DOMINION OF CANADA

DEPARTMENT OF AGRICULTURE

DOMINION EXPERIMENTAL FARMS

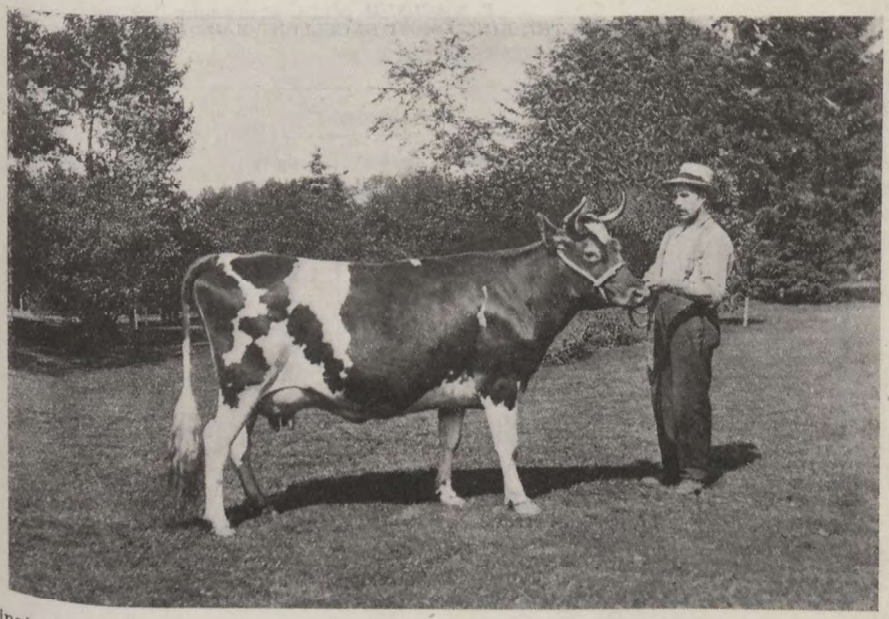
EXPERIMENTAL FARM

NAPPAN, N.S.

INTERIM REPORT OF THE SUPERINTENDENT

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

FOR THE YEAR 1921



King's Blanche of Hillside. Sire, Filmore and King Berwick. Dam, Buttercup Blanche of Hillside. A.R.D. record, 12,230 pounds, with average test 6.23 per cent; 75.2 lb fat.

Printed by authority of Hon. W. R. Motherwell, Minister of Agriculture, Ottawa, 1922

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OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1922

EXPERIMENTAL FARM, NAPPAN, N.S.

INTERIM REPORT OF THE SUPERINTENDENT
W. W. BAIRD, B.S.A.

SEASONAL CONDITIONS

The winter of 1920-21 was about normal in temperature but not sufficient snow fell until after February 4 to afford any appreciable protection to the grass and clover roots. Spring opened earlier than usual. Farming operations began on May 6 and were general by the 15th. Dry weather prevailed throughout May, June and July with the temperature registering as high as 89 degrees. The early sown seed germinated very slowly, in fact much did not germinate at all. This was most noticeable with grasses and clovers; several fields gave the appearance later of not having been seeded. Hay was light both on upland and marshes. Grain headed short and ripened prematurely. Forage crops came on very slowly until September and October, when most rapid growth was made. Good harvest weather prevailed from July to the end of October. November was very unsettled, consequently very little late fall ploughing could be done.

WEATHER RECORDS, 1921

Month	Temperature F.			Precipitation			Sunshine	
	Highest	Lowest	Mean	Rainfall	Snowfall	Total	No. of Days	Total
	Degrees	Degrees	Degrees	Inches	Inches	Inches		Hours
January	50	− 9	18·82	0·94	9	1·84	24	80·6
February	42	−17	15·68	1·17	14	2·57	22	95·5
March	65	8	33·01	2·58	10	3·58	21	106·8
April	79	4	41·23	2·16	11	3·26	19	133·8
May	80	24	49·33	1·09	.....	1·09	30	232·0
June	85	30	57·13	1·23	.....	1·23	28	189·1
July	89	36	66·82	0·96	.....	0·96	27	238·7
August	80	38	60·66	2·17	.....	2·17	30	234·0
September	85	30	58·31	2·99	.....	2·99	30	202·1
October	74	18	47·0	2·07	.....	2·07	27	137·1
November	61	− 2	31·11	3·23	15	4·73	15	48·7
December	54	14	21·78	0·74	18	2·54	20	71·1

Days of Rainfall..... 87 Inches of Rainfall..... 21·33
Days of Snowfall..... 25 Inches of Snowfall..... 77·00
Days of Sunshine..... 293 Hours of Sunshine.....1,769·5
10 inches of snow is equivalent to 1 inch of rain. Total precipitation, 29·03 inches.

ANIMAL HUSBANDRY

BEEF CATTLE

Project No. 21A.—A herd of Shorthorns, consisting of seven mature cows, one three-year-old, one yearling heifer and a two-year-old herd bull, is kept at this Farm.

The breeding work with this herd has been carried on with the object of developing a good herd of beef-producing cows and to collect data on cost of production. This work has been very satisfactory. Four nice females and seven males have been dropped.

The herd is headed by Lancaster Lord—134612—a two-year-old weighing 1,425 pounds. Sire: Beaufort Wellington (Imp.) Dam: Gartly Ena Lancaster (Imp.), bred by Joseph White, St. Mary's, Ont. This bull is leaving some very promising progeny.

GUERNSEYS

Project 11B.—The pure-bred Guernsey herd consists of eight mature cows, three two-year-old heifers, three females under one year old and two males under two years old.

To date, only one cow has finished her second lactation period, namely, Cabbage Rose of Hillside. In 313 days her total production was 6037·5 pounds of milk, with an average test of 5·35 per cent, yielding 323·01 pounds of butter fat. The records of the other cows in milk are as follows: Princess Daisy of Hillside, 306 days, with 7690·07 pounds of milk, average test 5·26 per cent, yielding 404·47 pounds of fat. Queen of Sherborn, 270 days, with 7023·5 pounds of milk, average test 4·61 per cent, yielding 323·78 pounds of fat. Princess of Stannox, 413 days, with 7724·4 pounds of milk, average test 5·4 per cent, yielding 417·89 pounds of butter fat. Mixter Glamour, 668 days in milk, with 9350·4 pounds of milk, average test 5·98 per cent, yielding 559·15 pounds of fat. King's Blanche of Hillside, 110 days, 4784·2 pounds of milk, average test 5·75, yielding 273·69 pounds of fat. Full details of their complete lactation period will appear in next report.

The herd is headed by Mixter May Raider—21240. Sire: Langwater College King. Dam: Yeoman's Mixter Hope.

GRADING EXPERIMENT

Project 8B.—The experiment has not quite completed the tenth period, therefore a detailed report cannot be given. Nineteen of the grade heifers have finished their lactation periods and the following table gives their yearly production.

MILK RECORDS OF GRADE HERD

Name	Date of dropping calf	Number of days in milk	Total pounds milk for period	Daily average yield of milk	Average per cent fat in milk	Pounds butter produced in period	Value of butter at 30c. per pound	Value of skim-milk at 20c. per cwt.	Total value of product	Amount meal eaten at 1½c. per pound	Amount roots eaten at $2 per ton	Amount 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 of feed to produce 100 pounds milk	Cost of feed to produce 1 lb. butter—skim-milk neglected	Profit on 1 lb. butter—skim-milk neglected	Profit on cow for period—labour and calf neglected
							$ c.	$ c.	$ c.						$ c.	$ c.	$ c.	$ c.	$ c.
Myrtle 1A3	Dec. 2, 1920	307	5,657·3	18·43	4·3	286·18	85 85	10 83	96 68	1,929	4,370	3,990	856	5 4/4	49 53	0 87	0 17	0 13	47 15
Spot 1A4	Jan. 24, 1921	268	4,892·4	18·26	4·5	259·01	77·70	9·34	87·04	1,748	4,370	3,914	982	5 3/4	46 59	0 95	0 18	0 12	40 45
Jessie 1A5	Feb. 16, 1921	231	4,412·6	19·10	4·5	233·61	70 08	8 43	78 51	1,518	4,650	3,384	713	4	40 54	0 92	0 17	0 13	37 97
Myrtle 1A5	Jan. 30, 1921	269	3,282·9	12·20	4·5	173·80	52 14	6 27	58 41	1,529	4,845	3,639	923	4 4/4	42 54	1 26	0 24	0 06	15 87
Bell 1AS1	Nov. 20, 1921	284	3,969·1	13·97	4·3	200·79	60 24	7 60	67 84	1,475	4,370	3,990	456	5 3/4	42 66	1 07	0 21	0 09	25 18
Myrtle 1AS2	Mar. 9, 1921	291	4,087·7	14·05	4·5	216·41	64·92	7 81	72 73	1,669	4,860	4,082	1,121	4 12/20	46 32	1 13	0 21	0 09	26 41
Jessie 1A12	Feb. 28, 1921	263	4,984·2	18·95	4·3	252·13	75 64	9 54	85 18	1,624	4,100	4,073	1,069	4 12/20	44 89	0 90	0 18	0 12	40 29
Jessie 1A121	Feb. 25, 1921	267	3,431·3	12·85	4·4	177·62	53 29	6 56	59 85	1,408	4,062	3,221	1,131	4 12/20	39 27	1 14	0 22	0 08	20 52
Myrtle 1HS	Oct. 18, 1920	306	6,011·0	19·60	4·1	289·94	86 98	11 53	98 51	1,759	4,510	3,926	662	4 2/4	46 06	0 77	0 16	0 14	52 45
Bell 1H4	April 10, 1921	197	3,659·6	18 58	3·5	150·69	45 20	7 06	52 26	1,238	2,800	3,380	831	1 1/4	31 95	0 87	0 21	0 09	20 31
Jessie 1H4	Sept. 28, 1920	326	9,000·1	27 61	3·5	370·59	11 18	17 37	128 35	2,859	5,060	3,978	630	6 1/4	62 60	0 70	0 17	0 13	65 95
Myrtle 1H4	Jan. 16, 1921	227	6,892·6	25·95	3·4	235·70	70 71	11 38	82 09	2,035	4,950	3,834	312	2 2/4	47 07	0 80	0 20	0 10	35 02
Spot 1H31	Feb. 17, 1921	268	6,275·1	12·22	3·7	142·56	42 77	6 31	49 08	1,447	3,995	3,270	981	4 12/20	39 64	1 21	0 28	0 02	9 44
Vera 1H2	Mar. 8, 1921	315	6,755·4	21·44	3·6	286·11	85 83	13 02	98 85	1,873	3,678	3,780	1,131	4 2/4	46 62	0 69	0 16	0 14	52 23
Vera 1H22	May 24, 1921	252	5,213·4	20 68	3·7	226·93	68 08	10 04	78 12	2,001	5,430	4,707	1,131	4 2/4	53 21	1 02	0 23	0 07	24 91
Spot 1H3	Mar. 24, 1921	314	5,504·7	17·53	3·3	213·71	64 11	10 65	74 76	1,783	4,942	4,535	1,131	4 2/4	49 40	0 90	0 23	0 07	25 36
Myrtle 1HS2	Feb. 20, 1921	344	5,361·7	15·58	4·1	258·62	77 59	10 28	87 87	2,067	5,410	4,586	1,069	4 2/4	53 50	0 99	0 21	0 09	34 37
Myrtle 1A112	Feb. 25, 1921	332	4,168·2	12·55	4·5	220·67	66 20	7 96	74 16	1,769	5,250	4,445	1,069	4 2/4	49 12	1 17	0 22	0 08	25 04
Bell 1AS11	April 23, 1921	283	4,224·1	14·92	4·3	213·69	64 11	8 08	72 19	1,857	5,430	4,607	1,069	4 2/4	50 97	1 27	0 24	0 06	21 22

From the preceding table, it will be noted that the average production is 4927·0 pounds, while the average butter fat test is 4·05 per cent. The drought during the entire season caused pastures to dry up and green crops to make poor growth; consequently, there was a great shortage of that good, succulent feed which is so essential for successful dairying.

From the foregoing table the following points of interest are noted; one pound meal was required to produce 2·73 pounds milk; one pound roots for every 1·06 pounds milk produced; one pound hay for every 1·25 pounds milk produced; or an average of 36·2 pounds meal; 94·3 pounds roots; 80 pounds hay to every 100 pounds milk produced, making the feed cost, per hundred pounds milk, $1.42. The nine years' average with grade cows was as follows: 37 pounds meal, 113 pounds roots, 80 pounds hay and 35 pounds green feed were required to produce 100 pounds milk, at an average feed cost of $1.77 per hundred. Meal mixture was charged at $2.50 per hundred weight, roots at $3 per ton, hay at $12 per ton, green feed at $3 per ton and pasture at $2 per month.

GRADE DAIRY CALVES—COST OF REARING TO ONE YEAR OF AGE

Name and Breed	Whole Milk at $2.58 per cwt.		Skim-milk at 20c. per cwt.		Meal at $2.07 per cwt.		Roots at $2 per ton		Hay at $12.05 per ton		Total Cost
	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	$ cts.
Jessie 1H41	560	14 45	3,436	6 87	746	15 44	851	0 85	1,609	9 70	47 31
Myrtle 1HS4	688	17 75	3,118	6 24	834	17 26	804	0 80	1,861	11 23	53 28
Myrtle 1H42	733	18 91	5,310	10 62	934	19 33	367	0 37	1,979	11 93	61 16
Jessie 1A52	642	16 56	5,165	10 33	952	19 71	277	0 28	2,158	13 00	59 88
Myrtle 1HS21	692	17 85	5,072	10 14	982	20 33	507	0 51	2,120	12 77	61 60
Average	663	17 10	4,420·2	8 84	889·6	18 41	561·2	0 56	1,945·4	11 75	56 65

GRADE DAIRY HEIFERS—COST OF REARING FROM ONE TO TWO YEARS OF AGE

Project 10 B.

Name and Breed	Meal at $2.07 per cwt.		Roots at $2.00 per ton		Hay at $12.05 per ton		Pasture at $1.00 per mth.		Total Cost
	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	Lbs.	Cost $ cts.	Days	Cost $ cts.	$ cts.
Lessie 1A15	580	12 01	1,635	1 64	2,620	15 79	141	4 70	34 14
Myrtle 1A113	614	12 71	1,608	1 61	2,588	15 59	141	4 70	34 61
Mossy 1A42	628	13 00	1,571	1 57	2,676	16 13	141	4 70	35 40
Spot 1A42	628	13 00	1,571	1 57	2,676	16 13	141	4 70	35 40
Bell 1AS12	642	13 29	1,491	1 49	2,676	16 13	141	4 70	35 61
Jessie 1A51	767	15 88	1,083	1 08	2,378	14 33	141	4 70	35 99
Jean 1A42	762	15 77	1,075	1 08	2,576	15 52	141	4 70	37 07
Myrtle 1HS3	650	13 46	1,931	1 93	3,051	18 44	141	4 70	38 53
Vera 1H41	981	20 31	1,693	1 69	2,709	16 33	141	4 70	43 03
Jean 1A51	756	15 65	1,119	1 12	2,636	15 88	141	4 70	37 35
Jessie 1A122	762	15 77	1,086	1 09	2,616	15 77	141	4 70	37 33
Average	706·4	13 71	1,442·1	1 44	2,654·7	16 00	141	4 70	36 77

SWINE

Project 9C.—Two herds of swine are maintained at this Farm, Yorkshires and Berkshires. The Yorkshire herd consists of twelve brood sows and one boar; the Berkshire herd of three sows and one boar. Three of the Yorkshire sows were killed for pork, being non-breeders. The nine Yorkshire sows dropped an average of 10.4 pigs per litter and raised an average of 8.12 pigs. The three Berkshires dropped an average of 7.4 pigs per litter and raised an average of 6.2 pigs.,

The object of maintaining these herds is two-fold: first, to collect data on breeding and cost of production under present day conditions; second, to supply the surrounding district with sires, so that the stock may be improved and greater profits realized from the swine industry.

The following table gives the financial statement of the nine Yorkshire sows during the past year, 1921. The table shows the cost of maintaining each sow for feed only. Therefore the cost at six weeks for the little pigs is only on feed consumed. It also shows the market value of little pigs from each sow at six weeks.

Project 9c.

FINANCIAL STATEMENT BROOD SOWS—9 YORKSHIRES

Name	Kind of feed	Pounds consumed	Cost price per ton	Value of feed consumed	Date farrowed	No. of pigs in litter	No. raised	Per cent raised	Cost at six weeks	Market value at six weeks
			$ cts.	$ cts.				$ cts.		$ cts.
Ottawa Lass 508..	Shorts.....	917	30 00	13 75	April 1, 1921	14	9	64·3	2 12	69 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c. per m	1 50	Sept. 11, 1921	7	7	100·0	2 12	55 00
Ottawa Lass 506...	Shorts.....	917	30 00	13 75	April 20, 1921	7	6	85·7	2·12	42 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	569						
	Pasture.....	3 mths.	50c per m.	1 50	Feb. 10, 1922	12	10	83·3	2 12	70 00
Ottawa Lass 817...	Shorts.....	917	30 00	13 75	June 23, 1921	10	9	90·0	2 12	63 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Pasture.....	3 mths.	50c per m.	1 50	Nov. 26, 1921	9	7	77·7	2 12	49 00
Ottawa Maiden 802	Shorts.....	917	30 00	13 75	May 17, 1921	12	9	75·0	2 12	63 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50	Nov. 3, 1921	10	7	70·0	2 12	49 00
Ottawa Lass 889...	Shorts.....	917	30 00	13 75	May 15, 1921	12	9	75·0	3 77	63 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50	Feb. 27, 1922					
Ottawa Lass 2.....	Shorts.....	917	30 00	13 75	June 5, 1921	10	10	100·00	2 66	72 88
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50	Nov. 26, 1921	10	2	20·0	2 66	14 00
Ottawa Maiden 181	Shorts.....	917	30 00	13 75	May 29, 1921	12	11	91·6	1 54	77 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50	Feb. 7, 1922	12	11	91·6	1 54	77 00
Augustine 61.....	Shorts.....	917	30 00	13 75	April 3, 1921	9	8	88·8	2 12	83 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50	Sept. 11, 1921	11	8	72·7	2 12	56 00
Rosevale Lady Alice.	Shorts.....	917	30 00	13 75	July 17, 1921	10	8	80·0	4 25	56 00
	Crushed oats.	365	40 60	7 41						
	Oil meal.....	180	62 40	5 62						
	Bran.....	365	31 20	5 69						
	Pasture.....	3 mths.	50c per m.	1 50						

Average lbs. meal per day	Average cost of meal mixture per ton	Total cost of feed for sow for 1 year	Average number per litter	Average raised	Average per cent raised	Average cost at 6 weeks	Average value of litter at 6 weeks
5	$35.42	$33.97	10·4	8·12	·78	$2.35	$59.93

Average value per pig at 6 weeks	$ 7 32
Average profit per pig over feed cost	4 98
Average profit per sow	72 52
Total profit over feed cost from 9 sows	653 15

Project 10C.—The following table is a financial statement for the three Berkshires. All feeds charged up against these pigs were at market prices.

FINANCIAL STATEMENT BROOD SOWS—3 BERKSHIRES

Project 10c.

Name	Kind of feed	Pounds consumed	Cost price per ton	Value of feed consumed	Date farrowed	No. of pigs in litter	No. raised	Per cent raised	Cost at six weeks	Market value at six weeks
			$ cts.	$ cts.					$ cts.	$ cts.
Nova Scotia Maid 8	Shorts	917	30 00	13 75	July 26, 1921	10	9	90·0	3 77	60 00
	Crushed oats	365	40 60	7 41						
	Oil meal	180	62 40	5 62						
	Bran	365	31 20	5 69						
	Pasture	3 mths.	50c per m.	1 50	Mar. 22, 1922					
Lady of Valley View 9..	Shorts	917	30 00	13 75	May 23, 1921	5	5	100·0	2 66	38 00
	Crushed oats	365	40 60	7 41						
	Oil meal	180	62 40	5 62						
	Bran	365	31 20	5 69						
	Pasture	3 mths.	50c per m.	1 50	Oct. 31, 1921	7	7	100·0	2 66	49 00
Lady of Valley View 8.	Shorts	917	30 00	13 75	June 9, 1921	7	7	100·0	3 40	36 00
	Crushed oats	365	40 60	7 41						
	Oil meal	180	62 40	5 62						
	Bran	365	31 20	5 69						
	Pasture	3 mths.	50c per m.	1 50	Nov. 14, 1921	8	3	37·5	3 40	21 00

Average pounds of meal per day	Average cost of meal mixture per ton	Total cost of feed per sow 1 year	Average Number per litter	Average number raised	Average per cent raised	Average cost at 6 weeks	Average value of litters at 6 weeks
5	$35.42	$33.97	7·4	6·2	85·4	$3.39	$40.80

Average value per pig at 6 weeks	$ 6 58
Average profit per pig over feed cost	3.29
Average profit per sow over feed cost	34 03
Total profit over feed cost from 3 sows	102 09

Project 11C.—The following is a financial statement for twelve brood sows—nine Yorkshires and three Berkshires—for the season of 1921.

Project 11c.—FINANCIAL STATEMENT——BROOD SOWS

Initial investment:—		
15 brood sows at $50	$ 750 00	
1 pure bred board at $100	100 00	
1 piggery, 30 x 67	2,500 00	
20 acres of land with cottage at $75	1,500 00	
7 hog cabins with outdoor runs at $25	175 00	
Work equipment:—		
1 farmer cooker, $30; 2 shovels, $3; 1 manure fork, $2; 2 brooms, $1.80; 1 wheelbarrow, $15; 3 pails at 90c, $2.70; 1 block and tackle, $10; 4 butcher knives, $4; 2 record books, $3; 1 hand sprayer, $1.25; 1 hammer, $1.90; 1 axe, $1.35; 1 saw, $2.50; 1 litter carrier, $110; 50 pounds nails at 8c, $4; 40 feed troughs at $1, $40; 2 feed mixing boxes, $10.		
Total cost of investment	242 50	
		5,267 50
Dr.		
To 24,492 pounds shorts at $30 per ton	$ 367 38	
" 13,260 " bran at $31.20 per ton	206 86	
" 5,200 " oil meal at $62.40 per ton	162 14	
" 13,156 " cr. oats at $40.60 per ton	267 07	
" 1,872 " cr. barley at $83.20 per ton	77 88	
" 2,000 " c. meal at $37	37 00	
" 4,000 " roots at $2 per ton	4 00	
" 15 sows 3 months' pasture at 50 cents	22 50	
" Interest on investment, $5,267.50 at 6 per cent	316 05	
" 1 man's wage 2,655 hrs.. at 30 cents	796 50	
" 6 tons straw at $5	30 00	
" 10 cords of fuel for cooker at $7	70 00	
		2,357 38

Project No. 11c.—FINANCIAL STATEMENT—BROOD SOWS—*Concluded*

Cr.

By sale of 9 registered sows and boars, average $14.44		$ 130 00
" sale of 56 non-registered sows and boars at 7.0714		396 00
" sale of 5,335 pounds of pork at 14.69 cents		784 00
" pork stock 36 pigs at market value $20		720 00
" young porkers, 20 valued at $7		147 00
" 2 brood sows—Berkshires at $25		50 00
" sale 305 pounds pork at 12½ cents		38 12
" 30 tons manure at $3		90 00
" increased stock value		29 70
		2,384 82
Credit balance	$ 27 44	
	2,384 82	2,384 82

COST OF RAISING PIGS TO SIX WEEKS OF AGE

Project 12c.—The following statement is computed from the results of nine Yorkshires and three Berkshires on the basis of the aforegoing charges and is a fair statement of the cost of raising pigs to the age of six weeks for 1921:—

To feed for 12 sows, average yearly cost of feed $33.97		$ 407 64
" man's wages 664 hours at 30 cents per hour		199 20
" interest on half investment of $5,267.50 or $2,633 at 6 per cent		157 98
" 12 boar services at $1		12 00
" 3 tons straw at $5		15 00
" 5 cords of wood at $7		35 00
		$826 82
By 12 tons manure at $3		36 00
Total cost of 160 young pigs at six weeks		790 82
Total cost of 1 young pig at six weeks. $4.94.		
To cost of 20 pigs at six weeks at $4.94	$ 98 80	
" feed for 20 pigs, 192 days	272 64	
" interest on one-sixteenth of $5,267.50 or 329.22 at 6 per cent	19.75	
" man's wages, 228 hours at 30 cents	68 40	
" 1 ton straw at $5	5 00	
" 1 cord of wood at $7	7 00	
	471 59	
Cr. 5⅔ tons manure at $3	17 25	
	454 34	
Cost to product 2,701 pounds of pork, $454.34.		
Cost to produce 1 pound of pork, .16.8 cents.		

It is interesting to note that with all charges for feed and labour at prevailing rates, the cost of pork production was very slightly over the average market value which for 1921 was 16.5 cents per pound.

Project 12c.

Pig No.	Date started	No. of days	Live weight at start	Live weight at finish	Dressed weight	Per cent dressed weight	Gain	lbs. meal	lbs. Roots	Total lbs. skim milk	Total cost of feed	Daily rate of gain	Cost of feed per pound gain
			lb.	lb.	lb.	p.c.	lb.				$ cts.	lb.	cts.
26	July 8, 1921..	192	26	194	144	75·2	168	567½	391½	216	13 52	0·875	0·0801
27	" ..	192	28	191	154	80·6	163	567½	391½	216	13 52	0·849	0·0829
28	" ..	192	25	202	161	79·7	177	567½	391½	216	13 52	0·916	0·0763
28	" ..	192	25	202	161	79·7	177	567½	391½	216	13 52	0·916	9·0763
29	" ..	192	24	193	150	77·7	169	567½	391½	216	13 52	9·880	0·0800
30	" ..	192	21	179	130	72·6	158	567½	391½	216	13 52	0·812	0·0856
31	" ..	192	21	184	145	78·8	163	567½	391½	216	13 52	0·849	0·0829
32	" ..	192	21	170	128	75·3	149	567½	391½	216	13 52	0·776	0·0907
33	" ..	192	18	200	156	78·0	182	567½	391½	216	13 52	0·943	0·0742
34	" ..	192	18	165	132	80·0	147	567½	391½	216	13 52	0·766	0·0919
35	" ..	197	17	172	128	74·4	155	607½	171	216	13 80	0·787	0·0890
36	" ..	197	15	143	106	74·1	128	607½	171	216	13 80	0·649	0·1078
37	" ..	192	17	177	130	73·4	160	567½	391½	216	13 52	0·833	0·0845
38	" ..	192	15	176	135	76·7	161	567½	391½	216	13 52	0?839	0·0839
39	" ..	197	16	183	140	76·5	167	607½	171	216	13 80	0·848	0·0826
40	" ..	197	16	165	114	69·1	149	607½	171	216	13 80	0·756	0·0926
41	" ..	197	16	162	124	76·5	146	607½	171	216	13 80	0·741	0·0945
42	" ..	197	17	201	152	75·6	184	607½	171	216	13 80	0·929	0·0750
43	" ..	197	15	167	122	73·1	152	607½	171	216	13 80	0·772	0·0908
44	" ..	192	17	175	125	74·4	158	567½	391½	216	13 52	0·828	0·0856
45	" "	197	15	179	135	75·4	164	607½	171	216	13 80	0·832	0·0842

Average daily gain	0·8239 lbs.
Average cost of feed per lb. gain	0·08576 cts.
Average daily cost of food	0·0702 cts.
Cost of feed per 100 lb. gain	$8·57
Pounds of meal per lb. gain	3·6 lbs.
Pounds of roots per lb. gain	1·9 lbs.
Pounds of milk per lb. gain	1·35 lbs.

SHEEP

PURE-BRED FLOCK

Project 2D.—The pure-bred flock of Shropshires maintained at this Farm consists of twenty-three mature ewes, eight two-shear, eleven shearlings and one male. Also four pure-bred ram lambs which are for sale as breeders.

The object of maintaining this flock is, first, to study breeding and feeding problems; second, to ascertain the cost of maintaining a pure-bred flock and the profits realized from keeping such under present day conditions; third, to supply breeding stock.

During the season of 1921, the twenty-three ewes bred dropped twenty-seven lambs or 117 per cent. The following is a financial statement of the year's work:—

Project 5-D.—FINANCIAL STATEMENT OF PURE-BRED SHEEP

Initial Investment—		
To 23 pure-bred ewes at $35		$ 805 00
" 8 yearlings at $25		200 00
" 1 sheep shed		350 00
" 10 acres land at $50		500 00
" 1 ram		50 00
" working equipment, shovels, forks, etc.		75 00
		1, 980 00
Dr.		
To feed for 23 ewes and ram		
" 2,880 pounds meal at $1.87 per cwt.	$ 53 86	
" 2,688 pounds roots at $4.80 per ton	6 45	
" 2,802 pounds hay at $12.05 per ton	16 88	
" 4,807 days in pasture at 2 cents per day	96 14	173 33
" feed for 8 yearlings		
" 780 pounds meal at $1.87 per cwt.	14 59	
" 896 pounds roots at $4.80 per cwt.	2 15	
" 876 pounds hay at $12.05 per ton	5 28	
" 1,672 days in pasture at 1½ cents per day	25 08	47 10
" interest on investment, $1,900 at 6 per cent		118 80
" wages, 113 hours at 30 cents		33 90
		373 13

Project 5-D.—FINANCIAL STATEMENT OF PURE-BRED SHEEP.—*Concluded.*

Cr.		
By sale of 362 pounds of wool at 22 cents	$ 79 64	
" sale of 30 pounds of wool at 16 cents	4 80	
" sale of 15 pounds of wool at 15 cents	2 25	
" sale of 2 pure-bred rams at $20	40 00	
" sale of 284 pounds dressed lamb at 18 cents	51 12	
" sale of 190 pounds dressed lamb at 16 cents	30 40	
" sale of 103 pounds dressed lamb at 12 cents	12 36	
" sale of stock on hand, 4 rams at $20	80 00	
" increased stock on hand, 11 ewes at $15	165 00	
" increase of stock	52 00	
" 31 tons manure at $3	93 00	
" Cr. balance	610 57	237 44
	610 57	610 57
Total cost to feed and maintain 32 sheep for 1921	373 13	
Total cost to seed and maintain 1 sheep for 1921	11 66	

Project 6-D.—COST TO RAISE A PURE-BRED LAMB TO ONE YEAR OF AGE

Cost of feed for 23 ewes for 365 days	$ 173 33	
To 2,133 pounds of meal at $1.87 per cwt.	39 89	
" 4,455 pounds of roots at $4.80 per ton	10 69	
" 1,836 pounds of hay at $12.05 per ton	11 06	
" 4,536 days in pasture at 1 cent per day	45 36	
" Interest on investment two-third 1980 ($1,320 at 6 per cent)	79 20	
" wages, 1 man two-thirds of 113 hours 76 hours at 30 cents)	22 80	
	382 33	
Less		
184 pounds of wool at 22 cents $ 40 48		
36 tons manure at $3 108 00	148 48	
	235 85	
Total cost of 27 pure-bred lambs at 1 year		$ 233 85
Total cost of 1 pure-bred lamb at 1 year		8 66

THE GRADE FLOCK

Project 4D.—A grading-up experiment with sheep was started in 1917. The object is to study the problems related to good breeding and also to demonstrate the value of using a good, pure-bred sire on the average grade ewe. To date the improvment noted has been marked. The wool clip the first year averaged six and a quarter pounds. In 1920 it averaged eight and nine-twentieths and last year eight and five-sevenths pounds, a slight increase over the previous season, and graded 85.5 per cent medium combing, 11.7 per cent low medium combing and 3.4 per cent low combing. Each cross has brought better breeding stock and lambs of greater value as meat. The following is the financial statement for the season of 1920 and 1921:—

Project 7D.—FINANCIAL STATEMENT—GRADE FLOCK

Initial Investment—		
To 14 grade ewes at $15 each		$ 210 00
" 110 grade yearlings at $10 each		100 00
" 1 pure-bred ram at $50		50 00
" 1 sheep shed		350 00
" 10 acres land at $50		500 00
Dr.		
To feed for 14 ewes and 1 ram		
" 1,900 pounds meal at $1.87 per cwt.	$ 35 53	
" 1,680 pounds roots at $4.80 per ton	4 03	
" 1,755 pounds hay at $12.05 per ton	10 58	
" 2,135 days in pasture at 1½ cents per day	32 02	82 16

Project 7D.—FINANCIAL STATEMENT—GRADE FLOCK—*Concluded.*

To feed for 10 yearlings			
" 1,137.5 pounds of meal at $1.87 per cwt.	$ 21 27		
" 1,710 pounds of roots at $4.80 per ton	4 10		
" 1,170 pounds of hay at $12.05 per ton	7 05		
" 2,090 days in pasture at 1½ cents per day	31 35		63 77
" Interest on investment, $1,210 at 6 per cent			72 60
" wages of man, 88 hours at 30 cents			26 40
			244 93
Cr.			
By sale of 121.5 ponds of wool at 22 cents	$ 26 73		
" sale of 223 pounds of dressed lamb at 18 cents	40 14		
" sale of 117 pounds of dressed mutton at 9 cents	10 53		
" increase of stock, 8 ewes at 10	80 00		
" increased value on foundation stock and yearling	31 00		
" 21 tons manure at $3	63 00		
Credit balance			6 47
	251 40		251 40

Project 8D.—COST OF RAISING GRADE LAMBS

Total cost to feed 14 breeding ewes	$ 82 16		
Interest on two-thirds investment $1,210 ($807 at 6 per cent)	48 42		
Wages, 1 man two-thirds, 88 hours (55 hours at 30 cents)	16 50		
To 1,185 pounds meal at $1.87 per cwt.	22 16		
" 2,475 pounds roots at $4.80 per ton	5 94		
" 1,210 pounds hay at $12.05 per ton	6 15		
" 2,520 days in pasture at 1 cent per day	25 20		
	$206 53		
Less 22 tons manure at $3 per ton	$66 00		
" 121 pounds wool at 22 cents per pound	26 62		
	92 62	113 91	
Total cost of 115 lambs at one year			$ 113 91
Total cost of 1 lamb at one year			7 59

In the above statement, all concentrates are charged at market values. Hay and roots are charged at cost of production and wages at the average prevailing rate.

HORSES

Sixteen horses are kept at the Nappan Farm, namely, five pure-bred Clydesdale brood mares; two pure-bred Clydesdale stallions; one four-year old Clydesdale gelding; one span of grade Clydesdale mares; one span of grade Cydesdale geldings; one aged Clydesdale; two light express horses; one light -four-year-old gelding; two fillies, one a grade and the other a pure-bred Clydesdale. The heavy horses are used for heavy trucking and general farm work, while the light horses do the driving and express work.

The pure-bred Clydesdale stallion Baron Begg (20119) that heads the stable was bred by the Central Experimental Farm, Ottawa, being sired by Baron Stanley (Imp) (14980) and out of Darling of Begg Imp. (26401) (28372). He is a very fine type of Clydesdale and, while not large, has good quality and is the type that should be seen on the average farm to-day.

FIELD HUSBANDRY

The season of 1921 opened earlier than usual. Farming operations began on May 6 and were general by the middle of May. Very dry weather prevailed throughout the season and crops suffered from the severe drought. However, where a systematic rotation of crops had been followed, the effect of the drought was not nearly so noticeable.

ROTATION OF CROPS

Three rotations, which are considered most suitable for the Maritime Provinces, have been carried out at this Farm. Any of these may be changed slightly to suit the convenience of the individual farmer.

Project 1F.—Three-year rotation "D"
First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.

Project 2F.—Four-year rotation "C"
First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.
Fourth year—Pasture.

Project 3F.—Five-year rotation "B"
First year—Roots or corn.
Second year—Grain.
Third year—Clover hay.
Fourth year—Grain.
Fifth year—Clover hay.

Rotations "B" and "D" are suitable where there is plenty of rough pasture available. Rotation "C" is excellent for dairy farm where good pasture is essential.

New plots for the three rotations mentioned were laid off during the season, but, owing to the dry season, the plots were seeded with a crop to be cut for green feed. Due to lack of moisture, this crop was not worth recording.

Another field was ploughed and summer-fallowed in preparation for cultural test plots which will be started during the season of 1922.

Project 5F.—The following tables give the cost of production for the season of 1921 for wheat, oats, barley, mixed grain, ensilage corn, sunflowers for ensilage, turnips and hay.

COST TO PRODUCE WHEAT, 1921

(Second Crop in Four-year Rotation)

Items of Cost	
Area—1 acre.	
Rent of land at per acre	$ 6 00
Use of machinery	60
Manure, 3 tons at $3	9 00
Spreading manure 3 hours, 3 horses at 75 cents	2 25
Spreading manure 3 hours, 2 men at 34 cents	2 04
Ploughing 5 hours, 3 horses at 75 cents	3 75
Harrowing—double cutaway harrow-tractor 3.1 hours at $1	3 10
Harrowing—spike harrow—1.6 hours, 2 horses at 60 cents	96
Seeding 1.25 hours, 2 horses at 60 cents	75
Reaping 1.25 hours, 3 horses at 75 cents	94
Stooking 2 hours, 1 man at 34 cents	68
Twine, 3 pounds at 23 cents	69
Hauling grain to barn 1 hour, 2 horses at 60 cents	60
Hauling grain to barn 1 hour 2 men at 34 cents	68
Threshing 20.23 bushels at 10 cents per bushel	2 02
Seed, 2 bushel at $3 per bushel	6 00
Total cost per acre	40 06
Less straw, 2,784 pounds at $7 per ton	9 74
Cost of grain	30 32

Yield per acre, 20.23 bushels.
Cost of grain per acre, $30.32.
Cost of grain per bushel, $1.50.

COST TO PRODUCE OATS

(Second crop of Four-year Rotation))

ITEMS OF COST

Area—1 acre.

Rent of 1 acre	$ 6 00
Use of machinery	60
Manure, 3 tons at $3	9 00
Spreading manure, 3 hours, 2 men at 75 cents	2 25
Spreading manure, 3 hours, 2 men at 34 cents	2 04
Ploughing, 5 hours, 3 horses at 75 cents	3 75
Harrowing—double cutaway—tractor, 3.1 hours at $1	3 10
Harrowing—spike harrow—1.6 hours, 2 horses at 60 cents	96
Seeding 1.25 hours, 2 horses at 60 cents	75
Reaping 1.25 hours, 3 horses at 75 cents	94
Stooking 2 hours, 1 man at 34 cents	68
Twine 1¼ pounds at 23 cents	29
Hauling grain to barn 1 hour, 2 horses at 60 cents	60
Hauling grain to barn 1 hour, 2 men at 34 cents	68
Threshing 36.5 bushels oats at 10 cents per bushel	3 65
Seed, 3 bushels at $1.50 per bushel	4 50
Total cost per acre	39 79
Less straw, 1,132 pounds at $10 per ton	5 66
	34 13

Yield per acre, 36.5 bushels.
Cost per acre, $34.13.
Cost per bushel, 94 cents.

COST TO PRODUCE MIXED GRAIN, 1921

(Second Crop in Four-year Rotation)

ITEMS OF COST

Rent of land per acre	$ 6 00
Use of machinery	60
Manure, 3 tons at $3	9 00
Spreading manure, 3 hours, 3 horses at 75 cents	2 25
Spreading manure, 3 hours, 2 men at 34 cents	2 04
Ploughing, 5 hours, 3 horses at 75 cents	3 75
Harrowing—double cutaway—tractor, 3.1 hours at $1	3 10
Harrowing—spike tooth—1.6 hours, 2 horses at 60 cents	96
Seeding 1.25 hours, 3 horses at 75 cents	94
Reaping 1.25 hours, 2 horses at 60 cents	75
Stooking 2 hours, 1 man at 34 cents	68
Twine, 1.41 pounds at 23 cents	32
Hauling grain to barn 1 hour, 2 horses at 60 cents	60
Hauling grain to barn 1 hour, 2 men at 34 cents	68
Threshing 23 bushels at 10 cents	2 30
Seed, 2.5 bushels at $1.60	4 00
Total cost per acre	37 97
Less straw, 691 pounds at $8 per ton	2 76
Cost of grain	35 21

Yield per acre, 23 bushels.
Cost of grain per acre, $35.21.
Cost per bushel $1.53.

COST TO PRODUCE BARLEY—1921

(Second Crop in Four-year Rotation)

ITEMS OF COST

Area—1 acre.

Rent of land per acre	$ 6 00
Manure, 3 tons at $3 per ton	9 00
Use of machinery per acre	60
Spreading manure, 3 hours, 3 horses at 75 cents	2 25
Spreading manure, 3 hours, 2 men at 34 cents	2 04
Ploughing, 5 hours, 3 horses at 75 cents	3 75
Harrowing—double cutaway—tractor, 3.1 hours at $1	3 10
Harrowing—spike harrow—1.6 hours 2 horses at 60 cents	96
Seeding 1.25 hours, 2 horses at 60 cents	75
Reaping 1.25 hours, 3 horses at 75 cents	94
Stooking 2 hours, 1 man at 34 cents	68
Twine, 1.7 pounds at 23 cents	39
Hauling grain to barn 1 hour, 2 men at 34 cents	68
Hauling grain to barn 1 hour, 2 horses at 60 cents	60
Threshing 17.16 bushels at 10 cents per bushel	1 72
Seed, 2 bushels at $1.75	3 50
Total cost per acre	36 96
Less, straw, 1,560 pounds at $8 per ton	6 24
	30 72

Yield per acre, 17.16 bushels.
Cost of grain per acre, $30.72.
Cost per bushel, $1.79.

COST TO PRODUCE CORN ENSILAGE

(First year in four-year Rotation)

ITEMS OF COST

Area—1 acre.

Rent of land, 1 acre	$ 6 00
Use of machinery, 1 acre	60
Manure, 5 tons at $3	15 00
Spreading manure, 5 hours, 3 horses at 75 cents	3 75
Spreading manure, 5 hours, 2 men at 34 cents	3 40
Ploughing, 5 hours, 3 horses at 75 cents	3 75
Harrowing—double cutaway-tractor, 3.12 hours at $1	3 12
Harrowing—spike harrow, 1.9 hours, 2 horses at 60 cents	1 14
Drill seeding, 1.2 hours, 2 horses at 60 cents	72
Harrowing to kill weeds, 1 hour, 2 horses at 60 cents	60
Cultivating 3.2 hours, 1 horse at 40 cents	1 28
Hoeing 10 hours, 1 man at 34 cents	3 40
Cutting with cutter, 3.8 hours, 2 hours at 60 cents	2 28
Loading 5.2 hours, 1 man at 34 cents	1 77
Hauling to barn 7.6 hours, 2 horses at 60 cents	4 56
Cutting into ensilage and storing, 10.4 hours at 34 cents	3 54
Gasoline used in tractor for cutting, 2.6 gallons at 36 cents	94
Seed, 25 pounds Longfelow at 6¼ cents	1 56
Total cost per acre	57 41

Yield per acre, 4.11 tons.
Cost per acre, $57.41.
Cost per ton, $13.97.

COST TO PRODUCE SUNFLOWERS

(First year of four-year Rotation)

ITEMS OF COST

Rent of land per acre	$ 6 00
Use of machinery	60
Ploughing 5 hours, 3 horses at 75 cents	3 75
Manure, 5 tons at $3 per ton	15 00
Spreading manure 5.14 hours, 3 horses at 75 cents	3 86
Spreading manure 5.14 hours, 2 men at 34 cents	1 75
Ploughing under manure, 5 hours, 3 horses at 75 cents	3 75
Harrow—cutaway disc—1 hour, tractor, at $1	1 00
Harrow—spike—1.9 hours, 2 horses at 60 cents	1 14
Seeding, 3 hours, 1 horse at 40 cents	1 20
Seed, 15 pounds at 15 cents	2 25
Cultivating 4.7 hours, 1 horse at 40 cents	1 88
Hoeing 26.8 hours, 1 man at 34 cents	9 11
Cutting 3.4 hours, 2 horses at 60 cents	2 04
Hauling to barn 6.86 hours, 2 horses at 60 cents	4 12
Loading 6.86 hours, 2 men at 34 cents	2 33
Cutting into ensilage13.6 hours at 34 cents	4 62
Gasoline for tractor, 13.6 gallons at 36 cents	4 90
Total cost per acre	69 30

Yield per acre, 10.05 tons.
Cost per acre, $69.30.
Cost per ton, $6.89.

COST TO PRODUCE TURNIPS—1921

(First crop in Four-year Rotation)

ITEMS OF COST

Rent of land per acre	$ 6 00
Use of machinery per acre	60
Ploughing 5 hours, 3 horses at 75 cents per hour	3 75
Manure 5 tons at $3 per ton	15 00
Spreading manure, 5 hours, 3 horses at 75 cents	3 75
Spreading manure, 5 hours, 2 men at 34 cents	3 40
Cross ploughing, 5 hours, 3 horses at 75 cents	3 75
Harrowing—disc—tractor, 3.12 hours at $1	3 12
Harrowing—spike—1.9 hours, 2 horses at 60 cents	1 14
Drilling, 3 hours, 2 horses at 60 cents	1 80
Seeding, 1.8 hours, 1 horse at 40 cents	72
Seed, 3 pounds at 50 cents	1 50
Cultivating 4.25 hours, 1 horse at 40 cents	1 70
Hoeing, 44.41 hours, 1 man at 34 cents	15 10
Pulling, 29.6 hours 1 man at 34 cents	10 06
Carting to cellar, 7.08 hours, 2 horses at 60 cents	4 24
Loading and stowing, 7.08 hours, 1 man at 34 cents	2 41
Total cost per acre	78 04

Yield per acre, 428.86 bushels.
Cost per acre, $78.04.
Cost per ton, $7.28.
Cost per bushel, 18 cents.

COST OF HAY PRODUCTION, 1921

ITEMS OF COST

Rent of land per acre	$ 6 00
Use of machinery per acre	60
Seed: timothy, 10 pounds at 13½ cents; common red, 6 pounds at 54 cents; alsike, 2 pounds at 31 cents	5 21
Manure, 5 tons at $3	15 00
Spreading manure, 5 hours, 3 horses at 75 cents	3 75
Spreading manure, 5 hours 2 men at 34 cents	3 40
Mowing, 1 hour, 2 horses at 60 cents	60
Coiling, 3.2 hours, 1 man at 34 cents	1 08
Turning, 5 hours, 1 man at 34 cents	1 70
Hauling to barn, 3 hours, 2 hours at 60 cents	1 80
Loading and storing, 8 hours, 1 man at 34 cents	2 72
Total cost per acre	41 86

Yield per acre, 2.09 tons.
Cost per acre, $41.86.
Cost per ton, $20.02.

FIELD CROPS

HAY

Project 4F.—One hundred and fourteen acres of upland yielded 169 tons, 463 pounds hay, or an average of 1 ton, 453 pounds per acre. Eighty acres of marsh yielded 58 tons 80 pounds, or an average of 1,451 pounds per acre. The upland hay averaged within 496 pounds per acre as much as for 1920. Thus it may be seen that if proper cultivation and rotation of crops is followed the loss during the dry season will be very materially reduced. The marsh land, on the other hand, yielded only about one half a crop. Marshes are not ploughed as frequently as is upland.

ENSILAGE CORN

Five acres of Longfellow corn yielded 20 tons 1,840 pounds, or an average per acre of 4 tons 368 pounds. This is the second year that corn has been a failure in this particular field.

SUNFLOWERS

Four acres of Russian sunflowers were sown, yielding 47 tons 420 pounds, or an average of 11 tons 1,605 pounds per acre. The seeding was at different dates, the first on May 25 and the last on June 6. All seed germinated very slowly; in fact, very slow growth was made until the latter part of the season when they made excellent growth under the prevailing dry weather. Seed was sown in rows 2½ feet apart at the rate of about fifteen pounds per acre.

SUNFLOWERS

Project 6F.—Owing to the lack of experimentation with sunflowers as a forage crop in Nova Scotia, tests were conducted to find out the relative advantage of early versus late planted as well as planting in narrow versus wide rows. The variety used in this test was Russian Giant. The late planted plots in this test suffered materially from lack of precipitation at early stages of growth.

The following results were recorded:—

Project 6 F — Different Dates of Planting

Date of planting	Height	Stage of Maturity	Flower Stage	Yield per acre
	Ft.			Lbs.
May 25	10	Dough....	50% petals fallen..	19 T. 400
May 31	9	Milk.....	90% full bloom....	17 T. 880
June 9	8	Milk.....	50% full bloom....	16 T. 1120

Project 7 F. — Different Distances Apart

Distance apart	Height	Stage of Maturity	Flower Stage	Yield per acre
Ft.	Ft.			Tons Lb.
2½	10	Dough....	50% petals fallen..	18 200
3	9½	Dough....	50% petals fallen..	20 600
3½	9	Dough....	50% petals fallen..	20 00

The above tests, although inconclusive, would show that the yield per acre is directly proportional to the date of planting, while the highest production was from rows planted three feet apart. Rows planted more closely than this lacked in lateral foliage and growth, but attained a greater height. The rows three and one-half feet apart gave a heavier stalk with a remarkable foliage development and appeared more succulent.

TOP DRESSING HAY

Project 8F.—A five-acre field was divided equally, one-half being top-dressed with a dressing of twenty tons of barnyard manure while the balance was left undressed. The manure was applied in the spring. The benefit of the dressing was reduced by lack of precipitation. The following are the results:—

	Tons	Lb.
Top dressed	2	520
No top dressing	2	180

PASTURAGE EXPERIMENT

Project 9F.—A test was commenced in the spring of 1921 to determine the value of applications of barnyard manure and commercial fertilizers to natural, rough pasturage. These fertilizers were applied on May 25 but, owing to the drought that continued throughout the summer, no appreciable difference could be noticed in any of these plots.

PASTURE EXPERIMENT

Plot	Size of Plots	Application per acre
1	1½ acres	500 lbs. slag
2	1½ "	500 lbs. acid phosphate
3	1½ "	2 tons ground limestone
4	1½ "	2 tons ground limestone 500 lbs. acid phosphate
5	1½ "	2 tons ground limestone 500 lbs. slag
6	1½ "	Check
7	1½ "	8 tons manure

OATS, PEAS AND VETCHES

Five acres were seeded to green feed, yielding 12 tons 1,600 pounds, or an average per acre of 2 tons 1,120 pounds. The low yield was due to the lack of moisture during May, June and July. The crop was not more than 25 per cent of a good one.

ROOTS

Twelve acres were sown to turnips for stock feeding. This was the second crop on this land after stumping, buckwheat being the first crop. Manure was applied at the rate of twenty tons per acre. The total yield was 5,146 bushels and 30 pounds, or an average of 428.86 bushels per acre. The average production was very low and was due very largely to the dry weather. The seed was over a month germinating and showing above the soil. The soil, at the time of seeding, contained insufficient moisture for proper germination. During the cool weather of September and October, the growth was very rapid.

HORTICULTURE

The season opened fairly early for horticultural work. The first planting was on May 19. The total precipitation for the growing months was only 64.5 per cent of the average for the previous seven years. Early planted seeds germinated quickly but the later planting were slow and not uniform. The continuous drought, with extreme heat, resulted in a poor crop of small fruits. Tree fruits, while below the average, were of good quality. Fungous diseases and insect pests were not prevalent. The first killing frost was recorded on October 18.

TREE FRUITS

APPLES

Project 56K.—The old orchard was manured and ploughed in the spring and intercropped with small fruits, vegetables, and soiling crops. This orchard was pruned, and sprayed with Bordeaux mixture of the 4-4-40 strength to which was added two pounds of arsenate of lime per forty gallons of water. Two applications of the mixture were made, the first after the leaf buds had unfolded sufficiently to show the blossom turning pink, on May 20, and again after the petals had fallen on June 11. The forest tent caterpillars were very numerous but were successfully controlled with the first spray. The crop of fruit was good, and, although slightly below the average in size, was of good quality. The crop was practically free from fungous or insect injury. Many of the varieties in this orchard are of inferior quality, nevertheless, a good sale was found for them in some of the mining towns in this district. The following table lists the varieties in this orchard, giving their season, quality, productiveness, market demand and colour:—

NOTES ON VARIETIES TESTED IN THE OLD ORCHARD, 1892-1921

Name of Variety	Season	Culinary Use	Kind of Producer	Market Demand	Colour of Fruit
Alexander	Autumn	Cooker	Good	Good	Green checked with crimson
Ananashal	Autumn	Cooker	Good	Good	Greenish-yellow red stripes
Anis	Autumn	Dessert	Good	Good	Yellow
Aport	Autumn	Cooker	Good	Good	Green splashed with red
Arctic	Winter	Dessert	Medium	Medium	Green splashed with dark red
Ostrakoff	Autumn	Dessert	Good	Medium	Yellow splashed with red
Baxter	Winter	Dessert	Good	Good	Dark red
Belle de Boskoop	Winter	Cooker	Poor	Medium	Russet, red splashed cheek
Blackwood	Late autumn	Cooker	Medium	Poor	Light red and deep crimson
Ben Davis	Winter	Cooker	Good	Medium	Yellow mottled with red
Borovinka	Autumn	Cooker	Good	Good	Yellow splashed with red
Boys Delight	Autumn	Dessert	Medium	Poor	Greenish yellow washed with red
Bellflower	Winter	Dessert	Poor	Good	Greenish yellow blushed with red
Bottle Greening	Winter	Cooker	Medium	Good	Greenish-yellow red cheek
Blushed Calville	Autumn	Cooker	Good	Poor	Greenish-yellow rarely blushed
Canada Red	Winter	Dessert	Medium	Good	Yellow overspread with red
Chenango	Autumn	Dessert	Medium	Poor	Russet splashed with red
Charlamoff	Autumn	Dessert	Good	Good	Yellow with crimson stripes
Colvert	Winter	Cooker	Medium	Medium	Yellow streaked with dull red
Crimean Bogdanoff	Late autumn	Dessert	Good	Good	Striped and splashed with red
Dudley	Autumn	Dessert	Good	Good	Yellow splashed with deep red
Duchess	Autumn	Cooker	Good	Poor	Greenish-yellow red stripes
Fameuse	Late autumn.	Dessert	Medium	Good	Green striped with red
Fallawater	Winter	Cooker	Good	Good	Green splashed with dark red.
Gideon	Autumn	Dessert	Good	Good	Red shaded with crimson.
Gano	Winter	Cooker	Good	Poor	Crimson.
Gipsy Girl	Autumn	Cooker	Good	Poor	Yellowish-green.
Golden Russet	Winter	Dessert	Good	Good	Russet.
Golden Ball	Autumn	Cooker	Medium	Medium	Yellowish-green.
Golden White	Autumn	Cooker	Medium	Poor	Greenish-white.
Grimes Golden	Winter	Dessert	Good	Good	Golden yellow.

NOTES ON VARIETIES TESTED IN THE OLD ORCHARD, 1892-1921—*Concluded*

Name of Variety	Season	Culinary Use	Kind of Producer	Market Demand	Colour of Fruit
Haas	Late autumn	Cooker	Good	Poor	Green splashed with red.
Hibernal	Autumn	Cooker	Good	Poor	Green splashed with red.
Hoadley	Autumn	Cooker	Medium	Good	
Jonathan	Winter	Dessert	Good	Good	Brilliant red.
Keswick Codling	Autumn	Cooker	Good	Poor	Greenish yellow.
Lowland Raspberry	Autumn	Dessert	Good	Good	Yellow splashed with red.
Lady Wellington	Late autumn	Cooker	Good	Good	Yellow with red cheek.
Lubsk Queen	Autumn	Dessert	Poor	Medium	White splashed with red.
Maiden Blush	Autumn	Cooker	Medium	Poor	Yellow with crimson blush.
McIntosh Red	Late autumn	Dessert	Good	Best	Deep and light crimson.
McMahan White	Late autumn	Cooker	Good	Medium	Pale yellow pink blushed.
Milding	Late autumn	Cooker	Good	Good	Greenish-yellow shaded red.
Milwaukee	Late autumn	Cooker	Medium	Medium	Yellow splashed with red.
Munson Sweet	Late autumn	Dessert	Good	Good	Yellow blushed with dull red.
Montreal Peach	Autumn	Dessert	Good	Good	Yellow with red cheeks.
Newell Winter	Late autumn	Cooker	Medium	Medium	Yellow mottled with red.
Northwestern Greening.	Winter	Cooker	Good	Good	Greenish-yellow.
Ontario	Winter	Cooker	Medium	Good	Green splashed dull red.
Peter	Winter	Dessert	Poor	Medium	Green overspread with red.
Penswaukee Russet	Winter	Dessert	Medium	Poor	Russet with red cheek.
Pewaukee	Winter	Cooker	Good	Medium	Green-yellow mottled red.
Peck Pleasant	Winter	Cooker	Good	Poor	Yellow with orange red blush.
Rambo	Winter	Cooker	Poor	Poor	Yellow washed with red.
Rhode Island Greening.	Winter	Cooker	Medium	Medium	Green dull red cheek.
Red June	Autumn	Dessert	Medium	Poor	Deep red over yellow.
Rome Beauty	Winter	Cooker	Good	Good	Yellow mottled with red.
Ribston Pippin	Late autumn	Dessert	Medium	Good	Russet yellow splashed with red.
Red Astrachan	Autumn	Dessert	Good	Good	Yellow mottled with red.
Royal Table	Late autumn	Cooker	Medium	Poor	Yellow splashed with red.
Ruby Gem	Autumn	Dessert	Poor	Poor	Red.
Senator	Winter	Dessert	Good	Good	Green splashed with red.
Summer Paradise	Autumn	Cooker	Medium	Poor	
Stark	Winter	Cooker	Good	Good	Green washed with dull red.
St. Lawrence	Late autumn	Dessert	Good	Good	Yellow striped with red.
Shannon	Winter	Cooker	Poor	Poor	Dull green.
Scott Winter	Winter	Cooker	Good	Poor	Yellow striped with red.
Spitzenburg	Winter	Dessert	Good	Good	Yellow-green cheeked with red.
Trenton	Winter	Dessert	Good	Good	Yellow-green splashed with red.
Tolman Sweet	Winter	Dessert	Good	Good	Yellow.
Titoka	Autumn	Dessert	Good	Medium	Yellow shaded with red.
Twenty Ounce Pippin.	Autumn	Cooker	Good	Medium	Yellowish sometimes washed red.
Victoria	Autumn	Dessert	Medium	Good	Light red flushed crimson.
Wagener	Winter	Dessert	Medium	Good	Yellow washed with crimson.
Wealthy	Autumn	Cooker	Good	Medium	Pale yellow washed with red.
Watterson	Winter	Cooker	Good	Poor	Light green striped with red.
Wolf River	Autumn	Cooker	Good	Medium	Greenish washed with red.
Wellington	Winter	Cooker	Good	Medium	Yellow-green.
Walbridge	Winter	Cooker	Poor	Medium	Yellow striped with red.
Winter Bough	Late autumn	Cooker	Good	Medium	Yellow flushed with red.
Yellow Transparent	Autumn	Dessert	Good	Poor	Golden yellow.

WOOD ORCHARD

Project 56K.—This orchard, during the past few years, has been given a sod mulch treatment and, during the past year, the grass was cut and removed for hay. This orchard was sprayed as outlined in the "Old Orchard." An application of nitrate of soda, two hundred pounds per acre, was applied on June 14, just as the fruit was setting. This, owing to the extreme drought, was of little value to the crop. This orchard was started in 1892 and, the yields and quality of the fruit having been recorded annually, it has now passed its usefulness and its removal is proposed. The following table lists the varieties contained therein, giving their season, quality, production, market value and colour:—

NOTES OF VARIETIES TESTED IN THE WOOD ORCHARD, 1892-1921

Name of Variety	Season	Culinary Use	Kind of Producer	Market Demand	Colour of Fruit
Arctic	Winter	Dessert	Medium	Medium	Green splashed with dark red.
Antonovka	Winter	Cooker	Good	Poor	Yellow.
Arabka Winter	Winter	Cooker	Good	Good	Red to dark purple.
Bell Pippin	Winter	Cooker	Medium	Good	Green with red cheeks.
Blue Pearmain	Winter	Dessert	Poor	Good	Yellow mottled with red.
Bethel	Winter	Dessert	Medium	Good	Yellow mottled with red.
Black Annette	Winter	Cooker	Poor	Poor	Dark red.
Beautiful Arcade	Autumn	Dessert	Good	Medium	Yellow splashed with red.
Bramley Seedling	Late autumn	Cooker	Poor	Poor	Yellow splashed with red.
Banks Gravenstein	Autumn	Dessert	Medium	Good	Yellow washed with bright red.
Blenheim Pippin	Autumn	Dessert	Good	Good	Yellow washed with red.
Pomona	Late autumn	Cooker	Medium	Good	Yellow blushed with crimson.
Cox Orange	Winter	Dessert	Medium	Good	Yellow washed with red and carmine.
Cinnamon Pine	Autumn	Dessert	Good	Good	Yellow flushed with light red.
Charlottenthaler	Autumn	Dessert	Good	Medium	Golden yellow.
City	Winter	Dessert	Poor	Medium	Light green.
Cross	Autumn	Cooker	Good	Poor	Light green.
Derby	Winter	Dessert	Good	Medium	Golden yellow.
Delicious	Winter	Dessert	Good	Good	Orange red washed with carmine.
Delaware Red Winter.	Winter	Cooker	Poor	Poor	Yellow washed with dull red.
Denver White Winter Sweet.	Winter	Dessert	Good	Good	Dull green.
Early Colton	Late autumn	Cooker	Good	Medium	Greenish yellow sometimes red.
Fanny	Winter	Dessert	Medium	Meduim	Bright red.
Enormous	Autumn	Cooker	Poor	Poor	Light green.
Grandmother	Autumn	Dessert	Medium	Poor	Yellow flushed with light red.
Gravenstein	Autumn	Dessert	Good	Good	Yellow splashed with red.
Grenadier	Winter	Cooker	Good	Good	
Gascoigne Seedling	Late autumn	Cooker	Good	Medium	Deep red.
Golden sweet	Late autumn	Dessert	Poor	Medium	Golden yellow.
Hoadley	Late autumn	Dessert	Poor	Medium	
Hastings	Late autumn	Dessert	Poor	Poor	Yellow splashed with red.
Hurlbut	Winter	Dessert	Good	Good	Yellow splashed with red.
Ingram	Winter	Dessert	Poor	Medium	Yellow mottled with shades of red.
Jerreris	Late autumn	Cooker	Good	Poor	Yellow blushed and splashed with red.
Kelso					
King of Tompkins Co.	Early winter	Dessert	Medium	Good	Yellow washed with bright red.
Langford Beauty	Late autumn	Dessert	Good	Good	Dull red.
Lord Derby	Winter	Cooker	Good	Good	Greenish-yellow.
Long Arcade	Autumn	Dessert	Good	Good	Green flushed with crimson.
Longfield	Autumn	Dessert	Good	Good	Yellow flushed with bright red.
Munson Sweet	Late autumn	Dessert	Good	Good	Yellow blushed with dull red.
Mammoth Pippin	Winter	Cooker	Good	Poor	Greenish blushed with bronze.

NOTES OF VARIETIES TESTED IN THE WOOD ORCHARD, 1892-1921—*Concluded*

Name of Variety	Season	Culinary Use	Kind of Producer	Market Demand	Colour of Fruit
Mother	Late autumn	Dessert	Poor	Medium	Yellow nearly covered with red.
Mitchell Red Warrior.	Autumn	Dessert	Medium	Good	Yellow striped with crimson.
Newtown Pippin	Winter	Dessert	Medium	Medium	Green to yellow blushed with bronze.
Northern Spy	Winter	Dessert	Good	Good	Yellow overspread with bright red.
Ohio Nonpareil	Winter	Dessert	Good	Good	Yellowish overlaid with dull red.
Occident	Winter	Cooker	Good	Medium	Bright yellow.
Ontario	Winter	Cooker	Medium	Good	Green splashed dull red.
Pomme Grise	Winter	Dessert	Good	Good	Greenish covered with russet.
Repka Winter	Late autumn	Dessert	Medium	Good	Yellow striped with crimson.
Peasgood Nonsuch	Autumn	Cooker	Poor	Poor	Yellow striped and blushed with red.
Porter	Late autumn	Dessert	Medium	Good	Yellow faintly marked with red.
Queen	Autumn	Cooker	Good	Medium	Yellow striped with red.
Renard Seedling	Late autumn	Cooker	Good	Good	Yellowish-green with red cheek.
Red Russet	Winter	Dessert	Medium	Medium	Russet tinged with red.
Ribston Pippin	Autumn	Dessert	Good	Good	Russet yellow splashed with red.
Silken Leaf	Autumn	Cooker	Medium	Poor	Green splashed with red.
Shiawassee Beauty	Late autumn	Dessert	Good	Good	Yellow overspread with red.
Sunbeam	Autumn	Cooker	Medium	Poor	Yellow splashed with red.
Salome	Winter	Cooker	Good	Medium	Greenish mottled and blushed with red
Seek No Further	Winter	Dessert	Good	Good	Greenish shaded and splashed with red
Sops of Wine	Autumn	Dessert	Medium	Good	Yellow washed with dark crimson.
Selwyn	Late autumn	Dessert	Medium	Good	
Tufts Baldwin	Late autumn	Cooker	Good	Medium	Yellowish covered with deep red.
Vandevere	Winter	Cooker	Medium	Medium	Yellow streaked with bright red.
Washington Royal	Winter	Cooker	Poor	Poor	Yellow to green shaded with red.
Williams Favorite	Autumn	Dessert	Poor	Good	Yellow overlaid with bright red.
White Pigeon	Winter	Cooker	Good	Medium	Greenish-yellow.
White Astrachan	Autumn	Dessert	Good	Medium	Yellowish-white streaked with red.
Winter Bough	Late autumn	Cooker	Good	Medium	Yellow flushed with red.
Western Beauty	Late autumn	Dessert	Medium	Good	Yellow washed and mottled with red.
Windsor Chief	Winter	Dessert	Good	Medium	Yellowish blushed with dull red.

COMMERCIAL ORCHARD

Project 61K.—This orchard contains fifteen trees each of different varieties that have proved particularly adapted to the soil and climatic conditions in this district. These varieties are: Duchess, Wealthy, Red Astrachan, Wolf River, McIntosh, Rome Beauty, Pewaukee, Grimes Golden, Talman Sweet, Arabka Winter, Charlamoff, Baxter, Blue Pearmain, Northern Spy and Bethel. This orchard was manured, ploughed and kept clean-cultivated throughout the season. It was sprayed with Bordeaux arsenate. No experimental work was conducted in it during the year, but a thorough eradication of weeds was accomplished in preparation for a series of cover crop experiments to be started in 1922. Owing to the variation in size and productiveness of the trees, due to the replacing of dead trees, the total crop of fruit was reduced by almost one half. The following statement lists the various operations and their costs and gives a summary of the marketable fruit.

COMMERCIAL ORCHARD

COST OF PRODUCTION

Pruning, 5 hours at 32 cents		$ 1 60
Removing brush with horse and cart, 2 hours at 45 cents		90
Manure, two-thirds of 30 tons at $1.50		30 00
Spreading manure, 17 hours at 65 cents		11 05
Ploughing, 23 hours—2 horses, man at 55 cents		12 65
Ploughing, 17 hours—1 horse and man at 45 cents		7 65
Digging around trees, 18 hours at 30 cents		5 40
Hauling off couch, 5 hours, man and cart at 45 cents		2 25
Harrowing, 1 man and 2 horses, 36 hours at 55 cents		19 80
Spraying, 1 man, 2 horses, 3 hours at 55 cents		1 65
Spraying, 2 men, 6 hours at 32 cents		1 92
Spraying materials		
24 pounds Copper sulphate at 8¼ cents	$1 98	
24 " Hydrated lime at 1¼ cents	30	
8 " Arsenate lime at 20 cents	1 60	3 88
Replacing trees, 1 man, 2 horses, 4 hours at 55 cents		2 20
Replacing trees, 1 man, 4 hours at 32 cents		1 28
Picking fruit, 1 man, 14 hours at 32 cents		4 48
Total cost		106 71
By 30 barrels apples at $4		120 00
To profit		13 29

CRAB APPLES

Project 58K.—Of the various varieties of crab apples grown at this Farm, only four are of commercial value, viz: Transcendent, Whitney, Martha and Hyslop; these are listed in order of their market value.

SMALL FRUITS

CURRANTS

The new plantation started in 1920 yielded a few scattered bunches of fruit. The old plantation set a good crop but the fruit was of poor quality, owing to its small size. The following gives the tabulated yields:—

Project 50K — BLACK CURRANTS

Variety.	Yield per acre in pounds
Eagle	13952.3
Collins Prolific	5785.1
Kerry	3062.7
Clipper	2722.4
Boskoop Giant	2381.1
Buddenborg	2130.1
Eclipse	1361.2

Project 51K — RED CURRANTS

Variety.	Yield per acre in pounds
Victoria	11229.9
Wilder	9528.4
Red Grape	6465.7
Cumberland Red	5444.8
Pomona	4764.2
Red Dutch	4423.9
Cherry	3062.7
Greenfield	3062.7

Project 52K — WHITE CURRANTS

Variety.	Yield per acre in pounds
Large White	7146.3
White Cherry	3743.3
White Grape	3403.0

RASPBERRIES

Project 54K.—The new plantation, started in 1920, with a few exceptions, became well established and some varieties produced fruit. The old plantation was dug up and the site utilized for other crops.

GOOSEBERRIES

Project 57K.—Ten varieties of gooseberries, planted in 1921, have become well established. The majority of the bushes set a few berries. The early growth was strong but was seriously attacked by downy mildew.

STRAWBERRIES

Project 53K.—The strawberry crop in 1921 was practically a failure. The plants set out in the spring of 1920 suffered severely from dry weather in the early stages of growth and again in the early autumn from chick-weed and couch, which got such a hold among the runners and plants during the wet weather of the last of August and early part of September, that further cultivations were rendered impossible. The dry weather of the spring and summer of 1921 was not conducive to improvement in the crop. These factors were responsible for the poorest yield of fruit in years. The new plantation, started in 1921, made fairly good growth considering the season and was in good condition when prepared for winter.

VARIETY TEST WITH POTATOES

Project 24K.—Twenty-seven varieties of potatoes were tested in duplicate plots in 1921. This test was conducted on a soil that is classed as a medium clay loam, upon which the vegetable garden was conducted the previous year. It was manured at the rate of fifteen tons of barnyard manure to the acre which was ploughed down previous to planting the potatoes. The seed was carefully inspected at the time of cutting and tubers showing lack of trueness to type or symptoms of disease were discarded. The tubers were cut into sets containing two good eyes and planted on May 31 in rows two and one-half feet apart and dropped one foot apart in the rows. The "Iron Age" potato planter was used for this operation. The quantity of the seed used was directly proportional to the size of the tubers, ranging from thirty-four and one-half bushels per acre in Davies Warrior, a large-tubered variety with few eyes, to sixteen and one-half bushels in Pioneer, a smaller-tubered variety with numerous eyes. The plants were sprayed thoroughly with Bordeaux mixture (4:4:40) on July 16, July 26, August 12 and August 20. Two pounds of arsenate of lime per forty gallons of water in the first two sprays successfully combatted the attacks of the Colorado beetle. No blight was observed, the foliage of the earlier varieties dying when mature, while some of the later maturing varieties were killed by frost on September 21. The following yields were recorded:—

VARIETY TEST OF POTATOES, 1921

Name of Variety	1st plot yield per acre				2nd plot yield per acre				Average yield per acre				Total average yield per acre	
	Marketable		Unmarketable		Marketable		Unmarketable		Marketable		Unmarketable			
	bush	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
British Queen	290	..	34	48	414	42	40	36	352	21	37	42	390	3
Davies Warrior	298	42	58	..	408	54	14	30	353	48	36	15	390	3
Beauty of Hebron	333	30	29	..	371	12	23	12	352	21	26	6	378	27
Pioneer	258	6	63	48	362	30	43	30	310	18	53	49	363	57
Dakota Red	301	36	26	6	385	42	11	36	343	39	18	51	362	30
Green Mountain	281	18	37	42	333	30	17	24	307	24	27	33	334	57
Wee McGregor	275	30	43	30	321	54	29	..	298	42	36	15	334	57
Carman No. 1	295	48	31	54	304	30	14	30	300	9	23	12	323	21
White Rose	261	..	43	30	292	54	20	18	276	57	31	54	308	51
Hayward Seedling	223	18	49	18	272	36	52	12	247	57	50	45	298	42
Rochester Rose	278	24	46	24	252	18	17	24	265	21	31	54	297	15
Rawlings Kidney	208	48	49	18	275	30	46	24	242	9	47	51	290	..
King George 0923	211	42	40	36	255	12	26	6	233	27	33	21	266	48
Kerrs Pink 0916-17	168	12	40	36	287	6	26	6	227	39	33	21	261	..
Arran Chief	211	42	37	42	237	48	20	18	224	45	29	..	253	45
Late Puritan	194	18	52	12	203	..	20	18	198	39	36	15	234	54
Empire State	205	54	40	36	188	30	17	24	197	12	29	..	226	..
King Edward	159	30	78	18	168	12	40	36	163	51	59	27	223	18
Garnet Chili	185	36	43	20	188	30	29	..	187	3	36	15	223	18
Early—Six Weeks	203	..	43	30	179	48	14	30	191	24	29	..	220	24
Factor	159	30	31	54	217	30	26	6	188	30	29	.	217	30
Edzell Blue 0919	136	18	49	18	208	48	37	42	172	33	43	30	216	3
Majestic 0918	165	18	40	36	191	24	20	18	178	21	30	27	208	48
Mills Pride	214	36	60	54	116	..	11	36	165	18	36	15	201	33
Irish Cobbler	153	42	34	48	182	42	14	30	168	12	24	39	192	51
Great Scott 0915	139	12	29	..	165	18	20	18	152	15	24	39	176	27
Barnhouse Beauty 0922	130	30	43	30	121	48	34	48	126	9	39	9	165	18

Area of plots, 1-174 of an acre. Plots planted on May 31st and dug on October 10, 1921

The average yield per acre recorded over the previous five seasons lists the varieties as follows: British Queen, 413 bushels; Arran Chief, 383 bushels; Rochester Rose, 347 bushels; Green Mountain, 340 bushels; Factor, 336 bushels; Rawling Kidney, 328 bushels; Irish Cobbler, 303 bushels; Carman No. 1, 292 bushels; Wee McGregor, 265 bushels. Davies Warrior, during the last three seasons, has outyielded British Queen with an average total yield of 484 bushels. From observations and records here, it would appear that Davies Warrior, British Queen and Arran Chief are varieties of British origin which seem admirably adapted to local soil and climatic conditions and have also proved more blight-resistant than either Green Mountain or Irish Cobbler. Arran Chief is a late variety but is unsurpassed in quality.

CERTIFIED SEED POTATOES

Project 26K.—The storage room for potatoes was poor and, as a result, the certified Irish Cobbler seed deteriorated materially before planting. This, together with the unusually dry season and open nature of the soil, caused many plants to start growth, then wilt and die. This field was inspected but, owing to a seven per cent wilt being recorded, certification was refused. The four-acre field yielded 780 bushels or 195 bushels per acre.

METHODS OF CUTTING SEED

Potatoes of medium size of the following varieties were used in this test: Factor, Davies Warrior, and Pioneer. The sets were cut as follows: one eye, two eyes, seed end, stem end and split lengthwise. These were planted by hand in rows

two and one-half feet apart and one foot between sets in the row. Identical cultural methods were given all plots. The yields recorded are as follows and are based on crop from one two hundred and sixty-seventh of an acre.

METHODS OF CUTTING SEED

Name of Variety	One eye		Two eyes		Three eyes		Stem end		Seed end		Split lengthwise	
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
Factor	315	57	467	15	471	42	369	21	476	9	511	45
Davies Warrior	369	21	480	36	347	6	387	9	502	51	485	3
Pioneer	293	42	396	3	449	27	382	42	378	15	409	24

AMOUNT OF SEED REQUIRED PER ACRE

Weights of the amounts of seed used per acre for each of the different methods of cutting the seed were recorded and the following are the amounts used:—

AMOUNT OF SEED REQUIRED PER ACRE

Name of Variety	One eye		Two eyes		Three eyes		Stem end		Seed end		Split lengthwise	
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
Factor	13	38	16	25	36	44	23	39	23	22	45	38
Davies Warrior	20	36	34	30	49	9	20	2	18	38	28	6
Pioneer	14	45	16	30	18	40	16	30	12	30	29	12

DIFFERENT DISTANCES BETWEEN ROWS

A test to determine the most profitable distance to space the rows was conducted with the varieties Arran Chief and Carman No. 1. The following results were recorded. The yield per acre is based on the crop from one-one hundred and seventy-fourth of an acre, one-one hundred and forty-fifth acre and one-one hundred and twenty-fourth-acre plots.

DIFFERENT DISTANCES BETWEEN ROWS

YIELD PER ACRE

Name of Variety	Two and one-half feet				Three feet				Three and one-half feet				Total average yield per acre	
	Marketable		Unmarketable		Marketable		Unmarketable		Marketable		Unmarketable			
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
Arran Chief	255	12	29		232		53	10	200	28	24	48	298	13
Carman No. 1	249	24	26	06	190	20	16	55	183	56	16	32	227	41

N.B.—Plots were planted on May 31st and dug on October 3, 1921.

DIFFERENT DISTANCES APART IN ROWS

The varieties Arran Chief and Carman No. 1 were used in a test to determine the most profitable distance to drop the sets in the rows. The yield per acre is based on a crop from one one hundred and seventy-fourth of an acre and is as follows:—

DIFFERENT DISTANCES APART IN ROWS
YIELD PER ACRE

Name of Variety	Ten inches		Twelve inches		Fourteen inches		Sixteen inches	
	bush.	lb.	bush.	lb.	bush.	lb.	bush.	lb.
Arran Chief	420	30	403	6	391	30	348	..
Carman No. 1	258	6	185	36	217	30	246	30

COST OF GROWING POTATOES

Project 25K.—The cost of the various cultural operations in connection with growing of an acre of potatoes was carefully kept throughout the season. A summary of these records is as follows:—

Rent of land—1 acre		$ 15 00
Manure, two-thirds of 15 tons at $2		20 00
Spreading manure (3 horses and 2 men) 15 hours at 99 cents		14 85
Ploughing tractor—two bottoms 3 hours at 95 cents		2 85
Harrowing—disc and smoothing harrow 5 hours at 54 cents		2 70
Seed—22 bushels at $1.50		33 00
Planting—6 hours (2 men and 2 horses) at 75 cents		4 50
Cultivating 4 times, 6 hours at 44 cents		2 64
Hoeing, 10 hours at 34 cents		3 40
Hilling up 1½ hours at 55 cents		82
Spraying, 6 hours (2 men and 2 horses) at 88 cents		5 28
Spraying material:		
32 pounds blue-stone at 8¼ cents	$2 64	
32 " hydrated lime at 1¼ cents	40	
8 " arsenate lime at 20 cents	1 60	4 64
Cost of digging and storing:		
3 horse team and driver—4 hours at 65 cents		2 60
2 horses carting and driver, 5 hours at 44 cents		2 20
10 pickers, 4 hours at 30 cents		12 00
Total cost per acre		126 48
Less 26 bushels small potatoes at 20 cents		5 20
Total cost of marketable potatoes		121 28

Yield of marketable tubers, 243½ bushels.
Cost to produce 1 bushel, 49.8 cents.

N.B.—An average of sixty gallons of 4-4-40 Bordeaux was applied with a power outfit, spraying six rows at a time. This crop was planted and dug with machinery adapted to these operations.

VEGETABLE GARDEN

The soil utilized for this purpose was a medium clay loam, which had previously been in a root crop. An application of twenty tons of well rotted manure was applied to this in the spring of 1921 and ploughed down. Favourable weather conditions permitted this to be worked into a good seed bed.

GARDEN BEANS—TEST OF VARIETIES

Project 36K.—Thirteen varieties of garden beans were sown broadcast in rows two and one-half feet apart on May 31. The growth lacked in uniformity. All varieties were free from anthracnose. Davis White Wax, Extra Early Valentine Wax and Pencil Pod Black Wax are given in order of production of string beans. The first and last are promising new wax varieties, while the Extra Early Valentine is one of the most reliable and widely-grown varieties in this district. Masterpiece and Bountiful Bush were the favourite green-podded beans tested. The records compiled are as follows:—

GARDEN BEANS—TEST OF VARIETIES

Variety	Colour of Pod	Length of Pod	Ready for use	Height	Weight per 100' row
		inches		inches	lb.
Davis White Wax	Yellow	6	3-VIII	13	66
Extra Early Valentine	Yellow	4½	4-VIII	9	63
Pencil Pod Black Wax	Yellow	5	3-VIII	14	59
Bountiful Bush	Green	7	2-VIII	14	58
Masterpiece	Green	8	30-VII	10	52
Plentiful French	Green	6	2-VIII	12	51
Wardwell Kidney Wax	Yellow	5½	2-VIII	11	40
Refugee	Green	6	15-VIII	11	38
Round Pod Kidney Wax	Yellow	5	30-VII	11	31
Pilot	Green	4	2-VIII	12	26
Stringless Green Pod	Green	5	1-VIII	12	25
Hodson Long Pod	Yellow	6½	14-VIII	14	10

CULTURAL EXPERIMENT WITH BEANS

Project 23K.—Methods of Lengthening Season.—A test has been conducted with garden beans to determine whether it is possible to lengthen the season of this vegetable. In this test, a comparison has been made with an early variety (Extra Early Valentine) planted at intervals of one week for four weeks with a succession of early (Extra Early Valentine) medium (Stringless Green Pod) and late seasoned (Refugee) varieties, all sown at the first sowing of the early variety. The results obtained would indicate that better quality and yields are possible from the succession of varieties, whereas the season is not lengthened materially by the planting of the same variety at different dates. The following are the results obtained:—

CULTURAL EXPERIMENT WITH BEANS

Variety	Date of sowing	Ready for use	Season over	Yield per 100 foot row in lbs.
Round Pod Kidney	May 30	July 30	Aug. 25	48
Round Pod Kidney	June 8	Aug. 8	Sept. 1	42
Round Pod Kidney	June 15	Aug. 20	Sept. 1	25
Round Pod Kidney	June 22	Aug. 27	Sept. 1	27
Extra Early Valentine	May 31	Aug. 1	Aug. 25	44
Stringless Green Pod	May 31	Aug. 4	Aug. 25	32
Refugee	May 31	Aug. 3	Sept. 1	38

BRUSSELS SPROUTS

Project 18K.—Four varieties of Brussels sprouts were planted this year but the results were not very satisfactory, the majority of the plants not reaching a stage of maturity where the sprouts were firmly folded. The Amager and Paris Market were the most satisfactory varieties tested, being slightly earlier than either Dalkeith or Dwarf Gem.

GARDEN BEETS

Project 41K.—Seven varieties of garden beets were planted on May 19th in rows two and one-half feet apart, using two ounces per hundred feet. These grew rapidly and were a uniform crop. Eclipse, Dark Red Ball and Detroit Dark Red were harvested when a desirable market size was attained and are given in their order of productiveness. Crosby Egyptian, Black Red Ball, Detroit Dark Red, Eclipse and Crimson Globe are given in order of preference for table use. The results recorded are as follows:—

GARDEN BEETS—TEST OF VARIETIES

Variety	Size	Ready for use	Weight harvested before Oct. 20	Weight harvested after Oct. 20	Total yield per acre	
			lb.	lb.	bush.	lb.
Detroit Dark Red	Medium	July 30		206	716	40
Eclipse	Medium	" 15	59	155	714	5
Early Model	Large	" 28	9	175	640	15
Detroit Dark Red	Medium	" 30	30	145	591	30
Crimson Globe	Medium	" 30		158	548	..
Black Red Ball	Small	" 20	41	116	533	45
Black Red Ball	Small	" 20		136	473	..
Early Wonder	Large	" 20	16	117	460	10
Crosby Egyptian	Large	" 28	13	110	382	40

GARDEN BEETS—CULTURAL TESTS

Project 48K.—Thinning.—A test was conducted with garden beets, using the Detroit Dark Red Variety to determine the proper distance to which the plants should be thinned to obtain the highest quality proportionate with the yield. The results obtained indicate that two inches is the proper distance for thinning table beets. The data compiled are as follows:—

GARDEN BEETS—CULTURAL TESTS

Variety	How thinned	Total yield per 100' row	Quality
	inches	lb.	
Detroit Dark Red	2	230	Good
Detroit Dark Red	3	206	Medium
Detroit Dark Red	4	221	Rough

CELERY

Project 46K.—Seven varieties of celery were started in hot beds on April 1 and were planted in the open field on June 12, six inches apart, in trenches previously prepared with well-rotted manure. The early growth of this crop was slow, but good growth was made in August and September, resulting in a good average crop. White Plums and Golden self Blanching are the favourite early, farm-garden varieties, while Evans Triumph and Winter Queen are winter varieties. The following are the results obtained:—

CELERY—TEST OF VARIETIES

Variety	Colour	Height	Weight from 100 ft. row
		inches	lb.
Winter Queen	Green	13	460
Evans Triumph	Green	12	420
Giant Pascal	Green	11	370
French Success	Green	11	340
Golden Self Blanching	Golden	9	250
White Plume	White	8	210
Sanford Supberb	Green	9	180

GARDEN CARROTS

Project 34K.—Six varieties of garden carrots were sown by hand on May 19 in rows two and one-half feet apart, using one ounce of seed to one hundred feet of row. These germinated quickly and produced a good crop, in spite of the unfavourable weather conditions. Selected Chantenay and Half Long Nantes were somewhat earlier than the other varieties and were harvested when the desired market size was attained, thereby reducing their total yield. Chantenay, or strains of this variety, is the favourite garden carrot. The results are as follows:—

GARDEN CARROTS—TEST OF VARIETIES

Variety	Harvested Aug. 9-Sept. 27	Harvested Sept. 27	Total yield 100 foot row	Yield per acre
				bush. lb.
Chantenay	.....	190	190	522
Hutchinson	.....	128	128	445 20
Danvers Imp. Half Long	48	75	123	428
Early Scarlet Horn	.....	110	110	382 40
Nantes Half Long	5	90	95	310 30
Selected Chantenay	22	60	82	285 15

GARDEN CARROTS—THINNING TEST

Project 47K.—The Chantenay variety was used in a test to determine the proper distance to which carrots should be thinned to obtain the highest yields of good quality carrots. The seed was sown as in the variety test, but individual rows one hundred feet long were thinned to one and one-half, two, and three inches apart in the rows, after they were well up and danger from cut-worms was past. The results would indicate that either one and one-half or two inches is the proper distance to thin for a table carrot of good size and quality. The following are the yields recorded:—

GARDEN CARROTS—THINNING TEST

Variety	How thinned	Total yield 100 foot row	Quality
	inches	lb.	
Chantenay	1½	182	Good
Chantenay	2	190	Excellent
Chantenay	3	108	Rough, many split

CITRON

Project 19K.—Four varieties or strains of citron were planted in hills on June 8 and harvested September 21. These thrived well during the hot, dry weather and produced some excellent fruit. A Central Experimental Farm strain was the highest producer. The following are the yields recorded:—

CITRON—TEST OF VARIETIES

Variety	No. of citron	Weight of citron
		lb.
Citron 0-822	16	62
Preserving Red Citron	19	56
Red Citron 0-826	12	43
Citron (Ferry)	26	29

CABBAGE

Project 43K.—Fourteen varieties of cabbage were tested and a comparison was made of planting the seed in hot-beds on April 7 and transplanting to the open field on May 18, against planting the seed directly in the open field on May 18. The former method proved earlier and more productive, but the latter involves less labour and is recommended for late fall or winter cabbage.

The tabulated results of these tests are as follows:—

CABBAGE—TEST OF VARIETIES

Variety	Shape	Hot-bed average weight of heads		Open field average weight of heads	
		lb.	oz.	lb.	oz.
Copenhagen Market	Round	12	..	6	8
Succession	Flat	11	..	6	14
Enkhuizen	Round	10	4	5	9
Flat Swedish	Flat	9	..	5	8
Imp. Brunswick	Round	9	9	4	11
Danish Ballhead	Round	9	..	4	5
Kildonan	Flat	9	6	3	5
Marblehead Mammoth	Round	7	..	4	11
Early Jersey Wakefield	Pointed	5	9	4	8
Delicatesse (red)	Pointed	4	..	2	3
Danish Red Stonehead	Round	2	9	3	2

CAULIFLOWER

Project 31K.—Two varieties of cauliflowers, Extra Early Dwarf Erfurt and Early Snowball, were sown in hot-beds and transplanted to the open field May 19. The growth of both varieties was very slow, due to lack of precipitation. The heads were very small and of poor quality. The average weight per head for both varieties was six ounces.

CUCUMBERS

Project 44K.—Four varieties of cucumbers were planted in hills on June 8. The germination and growth was very slow, due both to drought and the open nature of the soil, resulting in a light crop. Early Russian, a small pickling variety, was the most productive. The varieties recommended for the table are Extra Early, White Spine or Improved Long Green. Giant Peru, one of our favourite varieties, was a failure. The following are the results obtained from four hills:—

CUCUMBERS—TEST OF VARIETIES

Variety	Shape	Length	Season	Total No.	Yield weight
		inches			lb.
Early Russian	Short	3	Aug. 16–Sept. 13..	178	75
White Spine	Long	6	" 16– " 13..	81	51
Imp. Long Green	Long	6	" 25– " 13..	43	26
Giant Peru	Long	5	" 25– " 14..	14	10

GARDEN CORN

Project 37K.—Twenty varieties of garden corn were sown by hand in drills three feet apart on May 31. The growth was uniform, but the crop slow in maturing. Pickaninny, a dwarf blue variety, Whipple Early and Early Cory were

ready for use on September 1. These were followed closely by Kloochman, Early Mayflower, Early Malcolm, Otta, Squaw and Malakoff. The varieties recommended for spread of season are Pickaninny, Kloochman, Golden Bantam and Country Gentleman. The data compiled are as follows:—

GARDEN CORN—TEST OF VARIETIES

Variety	Colour of ear	No. of rows on ear	Ready for use	Average weight of 12 ears	Weight of mature cobs from 100 ft. row
				lb.	lb.
Otta	White	8	Sept. 12	6	82
Early Malcolm	White	12	" 10	5	67
Early Cory	White	12	" 1	8	67
Country Gentleman	White	12	" 20	7	57
Squaw	White	8	" 12	6	53
Early Mayflower	White	8	" 10	7	40
Pocahontas	White	8	" 23	4	36
Early Fordhook	White	8	" 20	6	34
Golden Bantam	Yellow	8	" 20	6	33
TomThumb (Pop)	Yellow	12	" 10	2	31
Kloochman	Pink	8	" 4	4	28
Pickaninny	Blue	8	" 11	3	24
Malakoff	Yellow	8	" 13	4	18
Whipple Early	White	8	" 1	6	15

N.B.—Evergreen Bantam, Golden Giant, Stowell's Evergreen, Black Mexican, Howling Mob, White Rice and Iroquois did not mature.

LETTUCE

Project 35K.—Eleven varieties of lettuce were tested in rows one foot apart. The seed was sown in the open field on May 13. This germinated well but grew slowly and was not ready for use until mid-July. The quality was tough and below the average. The following are the results obtained:—

LETTUCE—TEST OF VARIETIES

Variety	Ready for use	Description	Quality
Grand Rapids	Aug. 1	Curly loose leaf	Medium
Black Seeded Simpson	July 21	Curly loose leaf	Medium
Hanson	" 24	Cabbage	Good
Iceberg	" 30	Cabbage	Best
New York	Aug. 1	Cabbage	Best
Earliest Wayahead	July 17	Cabbage	Poor
All Heart	Aug. 10	Cabbage	Medium
Crisp as Ice	" 18	Cabbage	Medium
Sutton Paris Market	July 15	Loose leaf	Poor
Cos	Aug. 10	Cos	Poor
Salamander	Failed to germinate		

ONIONS

Project 30K.—Nine varieties or strains of onions were tested and a comparison was made between starting the seed in hot beds and sowing it directly in the open field. The seed in the former test was sown on April 8 and transplanted to the open field on May 13, on which date the seed for the latter test was also sown, the drills in both being fifteen inches apart. The early growth was very slow but the crop was of good quality. The hot bed test gave a superior maturity and heavier yield. The onions from both tests were harvested on October 17. The results from a thirty-three foot row are as follows:—

ONIONS—TEST OF VARIETIES

Project 30K

Variety	Seed sown in hot bed. Yield in bush. per acre	Seed sown in field. Yield in bush. per acre
Extra Early Flat Red	448·8	132·0
Large Red Wethersfield	396·0	1,184·8
Southport White Globe	396·0	211·2
Giant Prizetaker	343·2	132·0
Ailsa Craig	264·0	79·2
Southport Red Globe	264·0	184·8
Southport Red Globe	237·6	184·8
Yellow Globe Danvers	203·6	184·8
White Barletta	No yield	184·8

MUSK MELON AND WATERMELON

Project 20K.—Five varieties of musk melon and three of watermelon were grown in hills previously prepared on June 7. The early growth of these was slow, resulting in the fruit being destroyed by frost while still immature.

PUMPKINS

Project 38K.—Three varieties of pumpkins were planted in hills previously prepared on June 8. The yield recorded was taken from two hills. King of the Mammoths was the heaviest in production but poorest in quality. The Small Sugar variety is the favourite for culinary purposes. The yields are as follows:—

Variety	Planted	Yield
		lb.
King of the Mammoths	June 8	142
Connecticut Field	"	120
Small Sugar	"	75

PARSNIPS

Project 39K.—Hollow Crown was the only variety planted. The seed was sown in rows two and one-half feet apart, at the rate of one ounce of seed to one hundred feet of row, on May 19. The crop yielded at the rate of 417·6 bushels per acre.

PARSNIPS—THINNING TEST

Project 32K.—The variety Hollow Crown was used to determine the proper distance to thin parsnips. The rows were one hundred feet long in each test. The following are the results:—

Variety	How thinned	Yield per 100′ row
	inches	lb.
Hollow Crown	2	126
Hollow Crown	4	120
Hollow Crown	4	85

GARDEN PEAS

Project 42K.—Fifteen varieties or strains of garden peas were planted on May 19 in a double row drill three and one-half feet apart. The plants were supported by birch brush and picked twice a week during the season. Thomas Laxton, an early and favourite variety, was the most productive. McLean Advancer, Gregory Surprise and English Wonder stood next in order of production. Gregory Surprise and English Wonder are the earliest varieties here. Both of these are small-podded and very productive; the former is a climbing and the latter a dwarf variety. Thomas Laxton, a climbing, medium early, large-podded and productive variety, comes next in season. McLean Advancer, also of the climbing habit, fruiting usually a few days later than Thomas Laxton, is a small-podded, very productive variety. Improved and Danby Stratagem are climbing, larger-podded sorts. The data which have been recorded from this test are as follows:—

GARDEN PEAS—VARIETY TESTS

Variety	Length of pod	No. of peas in pod	Per cent infected by pea moth	Height	Ready for use	Weight per 100 foot row
	inches			inches		lb.
Thomas Laxton	2½	6	10	30	July 20	66
McLean Advancer	2¼	6	20	28	" 20	53
Gregory Surprise	2	7	30	30	" 17	47
English Wonder	2	7	30	18	" 25	47
Gradus	3½	7	20	36	" 23	41
Pioneer	2½	7	20	24	" 25	41
Reliance	3½	8	10	24	" 28	40
Dwarf	3½	6	10	18	" 25	36
American Wonder	3	7	50	28	" 17	35
Sutton Excelsior	2½	8	10	20	" 25	32
Carter Eight Weeks	2	6	40	18	" 23	31
Laxtonian	3½	7	10	20	" 23	30
Little Marvel	2½	7	10	20	" 23	29

GARDEN PEAS—CULTURAL TESTS

Project 22K.—Methods of Lengthening Season.—A comparison of an early variety, Thomas Laxton, planted at dates a week apart, with a succession of varieties of different seasons, that is, a fairly early (Gradus) medium (McLean Advancer) and a late variety (Stratagem) were planted on the same date as the first sowing of the early variety. The results obtained would indicate that the season is not materially lengthened by planting at different dates and the late planted peas are more susceptible to attacks of both the pea moth and aphids, while the quality of the peas produced by a succession of varieties is much superior. The dates recorded are as follows:—

GARDEN PEAS—CULTURAL TESTS

Variety	Date of sowing	Ready for use	Season over	Total yield per 100′ row
				lb.
Thomas Laxton	May 19	July 17	July 30	34
Thomas Laxton	" 27	" 25	Aug. 3	32
Thomas Laxton	June 3	" 29	" 15	13
Gradus	May 19	" 22	" 5	37
McLean Advancer	" 19	" 25	" 13	35
Danby Stratagem	" 19	" 28	" 15	24

SQUASH AND VEGETABLE MARROW

Project 21K.—Three varieties of squash were planted in hills previously prepared with composted manure on June 7th, as an intercrop in the old orchard. These produced a crop below the average in yield, but of excellent quality. The Golden Hubbard, Delicious and Green Hubbard are listed in order of yield.

Two varieties of vegetable marrow, namely, English Vegetable Marrow and Long White Bush Marrow, were given cultural treatment identical with that given to the squash. The Long White Bush Marrow was the heavier producer. This is not a favourite vegetable on the markets here and is not recommended for commercial purposes.

SPINACH

Project 63K.—Three varieties of spinach were tested in 1921. The varieties Broad Flanders and Victoria failed to germinate, while New Zealand, owing to its slow growth, produced a very unsatisfactory crop.

RADISH

Project 40K.—Three varieties of radish were grown in 1921. Scarlet Turnip White-tipped, a round red variety and Early Scarlet Turnip, an oblong red variety, were both smooth and of good quality. The Icicle variety was rough, hairy and of poor quality.

POT HERBS

Project 64K.—Parsley, summer savory, sage, sweet marjoram and thyme were planted but parsley and summer savory were the only herbs that developed.

TOMATOES

Project 45K.—Fourteen varieties or strains of tomatoes were tested in lots of twenty-five plants each. These were started in hot beds on April 4 and planted out in field on June 13 in rows four feet apart each way. The dry weather resulted in a small growth of vines but a heavy set of fruit, which ripened rapidly during the hot, dry weather of August. Burbank Early was the heaviest producer of ripe fruit followed closely by three strains of Alacrity. The highest quality of fruit was produced from strains of Danish Export, particularly the Wiboltt strain. The results obtained are as follows:—

TOMATOES—TEST OF VARIETIES

Variety	Date ripe	Ripe fruit from 24 plants	Green fruit from 24 plants	Total fruit from 24 plants
		lb.	lb.	lb.
Alacrity Earlibell	Aug. 30	111	319	430
Burbank Early	" 24	168	259	427
Alacrity Hipper	" 21	162	163	325
Chalks Jewel	" 24	77	199	276
Alacrity	" 27	146	113	259
Earlibell	" 14	21	197	218
Bonny Best	" 25	118	99	217
Chalks Early Jewel	" 25	48	168	216
Wiboltt Danish Export	" 25	62	117	179
Red Head	" 16	50	116	166
Crimson Canner	" 22	36	93	129
Danish Export	" 14	52	75	127
John Baker	Sept. 2	37	28	65
John Baer	Aug. 22	45	18	63

GARDEN TURNIPS

Project 65K.—Golden Ball, Early Snowball, Extra Early Purple Top Milan and Red Top Strap Leaf were the four varieties of garden turnips tested in 1921. These were sown on May 19 and were ready for use on July 25. The early Snowball variety was the most satisfactory.

PEPPERS

Project 66K.—Harris Earliest, Large Red Cayenne and Chili were the varieties of peppers tested in 1921. All of these produced fruit. The Harris Earliest and Chili were the favourite and highest-producing varieties.

FLORICULTURE

ANNUAL FLOWERS

All flowers suffered from lack of moisture, resulting in little spreading or lateral growth, so essential to a well filled flower bed, and materially lessening the landscape effect wrought by these flowers. The seeds of the annuals were started in hot beds according to their respective seasons in April, and were planted out in the flower beds on June 13. Balsams, clarkia, salvia, antirrhinum and petunia seemed to be adapted to the hot, dry weather and made an excellent showing, while asters, phlox, zinnia, mignonette, salpiglossis, stocks, sweet sultan, browallia, amaranthus, cosmea, calendula, nasturtium, hibiscus, linaria, helichrysum, lobelia, malope, nicotiana, pansies, tagetes and sweet peas were not up to standard.

PERENNIAL FLOWERS

The display of perennial flowers was greatly improved by a thorough digging up of the perennial border, reducing the size of some of the more spreading species and filling in the vacancies with new perennials from the nursery started in 1920. Paeonies, aquilegia, phlox, delphinium, rudbeckia, hollyhocks, irises, and lupines were the favourites.

DUTCH BULBS

Sixteen hundred bulbs, comprising varieties of tulips, narcissi and hyacinths, were planted in groups in flower beds about the superintendent's house and upon the lawns. These made a very pleasing showing and were at their best stage of bloom on May 21. Narcissi and Darwin tulips were the favourite bulbs for cut flower purposes.

Hyacinths.—Five varieties were planted and are given in order of excellence of bloom: La Grandesse (white), Moreno (pink), Grand Lilas (blue), Gigantea (pink) and King of the Blues (deep blue). The bulbs gave a better bloom when forced in pots during the winter than they did when planted out-of-doors.

Narcissus.—Eight varieties of narcissus were planted out-of-doors and forced in pots. The blooms from both of these methods of planting were good. The following varieties are listed in order of excellence of bloom: Barri Conspicuous, Sir Watkin, Emperor, Empress, Golden Spur, Madame de Graaf, Princeps and Victoria.

Tulips.—This bulb is undoubtedly the most satisfactory for general planting in this district. The varieties that have proved most suitable are as follows: Artus, Cottage Maid, Duchesse de Parma, Pottebakker (white and scarlet), Vermillion Brilliant, Joost Von Vondel and Lady Boreel.

The Darwin tulips made a splendid showing in 1921, being uniform in growth and bloom. The following are the varieties tested: Farncombe, Sanders, Rev. Ewbank, Whistler, Edme, King Harold, Europe, Bartigon, Prof. Rauwenhoff, Clara Butt, Nora Ware, La Tulipe, Noire, Zephyr, Iris, Baronne de la Tonnaye and Madame Krelage.

CEREAL HUSBANDRY

The season opened early for cereal work. Seeding was general by the 17th of May. The germination of early planted grains was strong and uniform, while the crops seeded after June 1 were slow and uneven. Fourteen days in July were characterized by temperatures ranging from 80 to 89 degrees. This, without precipitation, curtailed stooling and resulted in all grain heading short and maturing quickly. In spite of all weather handicaps, most of the grain filled well. Oats averaged 72 per cent, two-rowed barley 74 per cent, six-rowed barley 80 per cent, and wheat 90 per cent of the crop of 1920. The grain was of beautiful colour and quality. Harvesting and threshing of plot grain commenced on August 3 and August 25, respectively.

VARIETY TEST OF GRAINS

These tests included duplicate (with one exception, Leader oats) one-sixtieth of an acre plots of eight varieties of spring wheat, eleven varieties of oats, six six-rowed and four two-rowed varieties of barley and twelve varieties or strains of buckwheat. The field used for these tests, with the exception of the buckwheat plots, falls in rotation C, field 1. The rotation is as follows: First year, hoed crop (ensilage corn) manured at the rate of twenty tons of stable manure, applied to the sod and ploughed under to a depth of four inches in the spring. Second year, grain (variety tests and elite stock) an application of ground limestone at the rate of two and one-half tons per acre was sown broadcast on this field before seeding of grain. Third year, clover hay. Fourth year, pasture. This field is of a medium clay loam type in fair tilth and was ploughed after the corn crop was harvested in the autumn of 1920 and worked up in the spring of 1921 by two cuts of the spring tooth harrow in opposite directions and one with the smoothing harrow, making a good seed bed. The plots of wheat and oats were sown on the 17th, while the barley plots were sown on the 18th of May.

SPRING WHEAT

Project 1J.—Eight varieties of spring wheat were sown in duplicate plots of one-sixtieth of an acre on May 17. The elite stock seed used in this test was treated with formalin previous to sowing. Ruby was cut on August 16, being two days earlier than Marquis. All plots were threshed on August 26. The grain was of excellent appearance and quality. The yields obtained were as follows:—

SPRING WHEAT—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	Yield of grain per acre	Weight per measured bushel after cleaning
			Inches		lbs.	lbs.
Marquis (Chemist)	Aug. 18	93	33	10	2,100	62·0
Huron, Ottawa 3	" 18	93	38	10	2,100	63·2
White Russian	" 24	99	41	10	2,070	62·0
Red Fife, Ottawa 17	" 24	99	38	10	1,830	62·2
Marquis, Ottawa 15	" 18	93	34	9	1,785	62·0
Ruby, Ottawa 623	" 16	91	38	10	1,770	64·5
Early Red Fife, Ottawa 16	" 22	97	36	10	1,710	62·8
Bishop, Ottawa 8	" 18	93	36	9	1,470	61·0

A summary of the results recorded on spring wheat over the year 1914 to 1921, inclusive, show Huron, a bearded variety, a cross of Ladoga and White Fife, to be the highest producer here, its average yield being 34 bushels 28 pounds per acre. White Russian, an old standard variety latterly replaced on account of its late season character and poor milling qualities by earlier and harder wheats, has taken second place in this test with a yield of 33 bushels 38 pounds. Marquis stands third with an average of 31 bushels 35 pounds, maturing in an average of one hundred and two days, being of the same season as Huron but five days earlier than White Russian, and surpassing both of the others in the production of a high quality of flour. Red Fife and Early Red Fife stood next in order of yield with 29 bushels 48 pounds and 29 bushels 14 pounds respectively.

BARLEY

Project 2J.—Six six-rowed together with four two-rowed varieties of barley were sown in duplicate one-sixtieth of an acre plots on May 18. The six-rowed Albert variety was ready for harvest on August 3, while the others ranged from this date to August 15. The grain was threshed on August 25. The data compiled in this test are as follows:—

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	Actual Yield of grain per acre	Weight per measured bushel after cleaning
			Inches		lbs.	lbs.
Six-rowed—						
O.A.C. No. 21	Aug. 9	83	40	10	2,640	47·0
Manchurian, Ottawa 50	" 9	83	37	9	2,190	47·0
Bark's Excelsior	" 15	90	26	8	1,800	44·2
Odessa	" 8	82	38	10	1,785	48·0
Stella, Ottawa 58	" 9	83	36	10	1,740	47·8
Albert, Ottawa 54	" 3	77	35	7	1,395	46·5
Two-rowed—						
Charlottetown No. 80	" 12	86	38	8	2,790	53·5
French Chevalier	" 9	83	38	8	2,610	52·0
Duckbill, Ottawa 57	" 15	89	37	10	2,235	52·0
Himalayan, Ottawa 59	" 4	78	31	8	1,770	62·8

Among the two-rowed varieties of barley tested during the last eight years, French Chevalier has been the leading producer, yielding at the average rate of 45 bushels 41 pounds per acre, until the last three years, when it has been supplanted by Charlottetown No. 80, a variety originated by the Experimental Station, Charlottetown, which has produced an average crop of 61 bushels 7 pounds as against 56 bushels 2 pounds produced by French Chevalier. This variety, although comparatively new, gives promise of being exceedingly well adapted to soil and climatic conditions here.

A seven-year test of the six-rowed varieties of barley at this Farm gives the average yield per acre of the leading sorts as follows: Manchurian Ottawa 50, 43 bushels 1 pound; O. A. C. No. 21, 40 bushels 39 pounds; and Stella Ottawa 58, 37 bushels 15 pounds. O.A.C. No. 21 has a slight advantage in length of straw, averaging forty-five inches as compared with forty-three inches for both Manchurian and Stella. Albert Ottawa, 54, a new variety originated by the Cereal Division, Experimental Farm, Ottawa, although inferior to the other six-rowed varieties in production, has an average maturity for the preceding three years nine days earlier than any of the others mentioned, and may, because of this characteristic, be recommended for pro-

pagation for sowing on land unworkable until late spring. However, under average soil conditions in the Maritime Provinces, the varieties that are recommended unhesitatingly are Manchurian Ottawa 50, O.A.C. No. 21, and Stella Ottawa 58.

OATS

Project 3J.—Eleven varieties of oats were tested in 1921. Ten were sown in duplicate plots of one-sixtieth of acre each, there being only sufficient seed of the remaining variety for a single plot. The seed used was treated with formalin just previous to sowing. The plots were sown on May 17 and harvested between August 10 and 16. Banner was the most productive variety, yielding at an average rate of seventy-five bushels per acre. The yields obtained are as follows:—

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	Yield of grain per acre	Weight per measured bushel after cleaning
			Inches		lbs.	lbs.
Banner, Ottawa 49	Aug. 15	90	39	10	2,550	36·0
Daubeney, Ottawa 47	" 15	90	39	10	2,505	35·8
O.A.C. No. 72	" 16	91	38	9	2,490	37·5
Lincoln	" 16	91	36	8	2,475	36·5
Danish Island	" 15	90	36	9	2,415	36·0
Ligowo	" 15	90	40	10	2,385	38·4
Victory	" 16	91	38	10	2,385	38·0
Gold Rain	" 15	90	40	10	2,275	38·5
Pioneer	" 12	87	38	10	2,220	36·0
Liberty, Ottawa 480 (Hulless)	" 10	85	37	8	2,220	46·8
*Leader, Harris McFayden Co.	" 12	87	35	10	2,400	35·0

*One plot only.

A variety test of oats extending over the preceeding eight seasons at this Farm gives the average yield per acre of the leading varieties as follows: Victory, 74 bushels 30 pounds; Banner Ottawa, 49.71 bushels 33 pounds; Lincoln, 71 bushels 17 pounds; Danish Island, 70 bushels 31 pounds; Pioneer, 68 bushels 28 pounds; Ligowo, 68 bushels 15 pounds; Gold Rain, 66 bushels 7 pounds; Daubeney Ottawa, 47, 61 bushels 4 pounds. These results warrant the statement that Victory and Banner are the varieties of oats that may be recommended for general use in Nova Scotia. They are of equal season, requiring ninety-nine days (eight-year average) from seeding to harvest and should, therefore, be sown as soon after May 15 as the soil and weather condition permit, in order to insure a proper state of maturity before autumn frosts. Daubeney, although a comparatively low yielder, has the advantage of being ordinarily from four to ten days earlier than the Victory or Banner.

BUCKWHEAT

Project 4J.—Twelve varieties or strains were sown on July 4 in one-sixtieth of an acre plots. The soil used for this test was a sandy loam that previously had been in turnips for seed. The crop grew rapidly in spite of the unfavourable conditions and yielded as follows:—

BUCKWHEAT—TEST OF VARIETIES

All plots seeded July 4

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	Yield of grain per acre	Weight per measured bushel after cleaning
			Inches		lbs.	lbs.
Grey D	Sept. 19	77	46	10	2,000	54·8
Russian H	" 17	75	40	10	1,950	51·0
Japanese J	" 19	77	42	9	1,925	52·6
Grey F	" 19	77	43	10	1,800	55·2
Japanese M	" 19	77	36	10	1,725	54·5
Tartarian G	" 16	74	30	8	1,462	51·8
Rye F	" 17	75	30	8	1,450	53·2
Petrograd	" 20	78	42	10	1,425	42·6
Rye A	" 17	75	36	8	1,437	53·2
Tartarian D	" 16	74	37	8	1,250	50·5
Silverhull J	" 19	77	44	10	1,229	52·6
Rye H	" 16	74	33	10	1,050	51·5

An eight-year average production of grain from the list of five varieties of buckwheat place them in the following order: Grey, 30 bushels 5 pounds; Japanese, 29 bushels 33 pounds; Tartarian, 27 bushels 42 pounds; Rye, 27 bushels 34 pounds; and Silverhull, 26 bushels 11 pounds. There is little choice among these varieties.

ELITE STOCK GRAIN

WHEAT

Project 5J.—Two acres of elite stock wheat, an acre each of Huron and Early Red Fife, were sown on the same field as were the test plots of wheat, oats and barley. The field had previously been in corn, the stuble of which was ploughed down in the autumn of 1920. This was prepared for grain and sown on May 18. This grain suffered materially from lack of precipitation, curtailing the stooling and hence reducing the yield. The Huron variety yielded 18 bushels 20 pounds, while the Early Red Fife yielded 19 bushels 15 pounds per acre.

OATS

Project 6J.—Two acres of elite stock Banner and Gold Rain oats were grown on a field that previously had been in a soiling crop. These were sown on May 21 and harvested on August 23. The yield of grain was below the average but of good quality. They yielded as follows:—

Gold Rain .. ..37 bushels 17 pounds per acre
Banner .. ..35 bushels 17 pounds per acre

BARLEY

Project 7J.—Two acres of Charlottetown No. 80 and one of Manchurian barley, both from elite stock seed, were sown adjacent to the elite stock oats, on May 26. These yielded as follows:—

Charlottetown No. 80 .. ..16 bushels 36 pounds
Manchurian .. ..18 bushels "

FORAGE CROPS

The winter of 1920-21 was about normal in temperature followed by an early spring of fine and dry weather. The precipitation was 64·5 per cent of the previous seven-year average. Farming operations began on May 6 and were general by the 15th. During May, June and July dry weather prevailed with a temperature ranging to 89 degrees. Seed germinated very slowly, being particularly noticeable in grasses and clovers. Hay was light, grain headed short and ripened too early. Root crops made poor growth during the dry season but revived with the rains of September. October was a satisfactory month for the harvesting of all crops and gave opportunity for fall ploughing.

SOIL CHARACTER AND CULTURAL METHODS

The variety test with field roots was conducted on a soil classed as a medium clay loam. This soil had been previously manured and planted to a garden crop and was again manured and ploughed previous to planting. The fine weather without excessive precipitation in May, enabled this soil to be worked up in excellent condition. The seed of all the tests was planted on ridges and given frequent cultivation, which, aided by the dry weather, made perfect eradication of weeds possible. With the exception of an outbreak of cut-worms, which was effectively controlled by poison baits, no insects were troublesome.

INDIAN CORN FOR ENSILAGE

Project 1G.—Ten varieties of Indian corn were grown in 1921. They were planted on May 30 on an area of land that had been in garden crop the previous year. They were harvested on September 23. The results obtained were as follows:—

INDIAN CORN FOR ENSILAGE—TEST OF VARIETIES

No.	Variety	Average Height	Stage of Maturity	Yield per Acre					
				1st Plot		2nd Plot		Average	
		Inches		Tons	Lb.	Tons	Lb.	Tons	Lb.
1	Longfellow	82	Glazed	18	1,195	18	1,525	18	1,360
2	White Cap Yellow Dent	84	Dough	18	1,410	18	980	18	1,195
3	Compton's Early	84	Glazed	18	550	18	1,410	18	980
4	Wisconsin No. 7	90	Milk	18	980	18	120	18	550
5	Leaming	90	Dough	18	335	17	1,475	17	1,905
6	North Dakota	85	Dough	18	550	17	400	17	1,475
7	Bailey	87	Dough	13	875	13	1,305	13	1,900
8	Canada Yellow	68	Glazed	13	875	13	875	13	875
9	Quebec No. 28	72	Glazed	11	1,650	12	1,940	12	795
10	Twitchell's Pride	72	Glazed	11	1,650	11	1,650	11	1,650
			Average					16	187

A five-year (1916-1921, 1918 crop being a failure) average production of fodder corn ranks the varieties as follows: North Dakota, 17 tons 1,298 pounds; Wisconsin No. 7, 17 tons 144 pounds; Leaming, 16 tons 1,940 pounds; White Cap Yellow Dent, 16 tons 1,860 pounds; Longfellow, 16 tons 1,726 pounds; Bailey, 13 tons 1,758 pounds; Quebec Yellow, 12 tons 660 pounds; Canadian Yellow, 11 tons 1,479 pounds.

The flint varieties, Longfellow, Quebec Yellow and Canadian Yellow, have been outyielded by the dent varieties, North Dakota, Wisconsin No. 7, Leaming and White Cap Yellow Dent. The dent varieties do not reach a proper stage of maturity,

in our short season, to be recommended over the Longfellow variety, which, if planted sufficiently early, will usually reach a stage of maturity showing a good growth of cobs in the glazed stage.

The Longfellow variety is recommended over the other flint varieties because of its higher production of fodder.

SEED CORN

Project 43G.—One-half an acre of Twitchell's Pride corn was planted on May 30. The soil was a sandy loam that had previously been in hoed crop. The seed germinated slowly and poor growth resulted.

The crop was killed by frost on September 21 and only a few of the earlier ears matured sufficiently for seed. The yield of fodder was 5 tons 1,440 pounds. This test will be continued in 1922 with the seed of the 1921 crop in an endeavour to produce a strain of this variety which will ripen seed in this district.

MANGELS

Project 3G.—Eighteen varieties or strains of mangels were grown in uniform duplicate test plots. The soil used for this test was a medium clay loam, having been previously in a hoed crop. The germination and early growth of this crop were slow and not uniform, but during the latter part of the season a good crop developed. The following results were obtained:—

Number	Variety	Yield of Tops		1st Plot Yield per acre				2nd Plot Yield per acre				Average Yield per acre			
		Tons	Lbs.	Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.
1	Danish Sludstrup, Ewing	6	528	32	728	1,294	28	29	116	1,162	16	30	1,422	1,228	22
2	Giant Half Sugar White, Ewing	6	1,050	33	468	1,329	18	28	28	1,120	28	30	1,248	1,224	48
3	Yellow Intermediate, Ottawa	6	354	28	550	1,131	..	23	110	922	10	25	1,330	1,026	30
4	Yellow Leviathan, Steele Briggs	5	1,310	25	1,330	1,026	30	25	634	1,012	34	25	982	1,019	32
5	Mammoth Long Red, Ewing	8	1,574	23	632	932	32	26	1,326	1,066	26	24	1,979	999	29
6	Danish Sludstrup, Scandinavian, R. Wiboltt, Copenhagen, Denmark	6	1,224	24	1,068	981	18	24	1,938	998	38	24	1,503	990	3
7	Yellow Oviod, Scandinavian & R. Wiboltt, Copenhagen, Denmark	5	1,484	27	114	1,082	14	20	1,064	821	14	23	1,589	951	39
8	Yellow Intermediate, Scandinavian & R. Wiboltt, Copenhagen, Denmark	8	1,052	21	978	859	28	25	1,678	1,033	28	23	1,328	946	28
9	Giant Yellow Globe, Ewing	3	612	23	1,328	946	28	22	1,414	908	14	23	371	927	21
10	Giant Rose, Scandinavian & R. Wiboltt, Copenhagen, Denmark	5	1,832	21	456	849	6	24	198	963	48	22	1,327	906	27
11	Per. Mam. Long Red, Rennie	8	8	22	1,936	918	36	20	1,760	835	10	21	1,848	876	48
12	Giant White G. Top, Scandinavian & R. Wiboltt, Copenhagen, Denmark	6	180	23	110	922	10	20	890	817	40	21	1,500	870	..
13	Giant Yellow Half Long, Rennie	5	1,484	22	544	890	44	19	1,672	793	22	21	108	842	8
14	Long Yellow, Ewing	3	438	18	1,062	741	12	19	976	779	26	19	19	760	19
15	Mammoth Long Red, Steele-Briggs	8	356	19	280	765	30	18	366	727	16	18	1,323	746	23
16	Ideal, Rennie	3	1,134	16	1,582	671	32	17	1,496	709	46	17	539	690	39
17	Golden Fleshed Tankard, Steele-Briggs	4	1,918	17	452	689	2	17	626	692	26	17	539	690	39
18	Saw Log, Steele-Briggs	8	1,400	10	1,576	431	26	14	884	577	34	12	1,230	504	30
	Average											22	1,010	900	10

The variable yields of mangels from year to year make definite recommendations of any varieties impossible. This is due very largely to the variation in the vitality of the seed and the variation in type of the same varieties from year to year. Seed lacking in vitality is uneven in germination, resulting in a crop of uneven character and production. Home-grown seed is recommended; when sown at the earliest possible date in the spring, consistent with soil and weather conditions, upon soil manured and ploughed the previous autumn, it will, with few exceptions, give a good yield of smooth, uniform roots. The Yellow Intermediate, Danish Sludstrup and Giant Half Sugar mangels are the most suitable types for this district.

Variety Test Plots of Swede Turnips

TURNIPS

Project 2G.—Eighteen varieties or strains of swede turnips were tested in duplicate plots in 1921. They were planted in drills on May 19 and harvested on October 22. The yield was twenty-five per cent greater than in 1920, due largely to freedom from club root and a better fertility of the soil. The average yield per acre was 29 tons 401 pounds or 1,168 bushels 1 pound. The results obtained are as follows:—

Number	Variety	1st Plot Yield per acre				2nd Plot Yield per acre				Average Yield per acre			
		Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.
1	Mammoth Clyde, Ewing	36	210	1,444	10	34	1,078	1,381	28	35	644	1,412	44
2	Best of All, Rennie	36	384	1,447	34	31	466	1,249	16	33	1,425	1,348	25
3	Bangholm, Steele-Briggs	34	730	1,374	30	29	638	1,172	38	31	1,684	1,273	34
4	Magnum Bonum, Rennie	31	814	1,256	14	31	292	1,245	42	31	553	1,251	3
5	Ditmars	31	1,336	1,266	36	30	1,770	1,235	20	31	553	1,251	3
6	Elephant or Monarch, Steele-Briggs	31	1,510	1,270	10	30	900	1,218	..	31	205	1,244	5
7	Kangaroo, Steele-Briggs	32	1,946	1,318	46	28	1,420	1,148	20	30	1,683	1,233	33
8	Monarch, Experimental Farm, Nappan	32	554	1,291	4	28	724	1,134	24	30	639	1,212	39
9	Canadian Gem, Steele-Briggs	30	726	1,214	26	28	898	1,137	48	29	812	1,176	12
10	Magnum Bonum, Ewing	29	1,682	1,193	32	28	1,942	1,158	42	29	812	1,176	12
11	Jumbo, Steele-Briggs	30	1,944	1,238	44	27	810	1,096	10	29	377	1,167	27
12	Imperial Purple Top, Steele-Briggs	32	1,772	1,315	22	25	634	1,012	34	29	203	1,164	3
13	Drummond's Improved Purple Top, Ewing	29	1,856	1,197	06	27	810	1,096	10	28	133	1,146	33
14	Elephant or Monarch, Ewing	29	638	1,172	38	27	462	1,089	12	28	550	1,131	..
15	New Century, Rennie	23	806	936	6	26	1,244	1,064	44	25	25	1,000	25
16	Purple Top, Steele-Briggs	25	1,504	1,030	4	23	806	936	6	24	1,155	983	5
17	Haszard's Improved, Rennie	21	630	852	30	25	460	1,009	10	23	545	930	45
18	Sutton's Champion, Fredericton	23	1,328	946	28	22	718	894	18	23	23	920	23
	Average									29	401	1,168	1

Considered both from a standpoint of quality and production, Best of All, a bronze top oval variety, has been unsurpassed. New Century, a round, purple-topped swede, has also proved a desirable and profitable variety. Mammoth Clyde, a round, purple-topped variety, that has been tested here during the past two years, has given promise of a variety to be recommended.

Project 4G.—Eight varieties of field carrots were tested in duplicate plots during 1921. They were sown on May 20, and harvested on October 20. The 1921 yield was practically double the yield in 1920. Varieties were smoother, more uniform, and showed less tendency to produce seed stalks than last year. Yields of varieties tested are given in the following table:—

CARROTS—TEST OF VARIETIES

Number	Variety	1st Plot Yield per acre				2nd Plot Yield per acre				Average Yield per acre			
		Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.
1	Large White Belgian, Steele-Briggs	18	1,758	755	8	14	884	577	34	16	1,321	666	21
2	Improved Short White, Steele-Briggs	13	1,144	542	44	18	1,236	744	36	16	190	643	40
3	Danish Champion, Ottawa	12	1,230	504	30	18	714	734	14	15	972	619	22
4	White Belgian, Scandinavian & R. Winoltt, Copenhagen, Denmark	14	188	563	38	16	190	643	40	15	189	603	39
5	White Belgian, Ewing	13	488	529	38	14	362	567	12	13	1,425	548	25
6	New Yellow Intermediate, Ewing	11	1,838	476	38	11	1,142	462	42	11	1,490	469	40
7	Danish Yellow Champion, Scandinavian & R. Wiboltt, Copenhagen, Denmark	9	1,488	389	38	10	1,750	435	..	10	619	412	19
8	Long Red Surrey, Steele-Briggs	7	1,486	309	36	12	882	497	32	10	184	403	34
	Average									13	1,298	545	48

The variety Improved Short White, although occasionally outyielded, stands well above others both in quality and yield when tested over a number of years. Its clean, smooth, tapering root and excellent keeping quality make it a variety to be recommended.

Project 6G.—Four strains of true sugar beets were included, at the request of the Dominion Chemist, in the variety tests. Representative samples of ten roots. Representative samples of ten roots of each strain were forwarded to the Division of Chemistry to be tested for sugar content. The yields of roots were as follows:—

SUGAR BEETS—TEST OF VARIETIES

Number	Variety	1st Plot Yield per Acre				2nd Plot Yield per Acre				Average Yield per Acre			
		Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.	Tons	Lb.	Bush.	Lb.
1	Chatham	13	796	535	46	18	192	723	42	15	1,494	629	44
2	British Columbia	15	624	612	24	13	100	522	..	14	362	567	12
3	Waterloo	13	1,318	546	18	13	1,840	556	40	13	1,579	551	29
4	Klein Wanzleben	11	98	441	48	12	1,752	515	2	11	1,925	478	25
	Average									13	1,840	556	40

GRASSES AND CLOVERS FOR HAY

Project 35G.—Duplicate one-fortieth acre plots were sown with timothy, orchard grass and meadow fescue alone and in combination with red clover, alsike, and red clover and alsike to determine the productiveness and suitability in general of these grasses and clovers for hay production. This series of plots was sown in 1920 and again in 1921, as the 1920 plots were so polluted with weeds that no accurate records of yield from the different seedings were possible. Meadow fescue did, however, show up remarkably well, and it is the intention to carry on experiments in 1922 with a view to determining to what extent meadow fescue may profitably replace timothy in the standard hay mixture.

HAY MIXTURES

Project 36G.—Tests were conducted in 1920 with red clover, alsike clover, timothy, red top, and meadow fescue, mixed in varying proportions, to determine the best and most productive hay mixtures. The following are the results obtained:—

EXPERIMENTS WITH HAY MIXTURES

Mixture	Yield per acre	
	Tons	lb.
10 lbs. red clover, 8 lbs. timothy	1	1,640
8 lbs. red clover, 2 lbs. alsike, 8 lbs. timothy	1	756
5 lbs. red clover, 2 lbs. alsike, 8 lbs. timothy	2	186
8 lbs. red clover, 2 lbs. alsike, 6 lbs. timothy, 2 lbs. red top	1	548
8 lbs. red clover, 2 lbs. alsike, 4 lbs. timothy, 4 lbs. red top	2	420
8 lbs. red clover, 2 lbs. alsike, 6 lbs. timothy, 2 lbs. red top, 6 lbs. meadow fiscue	1	418
8 lbs. red clover, 2 lbs. alsike, 4 lbs. timothy, 4 lbs. red top, 6 lbs. meadow fiscue	1	1,900
10 lbs. red clover, 2 lbs. alsike, 8 lbs. timothy	1	1,367

POULTRY

The poultry work is confined to two breeds, viz., Barred Plymouth Rocks and White Leghorns. Special attention is given to the pedigree breeding work with Barred Rocks, the object being to establish a flock of high average production and good breed type. The Barred Rock is well suited to this work because it is of a good size and has proved its egg-laying capacity. All birds are trap-nested. During the first year, those that are to be retained as breeders are selected, and then mated with vigorous males from high-producing mothers.

Each chick, as it comes from the incubator, is banded, and through this band, which is afterward put into the wing, its identity is known throughout its life. Careful study is being given to housing, principles of feeding and hatching and rearing of chicks.

BUILDINGS

Project No. 8H.—Both permanent and movable houses are used on the plant. Most of the houses are the shed-roof type, 10 feet by 12 feet. These colony houses have proved very satisfactory and have many favourable points to commend their use on every farm. They are inexpensive and can easily be moved to suitable parts of the farm at different seasons of the year. This would prove a valuable asset to any farmer having large grain fields, as the birds can be housed out near these fields, thus enabling them to get practically all their living, for a time, from grain that would otherwise be wasted. The houses are easily kept clean and sanitary, which is very important to successful poultry keeping, and the farm flock has a definite place to live and is not roosting and laying promiscuously over other farm buildings with the consequent decrease in production and loss of eggs.

BREEDS AND STOCK

Project 1H.—The following table gives the sex and number of different breeds put into winter quarters November 1, 1920:—

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

The following production was recorded from the above stock for their egg year (365 days from date of their first year):—

BARRED PLYMOUTH ROCKS—
3 pullets produced over 225 eggs but below 250
6 pullets produced over 200 eggs but below 225
10 pullets produced over 175 eggs but below 200
11 pullets produced over 150 eggs but below 175
81 pullets produced below 150 eggs

S. C. WHITE LEGHORNS—
1 pullet produced over 200 eggs but below 250
2 pullets produced over 175 eggs but below 200
7 pullets produced over 150 eggs but below 175
37 pullets produced over 150 eggs

BARRED ROCKS—2nd year's production:—
1 hen produced over 200 eggs but below 225
4 hens produced over 175 eggs but below 200
5 hens produced over 150 eggs but below 175
9 hens produced over 125 eggs but below 150
3 hens produced over 100 eggs but below 125
36 hens produced over 50 eggs but below 100

The method followed in the pedigree breeding work this year was to take the ten highest birds, that is, those with a record of over 150 eggs, and mate them with a cockerel whose dam produced 175 eggs. Ten more were mated to a cockerel whose dam produced 154 eggs. The balance of the stock were mass mated with cockerels whose grand-dams were from 250 to 300 egg birds. All pullets produced from this stock were selected for trap-nest work during the winter of 1921-22. All pedigree stock is kept in separate pens. The following table gives the number of birds put into winter quarters November 1, 1921:—

Breed	Hens	Pullets	Males	Total
Barred Plymouth Rocks	86	133	15	234
S.C. White Leghorns	47	.....	.....	47
	133	133	.....	281

Forty-three cockerels were retained to sell for breeding.

INCUBATION

The spring of 1921 was, in the main, favourable for incubating. The most trying period was the month of April. The temperature ranged from 4 degrees on the 7th to 73 degrees on the 28th, making it difficult to keep an even temperature in the incubator room. Ideal weather for incubation and brooding prevailed throughout the month of May. Over two hundred and thirty hours of bright sunshine were

recorded during this month, together with a range of temperature from 24 to 80 degrees, with a mean average of 40·33 degrees; therefore, very little difficulty was experienced in brooding. Furthermore, the weather during the month of May was such that the young chicks could be let out nearly every day. Possibly there is nothing so conductive to the successful rearing of good, strong, healthy chicks as getting them out on the clean, warm ground each day.

Project No. 4H.—Early versus Late Spring Fertility and Hatch ability.—Fertility and hatchability records were accurately kept of all eggs incubated during the spring months and are as follows:—

TABLE 1.—HATCHING RESULTS FOR SETTING BY THE MONTH, 1921

Time hatched	Total eggs set	Number fertile	Per cent fertile	No. of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	No. of chicks alive July 1	Per cent chicks hatched alive July 1	Total eggs required for 1 chick hatched	Total fertile eggs for one chick hatched	Total eggs required for one chick July 1
April	985	759	77·05	283	28·73	37·28	210	74·2	3·4	2·68	4·69
May	949	788	83·03	276	29·10	35·02	196	71·0	3·4	2·85	4·84

The above results are by no means satisfactory, but they coincide fairly well with those of the previous tests and go to show that the month of April is a very satisfactory time to hatch; hatchability being slightly better in April than in May. The previous season, the month of May was slightly ahead of April.

Project No. 5H.—Records were kept during the incubating season of all eggs incubated. The following table gives the records compiled from the Barred Rock and the White Leghorn eggs incubated during 1921:—

TABLE 3.—HATCHING RESULTS FROM BARRED ROCK BREEDS, 1921

Variety	Total eggs set	Number fertile	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Number of chicks alive July 1	Per cent chicks hatched alive July 1	Total eggs required for one chick hatched	Total fertile eggs for one chick hatched	Total eggs required for one chick July 1
Barred Rocks.....	1,934	1,547	79·98	559	28·9	36·1	406	72·6	3·45	2·58	4·76

Comparing the results of the above table with those of the previous year, there will be noted an increase of 5·4 per cent fertility in the incubation records of the Barred Rocks over a year ago but a decrease of 6 per cent in hatchability. This is hard to understand as, logically speaking, this should have shown an increase, conditions being in its favour.

Hens versus Pullets as Breeders

Project No. 6H.—Eggs were set from both hens and pullets, with the result that the hens gave 30 per cent better fertility. The chicks from the hens were much hardier and suffered less mortality than did the chicks hatched from pullet eggs.

Methods of feeding for winter eggs

The whole grain ration was compounded for the different periods as follows: From November 1, 1920, to January 31, 1921—wheat, 200 pounds; corn, 200 pounds; oats, 100 pounds; buckwheat, 100 pounds. From January 31, 1921, to May 31, 1921—wheat, 200 pounds; corn, 200 pounds; oats, 100 pounds. A dry mash consisting of bran, 100 pounds; corn meal, 100 pounds; crushed oats, 100 pounds; buckwheat flour, 50 pounds; shorts, 75 pounds; beef scrap, 50 pounds; blood meal, 50 pounds; oilcake meal, 50 pounds; and charcoal, 50 pounds, was fed from November 1, 1920, to January 31, 1921. From that date on to June 30, 1921, a dry mixture was used compounded as follows: bran, 200 pounds; corn meal, 150 pounds; crushed oats, 150 pounds; blood meal, 40 pounds; beef scrap, 40 pounds; bone meal, 10 pounds; charcoal, 10 pounds. The dry mash was fed from hoppers which were before the birds at all times. The first feed of whole grain was fed early in the morning in the litter and the second feed in the afternoon, early enough that the birds would have time to eat all they wanted before going to roost. A good crop-full of hard grain helps to maintain body heat throughout the long, cold winter nights and is very essential to good winter production.

The advantage of feeding in litter is that the birds are encouraged to exercise and are thus kept healthy. A wet mash, compounded of the above-mentioned meal, with an addition of boiled potatoes or turnips, is given at noon to the laying stock. This should not be too sloppy in nature; just sufficiently moist to make a crumbly mixture. Green feed, in the form of sprouted oats, cabbage, turnips or mangels, should also form a part of the daily ration.

Winter Egg Production

The profit realized from the average farm flock depends largely upon the winter production of eggs. In order that the reader may see at a glance how essential winter production is to this profit, production together with costs, etc., are compiled for the five winter months for both White Leghorn and Barred Rock pullets, for the winter of 1920-21.

SUMMARY OF COST OF PRODUCTION OF WINTER EGGS, 1921

49 BARRED ROCK PULLETS

Month and year	Number Birds	Total Feed	Total Cost	Cost per Bird	Total Eggs	Cost per dozen	Total Value	Profit over cost of feed	Loss over cost of feed
			$ cts.	cts.		cts.	$ cts.	$ cts.	$ cts.
November, 1920	50	502	15 06	30	197	92	9 09	.....	5 07
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 97	31	813	23	26 79	11 00	
Summary	.....	2,588	$80 19	$1 63	2,443	.....	$112 19	$32 00	

44 WHITE LEGHORN PULLETS

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 85	.....	3 36
February 1921	41	364	12 9	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	.....	198 91	$35 04	

It will be noted from the above that forty-nine Barred Rock pullets made a total profit of thirty-two dollars or a profit over feed per bird of sixty-five cents during the winter months of 1920-21; that forty-four White Leghorn pullets made a total profit of thirty-five dollars and four cents or a profit over feed per bird of seventy-nine point six cents during this period. While the production of these pullets was only a little over the average, they nevertheless came through the most expensive period of the year with a fair profit over cost of feed.

YEARLY STATEMENT OF COST OF PRODUCTION

Below, four statements are given, showing the cost by the month of producing eggs from two pens of hens and two pens of pullets:—

YEARLY STATEMENT OF BARRED PLYMOUTH ROCK HENS FROM NOVEMBER 1, 1920, TO OCTOBER 31, 1921

Month	Number of Birds	Total Feed	Total Cost	Cost to feed one	Eggs laid	Average number laid per bird	Cost per dozen	Market value of Eggs	Profit	Loss
		Lbs.	$ cts.	cts.			$ cts.	$ cts.		$ cts.
November	60	558	17 32	0 29	185	3 08	1 12	9 62	.....	7 70
December	58	667	19 41	0 33	229	3·95	1 02	12 64	.....	6 77
January	58	699	22 27	0 38	229	3 95	1 16	12 60	.....	9 67
February	57	699	19 58	0 34	375	6·58	0 62½	21 07	1 49	
March	56	908	23 42	0 42	1,056	18·86	0 26½	35 20	11 78	
April	56	555	18 35	0 33	1,015	18·12	0 21½	20 30	1 95	
May	56	587	18 63	0 33	1,065	19·01	0 21	26 63	8 00	
June	44	405	11 22	0 25½	806	18·32	0 16	21 90	10 68	
July	32	201	5 57	0 17	420	13·12	0 16	11 28	5 71	
August	27	257	7 39	0 27	428	15·85	0 21	12 79	5 40	
September	26	248	7 18	0 27½	353	13·58	0 24	11 66	4 48	
October	25	201	5 44	0 22	290	11·60	0 22½	9 47	4 03	
Totals and average	46	5,987	175 78	3 61	6,451	140	0 33	205 16	29 38	

Average number of eggs per bird, 140. Average cost per dozen, 33c Average monthly production, 537. Average profit per bird, $0.64.

YEARLY STATEMENT OF WHITE LEGHORN HENS FROM NOVEMBER 1, 1920, TO OCTOBER 31, 1921

Month	Number of Birds	Total Feed	Total Cost	Cost to feed one	Eggs laid	Average number laid per bird	Cost per dozen	Market Value of Eggs	Profit	Loss
		Lbs.	$ cts.	Cts.			$ cts.	$ cts.	$ cts.	$ cts.
November	25	145	4 75	19	8	0·32	7 12	0 43	.....	4 32
December	25	204	6 67	27	28	1·12	2 86	1 58	.....	5 09
January	25	203	6 98	28	120	4·80	0 70	6 74	.....	0 24
February	24	207	6 54	27	180	7·50	0 43	10 22	3 68	
March	24	246	6 92	29	348	14·50	0 24	11 88	4 96	
April	24	172	6 00	25	384	16·00	0 19	7 68	1 68	
May	24	213	6 64	28	500	20·83	0 16	12 50	5 86	
June	21	163	4 04	19	395	18·80	0 12	13 45	9 41	
July	19	112	2 88	15	380	20·00	0 09	9 39	6 51	
August	18	180	5 34	30	419	23·27	0 15	10 20	4 86	
September	17	181	5 21	31	331	19·48	0 19	8 83	3 62	
October	17	127	3 66	21	120	7 05	0 37	3 48	.....	0 18
Totals and average	22	2,153	65 63	2 99	3,213	146	24·5	96 38	30 75	

Average number of eggs per bird, 146. Average monthly production, 290. Average cost per dozen, 24½c. Average profit per bird, $1.39.

YEARLY STATEMENT OF BARRED PLYMOUTH ROCK PULLETS FROM NOVEMBER 1, 1920, TO OCTOBER 31, 1921

Month	Number of Birds	Total Feed	Total Cost	Cost to feed one	Eggs laid	Average Number laid per bird	Cost per dozen	Market value of Eggs	Profit	Loss
		Lbs.	$ cts.	cts.			$ cts.	$ cts.	$ cts.	$ cts.
November	121	1,120	33 26	28	201	1·66	1 98	9 28	.....	23 98
December	110	1,249	39 81	36	800	7 27	0 60	40 82	1 01	
January	109	1,105	35 04	32	999	9·16	0 42	52 96	17 92	
February	98	1,036	32 17	33	721	7·35	0 52	37 77	5 60	
March	95	1,057	27 71	29	1,392	14·65	0 24	46 40	18 69	
April	92	747	25 20	27	1,476	16 04	0 20	29 61	4 41	
May	83	791	24 20	27	1,696	20·43	0 17	41 26	17 06	
June	72	663	18 62	26	1,257	17·45	0 18	34 82	15 44	
July	54	639	17 31	32	1,075	19·91	0 19	28 57	11 26	
August	54	489	14 46	27	891	16·50	0 19	26 74	12 28	
September	54	493	14 58	27	672	12 44	0 26	22 20	8 62	
October	35	387	10 36	30	501	14·31	0 25	16 40	6 04	
Totals and average	81	9,776	292 72	$3.54	11,681	144·2	0 30	386 83	94 11	

Average number of eggs per bird, 144·2. Average monthly production, 971. Average cost per dozen, 30c. Average profit per bird, $1.16.

YEARLY STATEMENT OF WHITE LEGHORN PULLETS FROM NOVEMBER 1, 1920, TO OCTOBER 31, 1921

Month	Number of Birds	Total Feed	Total Cost	Cost to feed one	Eggs laid	Average Number laid per bird	Cost per dozen	Market Value Eggs	Profit	Loss
		Lbs.	$ cts.	cts.			$ cts.	$ cts.	$ cts.	$ cts.
November	47	419	12 10	26	369	7·85	0 39	17 34	5 24	
December	47	404	13 27	28	586	12·47	0 27	30 51	17 24	
January	47	399	14 22	30	201	4·28	0 85	10 86	.....	3 36
February	41	364	12 69	31	302	7·36	0 50	16 37	3 68	
March	40	417	11 59	29	705	17·62	0 20	23 83	12 24	
April	39	317	10 41	27	793	20·33	0 16	17 59	7 18	
May	32	353	10 58	33	768	24·00	0 16	18 95	8 37	
June	29	175	5 58	19	427	14·72	0 16	14 31	8 73	
July	27	158	4 29	16	383	14·19	0 13	13 33	9 04	
August	27	269	8 01	29	386	14·30	0 25	15 30	7 29	
September	27	286	8 28	31	373	13·81	0 26	14 03	5 75	
October	27	202	5 28	19	153	5·66	0 41	5 52	0 24	
Totals and average	36	3,763	116 32	3 18	5,446	15·1	25·6c.	197 95	81 64	

Average number of eggs per bird, 151. Average monthly production, 454. Average cost per dozen, 25·6c. Average profit per bird, $2.26.

The Egg Laying Contest, Year ending October 31, 1921

October 31, 1921, was the close of the second Egg Laying Contest at this Farm. These contests have created a deeper interest in the poultry work, which in time is bound to bear fruit.

The accommodation afforded for this work consists of ten 10-foot by 12-foot, shed-roofed, portable, glass-and-curtain-front poultry houses, each of which gives ample room for ten birds (the number required to compete in the contest). Each part of the house is fitted up with roosts, dropping boards, trap-nests, water-bowls, hoppers for grit, shell, charcoal, beef scrap and dry mash.

As the greater part of one man's time is given to the care and record work of the contest. the birds receive, therefore, the very best care and attention. Full details of the production and amounts of feed consumed by each pen is kept. The system of operation is briefly as follows: All feed is carefully weighed out each month for each pen; whole grain is fed in litter twice daily, made up in the following mixture: 1 part wheat, 1 part oats, 2 parts corn. Dry mash is put in hoppers and is before the hens at all times, mixed as follows: 100 pounds bran, 100 pounds shorts, 100 pounds corn meal, 200 pounds crushed oats, 50 pounds blood meal, 50 pounds beef scrap, 50 pounds oilcake, and 10 pounds charcoal. A mash of the above mixture is given at noon. Grit, oyster shell, charcoal and green feed are always before the birds.

Weekly records are sent to each contestant at the close of the week. Substitutes are allowed in case of death. This enables the standing of the pen to be kept up. All birds that lay over 150 eggs or over in the fifty-two weeks are eligible for a certificate of Record of Performance "AA." Those laying over 225 eggs are to receive the advanced Record of Performance.

The following table shows the total production of each hen and each pen with the weight of eggs in the Egg Laying Contest, which has been conducted at the Experimental Farm, Nappan, N.S., from November 1, 1920, to October 30, 1921:—

B.R.—Barred Rocks; W.W.—White Wyandottes; R.I.R.—Rhode Island Reds; W.L.—White Leghorns; B.L.—Brown Leghorns; D.—Dead; S.—Sick; *—Substituted.

Pen	Owner and Address	Breed	1	2	3	4	5	6	7	8	9	10	Floor	Total	Weight of eggs in ozs.
1	R. B. H. Davidson, Amherst, N.S.	B.R.	D	31	124	D 4	D	D 46	D 5	D 98	D 91	124	12	535	822¼
2	Gilbert Harrison, Nappan, N.S.	B.R.	85 *	81	101	132	117	113	124	74	S 65	87 *	35	1,014	1,994
3	Experimental Station, Kentville, N.S.	B. R.	64	192	116	170	111	179	180	173	200	42	42	1,491	2,624¼
4	Experimental Station, Kentville, N.S.	W.W.	88	D 35	139	D 83	D 119	133	46	87	* 3	78	28	839	1,604¼
5	C. B. McMullen, Truro, N.S.	R.I.R.	153	D 153	102	139	114	168 *	144	119	167	96	24	1,379	2,830¼
6	J. McMullen, Truro, N.S.	B.R.	212	193	128	155	163	114	158	182	121	179	20	1,625	3,151
7	F. W. Black, Amherst, N.S.	B.R.	182	129	183	127	150	186	113	130	104	166	39	1,509	2,879¼
8	Thomas Hooper, Truro, N.S.	W.W.	120	62	107	138	56	100	106	182 *	205	92	29	1,197	2,222¼
9	C. B. Chapman, Amherst, N.S.	B.R.	172	157	153	155	245	214	140	133	138	155	20	1,682	3,257½
10	David Bacon, Nappan, N.S.	R.I.R.	121 *	140	104	152	112	150	118	91 *	122	82 *	38	1,230	2,439½
11	W. McKinnon, Truro, N.S.	B.R.	150	52	119	117	121 *	159 D	129	239	75	138	33	1,332	2,625¼
12	David Bacon, Nappan, N.S.	B.R.	71	120	124	89	79	85 *	110 D	135	165	102	32	1,112	2,143¼
13	Fred Cochrane, Amherst, N.S.	B.R.	D 33	167	D 46	134	125	136	90	195	164	141	45	1,276	2,520¼
14	Fred Cochrane, Amherst, N.S.	W.L.	159	83	180	153	127	108	142	99	132	131	8	1,322	2,561
15	C. B. Chapman, Amherst, N.S.	W.L.	D 21	D 20	D 7	109	S 53	142	168	D 42	76	D 12	34	684	1,350¾
16	Mrs. George Ripley, Nappan, N.S.	B.R.	114	123	91	126	114	165	120	163	106	159	21	1,302	2,587
17	Parry & Sim, Billtown, N.S.	B.L.	139	* 71	178	166	137	104	130	165	149	178	14	1,431	2,670¼
18	V. G. Fuller, Amherst, N.S.	W.L.	143	75	61	182	94	103	88	* 120	126	117	68	1,177	2,289¾
19	A. Clegg, Amherst, N.S.	B.R.	196	119	195	43	137	125	123	164	155	171	18	1,446	2,944

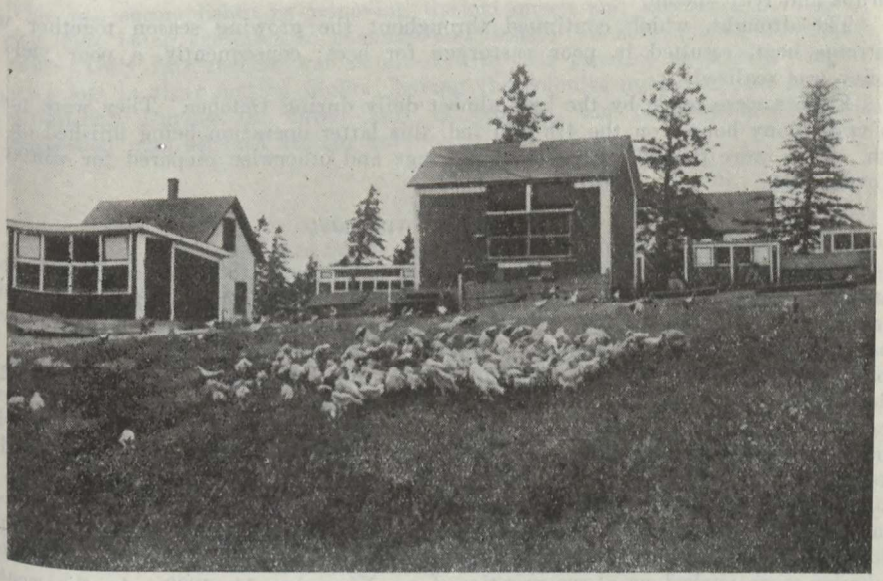
20	*William Forsythe, Amherst, N.S.*	*B.R.*	*133*	*D 114*	** 56*	*77*	*70*	*135*	*182*	** 163*	*167*	*187*	*55*	*1,339*	*2,579¼*
21	*Experimental Farm, Nappan, N.S.*	B.R.	*142*	*182*	*238*	*168*	*85*	64	67	*171*	*152*	96	66	1,431	2,776
22	*Exeprimental Farm, Nappan, N.S.*	B.R.	210	193	* 157	186	213	175	185	192	169	61	17	1,758	3,382
														28,111	54,252¾

It will be noted that only 0·94 per cent of the 200 birds entered produced 225 eggs and over, 3·63 per cent produced 200 and under 225 eggs, 11·81 per cent produced 175 and under 200 eggs, 15·90 per cent produced 150 and under 175 eggs, and that 67·72 per cent were under the 150-egg production.

The leading pen at the close of the contest was No. 22, owned by the Experimental Farm, Nappan, N.S. The winning pen was No. 9, with a total of 1,682 eggs to its credit. The leading hen for the fifty-two weeks of contest was No. 5 in pen 9, with a total of 245 eggs, and had from close of contest thirty-seven days in which to complete her fifty-two weeks from date of first egg.

PRODUCTION AND COST OF EGGS AND FEED, DOMINION EGG LAYING CONTEST, NAPPAN, N.S.—SECOND YEAR

Period No.	Price of eggs per doz.	Total eggs laid	Value of eggs laid	Total eggs sold	Value of eggs sold	Broken eggs No.	Value of broken eggs	Cracked eggs No.	Price of cracked eggs	Value of cracked eggs	Loss by C. & B. eggs	Total revenue on eggs	Cost of feed	Revenue less cost of feed
	c.		$ c.		$ c.		$ c.		c.	$ c.	$ c.	$ c.	$ c.	$ c.
1	70	324	18 90	306	17 85	18	1 05	0	35	0	1 05	17 85	56 12½	38 27½
2	70	1,269	74 01	1,206	70,35	61	3 55	36	35	1 05	4 60	69 30	66 88	2 42
3	74	1,957	120 69	1,905	117 46	53	3 26	45	37	1 38¾	4 65	116 07	59 40	56 67¼
4	73	1,314	79 93	1,248	75 92	60	3 65	12	36½	0 36½	4 01½	75 55½	59 52	16 03½
5	45	2,767	103 76¼	2,666	99 97	108	4 05	93	22½	1 74	5 79	98 23	59 59	38 64
6	33	3,248	89 32	3,128	86 02	104	2 86	120	16⅓	1 65	4 51	84 37	59 78	24 59
7	28	3,104	72 42	3,084	71 96	35	0 81	63	14	0 73½	1 55	71 22	55 96	15 26
8	30	3,046	76 15	2,989	74 73	57	1 42½	37	15	0 46¼	1 88¾	74 26¾	47 08	27 18¾
9	31	2,881	74 42	2,834	73 21	58	1 49	14	15½	0 18	1 67	73 03	40 15	32 88
10	33½	2,072	57 82	2,022	56 45	49	1 36	22	16⅔	0 30	1 66	56 15	33 21	22 94
11	39	2,384	77 48	2,321	75 40	64	2 08	24	19½	0 39	2 47	75 01	47 58	27 43
12	40	2,396	79 86	2,316	77 20	69	2 30	17	20	0 28	2 58	76 91	43 86	33 05
13	40	1,349	44 96	1,325	44 16	24	0 80	9	20	0 15	0 95	44 01	35 28	8 73
Totals	$46 62	28,111	$967 73	27,350	$940 68	760	$28 72	492	23	$8 69	$37 41	$938 98	$664 41	$267 57



Flock of young Barred Rock Chicks at Experimental Farm, Nappan. Two types of Brooder Houses used at the Farm.

BEES

Taken generally, the season throughout the summer of 1921 was the poorest that has been experienced for some years. The winter was passed with a 17·7 per cent mortality among the bees, the surviving colonies showing an average strength of 5·6 frames covered with bees.

Ideal weather conditions for bees prevailed throughout the month of May; precipitation was light and an aggregate of 232 hours sunshine was recorded. This resulted in the colonies building up rapidly and being in good condition when the honey flow started, during the last week of May. The gains made up until June 11 were just fair; from then until the 21st they were very poor, but from the 22nd until the end of June the gains were much better; this being from the early blossoms and clovers. The earliest nectar was supplied from the willow, dandelion, flowering shrubs and fruit bloom.

The drought, which continued throughout the growing season together with extreme heat, resulted in poor pasturage for bees; consequently, a poor yield of honey was realized.

Flights were made by the bees almost daily during October. They were placed in two colony houses on the 4th and fed, this latter operation being finished on the 7th. They were packed with planer shavings and otherwise prepared for winter on November 3.

METHODS OF WINTERING

Project 5I.—In view of the fact that the cellar under the superintendent's house has proved unsatisfactory for the wintering of bees, the 9-feet by 12-feet honey house was used as a mammoth wintering case. This was accomplished in the following manner: three inches of planer shavings were placed on the floor upon which the colonies were set, entrances facing the sides of the building; each colony was provided with a flight entrance through the walls of the house. A space of four inches was allowed between the walls of the building both in front and at the sides, while the same space was left between each colony. After all colonies were arranged as stated above, a rough partition of boards was erected, six inches from the rear of the colonies, after which the openings between the walls and colonies at the front, back and sides as well as the space between the colonies was packed with dry planer shavings, while a covering of six inches of shavings was put on the top. Seventeen colonies were packed as above mentioned on November 11, 1920. As the weather from this date continued cold, thus preventing further flights, no loss occurred by the bees returning to their old stands. Spring flights were observed as early as the 12th of March; the first spring examination was given on April 28. Two colonies died, owing to unwholesome stores, while an additional one was destroyed by a mouse. Two weak colonies were united.

HONEY PRODUCTION

Project 1I.—The total aggregate yield of extracted honey produced from the twelve colonies was 731 pounds, or an average production per colony of 52·2 pounds, which is the lowest average yield per colony since 1917, when it was only 42·7 pounds. The highest production from a single colony was 118 pounds.

The following is a summary of the production of the twelve colonies:—

Colony number	Extracted honey
1	35
3	62
5	50
6	57
7	45
9	118
10	57
11	73
12	62
13	57
15	63
17	52

REQUEENING AND ITALIANIZING

Project 6I.—All colonies were requeened at the start of the main honey flow. This was accomplished by removing the old queen and leaving a developing queen cell, care being exercised to examine and destroy all subsequently developed queen cells. Only fair success was obtained with this practice as several virgin queens were lost in their mating flights, leaving the colonies queenless and in a weakened condition. During the latter part of August, ten black-queened colonies were requeened with selected Italian queens.

WINTERING, 1921

Project 7I.—Twelve ten-frame colonies of an average strength of seven and one-half combs, covered with bees, and an average weight of sixty-seven pounds, ranging from fifty-eight to seventy-eight pounds, were packed in two colony wintering cases and prepared for winter on November 3, 1921.

SUMMARY OF PROFIT AND LOSS ACCOUNT

To 731 pounds extracted honey at 28 cents		$204 68
By 200 pounds sugar at $9.20	$ 18 40	
" 5 colonies (winter loss) at $7	35 00	
" profit	151 28	
	204 68	204 68

MISCELLANEOUS

FARM IMPROVEMENTS

Fences.—All fences were gone over during the month of April and May and put in good repair. Some 3,500 feet of new No. 950 woven fence was erected on either side of the public highway in front of the Farm.

Farm roads.—The split log drag was used on all Farm roads several times during the season, also on the public highway between the Farm, Maccan and Nappan Station.

EXCURSIONS AND VISITORS

The Cumberland County Farmers' Association held their annual picnic at the Farm on July 13 and over two thousand people were in attendance. At this picnic addresses were given by the president and secretary of the association, the superintendent of the Experimental Station, Kentville, and the superintendent of the Experimental Farm, Nappan, N.S. About thirty members of the Agricultural Society of Moncton visited the Farm on July 7. A number of smaller picnics from different parts of Cumberland and Westmoreland visited the Farm at various times during the season.

MEETINGS AND EXHIBITIONS

Throughout the year, the superintendent and assistant attended as many agricultural meetings as possible and gave addresses or acted as judges. The Amherst Floral Association held their annual Fair on September 22 and 23. The Cumberland County Fall Fair was held in Oxford on September 22 to 24; Pictou County Fair was held on September 27 to 28; Antigonish Fair on September 29 and 30; Port Elgin Fair on October 4; Sackville Fair on October 12; Dorchester Fair on October 13, and St. Stephen Fair on September 13 to 16 inclusive.

An exhibit was put up at the following fairs: Amherst Floral Show, on September 22 and 23; Shubenacadie, on September 28 and 29; Halifax Poultry Show, on October 31, November 1 and 2; and the Maritime Winter Fair at Amherst, on December 12 to 16.