until Aug. 9, when they were badly attacked by aphids which, although destroyed by a thorough spraying with a 1 to 600 Nicotine Sulphate soap solution, evidently gave the carrots a check from which they failed to recover. This, in conjunction with an annual seed producing characteristic which resulted in fully fifty per cent of the roots developing a seed stock, made the crop of carrots the poorest in many years. The following are the yields recorded:—

GARDEN CARROTS—TEST OF VARIETIES

Variety	Marketable bushels per acre	Unmarketable bushels per acre	Total bushels per acre
Half Long Scarlet	156	105	261
Imp. Danver	119½	100	219½
Early Scarlet Horn	100	77	177
Danver	96	78	174
Chantenay	103	61	164
			995½

Average 199 bushels.

BEETS

Seven strains of six varieties of garden beets were tested in hundred feet rows. The seed was sown with the Planet Junior in rows two and one half feet apart, at the rate of two ounces per hundred feet, on May 18. These germinated rather slowly, and were thinned out somewhat by attacks of cutworms before the latter could be controlled by poison baits.

The plants were thinned to a distance of three inches and produced a very uniform crop. The following yields were recorded:—

GARDEN BEETS—TEST OF VARIETIES

Variety	Yield per acre in bushels
Crosby's Egyptian	580½
Early Wonder	459½
Black Red Ball	445½
Detroit Dark Red	438½
Eclipse	424½
Crimson Globe	382½
Detroit Dark Red	438
	3,079½

Average, 439 bushels.

CUCUMBERS

Eight varieties of cucumbers were planted on June 2, six by four feet apart. The hills were made by opening a trench nine inches deep, into which was placed, four feet apart, a manure forkful of well rotted stable manure, a three-inch covering of earth was then drawn over this with a hoe and smoothed off, leaving a hill approximately eighteen inches in diameter. The seed was planted by hand, germinated quickly, and grew rapidly. The plants in the hill were thinned after the ravages of the cutworms were past. The crop of cucumbers was good, due both to good fertility of the soil and abundant rainfall during the fruiting season. The only variety

that failed to produce fruit was a West Indian Gherkin. The varieties White Spine and Giant Pera were the most productive. The following are the yields recorded:—

CUCUMBERS—TEST OF VARIETIES

Variety	Size	Ready for use	Number of cucumbers	Number of pounds 33 foot row
White Spine	Medium	Aug. 14	207	141
Giant Pera	Long	" 11	178	138
Imp. Long Green	Long	" 16	144	119
Davis Perfect	Long	" 16	153	108
Davis Perfect	Long	" 16	128	95
Fordhook Famous	Medium	" 11	121	93¾
Early Russian	Short	" 10	162	84
Cool and Crisp	Long	" 14	108	73
				857¾

Average 106·37 pounds.

GARDEN CORN

Sixteen varieties of garden corn were tested in hundred feet rows, planted three feet apart with the seed sown by hand approximately one inch apart in the rows. The seed of all varieties germinated well and grew rapidly. Twelve of the sixteen varieties matured sufficiently for table use. The record from two of these varieties, namely, Pickaninny and White Rice Pop, was destroyed by rats, while the records from the remaining plots were seriously reduced by other nocturnal visitors.

GARDEN CORN—TEST OF VARIETIES

Variety	Ready for use	Length of cob	Total yield of cobs in pounds from 33 foot row
		inches	
Early Malcolm	Sept. 7	6	53
Golden Bantam	" 7	5	50
Country Gentleman	" 14	6	46
Early Sweet Ottawa	" 7	6	36
Early Sweet Squaw	" 14	7	36
Early Fordhook	" 7	5	30
Early Sweet Kloochman	" 5	7	26
Ex. Early White Cory	" 14	8	24
Early Mayflower	" 14	6	21
Puchantas	" 14	8	17
Golden Giant	Did not mature.		339
Howling Mob			
Stowell's Evergreen			
Black Mexican			

Average 33·9.

TOMATOES

Seventeen varieties of tomatoes were tested. The seed was started in hot beds on March 30, pricked off on April 19, and planted out in the open field in rows four feet apart each way on June 9. The season was not well suited to this crop, being too dry during the first part, when the plants should have made their growth and developed their fruit, and too dark and wet when the fruit should have been ripening; hence the yield of ripe fruit was relatively low. The tomatoes were harvested on September 21 when frosts threatened, but could have remained uninjured for another

month before being thus destroyed. The varieties Alacrity, June Pink, Danish Export, and Burbank Early were the heaviest producers of ripe fruit. The records of twenty-five plants are as follows:—

TOMATOES—TEST OF VARIETIES

Variety	Source of seed	Ready for use	Ripe	Green	Total 100 foot row
			lbs.	lbs.	
June Pink	Graham	Aug. 20	41	280	321
Earlibell	Simmers	" 20	21	285	306
Burbank Early	0-8679	" 20	35	245	280
Alacrity	Ottawa	" 20	69	205	274
John Bear	Carter	Sept. 4	16	230	246
Bonny Best	Stockes	Aug. 20	21	220	241
Danish Export	0-8697	Sept. 4	37	196	233
Red Head	Langdon	" 4	14	219	233
Alacrity	0-201A	Aug. 20	20	186	206
Langdon Earlibell	S'land	Sept. 4	22	164	186
Large Yellow	Graham	" 4	13	172	185
Yellow Plum	Ferry	" 4	6	176	182
*Alacrity	Graham	Aug. 20	19	112	131
Chalk's Jewel	Carter	Sept. 4	12	100	112
Red Cherry	Graham	" 4	3	41	44
Yellow Pear	Ferry	" 4	6	25	31
Yellow Cherry	Burpee	" 4	5	20	25
					3,236

*Yield reduced by being overrun with pumpkin vines.
Average yield 189·7 pounds.

ONIONS

Fifteen strains of eleven varieties of onions were planted in rows one foot apart. The seed was sown in the open field on May 15. The soil was a sandy loam manured with composted manure, which was well incorporated with the soil, after which it was rolled. The seed germinated well, but the crop was checked by an excessive growth of weeds, the eradication of which destroyed the test for authentic records; however, the following data were recorded:—

ONIONS—TEST OF VARIETIES

Variety	Maturity	Weight from 33 foot row
		lbs.
Large Red Wethersfield	Poor	36
Southport Yellow Globe	Medium	30
White Barletta	Good	28
Yellow Globe Danvers	Medium	24
Extra Early Flat Red	Good	23
Southport Globe	Good	21
Giant Prizetaker	Good	20
Australian Brown	Good	18
Mammoth Silver King	Medium	18
Alsia Craig	Good	13
		231

Average 23·1 pounds.

CABBAGE

With the exception of two varieties, namely Early Jersey Wakefield and Copenhagen Market, which were started in the hot bed and planted out in the open field on May 19, and which were ready for use on Aug. 5, with an average weight per head

of two and one-half to three pounds respectively, the cabbage test was a complete failure, due partly to the attacks of root maggot, but principally to the soil being infected with club root.

CAULIFLOWERS AND BRUSSELS SPROUTS

Records spoiled by attacks of club root.

LETTUCE

Ten varieties of lettuce were tested in rows one and one-half feet apart. The seed was sown in the open field on May 15, thinned to a distance of six inches, and was ready for use on July 14. Grand Rapid and Black Seeded Simpson were the favourite curled varieties; while Salamander, Hanson, Iceberg, and Cos were the best headed varieties.

SQUASH AND VEGETABLE MARROW

Seven varieties, including four of squash and three of vegetable marrow, were planted in hills six by six feet apart, prepared similarly to those for cucumbers. The seed was planted on June 2, and grew so luxuriously that the vines crowded the fruits and caused them to be somewhat smaller than desired; but they were of good quality. The following yields were recorded from seventeen hills:—

SQUASH AND VEGETABLE MARROWS—TEST OF VARIETIES

Variety	Source of seed	Yield in pounds
Long White Bush Marrow	McDonald	528
Golden Hubbard	McDonald	526
Green Hubbard	McDonald	499
English Vegetable Marrow	McDonald	415
Giant Summer Crookneck	Graham	414
Boston Marrow	Graham	296
Delicious	McDonald	110

PUMPKINS

Three varieties were planted under similar conditions as described for squash and vegetable marrow, and yielded as follows:—

PUMPKINS—TEST OF VARIETIES

Variety	Source of seed	Yield in pounds 17 hills
Connecticut Field	McDonald	609
Small Sugar	McDonald	462
King of the Mammoths	McDonald	435

HERBS

Sage, Summer Savory, Sweet Marjorum and Thyme were successfully grown in the vegetable garden in 1920.

CELERY

All seeds were started in hot beds on March 30 and forced until set out into the field on June 9. Trenches were opened with a plough to a depth of one foot, into which was tramped six inches of well rotted manure; this was covered with four inches

of soil, and the celery plants transplanted therein. These grew rapidly, and were trenched for blanching on Aug. 10, 30, and Sept. 25. The majority of the varieties blanched well and produced bunches of excellent quality. A ready market was found for this crop. The following gives the data recorded:—

CELERY—TEST OF VARIETIES

Variety	Quality of heads	Height in inches	Weight of heads
Sandford's Early Blanching	Good	13	218
Winter Queen	Poor	13	210
White Plume	Good	11	208
Pans Golden	Good	10	204
Giant Pascal	Poor	11	196
Golden Self Blanching	Good	9	180

Evans Triumph failed to germinate. White Plume, Golden Self Blanching and Sandford's Early Blanching are given in order of quality.

PEPPERS AND EGG PLANT

Five varieties of Peppers and two of Egg Plant were started in the hot bed on the 30th of March. These germinated poorly, were pricked off on April 24, and planted in the open field on June 14. Here they failed to make vigorous growth, due to a lack both of fertility and precipitation. Neopolitan was the only variety of pepper that produced fruit. No fruit was produced by the egg plant.

SPINACH AND SPINACH BEET (SWISS CHARD)

The seed of Viroflay Spinach and Silver Leaf Chard was sown in the open field in rows one and one-half feet apart on May 25, the former being ready for use on June 19 and the latter on July 23.

SALSIFY

Two varieties of Salsify, viz:—Long White and Sandwich Island, were tested. The seed was sown in the open field on May 25. Each of these varieties gave a good crop, with the preference in quality being awarded to the Long White variety.

PARSNIPS

The test of parsnips was confined to the variety Hollow Crown, the seed of which was sown in drills two and one-half feet apart, at the rate of one ounce of seed to one hundred feet of drill. The seed germinated well and produced a crop of high quality.

PARSLEY

Four varieties of parsley, viz:—Champion Moss Curled, Triple Curled and Extra Curled, were sown in drills in the garden on May 25. No preference could be awarded to any variety.

CULTURAL EXPERIMENTS WITH VEGETABLES

Cultural experiments were conducted with different vegetables to ascertain the relative advantage of various methods of treating certain vegetables under field conditions. These experiments consisted of thinning experiments, dates of sowing seed and a comparison of early vegetables planted at different dates with early, medium and later seasoned varieties of the same vegetable.

GARDEN PEAS

Comparison of an early variety (Thomas Laxton) planted at different dates with a succession of varieties of different seasons, that is, a fairly early (Gradus) medium (McLean's Advancer) and a later variety (Stratagem) planted on the same date as the first sowing of the early variety. The following were the results recorded:—

GARDEN PEAS—CULTURAL TESTS

Variety	When sown	Ready for use	Season ended	Total peas 100 foot row
				lbs.
Gradus	May 19	July 25	Aug. 10	16
McLean's Advancer	" 19	" 29	" 16	50
Stratagem	" 19	" 31	" 14	52
Thomas Laxton	" 19	" 16	" 10	40
Thomas Laxton	" 27	" 29	" 10	44
Thomas Laxton	June 3	Aug. 4	" 16	26
Thomas Laxton	" 10	" 10	" 16	27
				255

Average yield 36·4 pounds.

BEANS

Comparison of relative advantages of a succession of varieties of different seasons with the same variety planted at intervals of a week apart for four weeks.

GARDEN BEANS—CULTURAL TESTS

Variety	Planted	Ready for use	Season over	Yield of pods 100 ft. row
Stringless Green Pod	May 26			
Early Red Valentine	May 26			
Refugee	May 26		Records spoiled by Anthracnose	
Round Pod Kidney Wax	May 26			
Round Pod Kidney Wax	June 3			
Round Pod Kidney Wax	June 11			
Round Pod Kidney Wax	June 19			

CARROTS

Thinning 1½—2 and 3 inches apart in row

GARDEN CARROTS—CULTURAL TESTS

Variety	How thinned	Total yield 100 ft. row
	inches	lbs.
Chantenay	1½	91
Chantenay	2	57
Chantenay	3	48

BEETS

Thinning to 2, 3 and 4 inches apart in row.

GARDEN BEETS—CULTURAL TESTS

Variety	How thinned	Total yield 100 ft. row
	inches	lbs.
Detroit Dark Red	2	210
Detroit Dark Red	3	202
Detroit Dark Red	4	196

PARSNIPS

Thinning to 2, 3 and 4 inches apart in row.

PARSNIPS—CULTURAL TESTS

Variety	How thinned	Total yield 100 ft. row.
	inches	lbs.
Hollow Crown	2	111
Hollow Crown	3	133
Hollow Crown	4	124

TOMATOES

TESTS OF SUPPORTING AND PRUNING

Variety	How treated	Yield of fruit—12 plants		
		Ripe	Green	Total
		lbs.	lbs.	lbs.
Bonny Best	Tied with stakes, pruned to 1 stem	10	90	100
Alacrity	Tied with stakes, pruned to 1 stem	7½	40	47½
Bonny Best	Tied to stakes, pruned to 1 stem and one half foliage removed	22	100	122
Alacrity	Tied to stakes, pruned to 1 stem and one half foliage removed	16	95	111
Bonny Best	Tied to stakes, pruned to 2 stems	18	100	118
Alacrity	Tied to stakes, pruned to 2 stems	9	70	79
Bonny Best	Tied to stakes, pruned to 2 stems. One half foliage removed	25	130	155
Alacrity	Tied to stakes, pruned to 2 stems. One half foliage removed	19	106	125
Bonny Best	Unsupported and unpruned	20	300	320
Alacrity	Unsupported and unpruned	30	350	380

VARIETY TEST WITH POTATOES

Twenty-six strains of sixteen varieties of potatoes were tested in 1920. This test was conducted upon the same field and given the same treatment as the vegetable garden received, viz:—manured at the rate of twenty tons of stable manure per acre, applied to a heavy aftermath of clover in the autumn of 1919, and ploughed under to a depth of six inches. This was cross-ploughed in the spring of 1920, harrowed, and was in excellent condition for any crop. The seed was carefully cut, any tubers that

were foreign to the variety or showed signs of disease being discarded. The setts were planted in rows two and one-half feet apart, and dropped one foot apart in the rows, the Iron Age potato planter being used for this operation. These potatoes were thoroughly cultivated and kept free from weeds, and were sprayed with 4-4-40 Bordeaux arsenate on July 8, July 19, July 30, August 10 and August 17. In spite of the fact that the stalks remained green until they were harvested on October 11, a considerable percentage of some of the varieties were infected with late blight.

It will be noted that the English varieties, Davies Warrior, British Queen, Factor, Aaron Chief, and King Edward VII, were not only among the highest producers, but were practically blight-resistant as determined from their freedom from rot at the time of harvest. It will be noted also in the following table that the relative yield of unmarketable tubers is comparatively high in some varieties, which is accounted for by the fact that all tubers showing signs of disease or rot, together with those below a marketable size, were put into this class.

POTATOES—TEST OF VARIETIES

Name of Variety	Source of Seed	1st Plot—Yield per acre				2nd Plot—Yield per acre				Average Yield per acre			
		Marketable		Unmarketable		Marketable		Unmarketable		Marketable		Unmarketable	
		Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.	Bush.	Lbs.
Davie's Warrior	Nappan	610		83	20	443	20	133	20	526	40	108	20
British Queen	Nappan	553	20	50		383	20	93	20	468	20	71	40
Factor	Nappan	526	40	56	40	253	20	86	40	390		71	40
Aaron Chief	Nappan	401	20	76	40	366	40	83	20	384		80	
Irish Cobbler	Fredericton	393	20	80		300		123	40	346	40	101	40
Rochester Rose	Nappan	380	40	40		310		43	20	345		42	40
Pioneer	Nappan	353	20	66	40	310		153	20	331	40	110	
Empire State	Fredericton	333	20	116	40	260		140		296	40	128	20
Rochester Rose	Fredericton	356	40	23	20	176	40	86	40	266	40	55	
Irish Cobbler	Nappan	270		62	20	256	40	100		263	20	81	40
White Rose	Nappan	310		160		200		150		255		155	
Rawling Kidney	Nappan	296	40	213	20	200		256	40	248	20	235	
Delaware	Nappan	280		136	40	216	40	193	20	248	20	165	
King Edward	Nappan	273	20	63	20	196	40	106	40	235		135	
Late Puritan	Nappan	206	40	80		250		110		228	20	95	
Mill's Pride	Nappan	226	40	160		203	20	246	40	215		203	20
Green Mountain	Nappan	203	20	150		203	20	216	40	203	20	183	20
Empire State	Nappan	180		176	40	190		170		185		123	20
Early Six Weeks	Fredericton	216	40	113	20	146	40	110		181	40	111	40
Carman No. 1	Nappan	143	20	216	40	206	40	220		175		218	20
Late Puritan	Fredericton	253	20	46	40	83	20	100		168	20	73	20
Carman No. 1	Fredericton	280		100		150		150		165		125	
Early Six Weeks	Nappan	190		143	20	123	20	140		156	10	141	40
Factor	Fredericton	84	40	76	40	Insufficient seed for duplicate plot.							
Factor	Indian Head	23	20	33	20								

Area of plots 1-200 of an acre. Plots planted on May 27th and dug on October 11th, 1920.

CERTIFIED SEED POTATOES

Sufficient Irish Cobbler potatoes of Government-inspected, disease-free stock to plant three-quarters of an acre were purchased from J. J. Simpson, Belmont, Prince Edward Island, and planted upon a light clay loam that had previously been growing timothy hay, the sod of which was manured with stable manure at the rate of twenty tons to the acre and ploughed under to a depth of six inches in the fall of 1919. The seed was carefully cut and planted on May 28, the Iron Age planter being used in the latter operation. The plants were kept absolutely free from weeds and insects, and, when inspected late in August, were free from blight and other diseases. The following is the yield per acre:—

Variety	Yield per acre		
	Marketable Bush.	Unmarketable Bush.	Total Bush.
Irish Cobbler	280	93	373

ELITE STOCK SEED

One eleventh of an acre each of the following varieties:—Carmen No. 1, Rowling's Kidney, Green Mountain, Wee McGregor and Irish Cobbler, were planted alongside, were given the same cultural treatment, and were sprayed on the same dates, as were the variety tests with potatoes. They yielded as follows:—

POTATOES—ELITE STOCK SEED

Variety	Marketable	Unmarketable	Total
Carmen No. 1	212	160	372
Rawling's Kidney	196	147	343
Green Mountain	197	140	337
Wee McGregor	168	109	277
Irish Cobbler	187	44	231

COST OF GROWING POTATOES

A careful memorandum was kept of all work in connection with the preceding three-quarters of an acre field of potatoes and the following costs have been recorded:—

Rent of land at $15 per acre		$ 11 00
Manure, two-thirds of 20 tons, at $2 per ton		26 66
Ploughing at $6 per acre		4 00
Harrowing, 5 hours at 60 cents		3 00
Seed, 15 bushels at $2.50		37 50
Planting, 5 hours at 78 cents		3 90
Cultivating, 5 times—10 hours at 44 cents		4 40
Hoeing, 10 hours at 34 cents		3 40
Hilling up, 2 hours at 60 cents		1 20
Spraying, 5 hour's labour at $1 (5 applications)		5 00
Spraying, 30 pounds blue stone at 11½ cents	3 45	
Material, 30 pounds hydrated lime at $1.75	53	
Eight pounds arsenate of lime at 30 cents	2 40	
		6 38
Cost of digging and storing		
Four-horse team and driver, 3 hours at 75 cents		2 25
Two horse carts and drivers. 3 hours at 44 cents		2 64
Ten pickers, 3 hours at 33 cents		9 90
One man storing, 6 hours at 32 cents		1 92
		$123 15
Less 69 bushels small potatoes at 20 cents		13 80
Yield of marketable tubers, 210 bushels		$109 35
Cost to produce one bushel marketable potatoes		52

N.B.—An average of 60 gallons of spray per application was applied with power outfit, spraying six rows at a time.

This crop was planted and harvested with Iron Age machinery adapted to these operations.

POULTRY

POULTRY BUILDINGS

The building operations at the Nappan Farm during 1920 were confined to four 12 by 10-foot portable, shed-roof, glass-and-curtain front colony houses, two of which were divided equally by a wire mesh partition and devoted exclusively to the accommodation of four pens in the Egg Laying Contest, while the remaining two were utilized for the Farm flock. The glass and curtain areas were changed on seven older colony houses, and also on the permanent house. The poultry plant comprises the following buildings: Administration building, 25 by 18 feet, affording accommodation for the poultryman, storage of egs, incubation cellar, feed and fuel room. One 32

by 16-foot permanent, shed-roof colony house, glass-and-curtain front, divided into two equal pens by wire mesh partition, and affording accommodation for fifty birds per pen. Eight 10 by 12-foot shed-roof, portable, glass-and-curtain-front colony houses, each of which has a capacity for twenty-five birds. Two 8 by 12-foot portable, pitch-roof, straw-loft, glass-and-curtain-front colony houses, seven of which afford accommodation for twenty-five birds each, while the remaining three are used for brooding of chicks in the spring, or to supply accommodation for twenty-five adult birds each, during the winter months. Two 8 by 6-foot portable range houses for chickens on range during the summer months. The total adult bird capacity of these buildings is 340.

BREEDS AND STOCK

The poultry work, which is devoted to the solution of the problems arising in the surrounding district, is confined to two breeds, viz:—Barred Plymouth Rocks and Single Comb White Leghorns. The former belongs to the dual-purpose breeds, producing birds of good, marketable size, while selected strains of this breed are among the highest egg producers. The latter breed is usually devoted exclusively to egg production, although early-hatched cockerels are utilized as broilers in select markets.

The following table gives the sex and number of the different breeds on hand April 1, 1920:—

STOCK ON HAND, APRIL 1, 1920

Breed	Hens	Pullets	Males	Total
Single Comb White Leghorns	34	56	2	92
Barred Plymouth Rocks	.....	67	3	70
White Wyandottes	13	.....	1	14

The White Wyandottes were disposed of early in April, while the other breeds were culled out, and only the highest producers were retained for breeding purposes.

INCUBATION

The spring of 1920 was the most favourable for poultry producers for some years. A period of bright, moderately warm weather, with but little precipitation, prevailed from early in April until late in July. The weather during the winter was exceptionally cold, but remained fairly constant in temperature from December until the latter part of March. The total number of eggs used in incubation was 1,469; 76·9 per cent, or 1,129, of these proved fertile, while 55·3 per cent of these, or 42·4 per cent of the total eggs set, hatched, giving 603 fully developed chickens; of these 33·6 per cent, or 203, died before November 1, while an additional 117 were killed and dressed for market throughout the season, leaving 283 birds from which to select the laying pens.

EARLY VERSUS LATE SPRING FERTILITY AND HATCHABILITY

Fertility and hatchability records were accurately kept of all eggs incubated during the spring months, and are as follows:—

Month	Eggs	Fertility	Hatchability
March	490	66·7	33·4
April	729	72·0	46·6
May	250	77·2	44·8

BREED, FERTILITY AND HATCHABILITY

Records were also kept during the incubation season of the fertility and hatchability of all eggs incubated from each of the breeds at this farm. The following gives the records compiled:—

Breed	Eggs Set	Fertility		Hatched	
		No.	Per cent	No.	Per cent
White Leghorns	331	281	84·8	146	44·1
Barred Rocks	1,138	848	74·5	478	42·0

HENS VERSUS PULLETS: FERTILITY AND HATCHABILITY

The following tabulated records give the percentage of fertile and hatchable eggs from both mature hens and pullets. The results recorded, when considering the number of eggs set, show but little difference, although the hens showed slight superiority in both fertility and hatchability:

Age	Eggs Set	Fertility		Hatchability	
		No.	Per cent	No.	Per cent
Hens	472	385	81·5	228	48·3
Pullets	977	744	74·6	396	39·7

INCUBATORS

Owing to the impossibility of obtaining the necessary repair parts for two machines, all hatching work was done with the Prairie State. The following gives the summary of the different hatches:—

Incubator	Total eggs set	Fertility		Hatched	
		No.	Per cent	No.	Per cent.
Prairie State	1,469	1,129	76·8	624	42·4

Per cent of fertile eggs hatched, 55.3.

BREEDING STOCK PRODUCTION

From the fifty-six bred-to-lay pullets that were purchased and raised during the summer of 1919, the following production of eggs has been recorded during their egg year (365 days from date of their first egg).

6	pullets	produced	over	200	eggs	but	below	225
4	"	"	"	175	"	"	"	200
17	"	"	"	150	"	"	"	175
17	"	"	"	125	"	"	"	150
6	"	"	"	100	"	"	"	125
5	"	"	"	50	"	"	"	100

From the highest producers of these will be selected eggs for hatching in 1921. To augment these pens, for breeding purposes in 1922, hatching eggs of high-producing, bred-to-lay Barred Rocks were purchased and incubated, resulting in a nice flock of pullets which show indication of surpassing the records made by the previously mentioned pullets in 1920.

STOCK WINTERED

The stock of poultry carried through the winter of 1920-21 included both the breeding pens and the pullets hatched last spring. The breeding pens are made up of all the high producing birds as selected by their trap nest records from the pullet crop of the previous season. The stock was confined to the Barred Plymouth Rock and Single Comb White Leghorn breeds, and included the following:—

Breed	Females		Males	Total
	Hens	Pullets		
Barred Rocks	58	111	7	176
White Leghorns	25	47	.....	72

METHODS OF FEEDING FOR WINTER EGGS

Two feeds of whole grain were given daily. This whole grain ration was compounded as follows:—Equal parts corn, wheat, oats and barley or buckwheat. The first feed of this mixture was fed scattered in the litter during the early forenoon, while the latter feed was given in the litter the last thing at night before the birds took to the roosts. This method enables the birds to fill their crops with food before going to roost, thereby maintaining the heat and energy of the body, which is so essential to high production, during the long, cold winter nights. At the same time it affords an early breakfast from the grain left in the litter from the night before. The amount of grain thus fed was governed by an inspection of the litter. If grain was found in litter after ten o'clock in the morning, the feed was reduced. In addition to the whole grain ration, a dry mash consisting of one part each of corn meal, bran and shorts, to which was added from 10 to 15 per cent of blood meal or beef scrap, together with mineral and animal food in the form of oyster shell, grit, charcoal and beef scrap, was before the hens constantly in hoppers.

A wet mash, compounded of boiled vegetables, potatoes, sugar beets or turnips was mixed with sufficient of the dry mash to make a crumbly mixture, and was fed every day. The amount of feed was determined by what the birds consumed in from ten to fifteen minutes. Vegetable feed was given in the form of raw mangels.

WINTER EGG PRODUCTION

The financial success of the average farmer poultryman depends upon the production of eggs in quantity during the winter months. Therefore, careful records were kept of each and every detail in connection with the feed and management of the poultry during the winter. The following cost prices were charged for feed, which, although fluctuating constantly, are approximately correct for the winter months. Eggs were sold at market prices.

Prices	Price 1920 per cwt.	Price 1921 per cwt.
Mixed grain	3 50	3 69
Dry mash	2 00	4 14
Beef scrap	6 00	8 00
Oyster shell	1 85	1 95
Grit	1 80	2 35
Roots	15	15
Milk	20	20

The data compiled in the following tabulated form for Barred Plymouth Rocks and Single Comb White Leghorns, in relation to production and cost, show 70 Barred Rock pullets making a total profit of $36.32, or a profit per bird of 52 cents in 1920; while in 1921 49 birds made a total profit of $32, or a profit per bird of 65 cents. At

the same time 56 White Leghorns gave a total profit of $52.95, or a profit per bird of 94 cents in 1920. In 1921, 44 pullets made a total profit of $35.04, or a profit per bird of 79·6 cents over and above the cost of feed for the winter months.

SUMMARY OF COST OF PRODUCTION OF WINTER EGGS, 1920

SEVENTY BARRED ROCK PULLETS

Month	Number Birds	Total Feed	Total Cost	Cost to Feed One	Total Eggs	Cost Dozen	Total Value	Profit Over Feed	Loss Over Feed
			$ cts.	cts.		$ cts.	$ cts.	$ cts.	$ cts.
November, 1919	70	600	19 59	28	25	9 40	1 35	.....	18 24
December, 1919	70	512	16 24	23	265	0 74	15 46	.....	0 78
January, 1920	69	611	19 76	28	304	0 78	17 74	.....	2 02
February, 1920	68	571	17 96	26	590	0 36	34 88	16 92	.....
March, 1920	67	738	21 34	32	1,059	0 24	61 78	40 44	.....
Summary	.....	3,032	94 89	.....	2,243	.....	131 21	36 32	.....

FIFTY-SIX WHITE LEGHORN PULLETS

Month	Number Birds	Total Feed	Total Cost	Cost Feed 1 Bird	Total Eggs	Cost per Dozen	Total Value	Profit over Feed	Loss over Feed
			$ cts.	cts.		$ cts.	$ cts.	$ cts.	$ cts.
November, 1919	56	329	10 95	18	86	1 52	4 66	.....	6 29
December, 1919	56	320	10 18	18	202	0 60	11 78	1 60	.....
January, 1920	56	451	14 67	26	456	0 39	26 60	11 93	.....
February, 1920	56	382	11 76	21	534	0 26	31 15	19 38	.....
March, 1920	56	384	12 00	21	657	0 22	38 33	26 33	.....
Summary	.....	1,886	59 56	.....	1,935	.....	112 52	52 95	.....

FORTY-NINE BARRED ROCK PULLETS

Month	Number Birds	Total Feed	Total Cost	Cost to 1 Bird	Total Eggs	Cost per Dozen	Total Value	Profit over Cost	Loss of Feed
			$ cts.	cts.		cts.	$ cts.	$ cts.	$ cts.
November, 1920	50	502	15 06	30	197	92	9 09	.....	5 97
December, 1920	50	578	19 53	40	587	40	30 58	11 05	.....
January, 1921	50	495	16 17	32	536	36	29 08	12 91	.....
February, 1921	45	421	13 64	30	310	53	16 65	3 01	.....
March, 1921	50	592	15 79	31	813	23	26 79	11 00	.....
Summary	.....	2,588	80 19	1 63	2,443	.....	112 19	32 00	.....

FORTY-FOUR WHITE LEGHORN PULLETS

Month	Number Birds	Total Feed	Total Cost	Cost to feed One	Total Eggs	Cost per Dozen	Total Value	Profit over Cost	Loss of Feed
			$ cts.	cts.		cts.	$ cts.	$ cts.	$ cts.
November, 1920	47	419	12 10	26	369	39	17 34	5 24	.....
December, 1920	47	404	13 27	28	586	27	30 51	17 24	.....
January, 1921	47	399	14 22	30	201	85	10 86	.....	3 36
February, 1921	41	364	12 69	31	302	50	16 37	3 68	.....
March, 1921	40	417	11 59	29	705	20	23 83	12 24	.....
Summary	.....	2,004	63 87	1 44	2,163	.....	98 91	35 04	.....

RECORDS OF FEED CONSUMED, PRODUCTION AND FINANCIAL STATEMENT OF SINGLE COMBED WHITE LEGHORN PULLETS, BRED AND RAISED AT DOMINION EXPERIMENTAL FARM, NAPPAN, NOVA SCOTIA

Records taken from November 1, 1919, to October 31, 1920.

Month of Year	Total Grain	Total Mash	Total B. Scrap	Total Grit	Total Shell	Total Roots	Total Milk	Total Aggregate Feed	Total Cost Feed	Number of Birds	Total Eggs Laid	Average Eggs Per Bird	Total Market Value	Cost Per Dozen	Cost to Feed 1 Bird	Total Monthly Profit	Total Monthly Loss
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	$ cts.				$ cts.	$ cts.	cts.	$ cts.	$ cts.
1919																	
November	242	60	10	2	3	12	.....	329	10 95	56	86	1·5	4 66	1 52	18	.....	6 29
December	200	96	2	3	7	12	.....	320	10 18	56	202	3·8	11 78	0 60	18	1 60	
1920																	
January	217	211	10	.....	7	6	.....	451	14 67	56	456	8·1	26 60	0 39	26	11 93	
February	161	180	8½	5½	8	19½	.....	382½	11 76	56	534	9·5	31 15	0 26	21	19 38	
March	184	157	6	10	10	17	.....	384	12 00	56	657	11·7	38 33	0 22	21	26 33	
April	220	110	5	11	11	6	.....	363	11 77	56	779	13·9	29 21	0 18	21	17 44	
May	270	104½	8	2	11	.....	26½ Mix. Feed	422	13 67	53	988	18·6	39 52	0 17	26	25 85	
June	175	148	13	6	9	.....	60	411	14 49	53	892	16·8	35 68	0 19½	27	21 19	
July	247	148	13	.....	14	.....	128	550	22 84	53	913	17·2	36 88	0 30	43	14 04	
August	185	106	18	4	11	.....	83½	407½	16 97	53	666	12·5	28 86	0 30½	32	11 89	
September	312	56	9	2	3½	.....	.....	382½	14 37	53	365	6·8	19 71	0 42	26	5 34	
October	210	40	7	2	1	45	28	333	12 01	47	68	1·4	3 54	2 11	26	.....	8 47
Summary	2,623	1,416½	109½	47½	95½	117½	326	4,735½	165 68	.....	6,606	.....	305 92	.....	3 05	140 23	

Average monthly egg yield..... 550·5

Average yearly production per bird.....122·3 eggs

RECORDS OF FEED CONSUMED, PRODUCTION AND FINANCIAL STATEMENT OF BARRED PLYMOUTH ROCK PULLETS, BRED AND RAISED AT DOMINION EXPERIMENTAL FARM, NAPPAN, NOVA SCOTIA

Records taken from November 1, 1919, to October 31, 1920.

Month of Year	Total Grain	Total Mash	Total B.Scrap	Total Grit	Total Shell	Total Roots	Total Milk	Total Aggregate Feed	Total Cost Feed	Number of Birds	Total Eggs Laid	Average Eggs Per Bird	Total Market Value	Cost Per Dozen	Cost to Feed 1 Bird	Total Monthly Profit	Total Monthly Loss
	Lbs.	Lbs.	Lbs.	Lbs.	Lvs.	Lbs.	Lbs.	Lbs.	$ cts.				$ cts.	$ cts.	cts.	$ cts.	$ cts.
1919																	
November	425	112	20	4	3	36	.....	600	19 59	70	25	1·3	1 35	9 40	0 28	.....	18 24
December	350	117	4	11	6	24	.....	512	16 24	70	265	3·7	15 46	0 74	23	.....	0 78
1920																	
January	309	273	8	.....	13½	8	.....	611½	19 76	69	304	4·4	17 74	0 78	28	.....	2 02
February	232	279½	12½	6½	12	29	.....	571½	17 96	68	598	8·7	34 88	0 36	26	16 92	
							52m. feed										
March	340	241	10	14	9	44½	28	738½	21 34	67	1,059	15·8	61 78	0 24	32	40 44	
April	320	148	7	18	14	12	.....	519	16 74	67	1,087	16·1	40 77	0 19	25	24 03	
May	375	107	11	2	14	.....	28 Mix. Feed	537	17 78	55	1,123	20·4	44 92	0 19	32	27 14	
June	170	94	13	6	9	.....	60	352	12 70	53	802	15·1	32 08	0 19	24	19 38	
July	207	95	8½	2	2½	.....	102	417	17 46	53	894	16·8	36 10	0 23	33	18 64	
August	180	62	10	.....	9	.....	75	336	14 04	53	729	13·7	31 88	0 23	26	7 84	
September	281	49	11	2	3	.....	.....	346	13 08	53	703	13·2	22 23	0 22	24	9 14	
October	345	22	16	8	6	89	.....	486	18 29	60	478	7·9	25 31	0 45	30	7 02	
Summary	3,534	1,599½	131	73½	101	242½	345	6,026½	204 98	.....	8,067	.....	364 50	.....	3 31	159 52	

Average monthly egg yield..... 672·5

Average yearly production per bird..... 130·7

EGG-LAYING CONTEST, YEAR ENDING OCTOBER 31, 1920

The Egg-Laying Contest that was started at this Farm in November, 1919, has proved very successful.

As previously stated in the report for 1919 and 1920, the accommodation afforded for this work consisted of ten 12 by 10-foot shed-roofed, portable, glass-and-curtain-front colony houses, each of which gave ample room for ten birds (the number required to compete in the contest). Each part of the house was fitted up with roosts, dropping boards, trap-nests, water bowls, grit, shell, charcoal, beef scrap and dry mash hoppers..

The manager of the contest devotes his time to record work in connection with the contest. Records are accurately kept of all the following data: Number and weights of eggs produced by each individual hen in the contest, a weekly report of the former being mailed at the close of each week; the amount and cost of each kind of food consumed by each pen per month, likewise the number of days each bird was a non-producer through broodiness. The following list of names gives the owners of the twenty pens, together with the breed and yearly production for the year ending October 31, 1920.

COST OF PRODUCTION AND PROFIT AND LOSS STATEMENT OF EGGS PRODUCED AND SOLD FROM NOVEMBER 1, 1919, TO OCTOBER 31, 1920—LEGHORN HENS

Month	Grain	Mash	Beef Scrap	Grit	Shell	Roots	Milk	Mixed feed	Total feed	Total cost	No. of birds	Eggs laid	Ave.	Per cent broken	Table value	Breeding value	Total value	Cost per doz.	Cost to feed one	Profit	Loss
										$ cts.					$ cts.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts
November, 1919	110	52	10	3	4	24	.....	.....	203	6 15	40	8	·2	25·0	0 43	.....	0 43	9 23	0 15	.....	5 72
December, 1919	130	75	1	.....	2	6	.....	.....	214	6 91	40	21	·5	0	1 23	.....	1 23	3 95	0 17	.....	5 68
January, 1920	148	68	.....	2	5	4	.....	.....	227	7 32	39	120	3·0	6·6	7 00	.....	7 00	0 73	0 19	.....	0 32
February, 1920	128	143	8	5	6	17	.....	.....	307	9 43	38	223	5·8	2·2	13 01	.....	13 01	0 51	0 25	3 58	
March, 1920	148	125	5	9	4	25	36	28	380	10 49	38	323	8·5	0	7 41	11 43	18 84	0 39	0 28	8 35	
April, 1920	120	80	1	4	5	6	.....	.....	216	6 83	25	451	18·0	·2	9 71	5 06	14 77	0 18	0 27	7 94	
May, 1920	150	68	2	.....	5	.....	12½	.....	237½	7 63	24	472	19·6	1·0	18 88	.....	18 88	0 19	0 31	11 25	
June, 1920	100	53	6	.....	2	.....	.....	.....	161	5 68	14	324	23·1	0	12 96	.....	12 96	0 21	0 24	7 28	
July, 1920	40	18	1½	.....	½	.....	.....	20	80	3 29	10	133	13·3	·7	5 37	.....	5 37	0 29	0 32	2 08	
August, 1920	21	8	2	.....	2	.....	.....	8½	41½	1 60	6	90	15·	0	3 94	.....	3 94	0 21	0 26	2 34	
September, 1920	31	5	1	.....	½	.....	.....	.....	37½	1 48	6	49	8·1	0	1 55	.....	1 55	0 36	0 24	0 07	
October, 1920	85	6	5	2	2	20	.....	.....	120	4 64	25	121	4·8	1·6	6 20	.....	6 20	0 46	0 15	1 56	
Grand totals	1,211	701	42½	25	38	102	48½	56½	2,224½	71 45	.....	2,335	.....	.....	87 69	16 49	104 18	0 37	2 83	32 73	

Average egg yield per month..... 194·5 eggs
Average egg yield per bird..... 93·4 eggs

RECORD OF PERFORMANCE

As a means of encouraging the distribution of bred-to-lay poultry among our breeders and farmer poultrymen in the Maritime Provinces, as well as throughout the entire Dominion, the Dominion Government is issuing certificates of Record of Performance to birds fulfilling the following requirements, when competing in the Egg Laying Contests. (Rule 13): "All birds in the contest not otherwise disqualified, and whose average is twenty-four ounces to the dozen, that in fifty-two consecutive weeks lay 150 eggs, will receive certificates of Record of Performance A.A., and those that lay 225 eggs will receive an Advanced Record of Performance A.A." In the first Egg Laying Contest conducted at this Farm, which ended on October 31, 1920, fifty-two birds qualified in the Record of Performance A.A., and one qualified for the Advanced Record of Performance. The number of birds that qualified in each of the contest pens is designated in the foregoing tables.

The following table gives the summary of the data compiled in connection with the first Egg Laying Contest held at the Experimental Farm, Nappan, N.S., from November 1, 1919, to October 31, 1920.

LIST OF CONTESTANTS IN FIRST, NAPPAN, EGG LAYING CONTEST, WITH SUMMARY OF YEARLY RECORDS, 1919-1920

Owner of Pen	Address	Breed	Total eggs laid	Total Weight oz.	Number of birds qualifying in R.O.P.A.A
J. R. Stork	St. Catharines, Ont.	Barred Rocks	1,159	2,371	2
W. E. B. Tait	Dorchester, N.B.	Barred Rocks	1,232	2,370	2
A. T. Reed	Rollingdam, N.B.	Barred Rocks	1,759	3,321¼	9 (1.A)
S. M. Payne	W. Bathurst, N.B.	Barred Rocks	967	1,749⅛	
A. Clegg	Amherst, N.S.	Barred Rocks	687	1,185⅛	
F. J. Taggart	Ottawa, Ont.	Barred Rocks	1,195	2,351½	2
N. Thacker	Bridgetown, N.S.	Barred Rocks	1,397	2,654⅛	4
N. W. Everleigh	Sussex, N.B.	Barred Rocks	1,368	2,626½	2
F. W. Black	Amherst, N.S.	Barred Rocks	1,298	2,446⅛	3
Poultry Club	Nasonworth, N.B.	Barred Rocks	1,491	2,839½	6
Poultry Club	Leverville, N.B.	Barred Rocks	1,397	2,784½	5
Poultry Club	Elmsville, N.B.	Barred Rocks	1,465	2,803½	4
R. A. Snowball	Chatham, N.B.	White Leghorns	1,515	3,086	5
C. B. Chapman	Amherst, N.S.	White Leghorns	808	1,777⅛	
F. H. Johnson	Bridgetown, N.S.	White Leghorns	944	1,740⅛	2
F. Cochran	Amherst, N.S.	Barred Rocks	1,105	2,045⅞	1
F. Driscoll	Kentville, N.S.	White Wyandotte	744	1,398⅛	
R. T. VanAmberg	Oxford, N.S.	White Leghorn	1,305	2,505½	3
E. H. Morgan	Stansbridge, Que.	White Wyandottes.	1,311	2,351⅛	2
F. Cochran	Amherst, N.S.	Anconas	1,007	1,895⅜	

N.B.—(1A) Designates that one bird produced 225 eggs.

SUMMARY REPORT OF THE FIRST ANNUAL EGG-LAYING CONTEST CONDUCTED AT DOMINION EXPERIMENTAL FARM, NAPPAN, NOVA SCOTIA, FROM NOVEMBER 1, 1919, TO OCTOBER 31, 1920.

Pen No.	Grain	Mash	Beef-Scrap	Milk	Grit	Shell	Green Feed	Total Cost of Feed	Total Eggs Laid	Total Value	Total Loss	Total Profit	Cost to Produce 1 dozen	Total Weight of Eggs
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	$ cts.		$ cts.	$ cts.	$ cts.	c.	oz.
1	583	350	42¾	48	18½	36	28½	38 58½	1,159	53 97	.....	15 36¾	0·40	2,371
2	575¾	409	76	48	17¼	31½	27½	43 26¾	1,232	56 67¾	.....	13 41	0·42	2,370½
3	594	337	51½	48	12½	33½	32	39 14¾	1,759	80 16½	.....	41 01¾	0·26¾	3,321½
4	508	250½	36	48	16½	29⅛	29	30 62½	967	43 47	.....	12 84¼	0·38	1,749⅛
5	458	389	62¾	48	17	29	29	37 23	687	29 86	7 37	.....	0·65	1,185½
6	587	298	62	48	14¼	30½	29½	39 12½	1,195	52 64¾	.....	13 52½	0·39½	2,351½
7	578	336	85	48	21½	35½	28¼	41 54¾	1,397	62 77¾	.....	21 23	0·35½	2,654¼
8	590	270	49½	48	20⅝	36½	30¼	36 27¼	1,368	61 94	.....	25 66¼	0·31⅝	2,626½
9	589	300½	57	48	22½	34½	27	38 08½	1,298	57 91½	.....	19 83	0·35¼	2,446⅛
10	589	364	64½	48	15½	26½	28¼	40 63¾	1,491	67 50½	.....	26 87	0·33½	2,938⅛
11	582	371	56⅝	48	18½	44½	30	41 10½	1,397	64 60¾	.....	23 ₀0½	0·35½	2,784½
12	595	327½	58½	48	17½	31	30½	39 87	1,465	66 55½	.....	26 68½	0·32⅝	2,803½
13	522	296⅛	25	48	10½	22½	27⅝	32 55⅛	1,515	68 87	.....	36 31¼	0·25⅛	3,086
14	458½	270	25	48	13¾	20	25⅝	29 32	880	36 47⅝	.....	7 15¾	0·40	1,777⅛
15	535	309	22	48	17¼	36½	28¼	33 73½	944	43 72½	.....	9 98¼	0·43	1,740⅜
16	518	275	47	48	12½	24¼	29¼	33 61	1,105	49 58½	.....	15 97¼	0·36½	2,045⅞
17	505½	234	21	48	17½	24½	27½	29 81½	744	32 94½	.....	3 13	0·48	1,398⅛
18	564	265	27	48	11	22	27½	33 75⅛	1,305	57 95	.....	24 19¼	0·31	2,505⅛
19	559	275½	23	48	13½	26½	28½	33 45¼	1,311	60 19¼	.....	26 73½	0·30½	2,351⅛
20	468	218	20¼	48	11½	22½	28	27 15¼	1,007	44 20¼	.....	17 05¼	0·32¼	1,895⅜
Totals	10,958½	6,145½	912	960	319¾	596¾	570½	718 89½	24,226	1,092 03	7 37	380 48½	0·35⅜	46,402½

Average Prices: Mixed Grain, 3·7c. lb.: Mash, 3·5c. lb.: Beef-Scrap, 8c. lb.: Milk, 20c. cwt.: Grit, 1·75c. lb.: Shell, 2c. lb.: Green-Feed, 15c. cwt.

EGG LAYING CONTEST FOR SECOND YEAR, 1920-21

At the close of the first Egg Laying Contest on October 31, 1920, all birds that had completed their egg year (365 days from date of first egg laid) or birds that could not possibly qualify for Record of Performance, were returned to their owners, thus making room for the new birds that were entered in the second contest, which started on November 1, 1920. In order to accommodate the contestants as well as the Record of Performance, three additional houses were erected, thus affording accommodation for twenty-two pens in this contest, the other four pens being utilized for Record of Performance work. The following is a list of the pens in the second annual Egg Laying Contest at Nappan, commencing November 1, 1920:—

Owner and address	Breed
R. B. H. Davidson, Amherst, N.S.	White Rocks.
Gilbert Harrison, Nappan, N.S.	Barred Rocks.
Exp. Station, Kentville, N.S.	Barred Rocks.
Exp. Station, Kentville, N.S.	White Wyandottes,
C. B. McMullen, Truro, N.S.	Rhode Island Reds.
J. R. McMullen, Truro, N.S.	Barred Rocks.
F. W. Black, Amherst, N.S.	Barred Rocks.
Thos. Hooper, Truro, N.S.	White Wyandottes,
C. B. Chapman, Amherst, N.S.	Barred Rocks.
David Bacon, Nappan, N.S.	Barred Rocks.
W. J. McKinnon, Truro, N.S.	Barred Rocks.
David Bacon, Nappan, N.S.	Rhode Island Reds.
F. Cochran, Amherst, N.S.	Barred Rocks.
F. Cochran, Amherst, N.S.	White Leghorns.
C. B. Chapman, Amherst, N.S.	White Leghorns.
Mrs. Geo. Ripley, Nappan, N.S.	Barred Rocks.
Perry & Sim, Billtown, N.S.	Brown Leghorns.
V. G. Fuller, Amherst, N.S.	White Leghorns.
Alex. Clegg, Amherst, N.S.	Barred Rocks.
Wm. Forsyth, Amherst, N.S.	Barred Rocks.
Exp. Farm, Nappan, N.S.	Barred Rocks.
Exp. Farm, Nappan, N.S.	Barred Rocks.