DOMINION OF CANADA
DEPARTMENT OF AGRICULTURE
DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

STE. ANNE DE LA POCATIÈRE, QUEBEC

REPORT OF THE SUPERINTENDENT

J. A. STE. MARIE, B.S.A.

FOR THE YEAR 1922

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1923

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REPORT OF THE SUPERINTENDENT, J. A. STE. MARIE, B.S.A.

THE SEASON

The season of 1922 was marked by an early, but long and cold spring. The first grain was sown on April 29 at this Station and, late in June, seeding was still being done on many farms in the district. May was cool with frequent light showers which did not wet the land much, as only 2·19 inches of rain in all fell, but work on the land did not proceed advantageously.

In June, showers fell on eighteen days of the month and as the mean temperature of the month was only 54·1, vegetation progressed very slowly.

From June, a period of dry weather followed and ended only with the coming of the winter.

The above explains briefly the very low yield of all the late crops, such as potatoes, roots, corn and sunflowers, given further on in this report and also the very good yield of wheat, oats and barley.

METEOROLOGICAL RECORDS

Month	Temperature F.					Precipitation			Hours of bright sunshine
	Mean	Highest	Date	Lowest	Date	Rainfall	Snowfall	Total	
						Inches	Inches	Inches	
January	11·8	34·8	15	−17·2	5	.....	12·5	1·25	107·14
February	12·7	41·8	20	−20·2	17	.....	17·0	1·70	116·08
March	29·3	54·8	7	−15·2	2	1·10	6·0	1·70	133·08
April	40·2	74·2	23	23·2	24	1·62	3·0	1·92	124·47
May	54·1	83·2	26	28·2	4	2·19	.....	2·19	236·06
June	60·8	86·2	5	42·7	11	6·17	.....	6·17	176·57
July	68·0	85·9	19	40·5	9	1·48	.....	1·48	260·27
August	62·3	84·2	2	41·2	10	2·12	.....	2·12	235·12
September	59·5	86·7	10	26·0	30	0·65	.....	0·65	198·58
October	42·7	78·6	2	20·7	25	2·62	.....	2·62	61·37
November	31·2	53·0	2	12·5	30	0·26	18·5	2·11	83·58
December	15·8	48·0	1	−18·5	20	0·41	14·0	1·81	95·3
Totals	.....	.....	.....	.....	.....	18·62	71·0	25·72	1,827·62

ANIMAL HUSBANDRY

HORSES

Percherons are kept at this Station and the stud is composed of nineteen, of which there are six pure-bred mares, three pure-bred two year old females, three pure-bred colts and one two year old stallion.

The breeding of Percherons has been undertaken and five mares were bred to the imported stallion Polybe No. 8143, owned by the Agricultural College here. Four mares had foals; one mare aborted, but the three other colts were successfully raised. Five mares were bred during 1922 and three of them are in foal.

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COSTS OF RAISING PERCHERON COLTS FROM BIRTH TO ONE YEAR OLD

Name of Colt	Born	Weight at birth	Weight at one year old	Feed consumed			Cost of feed at one year old
				Hay $15 per ton	Oat $0.02c. per pound	Bran $24 per ton	
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	
Juliette	Mar. 23, 1920	240	1,125	1,430	950	204	$32 60
Joconde	May 10, 1920	234	1,065	1,350	1,015	273	33 69
Mathilda	June 10, 1920	238	1,064	1,220	886	293	30 39
Mercure	May 9, 1920	245	1,113	1,605	1,206	289	42 61

In the above table, the fee for service of stallion has not been added, as this fee varies in each district. No charge has been made against the mares while nursing their colts, for these mares were worked until foaling day and also fairly often before their colts were weaned.

COST OF RAISING PERCHERON COLTS FROM ONE TO TWO YEARS OLD

Name of Colt	Born	Weight at one year	Weight at two years	Feed consumed				Cost of feed at two years
				Hay $15 per ton	Oat $0.02c. per pound	Bran $24 per ton	Pasture $2 per month	
		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Mths.	
Juliette	Mar. 23, 1920	1,125	1,469	2,846	2,428	1,027	4	$90 22
Joconde	May 10, 1920	1,065	1,461	2,875	2,316	1,004	4	87 85
Mathilda	June 10, 1920	1,064	1,496	2,936	2,237	995	4	88 28
Mercure	May 9, 1920	1,113	1,596	2,983	2,579	1,011	4	94 08

It will be noted from the above table that the cost of growing each colt during the second year attained a fairly high figure, that is, an average cost of $90.07, using the prices quoted in the table for the feed consumed or an average of 2·7 cents for each pound of gain. This does not mean that it would cost as much or nearly so, to grow colts on the average farm, but in this case may be explained by the lack of adequate pasture area. The colts had to be kept throughout the summer on a pasture limited in area of poor quality and had, therefore, to be fed grain and hay throughout the summer, adding greatly to the cost for the year.

FEED CONSUMED BY DRAFT HORSES AND COST OF HORSE LABOUR

Name	Age	Average weight	Feed consumed			Total cost	Hours of work	Cost of work per hour
			Hay $15 a ton	Oats 2c. a pound	Bran $22 a ton			
		Lbs.	Lbs.	Lbs.	Lbs.	$ cts.		$ cts.
Belle	6	1,616	6,160	4,636	708	135 84	2,269	·059
Beatrice	5	1,575	6,175	4,705	671	136 65	2,281	·062
Mela	13	1,739	4,800	3,705	929	112 48	1,338	·082
Jeannette	8	1,617	4,951	4,011	958	119 29	1,670	·071
Julia	13	1,639	6,075	4,614	679	134 43	2,189	·061
Minette	5	1,752	5,100	3,675	862	113 32	1,263	·088
Sully	9	1,556	5,750	4,405	995	132 59	2,644	·05
Melina	4	1,599	5,959	4,813	667	136 84	2,436	·056
Fanchette	4	1,492	5,757	4,838	667	135 77	2,320	·058
Average	.....	1,620	5,636	4,378	793	128 58	2,034	·065

In the above group of draft horses, three of the mares raised foals, which naturally reduced the number of hours worked and increased the average cost of horse labour for the group.

The six mares that did not raise any colts furnished horse labour at an average cost of ·058 cents per hour while working an average of 233 days during the year. If work had been available to employ these horses full time throughout the year, the cost of horse power would have been relatively low. However, as the conditions at this Station are very similar to that of an average farm, there is illustrated the importance and economy of keeping draft mares of the right type and thereby decreasing the cost of horse labour required by the raising of foals, while the mares are at rest and thus contributing to raise the farm income.

DAIRY CATTLE

A pure-bred and a grade Ayrshire herd is kept at this Station. Both herds are headed by " Gardrum Bold Boy " No. 47138, whose dam, " Gardrum Bonnie Jean " No. 33498, has a R.O.P. of 14,141 pounds of milk and 552 pounds of fat.

Owing to the poor pasturing facilities at this Station and to the extreme drought prevailing throughout the summer of 1922, it was necessary that the cows and young cattle be kept a longer period in the stables, a condition which increases the cost of milk production and also lessens the yield of milk for the herd.

The winter ration for dairy cattle was composed of corn and sunflower silage, roots and mixed hay. A meal mixture of oats, corn, bran, distillers' grains and oil cake was fed, at the rate of one pound of meal per four pounds of milk produced.

The herd is under process of accreditation, the final certificate being expected in the near future.

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Name of Cows	Date of calving	No. of days in the lactation period.	Total pounds of milk for period.	Daily average yield of milk.	Average % fat in milk.	Pounds of butter produced in period.	Value of butter at 35c. per pound.	Value of skim-milk at 35c. per pound.	Total value of products.	Amount of meal eaten at ·02c. per pound.	Amount of roots and silage eaten at $4 per ton.	Amount of hay eaten at $12 per ton	Amount of green feed eaten at $5 per ton.	Amount of straw eaten at $6 per ton	Months on pasture at $1	Total cost of feed for period.	Feed cost to produce 100 lbs. of milk.	Cost to produce one pound of butter, skim-milk neglected.	Profit on 1 lb. of butter, skim-milk neglected	Profit on cow during period, labour and calf neglected
							$	$	$							$	$	cts.	cts.	$
Finette	Sept. 29, 1921	424	9,919	23·3	3·5	410·2	143 58	17 85	161 43	2,541	12,075	1,638	1,509	543	4	94 18	94	22	13	67 25
Mignonne	Feb. 14, 1922	305	7,512	24·6	3·8	341·8	119 66	13 52	133 18	2,038	10,735	996	848	270	2	74 13	93	21	14	45 53
Mathilda	Jan. 23, 1922	266	5,528	24·5	3·7	285·2	99 86	9 95	109 82	1,845	11,643	1,688	186	453	4	76 11	1 37	26	09	33 71
Flavie D	April 10, 1922	311	5,995	19·2	3·7	262·9	92 02	10 79	102 81	1,808	9,905	1,564	878	424	4	72 81	1 21	27	08	30 00
Dahlia	Sept. 15, 1921	317	4,332	13·6	4·2	216·4	75 76	7 80	83 56	873	7,605	1,638	900	543	3	49 36	1 13	22	13	26 40
Pasta	Oct. 26, 1921	241	2,701	11·2	4·2	134·5	47 08	4 86	51 94	424	7,005	1,638	.....	453	1	24 65	91	18	17	22 43
Douce	Jan. 8, 1922	296	3,695	12·4	3·7	161·4	56 51	6 65	63 16	749	9,590	996	748	270	2	44 81	1 21	27	08	11 70
Joliette	June 2, 1921	350	4,689	13·4	3·6	202·0	70 70	8 44	79 14	1,013	9,825	1,958	2,760	726	3	63 72	1 36	31	04	6 98
Florette	Aug. 10, 1921	280	2,887	10·3	4·0	127·6	48 16	5 20	53 36	542	8,225	1,638	1,830	636	2	45 58	1 57	33	02	2 58
GRADES																				
Belle	Oct. 1, 1921	299	7,907	26·4	3·0	280·8	98 31	14 23	112 54	1,586	7,605	1,638	900	543	2	62 64	79	22	13	49 90
Carmen	Feb. 15, 1922	302	4,489	14·8	3·9	206·3	72 22	8 08	80 30	1,098	9,165	779	870	177	2	49 66	1 10	24	11	30 64
Berthe	May 1, 1921	370	5,302	14·3	3·8	242·4	84 86	9 54	94 40	787	10,102	2,175	2,760	1,004	5	63 90	1 20	26	09	30 50
Beatrice 2nd	July 12, 1921	302	4,540	15·0	4·4	236·4	82 75	8 17	90 92	1,138	10,805	2,268	2,760	819	3	69 82	1 53	29	06	21 10
Bertha	June 17, 1922	274	5,312	19·3	3·4	213·1	74 60	9 56	84 16	1,453	8,060	1,720	1,001	362	4	63 08	1 18	29	06	21 08

SHEEP

Thirty-five Leicester sheep and fifteen ewe lambs are kept for our breeding work and thirty-eight lambs were obtained from the thirty ewes that had lambs, of which nine rams were sold for breeding in the fall.

COST OF FEEDING LEICESTER SHEEP ONE YEAR

Number of sheep and ewe lambs	50
Number of rams	3
Hay, 14,100 lbs. at $12 per ton	$ 84 60
Oat, 7,308 lbs. at $0.02c. per lb	146 16
Bran, 7,700 lbs. at $24 per ton	92 40
Roots, 3,140 lbs. at $4. per ton	6 28
Pasture, 40 cents per head	21 20
Total cost	350 64
Cost per head	6 61

It will be noted in the above table that the sheep were fed a fairly high quantity of oats and bran, which tends to increase the average cost of maintenance per sheep. This was partly due to the very poor pasture available for sheep and the very dry summer of 1922.

SWINE

Breeding work is carried on with Yorkshires at this Station and in the spring of 1922, eleven sows raised eight-four young pigs, of which nineteen males and twenty-five females were sold for breeding in this part of the province.

The breeding stock is kept outside in small hog cabins summer and winter. Much green feed is being fed in the summer and roots and clover hay in the winter. By following this system a very fair degree of success has obtained in breeding and feeding work with swine.

COST OF FEEDING TWELVE SOWS ONE YEAR

Number of sows	12
Bran, 10,110 lbs. at $24 per ton	$ 121 32
Shorts, 6,692 lbs. at $25 per ton	83 65
Screenings, 2,505 lbs. at $20 per ton	25 05
Clover hay, 5,675 lbs. at $12 per ton	34 05
Green feed and roots, 7,210 lbs. at $5 per ton	18 02
Total cost	282 09
Average cost per head	23 50
Average number of pigs weaned per sow	7
Average cost per pig at 8 weeks	3 36

FIELD HUSBANDRY

The work of this division has, so far, been limited to the testing of different types of rotations and the testing of crops on these rotations, as follows:—

ROTATION "A," THREE YEARS

First year—Mangels and rutabagas (swede turnips) vs. corn and sunflowers.
Second year—Wheat.
Third year—Clover hay.

The land for the roots, corn and sunflowers is summer-fallowed, manured and ploughed again in the fall. The roots, corn and sunflowers are sown as soon as the land is ready in the following spring.

ROTATION "B," FOUR YEARS

First year—Rutabagas, corn, sunflowers.
Second year—Grain.
Third year—Clover hay.
Fourth year—Timothy hay.

The land for the above rotation is manured and ploughed as soon as the timothy hay is off, disced and harrowed till the fall and then ridged. The seed bed is prepared in the spring as soon as the land is warm enough.

ROTATION "C," FIVE YEARS

First year—Peas, oats and vetches.
Second year—Rutabagas.
Third year—Grain.
Fourth year—Clover hay.
Fifth year—Timothy hay.

With the above rotation, the land is ploughed in the fall of the timothy year and sown to peas, oats and vetches the following spring. After this forage crop is harvested, it is manured and ploughed.

As stated elsewhere in this report, the spring of 1922 was very favourable to the grain crops, being cool and moist, but the root, corn and sunflower crops suffered more or less from this cool weather in the early stage of their growth and a period of drought began in the latter part of June, to end only with the very late fall. The yield of the root crops, as well as that of corn and sunflowers, was greatly affected. As will also be noted in following tables, the yield of the various crops on drained and undrained land is rather contradictory and owing to the extreme weather conditions of 1922, no specific conclusions can be drawn.

The following are the cost figures used in the compilation of this report:—

Seed corn	$ 0 04	per pound
Sunflowers	0 11	" "
Mangels	0 60	" "
Rutabagas (Swede turnips)	0 30	" "
Wheat	2 50	" bushel
Red clover	0 22	" pound
Alsike clover	0 15	" "
Timothy seed	0 15	" "
Twine	0 22	" "
Rent of land	6 00	" acre
Use of machinery	1 50	" "
Manure	1 00	" ton

The manure is applied at the rate of five tons per acre per year of rotation and the cost divided according to the length of the rotation, approximately as follows: 40 per cent to the first crop, 30 per cent to the second crop and 20 and 10 per cent to the third and fourth crops.

COST AND YIELD PER ACRE OF CORN, SUNFLOWERS, WHEAT AND CLOVER HAY ON A DRAINED THREE YEAR ROTATION

—		Corn	Sunflowers	Wheat	Clover
Rent of land	$	6 00	6 00	6 00	6 00
Manure	$	7 50	7 50	4 50	3 00
Seed	$	2 12	1 10	3 74	3 25
Use of machinery	$	1 50	1 50	1 50	1 50
Twine	$	.....	.....	0 88	.....
Manual labour	$	29 36	29 36	11 85	7 70
Horse labour	$	7 65	7 65	4 00	1 20
Total cost	$	54 13	53 11	32 47	22 65
Total yield	Lbs.	22,423	35,625	2,302	3,820
Cost per ton	$	4 82	2 98	.....	11 86
Cost per bushel	$	.....	.....	0 85	.....

As will be noted in the above table, the yield of corn was only medium while that of sunflowers was fairly good, which would indicate the ability of sunflowers to withstand extreme weather conditions better than corn.

The yield of wheat was particularly good and of very high quality, while the yield of clover was small.

COST AND YIELD PER ACRE OF RUTABAGAS, MANGELS, WHEAT AND CLOVER HAY ON A DRAINED THREE YEAR ROTATION

—		Rutabagas	Mangels	Wheat	Clover
Rent of land	$	6 00	6 00	6 00	6 00
Manure	$	7 50	7 50	4 50	3 00
Seed	$	1 20	1 80	3 74	3 25
Use of machinery	$	1 50	1 50	1 50	1 50
Twine	$	.....	.....	0 88	.....
Manual labour	$	39 26	44 64	11 74	7 70
Horse labour	$	6 30	6 30	4 80	1 20
Total cost	$	61 76	67 74	33 16	22 65
Total yield	Lbs.	24,263	12,965	2,061	3,920
Cost per ton	$	5 08	10 46	.....	11 55
Cost per bushel	$	.....	.....	0 96	.....

As the reader will notice, the yield of mangels was just about half of that of rutabagas (swede turnips). There is no doubt that mangels are very much more affected by drought than are rutabagas. Further, the dry weather caused a very poor germination, which resulted in rows having many roots missing, and as the growth was small, the yield was affected accordingly.

As with the other rotations, the yield of wheat was very good, while that of clover hay was poor.

COST AND YIELD PER ACRE OF CORN, SUNFLOWERS, RUTABAGAS, WHEAT, CLOVER AND TIMOTHY HAY ON A DRAINED FOUR YEAR ROTATION

—		Corn	Sunflowers	Rutabagas	Wheat	Clover	Timothy
Rent of land	$	6 00	6 00	6 00	6 00	6 00	6 00
Manure	$	8 00	8 00	8 00	6 00	4 00	2 00
Seed	$	2 12	1 10	1 20	3 74	2 32	1 13
Use of machinery	$	1 50	1 50	1 50	1 50	1 50	1 50
Twine	$	.....	.....	.....	0 88	.....	.....
Manual labour	$	17 94	18 20	39 30	11 85	4 94	4 16
Horse labour	$	6 90	7 00	6 60	4 80	0 70	0 70
Total cost	$	42 46	41 80	62 60	34 77	19 46	15 49
Total yield	Lbs.	12,300	13,800	15,810	2,298	4,137	3,508
Cost per ton	$	6 90	6 04	7 92	.....	9 46	8 82
Cost per bushel	$	.....	.....	.....	0 90	.....	.....

The growth and yield of corn, sunflowers and rutabagas were very poor in the above fields, due in part to a very bad germination and, later, to the dry weather conditions. Less than half of an average crop was harvested. The clover and timothy hay suffered similarly. The yield and quality of wheat were extremely good.

COST AND YIELD PER ACRE OF CORN, SUNFLOWERS, RUTABAGAS, WHEAT, CLOVER AND TIMOTHY HAY ON AN UNDRAINED FOUR YEAR RATATION

—		Corn	Sunflowers	Rutabagas	Wheat	Clover	Timothy
Rent of land	$	6 00	6 00	6 00	6 00	6 00	6 00
Manure	$	8 00	8 00	8 00	6 00	4 00	2 00
Seed	$	2 12	1 10	1 20	3 74	2 32	1 13
Use of machinery	$	1 50	1 50	1 50	1 50	1 50	1 50
Twine	$	.....	.....	.....	0 88	.....	.....
Manual labour	$	18 44	18 20	39 30	11 85	4 94	4 16
Horse labour	$	6 90	7 00	6 60	4 80	0 70	0 70
Total cost	$	42 96	41 80	62 60	34 77	19 46	15 49
Total yield	Lbs.	15,375	20,775	11,610	1,795	2,700	2,600
Cost per ton	$	5 59	4 02	10 78	.....	14 41	11 91
Cost per bushel	$	.....	.....	.....	1 16		

On the above set of undrained fields, the yield of corn and of sunflowers was higher than on the set of drained fields, while that of rutabagas, wheat and hay was not as high as on the drained fields. On the drained fields however the yield of all crops, owing to the very dry weather, was below normal.

COST AND YIELD PER ACRE OF PEAS AND OATS, RUTABAGAS, WHEAT, CLOVER AND TIMOTHY HAY ON AN UNDRAINED FIVE YEAR ROTATION

—		Peas and Oats	Rutabagas	Wheat	Clover	Timothy
Rent of land	$	6 00	6 00	6 00	6 00	6 00
Manure	$	0 62	10 00	7 50	5 00	1 86
Seed	$	5 00	0 60	3 75	2 50	1 20
Use of machinery	$	1 50	1 50	1 50	1 50	1 50
Twine	$	.....	.....	0 66	.....	.....
Manual labour	$	5 98	37 18	6 76	3 38	3 90
Horse labour	$	3 00	5 20	4 00	0 70	1 00
Total cost	$	22 10	60 48	30 17	19 08	15 46
Total yield	Lbs.	9,000	14,820	933	3,500	2,088
Cost per ton	$	4 91	8 16	.....	10 90	15 00
Cost per bushel	$	.....	.....	1 95	.....	.....

The yield of all crops in the above rotation is much below normal due to the extreme weather conditions that prevailed in 1922.

HORTICULTURE

ORCHARD

As mentioned in previous reports, the orchard on the Station was planted in three years, namely, one-third in 1913, one-third in 1914, and one-third in 1915.

The orchard planted in 1914 and 1915 is handled by the "Sod Mulch Method". This method consists of putting around the trees the first cutting of hay which is cut in the latter part of June or early July and part of the second cutting, if thought necessary; otherwise it is left as cut, over the surface

of the soil. This system, as may be deducted, tends to retain more moisture in the soil and increases also the quantity of humus around the foot of the trees.

The orchard planted in 1913 is subdivided into three parts and treated in the following way:—First part, sod mulch method. Second part, hay cut and left on the surface of the land as cut. Third part, soil mulch in the spring and seeded to rape in July.

The method of orchard treatment for the first part is the same as that explained above for the orchard planted in 1914 and 1915.

The method of the second part, hay cut and left on the surface of the soil, consists of simply mowing the hay two or three times during the summer and leaving same to decay on the surface of the soil.

The third method, soil mulch, consists of ploughing the land early in the spring and harrow this land several times during the early part of the summer. About July 10 it is sown with rape seed at the rate of ten pounds per acre, which are allowed to grow to draw the moisture from the soil and to act as a cover crop for the winter.

THE APPLE CROP

The yield for 1922 was 770 bushels. Of the 237 apple trees planted in 1913, all bore fruit in 1922; of the 400 trees planted in 1914, 376 bore in 1922, and of the 267 trees planted in 1915, 120 bore fruit. Since 1916, 125 more trees have been planted and, of this number, 120 trees bore fruit in 1922.

The yield of the two best trees from the different varieties for the year follows:—

Alexander, 5½ bushels; Duchess, 4¼ bushels; Fameuse, 4¼ bushels; Gano, 2½ bushels; Lowland Raspberry, 4 bushels; Melvin, 4½ bushels; Maiden Blush, 4¾ bushels; Melba, 3½ bushels; McIntosh, 3½ bushels; Milwaukee, 3½ bushels; Montreal Peach, 4¼ bushels; North Star, 4 bushels; Okobena, 8 bushels; Peerless, 3½ bushels; Red Astrakan, 3½ bushels; Trenton, 3¼ bushels; Wealthy, 5¾ bushels; Wolf River, 5½ bushels.

Average yield per tree for all trees bearing fruit, 1·09 bushel.

SPRAYING

Four sprays with poisoned Bordeaux mixture were given to the fruit trees, which prevented or controlled very efficiently our orchard from being affected fom pest or diseases such as the orchard caterpillar, codling moth, apple scab, etc.

The apple crop was the largest ever obtained at this Station. Owing to the very dry weather that prevailed from July to late October, most of the fruits were not quite as large as might have been desired, but very free from worms or scab and very highly coloured.

PLUMS

Nineteen varieties are under experiment at this Station and all bore fruit in 1922.

The varieties Damas and Reine Claude de Montmorency are classed as the best. Of the other European varieties, the Lombard, Bradshaw and Green Gage are given the preference, as named.

The dates of full bloom and of the first picking of fruit follow:—

Name of Variety	Date of full bloom	Date of 1st picking
Pond's Seedling	May 25	September 16
Niagara	" 25	" 24
Moor's Artic	" 25	" 7
John A	" 25	" 27
Washington	" 25	" 14
Coe's Golden Drop	" 26	" 27
Green Gage	" 26	" 5
Damson	" 26	" 23
Damas Blue	" 27	" 12
Reine Claude de Montmorency	" 27	" 10
Lombard	" 27	" 20
Shipper's Pride	" 27	" 20
Yellow Egg	" 27	.....
Saunders Kerry	" 28	" 18
Gueii	" 28	" 18
Smith Orlean	" 29	" 24
Bradshaw	" 29	" 6
Grand Duke	" 29	October 5
Hudson River	" 30	September 17

The highest yield of one tree for each variety of plum planted in 1914 is:—

Lombard, 9 gallons; Bradshaw, 7¼ gallons; Hudson River, 12 gallons; Reine Claude de Montmorency, 6½ gallons; Damas Blue, 5½ gallons; Green Gage, 5 gallons.

The first four named have borne fruit for the third consecutive year.

CHERRIES

Sixteen varieties are under test.

For canning, the Early Richmond is recommended for its earliness and yield; but the greatest yield was obtained from the Montmorency and the Cerise de France.

The dates of full bloom and of first pickings were:—

Name of Variety	Date of full bloom	Date of 1st picking
Orel	May 23	July 15
Homer	" 24	" 17
Empress Eugenie O. 1875	" 24	" 15
Large Montmorency	" 25	" 15
Cerise d'Ostheim O. 1642	" 25	" 17
Vladimir	" 25	" 17
Fouche Morello O. 1150	" 26	" 18
Fouche Morello O. 1650	" 26	" 8
Griotte d'Ostheim	" 26	" 15
Early Richmond	" 27	" 6
May Duke	" 27	" 5
Brusseler Braun	" 27	" 28
Herzformige Weichsel	" 27	" 18
Cerise de France	" 28	" 15
Montmorency Ordinaire	.....	" 20
English Morello	.....	" 21

PEARS

Eighteen trees, including three varieties, were planted in 1921 and are doing well.

SMALL FRUITS

A new plantation of small fruits was made in the spring of 1922 between rows of apple trees in a part of the orchard and includes plants of raspberries, gooseberries, red, black and white currants.

The land was well prepared the previous fall and in the spring. The bushes planted made very good growth during the year.

STRAWBERRIES

A small plot containing eleven varieties was planted in the spring, but, owing to the very dry weather that prevailed throughout the summer, the growth was only medium.

ORNAMENTAL PLANTS

FLOWERS

With the exception of the asters and zinnias, all the flower seed was sown in the open garden on May first. In spite of the drought that prevailed during the summer and the condition of the land, which is not yet as good as desired, the results obtained with the different varieties grown were very satisfactory.

The varieties that can be grown in the open garden and that are easy to grow are mentioned in the following table, with the dates of first and full bloom:—

Some Easily-grown Flowers

Name of Variety	Date of first blooming	Date of full bloom
Balsam	July 26	August 3
Browallia	" 31	" 12
Candytuft	" 5	July 22
Chrysanthemum Mix	" 11	" 22
Clarkia Elegans	" 11	" 16
Cosmos	" 14	" 25
Dimorphotheca	" 11	" 25
Datura	" 22	August 6
Eschscholtzia Mix	" 2	July 30
Godetia Mix	" 22	August 5
Helichrysum Mix	" 23	" 8
Hibiscus	" 13	" 7
Linaria	" 2	July 20
Linium Grandi	" 5	" 22
Malope	" 10	" 25
Mathiola Bicornis	June 25	" 7
Nicotiana	July 17	" 27
Petunia	" 12	" 25
Phlox	" 22	August 3
Poppy Shirley	" 11	July 20
Portulaca	" 9	" 15
Rhodanthe	June 28	" 10
Salpiglossis	July 14	" 23
Schizanthus	" 20	August 4
Sweet Sultan	" 7	July 20
Tagetes	" 15	August 2

The asters are very attractive and lasting flowers, but must be started in hot beds.

SWEET PEAS

A collection of seventy-two varieties was grown with marked success. The first flowers appeared on July 12 and bloom continued until the very last days of September. The success obtained is credited to the quality of the seed

and the method of land preparation and planting which were the following: A trench about eighteen inches deep is dug and filled with eight inches of rotten manure which is covered with five or six inches of the coarse part of the dug soil, and then with two or three inches of the finer soil, in which the seed is sown. The balance of the soil is left at the sides of the rows to be used in hilling the plants as they grow. A strip of poultry netting is very satisfactory to support the vines.

The following varieties are recommended: King White, Burpee, Nora Unvin, white; Helene Pierce, blue; Florence Nightingale, blue; Princess Mary, blue; Helen Lewis, salmon pink; Sterling Stent, salmon pink; Barbara, salmon pink; Rosabelle, red; John Ingman, red; Elfrida Pearson, pink; Loyalte, purple; Mrs. Routsahm, cream; Thomas Stevenson, orange.

LAWNS

The small block of land around the office was ploughed, harrowed and smoothed. Following this, the land was seeded with oats at the rate of four bushels per acre, rolled and seeded with a lawn mixture, which was covered lightly with a hand rake. Both the oat and lawn mixture made good growth during the early part of the summer, which was cut with a lawn mower now and then. The drought in the latter part of the summer and fall seemed to check its growth but it is hoped that it will come through the winter in fair condition.

A few shrubs and trees were also planted in different parts of the farm.

VEGETABLES

POTATOES

Five varieties of potatoes were used in this test: Irish Cobbler, Green Mountain, Gold Coin, Rochester, and Early Rose. The soil used for this purpose was a sandy loam, fertilized with cow manure at the rate of 20 tons per acre and the soil well prepared. The tubers used were cut to two eyes, the sets weighing about two ounces each. These were planted in rows, thirty inches apart, with sixty-six tubers per row of sixty feet in length.

During the growing season they were sprayed three times with poisoned Bordeaux mixture. The yield follows:—

POTATOES—TEST OF VARIETIES

Name of Variety	Source	Yield per acre	
	Bushels	Bush.	Lbs.
Irish Cobbler	Kentville	308	
Green Mountain	Kentville	376	4
Gold Coin	Lavoie	354	12
Rochester	Ste. A. 1063	294	48
Early Rose	Jean	435	36

SQUASH

Seven varieties of squash were tested and the seed was sown in the open garden on May 15 in hills nine feet apart each way, and three hills of each variety.

The growth was very good for all varieties. Those found most suitable for this district are: English Marrow; ready for use on August 24, Golden and Green Hubbard and Large White Bush.

PUMPKINS

Five varieties were sown in hills nine feet apart and two hills per variety. The yield of the different varieties were: Connecticut Field, 202 pounds; King of the Mammoth, 192 pounds; Quaker Pie, 166 pounds; Large Cheese, 125 pounds; and Small Sugar, 70 pounds. The Small Sugar and the Connecticut Field gave the best satisfaction.

SPINACH

The seed of two varieties was sown in the garden on May 15, in rows 30 feet long, 1·5 feet wide, with 6 inches between the plants. The Victoria variety was ready to use on June 19 and the New Zealand on June 25.

SALSIFY

The two varieties tried were Mammoth Sandwich Island and Long White. The seed was sown on May 15 in 30-foot rows, 30 inches apart, with 4 inches between the plants. Both varieties were found good and yields were: Mammoth Sandwich Island, 27 pounds, and Long White, 22 pounds.

RADISHES

Four varieties were tried, namely: Icicle, Scarlet Turnip White Tip, Round Scarlet Oval and Scarlet Olive. All the varieties were sown on May 15. The variety Icicle is of a long type and white in colour. It was considered very much superior to the other varieties for tenderness and keeping qualities. The last-named variety, the Scarlet Olive, was the earliest and was ready on June 11.

TURNIPS

Six varieties were sown in rows 30 inches apart on May 15 and thinned to 6 inches between the plants. The yield for 10 average heads was as follows:—

GARDEN TURNIPS—TEST OF VARIETIES

Name of Variety	Ready for use	Yield
		Lbs.
Early Snowball	July 17	16
Extra Early Milan	July 17	12
Yellow Globe	July 23	10¼
Red Top	July 26	10
Golden Ball	July 26	11
Invicta Swede	August 10	22½

LETTUCE

Twelve varieties were sown on May 15 in rows 15 inches apart and thinned to 6 inches between plants. Some were ready for table use on June 17. The earliest varieties were Black Seeded Simpson and Grand Rapids. The recommended varieties forming heads are Iceberg, Crisp as Ice, and Earliest Wayahead.

PARSLEY

Three varieties were tried, namely: Champion Moss Curled, Triple Curled and Double Curled. The seed was sown on May 15 in rows 30 feet long and 30 inches wide. The parsley was ready to be used on July 19 and no distinction as to quality could be made between the varieties tried.

PARSNIP

The varieties Hollow Crown and Guernsey Half Long were sown on May 15 in rows 30 feet long and 30 inches apart and plants three inches apart. The yields were: Hollow Crown, 53 pounds; Guernsey Half Long, 51 pounds.

Parsnip.—Distance between the plants

Three rows 30 feet long and 30 inches apart were sown with parsnips on May 15 and thinned to 2, 3 and 4 inches between the plants. The yields were as follows:—

PARSNIPS—PLANTING AT DIFFERENT DISTANCES

Name of Variety	Inches apart	Yield
		lbs.
Hollow Crown	2	51
Hollow Crown	3	46
Hollow Crown	4	44

GARDEN PEAS

Nineteen varieties of garden peas were sown on May 15 in rows 30 feet long and 30 inches apart and plants about one inch apart. The yield was as follows:—

GARDEN PEAS—TEST OF VARIETIES

Name of Variety	Length of straw		Ready for use	Yield when ripe	
	Ft.	In.		Lbs.	Oz.
Sutton Excelsior	1	8	July 16	3	..
Gregory Surprise	2	..	July 9	2	10
Alaska	2	4	July 9	2	4
English Wonder G.A.	2	6	July 15	2	4
Champion of England	2	8	July 21	2	2
Little Marvel	1	10	July 12	2	2
American Wonder	1	6	July 14	2	..
Harrison Glory	2	8	July 15	2	..
Gradus	1	8	July 16	1	14
Early Morn	3	..	July 4	1	13
Pioneer	2	7	July 19	1	13
Laxtonian	1	8	July 17	1	12
Stratagem	1	10	August 10	1	12
Eight Weeks	1	16	July 31	1	12
Lincol	2	..	July 18	1	12
Thomas Laxton	1	8	July 12	1	12
Blue Bantam	2	4	July 20	1	10
McLean Advancer	1	6	July 22	1	9
Potlach	2	10	July 23	1	5

Early and Late Varieties of Peas vs. an Early Variety Sown at Different Dates

The varieties Gradus, McLean Advancer and Stratagem were used, compared with the variety Thomas Laxton which was sown at different dates. All varieties were sown in rows 30 feet long, 30 inches apart and 1 to 1·5 inch between the plants. The results are as follows:—

GARDEN PEAS—DATES OF SOWING

Name of Variety	Date of sowing	Ready for use	Last picking	Yield gallons
Thomas Laxton	May 15	July 14	July 27	3½
Gradus	May 15	July 16	July 12	3½
Thomas Laxton	May 22	July 27	August 2	3
McLean Advancer	May 15	July 22	July 14	3
Thomas Laxton	May 29	July 29	August 5	2½
Stratagem	May 15	August 10	August 16	4
Thomas Laxton	June 5	July 31	August 10	2

CITRON

Two varieties were tried and the seed was sown in hills 9 feet apart each way and three hills per variety. The yield for each variety was: Colorado, 250 pounds; Red Citron, 124 pounds.

CUCUMBERS

Nine varieties were sown in the open garden in hills 6 feet apart and two plants left per hill. The variety Early Russian was the earliest and the varieties White Spine and Davis Perfect are recommended for green cucumbers, while the variety Boston Pickling is very good for pickling. The yields for three hills were as follows:—

CUCUMBERS—TEST OF VARIETIES

Name of Variety	Ready for use	Yield per three hills
		Dozens
Early Russian	July 23	14
Davis Perfect	July 26	13
Boston Pickling	July 28	9½
White Spine	July 28	15½
Long Green Imp	July 28	13½
Early Fortune	July 31	14
Cumberland	July 31	11

SWEET CORN

Fourteen varieties were cultivated in hills 3 feet apart each way, and sown on May 23. On August 10 the variety Pickaninny was ready to be used. This corn is very sweet; the ears are small with black grains. The variety Early Malcolm was ready August 20 and Sweet Squaw August 24. The Golden Giant is not quite as early as the above-mentioned varieties, but very satisfactory, as is also the Mayflower.

CARROTS

Experiments were made with five varieties and, of these, the Chantenay proved the most desirable. The seed was sown in rows 30 feet long, 24 inches apart and 2 inches between the plants. The yield was as follows:—

CARROTS—TEST OF VARIETIES

Name of Variety	Yield
	Lbs.
Ox Heart	70
Improved Danvers	69
Chantenay	68
Inimitable	49
Scarlet Horn	41

CARROTS—DISTANCE OF THINNING

Name of Variety	Thinning	Yield per row 30 feet long
	Inch.	Lbs.
Chantenay	1½	80
Chantenay	2	65
Chantenay	3	60

As will be noted above, the carrots thinned 1·5 inch apart gave the largest yield.

BEETS

Five varieties were used for this purpose, four of the globe type and one of oblong shape. The seed was sown in rows 30 feet long, 30 inches apart and 3 inches between plants. The variety Half Long Smooth Deep Blood was preferred. The yield of the above varieties was as follows:—

GARDEN BEETS—TEST OF VARIETIES

Name of Variety	Yield
	Lbs.
Cardinal Globe	124
Crimson Globe	110
Early Wonder	107
Half Long Smooth Deep Blood	85
Early Model	84

BEETS—DISTANCE OF THINNING

Three rows of 30 feet long were seeded on May 15. The rows were 30 inches apart and the rows were thinned to 1, 2, 3, and 4 inches. The largest yield was obtained with the row thinned at 2 inches apart. The yield was as follows:—

Name of Variety	Thinning	Yield
	Inch	Lbs.
Detroit Dark Red	2	115
Detroit Dark Red	3	97
Detroit Dark Red	4	88

BEANS

Twenty varieties of beans were sown on May 15 in 30-foot rows 30 inches apart and thinned to 2 inches between plants. The growth was good in the early part of the summer, but about July 15 many varieties were subjected to anthracnose, which affected the yields. The varieties Masterpiece and Kentucky "Poll" escaped the disease and the varieties Grenell Rustless, Yellow Eye, Hodson Long Pod, Giant Stringless Green Pod, Hodson Wax and Davis Wax were attacked only lightly. The varieties King of the Garden Pole and Siberia Lima did not germinate. The yields were as follows:—

BEANS—TEST OF VARIETIES

Name of Variety	Ready for use	Yield	
		Lbs.	Oz.
Round Pod Kidney Wax	July 15	2	12
Challenge Black Wax	July 15	3	1
Currie Rustless	July 15	3	8
Pencil Pod	July 16	2	7
Stringless G. Pod-O	July 16	2	7
Stringless G. Pod, Burpee	July 16	2	5
Round Pod, Graham	July 16	3	12
Wardwells Kidney Wax-O	July 17	2	10
Wardwells K. Wax, Graham	July 17	1	6
Davis Wax-O	July 17	2	..
Plentiful French	July 18	2	12
Bountiful Green Bush	July 18	3	11
Fordhook Favorite	July 18	2	..
Grenell Rustless	July 18	3	12
Davis Wax, McDonald	July 18	2	..
Giant Stringless	July 18	3	5
Masterpiece	July 19	4	..
Yellow Eye	July 19	3	2
Extra Early Valentine	July 19	4	..
Refugee or 1,000 to 1	July 27	3	8
Hodson Wax	August 6	2	8
Hodson Long Pod	August 16	3	2

Early, Medium and Late Varieties vs. Beans Sown at Different Dates

Three varieties of beans were sown on May 15 in 30-foot rows, 30 inches part and 2 inches between the plants, and one early variety, the Round Pod, was sown at one week's interval for four weeks. The results were as follows:—

BEANS—DATES OF PLANTING

Name of Variety	Date of sowing	Ready for use	Green Pods	Ripe Pods	
			Gallons	Lbs.	Oz.
Round Pod Kidney Wax	May 15	July 17	6¾	4	2
Round Pod Kidney Wax	May 22	July 27	5½	3	
Round Pod Kidney Wax	May 29	July 30	4½	1	14
Round Pod Kidney Wax	June 5	August 2	4	1	10
Stringless	May 15	July 17	5¼	3	4
Valentine Red	May 16	July 19	5¼	4	2
Refugee or 1,000 to 1	May 15	July 27	6¼	3	4

ONIONS

Fourteen varieties were sown in the open garden on May 12 in 30-foot rows, 16 inches apart and thinned to one inch. On September 24 all the varieties were ripe and the yields were as follows:—

ONIONS—TEST OF VARIETIES

Name of Variety	Yield
	Lbs.
Ailsa Craig, Graham	54
Silver King, McDonald	53
Yellow Globe Danvers, Graham	52
Giant Yellow Prize Taker, Steel	51
Extra Early Flat, McDonald	45
White Barletta, McDonald	40
Yellow Globe, Steel	30
Giant Prize Taker, Graham	28
Southport White Globe, Steel	26
Large Red Wethersfield, O.	25
Yellow Globe Danvers, O. 921·2	23
Southport Red Globe, Steel	21
Southport Yellow Globe, Ewing	21
Australian Brown	18

Production of Onion Sets

The seed of two varieties was sown in the open garden on May 12 and 15 at 20 seeds to the inch. The yield of small onions for a row of 30 feet was: Yellow Globe Danvers, 7 pounds 8 ounces; Large Red Wethersfield, 9 pounds 6 ounces.

Onions harvested from sets planted on May 12, which came from three sources, yielded at maturity on August 11 for a row of 30 feet: Yellow Globe from Graham, 19 pounds; Reds from McDonald, 29 pounds; Yellow Globe Ste. Anne, 43 pounds.

Onions Started in Hotbeds vs. Onions Sown in the Open Garden

The rows seeded and planted were 33⅓ feet long and the yield as follows:—

Name of Variety	Hotbeds yields	Open garden yields
	Lbs.	Lbs.
Large Red Wethersfield	45	36
Yellow Globe Danvers	40	35
Prize Taker	40	47

MELONS

Four varieties of melons were sown in hotbeds on April 11 and transplanted into the garden on June 1, three plants per hill 9 feet apart each way. The yield of one hill of each variety planted is as follows: Milwaukee Market-O, 14¾ pounds; Milwaukee Market Vaughan, 13¼ pounds; Extra Early Hackensack, 12¾ pounds; Emerald Gem, 8¼ pounds.

CABBAGE

The experiment made included eighteen varieties of early, medium and late cabbage. The seed was sown in hotbeds on April 14. A row of 30 feet of each

variety was planted at 18 inches between plants for the early varieties and 2 feet for the late varieties. The results were as follows:—

CABBAGE—TEST OF VARIETIES

Name of Variety	Ready for use	Weight per 5 heads
		Lbs.
Jersey Wakefield	July 26	25
Paris Market	July 26	42
Copenhagen Market	July 30	21
Stanley	September 23	43
Succession	September 23	45
All Season	September 28	42
Volga	September 30	38
Enkhuizen Glory	September 30	45
Late Flat Dutch	October 5	37
Kildonan	October 8	30
Flat Swedish	October 13	47
Marblehead	October 13	36
Perfection "Savoy"	October 15	38
Early Amager Danish	October 17	37
Amager Danish		..
Selected Head-O	October 17	39
Fottler Improved	October 18	41

TOMATOES

Experiments were carried on with twelve varieties. The seeds were sown in hotbeds on April 4, transplanted in a semi-cold frame on April 24, and planted in the garden May 29 at a distance of 4 feet each way. Much loss occurred through rot and this is reported in per cent in the last column. The yield of 5 plants is given in the following table:—

TOMATOES—TEST OF VARIETIES

Name of Variety	Ready for use	Ripe	Green	Total yield	Per cent Rot
		Lbs.	Lbs.	Lbs.	%
Danish Export	August 13	70	12	82	30
Earlibell	August 14	62	15	77	40
Bonny Best	August 14	70	36	107	30
Crimson Canner	August 14	53	17	70	50
Prosperity	August 14	37	18	55	65
Round Scarlet	August 17	63	18	81	60
John Baer	August 17	52	16	68	50
Red Head	August 17	66	20	86	45
Perfection	August 17	40	13	53	75
Burbank	August 17	60	25	85	40
Burbank O	August 17	48	20	68	55
Chalks Jewel	August 17	51	17	68	50

Pruned vs. Unpruned Tomato Plants

For this experiment the seed was sown in hotbeds on April 1 and the plants transplanted in the garden on May 26. Some plants were not pruned. Others allowed to grow one stalk and others two stalks. The two last were tied to a stake as they grew and were pruned. The yield was as follows:—

PRUNED VS UNPRUNED TOMATO PLANTS

Name of Variety	Kind of treatment	Date of 1st picking	Yield		
			Ripe	Green	Total
			Lbs.	Lbs.	Lbs.
Bonny Best	1 support to 1 stem	August 12	80	25	105
Danish Export	1 support to 1 stem	August 10	75	20	95
Bonny Best	1 support to 2 stems	August 12	95	35	130
Danish Export	1 support to 2 stems	August 12	83	8	91
Bonny Best	1 support to 2 stems ½ foliage.				
Danish Export	1 support to 2 stems ½ foliage.	August 14	82	36	118
Bonny Best	No support no pruning	August 17	95	53	148
Danish Export	No support no pruning	August 18	138	45	183

PEPPERS

Four varieties were sown in hotbeds on April 1 and planted in the garden on June 1. The rows were 30 feet long, 30 inches apart and each row had 20 plants. The yield was as follows: Harris Earliest, 5 gallons; Neapolitan, 1 gallon. The fruits of the varieties Small Red Chili and Long Red Cayenne remained green.

CELERY

The seed of eight varieties was sown in hotbeds on March 29. The plants were transplanted once and planted in the garden on May 2 in rows 30 feet long, 30 inches apart and 6 inches apart in the rows. The plants were set out in trenches one foot deep and containing six inches of rotten manure and four inches of soil. As soon as the plants were 12 inches high, they were hilled. All the varieties made satisfactory growth. The weight of three plants is as follows:—

CELERY—TEST OF VARIETIES

Name of Variety	Ready for use	Quality	Weight per 3 plants	
			Lbs.	Oz.
Golden Self Blanching	September 7.	Good	7	4
Easy Blanching	September 15.	Good	5	8
Golden Yellow	September 18.	Good	7	..
White Plume	September 20.	Good	5	..
French Success	September 20.	Poor	6	..
Evans Triumph	October 4	Poor	7	8
Giant Pascal	October 8	Medium	7	4
Winter Queen	October 8	Medium	7	6

Blanching Method

For this experiment, two rows of 30 feet, the variety Self Blanching was used. During the summer, both rows were kept well cultivated and as soon as the plants were 12 inches high, one row was hilled with soil and boards put along the plants of the other row.

Results: The row hilled with soil was blanched 10 inches high and the row with boards 14 inches high, and clean.

CEREAL DIVISION

The experimental work with cereals was started at this Station in the spring of 1922. A block of 12 acres of land will be used for this purpose and a rotation of crops of peas and oats, roots, cereal plots and grain will be the cycle followed in order to destroy or check the growth of couch grass.

The spring of 1922 was a most peculiar one for cereals and other crops at this Station. It opened with little precipitation, permitting the sowing of most of the plots before May 5. On May 6, 7 and 8, 1¾ inch of precipitation fell and this rain was followed by cloudy but dry weather, only 2·24 inches of precipitation being registered from May 6 to June 8, when, on June 11, a big storm flooded the fields, which affected materially some of the plots.

The block of the land assigned to cereal work is not yet as uniform nor as clean as is desirable and, to prevent unfair results, all the plots were sown in triplicate, each plot being one-sixtieth of an acre in size. The nature of the soil is a heavy clay loam and roots were grown thereon the year previous.

SPRING WHEAT

Five varieties were sown on May 5. The growth of straw and grain was good for all varieties and was as follows:—

SPRING WHEAT—TEST OF VARIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of straw including head	Strength of straw on a scale of 10 points	Yield per acre	
			Inch.		Bush.	Lbs.
Early Red Fife, Ottawa 16	August 23	109	42	9·0	47	30
Chelsea, Ottawa 10	" 16	102	40	9·5	46	..
Marquis, Ottawa 15	" 23	109	40	9·8	42	30
Huron, Ottawa 3	Sept. 2	119	42	9·5	37	30
Ruby, Ottawa 623	Aug. 15	101	36	8·5	32	30

As is noted above, the yield for all the plots was very good, 32 bushels for the Ruby being the lowest. The straw was particularly good and free from disease.

OATS

All varieties were sown on May 5 in triplicate plots of one-sixtieth of an an acre except Ligowo and Liberty which were sown May 13. The results are as follows:—

OATS—TEST OF VARIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of straw including head	Strength of straw on a scale of 10 points	Yield per acre	
			Inch.		Bush.	Lbs.
Gold Rain	Aug. 12	98	40	9·5	120	..
Victory	" 17	103	40	9·0	110	10
Banner, Ottawa 49	" 14	100	42	9·5	105	10
Columbian, Ottawa 78	" 16	102	38	8·5	105	..
Daubenay, Ottawa 47	" 4	90	34	9·5	103	10
Alaska	" 5	91	38	9·0	99	32
Ligowo	" 29	107	42	7·5	72	12
Liberty, Ottawa 480	" 30	108	30	8·5	30	..

As will be noted above, remarkable yields were obtained. No lodging occurred with any varieties and the growth of straw was very good. A little rust, however, was observed on some of the plots.

It will be noted that the Ligowo and Liberty were sown eight days later than the others.

The Liberty is a hulless oat.

BARLEY

Seven varieties were included in the experiment, made up of four six-rowed varieties, one two-rowed variety, one hulless variety and one beardless variety. All varieties were sown on May 12 in triplicate plots of one-sixtieth of an acre.

A marked difference in growth, strength of straw, rigidity of heads, shelling of grain and date of ripening was noted. The results were as follows:—

BARLEY—TEST OF VARIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of straw including head	Strength of straw on a scale of 10 points	Yield per acre	
			Inch.		Bush.	Lbs.
O.A.C., No. 21	August 6	85	38	9·0	77	34
Chinese, Ottawa 60	August 8	87	40	9·2	73	34
Duckbill, Ottawa 57	August 29	108	38	9·5	69	24
Manchurian, Ottawa 50	August 8	87	38	9·2	66	32
Success	July 29	77	30	9·5	35	..
Albert, Ottawa 54	July 29	77	38	9·0	30	40

PEAS

Three varieties were sown on May 12 in triplicate plots of one-sixtieth of an acre. All varieties made very good growth. The variety Arthur was the latest in maturing but gave the highest yield.

PEAS—TEST OF VARIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of plant	Actual yield of seed per acre
			Inch.	Lbs.
Arthur, Ottawa 18	Aug. 23	102	36	2,160
Champlain, Ottawa 32	" 18	98	32	1,950
Chancellor, Ottawa 26	" 14	94	30	1,830

FIELD BEANS

Five varieties were sown on May 13 in triplicate plots of one-sixtieth of an acre, in rows 24 inches apart and thinned to 4 inches between the plants. The variety Norwegian is a brown bean, rather long and thin. The Navy variety is white, half-long and rather rounded than thin. The Yellow Sulphur Six Weeks is long and thin. The Beauty Bean is almost round, white-coloured with yellow eye. The Carleton variety is long and thin, half-white and half-brown.

The varieties Norwegian and Carleton ripened in 114 days, but the Carleton made very little vine growth, with a low yield. The results were as follows:—

FIELD BEANS—TEST OF VARIETIES

Name of Variety	Date of harvesting	No. of days maturing	Average length of plant	Actual yield of seed per acre
			Inch.	Lbs.
Navy, Ottawa 711	Sept. 11	120	20	2,280
Norwegian, Ottawa 710	" 5	114	15	1,800
Yellow Six Weeks	" 7	116	15	1,320
Beauty, Ottawa 712	" 6	115	14	1,200
Carleton, Ottawa 718	" 5	114	12	1,020

RYE

Two varieties were sown on May 12 in triplicate plots of one-sixtieth of an acre. The growth, considering the season, was quite good.

RYE—TEST OF VARIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of straw including head	Strength of straw on a scale of 10 points	Yield per acre
			Inch.		Lbs.
Prolific	Aug. 30	110	54	8·5	3,240
O.A.C. No. 61	" 30	110	52	8·5	2,500

FLAX

Four varieties were sown on May 13 in triplicate plots of one-sixtieth of an acre. Due to the drought prevailing, especially at the latter part of the season, and the condition of the land, the yield and quality of fibre were not as good as expected. The yield of these four varieties follows:—

FIBRE FLAX—TEST OF VATIETIES

Name of Variety	Date of cutting	No. of days maturing	Average length of plants	Strength of Straw on a scale of 10 points	Actual yield per acre, Seed	Yield of straw per acre
			Inch.		Lbs.	Lbs.
Premost	Aug. 15	93	25	9·5	1,200	2,160
Longstem	" 15	93	30	9·3	880	2,480
Kostroma	" 3	81	28	9·5	720	2,160
Blanc	" 10	88	24	9·5	1,200	1,600

FORAGE CROPS

As mentioned in other sections of this report, the spring of 1922 was not altogether satisfactory for the growing of roots and particularly for corn and sunflowers. It opened dry and cold and this was followed by heavy rain in the latter part of May and early June, which flooded the low-lying fields and caused baking of the soil.

The cold weather of early June caused a very poor germination and growth, and as a period of drought began during the last week of June to end only with the coming of snow, the reader will understand why the yields reported further in this report are so low.

The various forage crops reported on were grown on a piece of land which had been in timothy the preceding year. The land had been ploughed early, summer-fallowed and manured in the fall. The land was a heavy clay and naturally suffered from the weather conditions to a greater extent than would have a lighter soil.

The roots were sown on June 2 and harvested on October 18, while the corn and sunflowers were sown on June 2 and harvested on September 9.

MANGELS

Six varieties were sown in triplicate plots of one-hundredth of an acre. The seed was sown on June 2 in rows 27 inches apart and the plants thinned to 7 inches apart in the rows. Owing to the very dry weather that prevailed in this valley after July, the growth was checked and the yields were comparatively low.

MANGELS—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		3rd Plot		Average yield	
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.
Giant White Half Sugar	14	2	13	1,380	8	1,424	12	235
Yellow Intermediate Ottawa	10	1,765	12	891	10	1,157	11	604
Half Sugar Rose Danish Ste. Anne	11	1,024	8	801	10	1,157	10	327
Long Red Mammoth	10	1,157	8	1,424	8	1,424	9	668
Sludstrup Danish	10	1,765	8	801	8	1,424	9	663
Yellow Giant Intermediate	9	668	8	179	8	1,913	9	253

TURNIPS

Eight varieties of swede turnips were sown in triplicate plots of one-hundredth of an acre. The seed was sown on June 2 in rows of 27 inches apart and the plants thinned to 7 inches apart in the rows.

TURNIPS—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		3rd Plot		Average yield	
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.
Ditmar's Swede	23	671	23	1,916	22	182	23	256
Hall's Westbury	18	92	23	1,293	23	671	21	318
Kangaroo	23	671	17	225	22	182	20	1,692
Sutton Champion	18	1,959	23	1,916	18	1,859	20	1,277
Elephant	17	225	23	671	17	848	19	581
Good Luck	20	1,693	16	1,603	19	1,204	19	166
Bangholm	18	1,337	16	358	16	981	17	225
Monarch Nappan	18	1,114	15	1,736	19	581	16	1,809

SUGAR BEETS

Six varieties were grown in triplicate plots of one-hundredth of an acre. The seed was sown on June 2 in rows 27 inches apart and the plants thinned to 7 inches apart. The crop was harvested on October 18 with the following yield:—

SUGAR BEETS—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		3rd Plot		Average yield	
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.
British Columbia	14	402	6	445	11	402	9	749
Chatham	9	1,290	8	1,424	8	1,424	8	1,712
Sidney	9	668	7	1,557	8	1,424	8	1,216
Denmark	7	1,557	7	934	8	1,424	7	1,638
Waterloo	7	934	7	1,557	7	312	7	934
Vilmorin's Improved	6	1,068	6	445	8	1,424	7	312

The chemical analysis made by the Chemistry Division of the Central Experimental Farm of a dozen representative roots of each variety of the above test is as follows:—

SUGAR BEETS—CHEMICAL ANALYSIS

Name of Variety	Sugar in juice	Solids in juice	Coefficient of purity	Average weight of one root	
	Percentage	Percentage	Percentage	Lbs.	Oz.
British Columbia	18·72	20·90	89·58	1	8
Chatham	19·20	21·70	88·47	1	1
Sidney	18·50	20·50	90·24		15
Denmark	19·58	22·28	87·88	1	2
Waterloo	18·01	20·68	87·08		15
Vilmorin's Improved	12·17	15·01	81·06		14

FIELD CARROTS

Three varieties were tested in triplicate plots of one-hundredth of an acre. The seed was sown on June 2 in rows 27 inches apart and harvested on October 18. The variety Blanche de Belgique gave the highest yield, but due to the very dry fall, all the varieties were rooty.

FIELD CARROTS—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		3rd Plot		Average yield	
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.
Blanche de Belgique	11	1,644	17	225	13	730	14	199
Blanche Intermédiare	12	891	11	1,644	12	891	12	475
Danish Champion	10	1,780	10	1,780	12	891	11	816

INDIAN CORN

Twelve varieties were sown on June 2 in duplicate plots of one-hundredth of an acre, in rows 36 inches apart and thinned to 7 inches between the plants. As with the roots, the dry weather prevailing in late summer and fall checked greatly the growth and yield.

INDIAN CORN—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		Average yield		Stage of maturity
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	
Wisconsin No. 7	11	264	11	990	11	627	Milk.
Compton's Early	10	328	11	748	10	1,538	Late milk.
Leaming	10	812	10	1,296	10	1,054	Milk.
North Dakota	10	812	10	812	10	812	Milk.
North Western Dent	9	634	11	264	10	449	Late dough.
Bailey	9	1,602	10	328	9	1,965	Ears forming.
Leaming Imported	9	876	9	1,602	9	1,239	Ears forming.
White Cap Yellow Dent	8	1,666	10	86	9	876	Milk.
Golden Glow	9	160	9	150	9	155	Ears forming.
Twitchell's Pride	8	214	7	1,246	7	1,730	Dough.
Quebec No. 28	7	520	7	1,488	7	1,004	Early dough.
Longfellow	Just a few heads grew.						Late dough.

SUNFLOWERS

Nine varieties were tested under conditions similar to the corn varieties. The results are as follows:—

SUNFLOWERS—TEST OF VARIETIES

Name of Variety	1st Plot		2nd Plot		Average yield		Stage of maturity
	Tons	Lbs.	Tons	Lbs.	Tons	Lbs.	
Brook's Dwarf	19	1,204	18	300	18	1,752	In bloom.
Manteca	15	482	12	1,410	13	1,446	In bloom.
Mammoth Russian Early Ottawa	16	1,396	7	520	11	1,958	In bloom.
Early Ottawa	12	1,410	9	150	10	1,780	Grain formed.
Mixed Menmonite	10	1,054	10	328	10	691	In bloom.
Early Ottawa 76	12	684	6	1,794	9	1,239	In full bloom.
Mammoth Russian MacDonald	9	150	9	150	9	150	Head well formed but not in bloom.
Mammoth Russian Dakota Imported	9	150	6	1,068	7	1,609	Head well formed but not in bloom.
Prolific White	Just a few heads grew.						

POULTRY

Barred Rocks and Rhode Island Reds are kept at this Station, but the Barred Rocks only will be retained ultimately.

The spring of 1922 did not prove very favourable for hatching but the chicks hatched were reared very successfully. On December 31, the flock consisted of: 15 Barred Rock hens, 32 Barred Rock pullets, 13 Rhode Island Red hens, 131 Rhode Island Red pullets, 19 male birds.

FEEDING PULLETS AND YEARLING HENS

The pullets were fed with a home-mixed scratch feed containing one part of cracked corn, one part of wheat and one-half part of oats. The scratch grain is scattered in a deep litter of straw, morning and evening. The laying birds should be given less scratch grain in the morning as it makes them work more to find feed and exercise is the main point while feeding for high production. In addition to the scratch feed a dry mash of the following mixture: 100 pounds

of bran, 100 pounds of middlings, 100 pounds of cornmeal and 50 pounds of beef scrap is before the birds constantly in a hopper. Grit, shell, charcoal and fresh water is always at their disposal. During the winter time, mangels are fed as greens.

The yearling hens were fed the same, with the exception that they had only one-half part of cracked corn in the scratch grain and one-half part of cornmeal in the dry mash.

COST OF EGG PRODUCTION WITH RHODE ISLAND RED PULLETS, 1921-22

Month	No. of pullets	Cost of feed	Eggs laid	Price sold	Total value	Profit over feed	Loss on feed	Feed cost per doz. of eggs
1921		$ cts.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
November	172	22 50	402	0 30	20 10	.....	2 40	0 67·1
December	170	18 90	665	0 70	39 79	19 89	.....	0 34·1
1922								
January	169	25 40	1,045	0 65	56 61	31 21	.....	0 29·1
February	167	24 53	1,261	0 50	52 55	28 02	.....	0 31·2
March	166	25 18	2,378	0 40	79 26	54 08	.....	0 12·7
April	165	21 02	2,523	0 30	63 07	42 05	.....	0 09·9
May	163	18 52	2,520	0 25	52 50	33 98	.....	0 08·8
June	160	16 04	1,712	0 30	42 80	26 86	.....	0 11·2
July	133	14 08	1,833	0 30	45 83	31 75	.....	0 09·2
August	126	14 10	1,309	0 30	32 73	18 63	.....	0 12·9
September	74	8 04	1,018	0 30	25 45	17 41	.....	0 09·4
October	67	7 86	780	0 35	22 75	14 89	.....	0 12
Totals	.....	216 17	17,446	.....	532 44	318 77	2 40	0 20·63
Average No. of birds	144							
Average profit per bird	.....	.....	.....	.....	.....	2 19		
Net profit over cost of feed	.....	.....	.....	.....	.....	316 27		

COST OF EGG PRODUCTION WITH RHODE ISLAND RED YEARLING HENS, 1921-22

Month	No. of birds	Cost of feed	Eggs laid	Price sold	Total value	Profit on feed	Loss on feed	Feed Cost per doz. eggs
1921		$ cts.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
November	12	2 18	54	0 70	3 15	0 97	.....	0 48·4
December	12	2 20	62	0 70	3 61	1 41	.....	0 42·5
1922								
January	12	2 62	45	0 65	2 44	.....	0 18	0 69·7
February	12	3 06	58	0 50	2 42	.....	0 64	0 63·3
March	12	2 62	127	0 40	4 23	1 61	.....	0 24·7
April	12	2 28	136	0 30	3 40	1 12	.....	0 20·1
May	21	3 12	286	0 30	7 15	4 03	.....	0 13
June	21	2 98	200	0 30	5 00	2 02	.....	0 17
July	21	2 88	208	0 30	5 20	2 32	.....	0 16·6
August	15	2 58	78	0 30	1 95	.....	0 63	0 39·6
September	13	2 46	141	0 30	3 53	1 07	.....	0 20·9
October	13	2 48	120	0 40	4 00	1 52	.....	0 21·8
Totals	.....	31 46	1,515	.....	46 08	16 07	1 45	0 33·4
Average No. of birds.								
Net profit over cost of feed	.....	.....	.....	.....	.....	.....	14 25	
Net profit per bird	.....	.....	.....	.....	.....	.....	1 04	

It will be noticed that the pullets gave a net profit of $2.19 per bird, while the yearling hens gave only $1.04 profit per bird. However, the yearling hens are more valuable for breeding purposes.

WIDE AND NARROW RATION FOR FATTENING COCKERELS

To determine the difference and influence of a wide and a narrow ration for the fattening of cockerels, the above experiment was carried on.

A ration is wide or narrow according to the percentage of protein compared to the other nutrients therein. In this case, the ration called "wide" contained 1 part of protein for 5·09 parts of other nutrients, carbohydrates, etc., and the "narrow" ration contains 1 part of protein for 4·1 parts of other nutrients.

As the proteins are the most expensive to buy, this explains why the profits are lessened when an over-supply of this element is served.

Rations.—Crate No. 1—6 parts of milk, 1 part of ground oats, 1 part of cornmeal, 1 part of buckwheat. Ratio, 1:5·9.

Crate No. 2.—Four parts of milk, 1 part of ground oats, 1 part of shorts. Ratio, 1:4·1.

FATTENING COCKERELS

Crate No.	Weight starved	Weight 21 days	Average gain per bird.	Feed consumed	Pounds of feed to pound of gain	Cost of pound of gain.	Live weight	Value at 20c. a pound.	Fatted and dressed weight.	Value at 28c. a pound.	Increase in value	Total cost of grain	Net profit
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	$ cts.	Lbs.	$ cts.	Lbs.	$ cts.	$ cts.	$ cts.	$ cts.
1.....	58	83	2·08	84	3·3	·07·4	58	11 60	75	21 00	9 40	1 89	7 51
2.....	55	74	1·58	74	3·9	·08·7	55	11 00	65	18 20	7 20	1 67	5 53

The wide ration has proved to be the more profitable as it produces one pound of gain at a lower cost and gave a net profit of $7.51, while the narrow ration gave a net profit of $5.53, or a difference of $1.98 surplus profit for the wide ration. This is in accordance with results obtained at the Central Farm. See Report of Dominion Poultry Husbandman.

BEEFSCRAP VS. EGGS VS. SPROUTED OATS VS. MANGELS FOR THE REARING OF CHICKENS

Three groups of Rhode Island Red chickens were used for this experiment and were hatched in June, 1922, out of a Candee incubator and put in a Candee brooder. They were placed in three separate pens of thirty chickens each. The average weight was registered when they entered the brooder and at every week-end of the period.

A standard, home-made grain ration was fed in the litter to each group of chickens and was composed of equal parts of cracked corn and wheat. A dry mash composed of equal parts of bran, middlings, cornmeal and rolled oats was fed to all groups in hoppers, plus one of the above feeds to each lot.

COMPARISON OF FEEDS FOR CHICKENS

Pen No.	No. of chickens used	Ration	Mortality during						No. of chickens alive at end of period	Total average gain in oz.
			1st week	2nd week	3rd week	4th week	5th week	5 wks. period		
1	30	Standard ration with beefscrap.....	6	3	3	1	1	14	16	3·86
2	30	Standard ration with eggs.....	3	3	2	0	1	9	21	4·02
3	30	Standard ration with sprouted oats and mangels.	7	3	0	0	1	11	19	3·42

In the above experiment, the group receiving the standard grain ration, plus eggs, gave the best results and were closely followed by the group receiving the standard ration plus beef scrap. The eggs used were the infertile eggs taken away from the incubator. If such eggs are not available, beef scrap would be a good substitute.

BEEF SCRAP VS. MEAT VS. MILK AS FEED FOR THE LAYING HENS

In order to determine the most efficient food for egg production, an experiment was carried during a period of five months with four pens of twelve pullets each, hatched on the same date and as uniform as possible and fed as follows:—

Pen No. 1.—Beef scrap, 15 per cent in dry mash, plus the standard grain ration.

Pen No. 2.—Horse flesh cooked and kept continuously before the birds, plus dry mash and standard grain ration.

Pen No. 3.—Skim-milk at will, plus dry mash and the standard grain ration.

Pen No. 4.—Control pen. Dry mash and standard grain ration only.

The standard grain ration was composed of 1 part of cracked corn, 1 part of wheat and ½ part of oats, served in the litter morning and evening.

The dry mash was composed of 1 part of corn meal, 1 part of ground oats and 1 part of bran, which was fed in hoppers, but at noon a wet mash was given of the above mixture.

PEN No. 1—15 PER CENT BEEF SCRAP IN DRY MASH WITH STANDARD GRAIN RATION

Month	No. of eggs laid	Value	Cost of feed consumed	Cost for 1 dozen of eggs	Gain or loss in weight	Profit on cost
		$ cts.	$ cts.	$ cts.	Lbs.	$ c s.
January	92	5 37	2 51	0 33	4¾	3 81
February	115	4 79	2 47	0 24	6¼	3 57
March	152	5 07	2 59	0 21	1½	2 78
April	129	2 69	2 59	0 24	−2¼	−0 46
May	135	3 37	2 86	0 25	1	0 94
Totals	623	21 29	13 02	0 25	G. 13½	11 60

PEN No. 2—MEAT WITH STANDARD GRAIN RATION

January	139	12 54	3 00	0 26	1¾	9 89
February	131	5 46	2 62	0 24	10¾	4 99
March	171	5 70	2 84	0 20	1	3 06
April	169	3 52	2 93	0 21	2	1 09
May	162	4 05	3 07	0 23	1½	1 35
Totals	772	31 27	14 46	0 22	G. 17	20 38

PEN No. 3—MILK WITH STANDARD GRAIN RATION

January	152	8 87	2 84	0 22	8¾	7 78
February	140	5 83	2 92	0 25	2	3 31
March	123	4 10	2 42	0 24	1½	1 93
April	125	2 61	2 98	0 28	1¾	0 06
May	143	3 57	2 86	0 23	3	1 64
Totals	683	24 98	14 02	0 25	16¾	14 72

PEN No. 4—STANDARD GRAIN RATION ONLY

January	92	5 37	2 51	0 33	4¾	3 81
February	115	4 79	2 47	0 24	6¼	3 57
March	152	5 07	2 59	0 21	1½	2 78
April	129	2 69	2 59	0 24	−2¼	− 46
May	135	3 37	2 86	0 25	1	0 94
Totals	623	21 29	13 02	0 25	G. 13½	11 06

The pen receiving meat gave the best results, producing eggs at an average cost of $0.22 per dozen or $0.03 less than the pens receiving beef scrap, milk or the standard ration.

APICULTURE

The twenty-seven colonies of bees placed in winter quarters in the fall of 1921 were taken out in the spring of 1922 strong, that is, with an average of five to six frames covered with bees and with enough honey in store to last till the dandelion harvest. The weather in early May being favourable to bees, the population of the various colonies increased rapidly and was in good condition for the honey harvest. At the end of May, the colonies had an average strength of ten frames of bees, but the weather then became cloudy and cold and the increase of honey up to June 15 was very light. From June 16 to June 28, a slight improvement was observed with a 5·5 pound increase in the hive under observation on the scale. From June 29 to July 11, honey gathering was poor. Between July 11 and July 24, the situation improved and seven pounds

of increase were registered in the hive under observation, on the best day. This period proved later to have been the best in 1922 for honey production. The ensuing drought caused the disapearance of most of the flowers and no more increase was registered in the hive on scales after July 25, to September 4. This same hive used 14 pounds of its stored honey to nourish its brood during that period. In September, the various colonies collected enough honey for their subsistence and took a flight practically every day in October.

The first nectar collected in the spring was on willows, dandelions, fruit and maple trees.

METHOD OF WINTERING BEES

Of the twenty-seven colonies taken to winter quarters in the fall of 1921, two groups of four colonies and one group of one colony were placed in cases packed with about 4 inches of shavings around the hives which were also covered with shavings in bags. The balance of eighteen colonies were wintered in the cellar of the horticultural building.

On April 5, the weather being bright, a rapid examination of the colonies wintered in the cases was made and eggs were found in all the hives. As there were no larvae, nor any aperculated brood, it was deduced that the queen had started to lay, on April 2. On April 16, the bees harvested their first pollen from the willows. On April 1, the shavings were removed from the cases and the colonies taken to their summer stands on May 20.

The average weight of honey consumed per hive by the bees wintered in cases was 19 pounds and every colony came out in a strong, vigorous state.

The eighteen colonies wintered in the house cellar were taken out on April 16, also in good condition. As the cellar was fairly cold, it had to be heated artificially to keep up the temperature to about 45° F.

The average consumption of honey for the colonies of this group during the winter was 18 pounds per hive.

INCREASE OF APIARY

In the spring of 1922, the apiary was divided into two groups. The first group, containing twelve colonies, was set aside for the production of honey and for swarm control, as well as for testing of hives of different sizes. As the season was very favourable to swarming, a few hives swarmed despite the regular visit made every ninth day to destroy queen cells.

The second group, which was used for increase, was composed of fifteen colonies. To effect this increase, before the honey flow came in, the following method was used:—

Three frames containing brood and covered with bees were set into a new hive with a queen cell ready to hatch. The mother colony, containing the old queen, was transported to another part of the apiary and the new colony set in its place. The place left in the new hive was filled with dry combs. This method has not given entire satisfaction, as a few virgin queens were lost on their mating flight. When a loss occurred, a new queen cell was introduced. Next year it is proposed to allow more space between the increase nuclei, and to locate them a distance from the apiary.

In the fall, the weakest colonies were united and the surplus queens were used to replace old queens in weaker colonies.

INCREASE BY THE NUCLEI SYSTEM

At the beginning of June, three colonies were formed with an Italian hive, by the following method:—

Two frames containing brood and covered with bees and one frame covered with honey to which a queen cell ready to hatch was grafted, were put into a

hive which was completed with dry combs. To prevent the old bees from returning to their old hive, the entrance was narrowed to one and a half inches. This space was well packed with moist moss and the hive taken to a shady place. After forty-eight hours, the bees had worked an opening and their narrowed entrance was removed. Owing to the very dry summer, these nuclei had to be fed artificially, but were fairly strong colonies in the fall.

INTRODUCTION OF NEW QUEENS

At the latter part of July, six Italian queens were introduced into some of the colonies. Two of these queens were from the United States and four from Quebec province. One queen was lost, but the others did well.

THE HONEY CROP

The total honey extracted from the twenty-seven colonies was 443 pounds, or an average of 16·4 pounds per colony. The highest yield from a colony was 57 pounds and is the lowest yield obtained for years. No honey was made in the supers containing one-pound sections. This low production is attributed to the two dry summers of 1921 and 1922 destroying, or preventing the growth, of white or alsike clovers and other flowers.

ARTIFICIAL FEEDING

The bees having failed to gather enough honey to fill their hives, artificial feeding was resorted to, by feeding 500 pounds of granulated sugar. With this sugar a syrup was made and fed as follows: Two parts of sugar were dissolved into one part of hot water and were fed to the bees through the " Miller Feeder" on September 16 for the colonies to be wintered in the cellar, an on October 10 to the colonies wintered in the cases, once they were placed therein.

WINTERING BEES

Forty-six colonies of an average strength of eight frames of bees were taken into winter quarters. Eight colonies were set into two cases of four each, on October 10. They were allowed their last flight on November 15. The balance, composed of thirty-eight colonies, were taken into a new cellar, with a concrete floor and walls and with no direct ventilation, the temperature being kept as near as possible to 45° F.

The colonies taken into winter quarters included thirty-four colonies of ten-frame hives, four colonies of nine-frame hives, four colonies of eight-frame hives, two colonies of twelve-frame hives and two colonies of ten-frame Jumbo hives.

EXHIBITIONS

Eight fairs were attended with a demonstrative exhibit of farm building models and farm produce which attracted thousands of visitors. These fairs are a means of meeting and discussing farm problems and to distribute farm literature.

The superintendent and his assistants have also judged grain and live stock at many fairs.

PUBLICITY AND EXTENSION WORK

A series of articles for the "Seasonable Hints" and the press were prepared during the year and many agricultural meetings were also held in different parts of the province.

ILLUSTRATION STATIONS

During the year a change has been made in the administration of the Illustration Stations. All the Illustration Stations located in eastern Quebec and lake St. John have passed under the immediate supervision of the Superintendent of the Ste. Anne Station. This change should prove beneficial to all concerned as this will tend to connect more closely the Experimental Station's work with that of the farmers. It will harmonize the work carried at the Experimental Station with that of the Illustration Station and will facilitate the introduction among the farmers of more definite lines of work either with field crops or live stock.

VISITORS

Despite the very poor year of 1922, visitors came in small and large numbers throughout the year.

NEW BUILDINGS

During the year, a fruit cellar was put up, a small cottage for the beeman, a small house for the superintendent and a poultry contest house. Our piggery and piggery section have also been transferred across the road.