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Canada

DOMINION OF CANADA

DEPARTMENT OF AGRICULTURE

DOMINION EXPERIMENTAL FARMS

EXPERIMENTAL STATION

SIDNEY, B.C.

REPORT OF THE SUPERINTENDENT

E. M. STRAIGHT, B.S.A.

FOR THE YEAR 1927

"Fancy Pears—Fancy Pack."

Printed by Authority of the Hon. W. R. Motherwell, Minister of Agriculture, Ottawa ,1928

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DOMINION EXPERIMENTAL STATION, SIDNEY, B.C.

REPORT OF THE SUPERINTENDENT, E. M. STRAIGHT, B.S.A.

THE SEASON

The winter of 1926-27 was mild but unpleasant. Frost was recorded in only a few instances. Little sunshine was recorded, however, making the season long and the spring work later than usual. The summer was not without rainfall, as many have been, while the autumnal rains were early and excessive. The hay crop was abundant—perhaps the finest harvested on the Saanich peninsula. The cereal crop was good both in grain and straw, but the harvest was difficult. In places the harvest of the crop, in some measure, was found impossible. Potatoes were excellent but were dug by hand in most instances owing to excessive autumnal rain. The fruit crops were light, especially plums and cherries. Pears and apples yielded fairly well and were of good quality. Prices for all fruit crops were better than usual. The various fodder crops were fair. A new fodder crop, Jerusalem White Artichokes, yielded well and attracted much attention.

METEOROLCGICAL RECORDS, 1927

Month	Highest	Lowest	Mean	Precipitation	Sunshine	Possible sunshine
January	51·0	18·0	37·8	3·53	49	273
February	45·4	35·0	40·2	3·91	109	286
March	52·0	30·0	41·1	1·89	150	370
April	65·5	29·0	45·8	1·26	186	411
May	70·0	37·0	51·5	1·08	250	473
June	80·0	48·0	60·6	0·91	244	482
July	89·0	50·0	64·1	0·25	318	486
August	84·0	46·0	64·1	0·49	292	444
September	74·0	44·0	55·9	2·27	167	377
October	64·0	32·0	49·0	4·49	90	335
November	56·0	29·0	41·9	8·54	48	276
December	55·0	20·0	34·9	2·94	77	259
Annual	.....	.....	48·9	31·56	1,980	

PRECIPITATION AT SIDNEY, B.C.

Month	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	Average 11 years
January	4·07	3·75	4·45	3·28	4·23	1·86	6·80	3·06	5·50	3·92	3·53	4·04
February	2·97	4·78	4·02	0·61	3·97	1·81	3·62	6·00	3·88	3·21	3·91	3·52
March	2·72	4·68	3·42	2·33	1·68	1·20	2·09	0·47	1·46	0·85	1·89	2·07
April	4·09	0·21	2·05	1·45	1·13	0·71	1·68	1·08	1·75	0·93	1·26	1·48
May	0·70	0·44	1·08	1·24	1·57	0·54	1·29	0·16	0·51	1·60	1·08	0·92
June	1·06	0·45	0·77	1·17	1·36	0·27	0·51	0·33	0·37	0·25	0·91	0·67
July	0·18	0·96	0·27	0·67	0·04	0·00	0·92	0·31	0·23	0·08	0·25	0·35
August	0·44	1·41	0·06	2·52	1·02	0·92	0·65	0·77	0·81	1·09	0·49	0·92
September	1·35	0·16	1·85	2·96	2·74	1·96	1·62	3·12	0·59	0·66	2·27	1·75
October	0·61	2·73	1·52	4·03	4·80	2·21	1·95	3·35	1·06	3·91	4·49	2·78
November	1·85	3·34	5·94	3·36	4·40	1·47	2·58	5·80	2·49	3·93	8·54	3·97
December	9·21	6·77	4·75	3·78	3·60	9·08	6·88	4·61	5·43	5·77	2·94	5·71
Totals	29·25	29·68	30·18	27·40	30·54	22·03	30·59	29·06	24·08	26·20	31·56	28·18

ANIMAL HUSBANDRY

Little beef is produced on Vancouver island, although something has been done in this line during recent years. Dairy cattle are popular, and among the best found in Canada. Of these the Jersey is most common. The mildness of the climate and other conditions, so like those found in the south of England and on the island of Jersey, have perhaps had something to do with popularizing this breed. The Jersey is the only breed kept at the farm. Horses are kept for farm work only, hence little experimental work with these has been found possible.

DAIRY CATTLE

The breeding herd, in so far as numbers go, varies little from year to year. Individual records are kept of milk production and feed consumed, and the cost of milk production and the profit over feed determined. Changes are made in the meal mixture to suit individual animals in the herd, and the period of lactation. The following may be regarded as a basic mixture for the cows in full milk.

Bran	500 lb.
Ground oats	400 "
Gluten meal	100 "
Cottonseed meal	100 "
Oilcake meal	100 "

This mixture is fed at the rate of about one pound of meal to four pounds of milk. No reference is made to straw for bedding, manure or calves in the following table. As the price received for fat varied at different seasons of the year, it was considered advisable to indicate the actual value of this constituent at the price received, and also to give a corresponding comparison with the fat valued at 50 cents per pound. This is shown in the table.

MILK PRODUCTION AND VALUE—COWS WHICH HAVE COMPLETED LACTATION PERIOD DURING 1927

Name of cow	Age	Date of dropping calf	Number of days in milk	Total milk produced in psriod	Per-centage fat in milk	Total fat producsd	Value fat when marketed	Value skim-milk	Total value receivsd for product	Total value of product with fat at 50 cents per lb.
	years		days.	lb.	%	lb.	$ cts.	$ cts.	$ cts.	$ cts.
Plasbes Model Jessie	13	Mar. 8-26	329	7,918·4	4·28	338·99	141 28	33 94	175 22	203 43
Majesty's Honeymoon Bess	11	April 28-26	302	5,147·9	4·34	223·81	93 71	22 01	115 72	133 91
White Robin's Queen	5	Sept. 11-26	296	4,091·5	6·7	275·06	122 79	15 87	138 66	153 40
Aviator's Bess of V.I.S.	3	June 10-26	393	4,674·3	6·36	297·24	128 98	18 42	147 40	167 04
Aviator's Lucille of V.I.S.	3	Mar. 25-26	322	4,307·2	5·65	243·59	103 16	17 47	120 63	139 26
Aviator's Queen of V.I.S.	2	Feb. 29-26	318	2,603·8	6·07	158·04	66 15	10 38	76 53	89 40
Aviator's Blossom of V.I.S.	2	April 26-26	319	5,555·2	5·5	307·33	135 77	22 66	158 43	176 32
Aviator's Honeymoon of V.I.S.	2	Mar. 26-26	343	4,392·4	5·2	228·7	95 18	18 15	113 33	132 50
Totals	.....	.....	2,622	38,690·7	.....	2,072·76	887 02	158 90	1.045 92	1,195 26
Averages	.....	.....	327·7	4,836·3	5·36	259·09	110 88	19 87	130 74	149 41

FEED CONSUMPTION AND COST—COWS COMPLETING LACTATION PERIOD DURING 1927

Name of cow	Age	Number of days fed	Meal at $50 per ton	Roots and ensilage at $5 per ton	Hay at $20 per ton	Total cost of feed	Cost of 1 lb. fat	Actual profit over cost of feed
	yrs.	days	lb.	lb.	lb.	$ c.	cts.	$ c.
Plashes Model Jessie	13	329	2,197	4,635	2,674	93 25	27·5	81·97
Majesty's Honeymoon Bess	11	302	1,762	3,826	2,399	77·61	35·0	38·11
White Robin's Queen	5	296	1,714	5,204	2,746	87·34	32·0	51·32
Aviator's Bess of V.I.S	3	393	2,162	4,743	2,795	97·87	33·0	49·53
Aviator's Lucille of V.I.S	3	322	1,795	3,433	2,071	74·17	30·4	46·46
Aviator's Queen of V.I.S	2	318	1,627	4,339	2,494	76·47	48·3	·06
Aviator's Blossom of V.I.S	2	319	1,688	3,521	2,061	71·61	23·3	86·82
Aviator's Honeymoon of V.I.S	2	343	1,492	3,819	2,169	68·55	30·0	44·78
Totals	.....	2,622	14,437	35,520	19,409	646·87	.....	399·05
Averages	.....	327·7	1,804	4,190	2,426·1	80·86	31·2	49 88

MINERAL FOOD FOR DAIRY CATTLE

Dairy cattle require large quantities of mineral feed, and do obtain it, no doubt, in the food eaten. Whether it is obtained in sufficient quantity to meet the drain on the animal's body, in producing milk and carrying a calf, is still uncertain. It is believed that undue emphasis has been given this phase of the breeding problem. At the Experimental Station the attempt is made to meet any deficiency that might arise by feeding a mineral ration composed as follows:—

Bone meal	25 lb.
Charcoal	25 "
Sulphur	3 "
Total	53 "

This 53 pounds is mixed with 1,200 pounds of meal, and fed with the meal. We are satisfied that this simple mixture is quite as valuable as complex and more expensive ones.

FEEDING MINERALS TO CALVES AND HEIFERS

What has been said concerning mineral feed for cows applies, in some measure, to calves. With calves there is not the daily drain of material through the milk pail as with cows. It has been argued that resistance to some diseases, such as abortion, may be built up by feeding the proper mineral food to calves and heifers, and cows when dry. For this purpose the following is being used:—

10 pounds calcium phosphate.
10 pounds sodium phosphate.
10 pounds Epsom salts.
10 pounds bone meal.
10 pounds sulphur.
4 pounds glauber salts.
4 ounces potassium iodide.

COST OF RAISING HEIFERS AND BULLS

The cost of raising dairy heifers is a matter which concerns all dairymen. The cost is always excessive, yet the future of the industry demands that the calves should be raised. The results show the cost to be so high that it is quite evident that it can be profitable to raise good animals only.

COST OF REARING DAIRY FEMALES

Name of calf	Date of birth	Monthly feed costs 1927 in dollars												Total cost of feed in 1927	Reported in 1926
		Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.		
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Sidney Aviator Cowslip	Feb. 20, 1926	3 56	3 27	3 72	3 60	3 00	3 00	3 00	3 00	3 00	3 00	3 68	5 36	41 19	66 73
Sidney Aviator Buttercup	Nov. 18, 1926	4 60	2 39	4 34	4 60	4 81	3 64	3 19	2 69	3 22	3 33	3 25	3 49	43 55	
Sidney Aviator Lassie	Dec. 20, 1926	11 44	7 09	3 59	4 13	3 70	3 64	4 41	3 19	3 22	3 26	3 30	3 49	54 46	
Sidney Honeymoon Lady	Mar. 15, 1927	.....	.....	2 85	13 02	6 68	3 87	4 96	5 23	5 10	5 74	5 46	4 81	57 72	
Sidney Aviator Jessie	Mar. 19, 1927	.....	.....	2 10	13 02	12 81	12 00	4 96	5 25	5 10	5 65	5 46	5 06	71 41	
Sidney Aviator Flo	Nov. 18, 1925	3 56	3 27	3 72	3 60	3 00	3 00	3 00	3 00	3 00	3 00	5 03	5 45	42 63	44 87
Sidney Golden Friar Florence	Dec. 17, 1925	3 56	3 27	3 72	3 60	3 00	3 00	3 00	3 00	3 00	*1 50	.....	.....	30 65	64 11

*Freshened Oct. 14, 1927.

COST OF REARING DAIRY MALES

The cost of rearing dairy males only emphasizes the importance of keeping the right animal as long as possible.

Name	Date of birth	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total cost of feed for 1927	Total cost of feed to date
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Baddacombe Bright Raleigh	Mar. 2, 1926	4 17	4 13	4 81	4 50	4 92	4 94	5 68	5 87	6 00	5 46	5 55	5 73	61 76	105 23

RELATION BETWEEN GROWTH AND AGE IN DAIRY CALVES

The relation between growth and age in dairy calves has recently received much thought from some investigators. Some have found that Jersey heifers mature normally and rapidly during the first year, and that the increase during the next six months is comparatively slow, after which increase slides up as during the first year. The weight of the small number of calves available has been determined month by month, and the increase tabulated for each three-month period. It would seem that the heifers increase rapidly at one time and slowly at another, as indicated.

RELATION BETWEEN GROWTH AND AGE IN DAIRY CALVES

Name	Date of birth	Weight at birth	Increase in weight each 3 month period								Total weight
			1-3	3-6	6-9	9-12	12-15	15-18	18-21	21-24	
		lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.	lb.
Sidney Aviator Flo	Nov. 18-25	52·0	143·0	115·0	110·0	90·0	50·0	80·0	30·0	15·0	685
Sidney Golden Friar Queen	Aug. 18-25	54·0	151·0	142·0	83·0	80·0	75·0	90·0	70·0	25·0	770
Sidney Golden Friar Florence	Dec. 17-25	57·0	153·0	120·0	130·0	75·0	75·0	45·0	20·0	.....	675
Sidney Aviator Cowslip	Feb. 21-26	50·0	110·0	190·0	102·0	88·0	45·0	85·0	80·0	.....	750
Sidney Aviator Buttercup	Nov. 18-26	62·0	168·0	150·0	125·0	120·0	.....	.....	.....	.....	620
Sidney Aviator Lassie	Dec. 20-27	60·0	170·0	115·0	120·0	.....	.....	.....	.....	.....	465
Sidney Honeymoon Lady	Mar. 15-27	57·0	158·0	145·0	.....	.....	.....	.....	.....	.....	360
Sidney Aviator Jessie	Mar. 19-27	52·0	118·0	160·0	.....	.....	.....	.....	.....	.....	330
Average	.....	55·5	145·7	142·1	111·6	90·6	61·2	75·0	50·0	20·0	

It will be noticed that the age of some calves will not permit of complete comparison with others. However, when thie is poesible the actual increase is consietent with the theory.

FIELD HUSBANDRY

The rotations as outlined in former reports have been followed. They fit the general scheme of things on the Saanich peninsula, and usually give satisfactory returns. Field operations are carried on under the serious handicap of high-priced land, too high for farm purposes. Since the areas given the rotations are small, it was found that the division of the field in three, four or five plots was not convenient, so the rotation in question produces one crop only in one year, and the rotation is completed at the end of the three, four or five years, as the case may be.

ROTATION "A" (THREE YEARS' DURATION)

1922—Wheat (winter).
1923—Timothy and clover.
1924—Roots.
1925—Wheat (winter).
1926—Timothy hay.
1927—Potatoes.

This rotation is one that is used to a considerable extent on Vancouver Island. The field consists of 5·5 acres and the soil is for the most part heavy clay loam. The wheat is usually sown during the latter part of September, at the rate of three bushels per acre. The seeding of the timothy is done by the grass seeder attached to the drill at the time of sowing the wheat. Six pounds of timothy is sown per acre, and in February ten pounds of red clover and four pounds of alsike are sown broadcast per acre. The rotation has much to recommend it. The soil is always well stocked with humus and comparatively clean.

SUMMARY OF YIELD, VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of operation	Profit or Loss	
			$ c.	$ c.		$ c.
Wheat (Sun)	1922	38 Bush.	93 80	66 43	Profit	27 37
Timothy and clover	1923	3·32 Tons	83 00	54 24	Profit	28 76
Summer fallow	1924	.....	.....	45 65	Loss	45 65
Wheat (Sun)	1925	42·18 Bush.	75 90	49 52	Profit	26 38
Timothy and clover hay	1926	3 Tons	60 00	52 19	Profit	7 81
Potatoes	1927	9·23 Tons	230 75	124 41	Profit	106 34

Owing to unfavourable weather conditions in 1924, summer-fallow replaced the roots in the rotation, and the cost of operation entered as a loss. The average yield of wheat per acre for a two-year period on this area was 40 bushels 9 pounds. The profit on the hay crop of 1926 was much less than that of 1923, due to the low value of hay on the market. The average yield for two years was 3·16 tons. The profit on the potato crop was $106.34, the cost per ton $13.48. The yield was very good, much above the average.

In connection with this work it should be remembered that the economic rent of land is especially high on Vancouver Island. This item alone amounts to $32.66 per acre, and is so charged against all crops appearing in the rotation.

ROTATION "B" (FOUR YEARS' DURATION)

1923—Wheat (Winter).
1924—Peas (Green manure).
1925—Corn (Manured).
1926—Wheat, oats and vetch (ensilage).
1927—Winter Wheat.

An attempt will be made to maintain the fertility of the soil without grass or clover appearing in the rotation. After the peas are harvested some such crop as dwarf Essex rape or rye is sown, to be ploughed in as a green manure to supply humus, etc.

SUMMARY OF YIELDS, VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of operation	Profit or Loss	
			$ c.	$ c.		$ c.
Winter wheat	1923	25·2 Bush.	84 86	67 10	Profit	17 76
Peas (Maple)	1924	22 Bush.	59 70	68 34	Loss	8 64
Corn	1925	7.16 Tons	42 96	90 19	Loss	47 23
Wheat, Oats, Vetch for ensilage	1926	11·93 Tons	79 53	81 64	Loss	2 11
Winter Wheat	1927	42·08 Bush.	88 53	62 29	Profit	26 24

If the wheat crop of 1923 is valued for the grain only, the cost of production would be very high. The straw, however, always scarce and valuable, gave us a credit balance of $17.76 per acre.

The high cost of production of the 1924 pea crop is largely due to the fact that the harvesting was done by manual labour. A pea buncher and harvester would have accomplished the cutting at approximately one-fifth of the cost. The yield of 22 bushels is below the average, which also adds to the cost of production per bushel.

Due to the very dry season in 1925 the corn crop was very light, in fact, several tons per acre below the average. Much of the foliage, especially the

lower leaves, were completely dried out before harvesting. Cutting took place on September 14. The corn crop reaped but little benefit from the application of 8 tons of manure per acre. This also was due to the drought.

The wheat, oats and vetch no doubt benefited considerably from the manure, as indicated by the yield of 11·93 tons. The yield from winter wheat in 1927 was much greater than that of 1923, due to the abundance of moisture in the soil during the late growing season, and to the residual effect of the manure applied in 1925.

ROTATION " C " (FIVE YEARS' DURATION)

1923—Vetch.
1924—Corn.
1925—Peas.
1926—Wheat
1927—Timothy or rye grass.

SUMMARY OF YIELD, VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of production	Profit or Loss	
			$ c.	$ c.		$ c.
Vetch	1923	16·7 Bush.	83 68	73 20	Profit	10 48
Corn	1924	9.69 Tons	58 14	99 59	Loss	41 45
Peas	1925	27·0 Bush.	73 20	66 71	Profit	6 49
Oats, replacing wheat	1926	34·0 Bush.	34 25	59 50	Loss	25 25
Peas and Oats for hay (replacing timothy)	1927	2·20 Tons	50 60	51 58	Loss	0 98

Rotation " C " is conducted on an area of two acres, the soil changing from a heavy clay to a light gravelly loam. In 1923 the vetches cost approximately $4.38 per bushel to produce and sold wholesale at eight cents per pound.

The feed value of corn ensilage is about one quarter that of hay. With hay selling around $21 per ton, the value of corn ensilage is approximately $6 per ton. This figure was used in computing the value of the crop.

The total value of the 1925 crop of peas includes the straw valued at $15 per ton. The cutting of the crop was done with a pea harvester and buncher attached to the mowing machine, saving considerable hand labour.

Owing to the lack of rain during the early fall of 1925 it was impossible to plough and prepare the soil in time to sow the wheat. Banner oats therefore were sown on March 13 in place of the wheat. The crop was very poor, the oats being thin and light. Peas and oats for hay replaced the timothy in the rotation for 1927.

ROTATION " D " (FOUR YEARS' DURATION)

1923—Winter Wheat.
1924—Timothy and clover hay.
1925—Roots.
1926—Peas.
1927—Winter wheat.

This rotation, similar to rotation " B," provides for the turning down of sod, the return of vegetable matter and fertility to the soil, and furnishes roots for the dairy cattle instead of an ensilage crop. This rotation is popular with men without a silo. Three acres of a light loam soil are given this work.

SUMMARY OF YIELDS, VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of production	Profit or Loss	
			$ c.	$ c.		$ c.
Wheat, Red Rock	1923	26·3 Bush.	85 31	67 23	Profit	18 08
Timothy and Clover	1924	2·05 Tons	49 20	53 64	Loss	4 44
Mangels	1925	12·13 Tons	121 30	112 37	Profit	8 93
Peas	1926	20 Bush.	45 34	61 75	Loss	16 41
Wheat, Red Rock	1927	33·25 Bush.	86 92	70 43	Profit	16 49

The cost of producing one bushel of wheat in 1923 was nearly as great as in rotation "B," but the market value of straw considered, the credit return per acre was $18.08.

Due to the very dry season the 1924 hay crop was much below the average.

The mangel crop, due to the very dry season and the gravelly character of the soil, was below the average yield. The value of the crop is placed at $10 per ton, mangels finding a ready sale at from $10 to $15 per ton throughout the district.

The pea crop of 1926 was much below the average. The price of peas and straw was much less than for many years past. These factors were chiefly responsible for the loss shown.

The wheat in 1927 gave a yield of 33·25 bushels of grain per acre, and 2·47 tons of straw. The Red Rock wheat in this rotation stood sixty inches high.

ROTATION "E" (FOUR YEARS' DURATION)

1924—Wheat, Oats and Vetch.
1925—Potatoes.
1926—Oats.
1927—Hay.

Potatoes are a crop that is becoming of greater importance in British Columbia. The introduction of this crop in the rotation is intended to clean the ground and keep the soil in good physical condition. The wheat, oats and vetch, sown in the fall, is cut for hay or ensilage, and the dairy cattle pasture on the second growth.

SUMMARY OF YIELDS. VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of production	Profit or Loss	
			$ c.	$ c.		$ c.
Wheat, oats and vetch hay	1924	2·69 tons	61 87	63 38	Loss	1 51
Potatoes	1925	4·39 tons	131 70	137 61	Loss	5 91
Oats	1926	51 bush.	55 70	57 37	Loss	1 67
Timothy and Clover	1927	2·83 tons	65 09	51 01	Profit	14 08

The excessive cost of production is largely due to the high rental charged. The rental is arrived at by charging the current rate of interest on the value of the land and to this amount is added taxes.

DATE OF SEEDING GRAIN CROPS: WHEAT, BARLEY, OATS

This experiment was started in the autumn of 1926. The object was to ascertain the best time to sow winter cereals. Plots of equal size were sown under field conditions one week apart, commencing on September 21st and ending November 2nd. The records were kept on the per cent winter killed, early spring growth, date of ripening and yield of grain and straw.

The area devoted to this work was summer-fallowed and consequently in a good state of tilth at seeding time. The soil conditions for the first three seedings were much the same, viz:—the top inch moist, and dry below. Subsequent seedings were made under ideal conditions. By December 1st the oats sown on September 21st and 28th were six inches high. The winter was mild, with the exception of a week's cold weather in December, when the temperature dropped to 21° F., accompanied by a strong N.E. gale, followed with 6 inches of snow. Growth during the early spring was slow, but an abundance of rain throughout the growing season resulted in good yields of grain and straw.

DATE OF SEEDING WINTER WHEAT

Plot	Date seeded	Date of emergence	Per Cent winter killed	Height April 1st	Date ripe	Height hwne cut	Yield per Acre	
							Grain	Straw
				inches		inches	bush.	tons
1	Sept. 21	Sept. 30	Nil	10	July 30	47	41·3	3·40
2	" 28	Oct. 6	"	10	" 30	47	36·6	2·84
3	Oct. 5	" 14	"	8	" 30	44	40·0	2·84
4	" 12	" 22	"	6	" 30	48	55·0	3·82
5	" 19	" 29	"	5	" 30	48	56·3	3·74
6	" 26	Nov. 6	"	3	Aug. 4	48	51·3	3·68
7	Nov. 2	" 14	"	2	" 4	48	55·3	2·80

Sun wheat was used in this experiment. The heads were large and well filled, the straw strong, stiff and a good height.

Plots sown from October 12th to November 2nd did better than those seeded earlier. These results are for one year only, and are not conclusive.

DATE OF SEEDING BARLEY

Plot	Date of seeding	Date of emergence	Per cent winter killed	Height on April 1	Date ripe	Height when cut	Yield per Acre	
							Grain	Straw
				inch.		inch.	bush.	tons
1	Sept. 21	Sept. 29	Nil	5	July 4	44	41·7	2·36
2	" 28	Oct. 6	"	5	" 4	42	55·0	3·14
3	Oct. 5	" 12	"	5	" 4	45	53·3	2·92
4	" 12	" 21	"	3½	" 4	48	57·5	3·32
5	" 19	" 29	"	3	" 11	50	50·0	2·78
6	" 26	Nov. 5	5 to 10	1½	" 11	50	35·0	2·24
7	Nov. 2	" 14	5 to 10	1½	" 11	43	28·3	1·90

From the above records it will be noticed that barley does best when seeded early, the last week in September and the first two weeks of October giving the best results. Bark's, a six-rowed variety, was used.

DATE OF SEEDING WINTER OATS

Plot	Date of seeding	Date of emergence	Per cent winter killed	Height on April 1	Date ripe	Height when cut	Yield per Acre	
							Grain	Straw
				inch.		inch.	bush.	tons
1	Sept. 21	Sept. 29	Nil	13	July 11	48	53·8	2·74
2	" 28	Oct. 6	"	10	" 11	48	48·8	2·68
3	Oct. 5	" 14	20	8	" 11	46	31·7	1·42
4	" 12	" 22	20	5	" 16	42	29·4	1·36
5	" 19	" 29	55	4	" 16	40	20·6	·90
6	" 26	Nov. 6	50	4	" 18	43	21·1	1·04
7	Nov. 2	" 14	60	4	" 21	42	18·8	1·00

To obtain the best results from winter oats it is necessary to sow early, just as soon as there is moisture enough in the soil to germinate the seed. On April 1st plots 1 and 2 were in very good condition. All plants were strong and healthy and no winter killing was noticeable. The variety used was 0·713, a white oat. It gave a better yield sown in September than in April. The yield from the spring sown plots was 50·4 bushels per acre.

COMPARATIVE YIELDS OF CORN, SUNFLOWERS, AND WHEAT, OATS AND VETCH

Plots one-third of an acre in size were used for this work. The soil, a clay loam, was manured and ploughed in the fall. A mixture of thirty pounds of Sun wheat, forty pounds of winter oats and fifty pounds of common spring vetch were sown at the rate of two bushels per acre on October 1st, 1926. The corn and the sunflowers were sown on May 20th in drills thirty-six inches apart, and thinned to twelve inches apart in the row on June 15th. The dates of harvest, height, per cent dry matter, and the yields per acre, green and dry weight, are given in the following table:—

Crop	Date of harvest	Average height when cut	Per cent dry matter	Yield per Acre	
				Green weight	Dry weight
				tons	tons
Wheat, Oats and Vetch	July 4	5′ 7″	37·98	10·74	4·07
Sunflowers	Sept. 4	7′ 2″	18·65	16·53	3·08
Corn	" 27	6′ 8″	19·53	11·44	2·23

HORTICULTURE

TREE FRUITS

Special attention is paid to the culture of tree fruits, small fruits, tender fruits, vegetables, flowers and nuts. No effort is being spared in the endeavour to obtain reliable information on cultural methods, varieties, yields and costs of many crops over a period of many years.

Systematic spraying of all fruit trees has kept them remarkably clean and free from insect pests and diseases. A few nests of the American Tent Caterpillar were found during the spring and destroyed. Pear scab was found on a few varieties but little loss sustained.

Continued late spring frosts caused great loss to the plum and cherry crops, reducing the set of fruit and yields throughout these sections of the orchard to about one-fourth of the average production. The set of fruit in many varieties of plums was nil. Apples were an average crop while pears were about one-half that of the previous year.

As usual, fall wheat (Red Rock) was seeded throughout the entire orchard, making fair growth until the middle of April, when it was ploughed under.

SPRAYING

The entire orchard, comprising apples, pears, cherries, peaches, apricots, nectarines, medlars and quince, is given dormant and calyx sprays each year.

For the past two years an autumn spray has been applied about the first of September with the object in view of controlling such diseases as apple and pear scab, and peach-leaf curl. Innumerable ripened spores of these and many other diseases are destroyed and thus prevented from causing further infection. The dormant spray keeps the trunk and branches of the tree in a healthy condition, destroying eggs of insect pests, and controlling disease. The combination spray, applied as soon as the petals have fallen, prevents disease and insect pests from becoming established on the fruit and foliage. These last two sprays, under ordinary conditions, are sufficient to insure fruit of good quality.

The sprays are made up in the following manner:—

1. Dormant—Consisting of commercial sulphur, 10 to 100 and applied to all fruit trees while still in a dormant condition.
2. Calyx—Consisting of commercial lime-sulphur, 3 to 100; black leaf 40, 1 pint to 100 gallons, and arsenate of lead (powdered), 3 pounds to 100 gallons.

SPRAYING COSTS

Spraying during the past season has been done with a small power outfit which has given entire satisfaction. This sprayer sustains a pressure of 200 to 250 pounds on two lines of hose fitted with spray guns. Three men and team are required to operate this outfit. In reckoning the cost of operating, 35 cents per hour is allowed per man and 35 cents per hour for the team. Cost of materials used in the spray-mixture is as follows: Commercial lime-sulphur 45 cents per gallon, arsenate of lead 35 cents per pound, and black leaf 40 $13.75 per gallon. Without allowing for any charges against the spray outfit the labour cost of operation per hour amounts to $1.40. The following table shows the quantities of spray used, the cost of materials and labour, as well as the total cost of spraying each tree when two sprays were applied.

COST OF SPRAYING—1927

—		Apples		Pears	
		Dormant	Calyx	Dormant	Calyx
Number of trees sprayed	.....	184	184	318	318
Quantity sprays used per application	gals.	260	280	250	300
Quantity spray used per tree	"	1·41	1·52	·78	·94
Quantity spray used per 50 trees	"	70·5	76	39	47
Cost of spray material per tree	cents	5·71	6·26	3·16	3·87
Cost of spray material per 50 trees	$	2·85	3·13	1·58	1·93
Time taken for spraying	mins.	1·80	2·10	1·80	2·25
Time required to spray one tree	"	1	1·1	57	·7
Time required to spray 50 trees	"	50	55	28·5	35
Labour charge applying spray	$	4·20	4·90	4·20	5·25
Labour charge applying spray 1 tree	cents	2·3	2·50	1·3	1·6
Labour charge applying spray 50 trees	$	1·15	1·25	·65	·80
Labour charge and materials 1 tree	cents	8·01	8·76	4·46	5·47
Labour charge and materials for 50 trees	$	4·00	4·38	2·23	2·73

APPLES—VARIETY EXPERIMENT

The section of the orchard planted to apples has given good returns during the past season—yields have been somewhat above the average and prices fair. Trees of a few varieties, of no value under our conditions, were pulled out and replaced with popular sorts. Yields have been compiled over a period of nine

years in terms of total pounds per tree. Following is a list of varieties under test, together with yields:—

APPLES—VARIETY EXPERIMENT

Variety	When Planted	Number of trees	Yield per tree 1927		Total Yield per tree for nine years		Seasons
			lb.	oz.	lb.	oz.	
Alexander	1915	2	113	4	325	1	Sept.-Oct.
Blenheim Orange	1916	2	177	4	425	10	Nov.-Dec.
Carolina Red June	1916	3	43	10	103	3	Aug.
Charles Ross	1914	2	129	8	505	6	Sept.-Oct.
Cox Orange Pippin	1914	12	83	0	263	7	Dec.
Delicious	1914	2	110	0	552	4	Jan.
Duchess of Oldenburg	1914	9	47	9	259	5	Aug.-Sept.
Early Colton	1916	2	169	8	404	12	Aug.
Goal	1916	1	133	8	214	0	
Gravenstein	1914	10	104	13	381	5	Oct.
Grimes Golden	1914	13	130	0	580	12	Jan.
Jonathan	1914	12	63	9	215	13	Dec.-Feb.
King David	1916	1	201	0	652	8	Dec.Feb.
King of Tompkins	1914	10	117	13	542	6	Oct.-Jan.
Linton	1914	1	344	0	927	12	Aug.-Sept.
Lowland Raspberry	1914	6	105	3	289	2	Aug.
McIntosh Red	1914	6	28	4	470	4	Nov.
Melba	1914	1	154	0	413	15	Sept.
M. Gladstone	1914	2	5	0	60	8	Sept.-Oct.
Missing Link	1919	2	116	0	251	2	Dec.-Jan.
Newtown Pippin	1916	2	24	8	207	1	Jan.-Apr.
Northern Spy	1916	2	44	8	226	4	Jan.-Feb.
Peasgood Nonsuch	1916	1	86	8	162	4	Sept.-Oct.
Percival	1914	1	125	0	565	2	Sept.
Petrel	1914	1	110	8	351	8	Aug.-Sept.
Red Astrachan	1914	14	99	10	329	2	Aug.-Sept.
Ribston Pippin	1916	1	27	8	44	14	Nov.-Dec.
Rome Beauty	1917	2	185	8	609	3	Jan.-Mar.
St. Germaine	1914	3	2	0	29	13	
Spitzenberg	1916	2	160	0	233	4	Dec.-Jan.
Sweet Bough	1914	2	64	8	85	2	Aug.
Transparente de Croncels	1914	2	149	0	342	1	Sept.
Trenton	1914	1	341	8	868	2	Aug.
Vanderpool Red	1916	2	5	8	121	12	Dec.-Jan.
Wagener	1914	11	163	2	525	4	Dec.-Jan.
Wealthy	1914	4	119	8	395	13	Sept.-Oct.
Winter Banana	1914	2	296	8	884	13	Jan.-Feb.
Winterstein	1919	2	38	0	114	4	
Wismer Dessert	1914	2	166	14	260	4	Oct.-Nov.
Yellow Transparent	1914	10	99	7	396	7	Aug.
York	1916	1	2	0	139	0	Sept.-Oct.

Some of the best varieties for planting in order of season are:—Yellow Transparent, Charles Ross, Melba, McIntosh Red, King, Wagener and Grimes Golden.

APPLE-FERTILIZER EXPERIMENT

This experiment was undertaken to determine the effect of various fertilizers on the growth of apple trees and also on the production of fruit. The following fertilizers were used separately and in combination:—

Range 1—Nitrate of soda—4 pounds per tree.
Range 2—Muriate of potash—4 pounds per tree.
Range 3—Acid phosphate—8 pounds per tree.
Range 4—A mixture of the foregoing fertilizers used at the rate of 8 pounds per tree.
Range 5—Check—no fertilizer.

In the ranges of trees to which the fertilizers were applied, the following varieties of apples occur:—King, Gravenstein, Red Astrachan, Lowland Raspberry, Grimes Golden, Cox Orange Pippin and Wagener. The amount of growth made by each tree has been taken for the past six years, also measurement of the diameter of the tree in inches and gains recorded. The following table gives these records obtained over a period of six years:—

EFFECT OF FERTILIZER ON GROWTH OF APPLE TREES

Fertilizer used	Season's growth (average for seven trees)		Gain in diameter (average for seven trees)		Total yield of fruit from seven trees for six years
	1927	For six years	1927	For six years	
	inch.	inch.	inch.	inch.	lb. ozs.
Nitrate of soda	5·0	13·1	10/32	106/32	4,748 0
Muriate of potash	4·5	11·1	12/32	84/32	3,284 14
Acid phosphate	5·5	12·0	11/32	91/32	3,773 10
Mixed	5·5	10·0	11/32	83/32	2,010 4
Check	3·5	10·0	8/32	87/32	1,978 14

PLUMS—VARIETY EXPERIMENT

The 1927 plum crop was almost a complete failure, due to the late spring frosts. Some thirty varieties of plums and twenty of prunes were under test. The accompanying tables give a list of these varieties together with yields per tree for nine years:—

PLUMS—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree 1927	Total yield per tree, nine years	Season
			lb. ozs.	lb. ozs.	
Apple	1919	1	.. ..	27 8	
Bartlett	1922	2	.. ..	0 2	
Black Diamond	1914	2	46 8	1,123 11	Aug. 26
Bradshaw	1914	2	104 0	688 7	" 26
Burbank	1914	1	10 0	111 8	Sept. 4
Columbia	1914	2	19 0	345 0	Aug. 19
Combination	1916	2	1 0	69 13	" 19
Conquest	1915	1	21 0	63 6	Sept. 3
Drap d'Or	1914	2	8 4	264 7	Aug. 6
Early Gold	1916	1	281 0	1,501 8	" 13
English Damson	1914	2	1 0	46 9	Sept. 14
First (Jap)	1916	1	.. ..	1 4	Aug. 15
Gaviota (Jap)	1914	1	.. ..	.. ..	
Giant	1916	3	21 11	274 2	Sept. 14
Gold	1916	2	.. ..	.. ..	
Greengage	1914	2	53 0	439 7	" 18
Jaune Hâtive de Thoisey	1914	2	2 14	226 10	Aug. 4
Mallard	1914	2	102 12	1,000 7	" 11
Mammoth Gold	1916	2	.. ..	.. ..	" 17
Peach	1914	11	12 0	410 0	" 8
Pond Seedling	1914	2	16 0	912 13	Sept. 8
Reine Claude de Bavay	1914	7	16 11	446 2	" 14
Shipper Pride	1916	1	.. ..	200 7	" 5
Santa Rosa	1918	3	.. 13	24 5	Aug. 13
Shropshire Damson	1914	15	1 7	245 8	Sept. 20
Victoria	1914	2	70 8	663 10	" 4
Washington	1914	2	78 0	845 4	" 1
Yellow Egg	1914	1	168 8	711 14	" 14
Dosch	1916	2	.. ..	30 11	" 24
German	1914	3	.. ..	475 7	" 18
Golden	1916	2	4 4	90 12	" 18
Imperial Epineuse	1919	2	.. ..	12 4	Aug. 18
Italian	1914	17	1 11	398 14	Sept. 16
Miracle	1916	2	.. ..	17 1	Aug. 8
Quetsche Dr. Létricourt	1914	2	.. ..	458 8	Sept. 16
Quetsche précoce d'Ebersweier	1914	4	2 4	174 3	Aug. 22
Quetsche précoce de Buhlerthal	1914	4	27 2	587 6	" 28
Quetsche précoce de Zimmer	1914	2	55 4	553 10	" 23
Quetsche Minôt	1914	1	.. ..	90 14	Sept. 16
Pacific	1916	2	19 12	204 8	Aug. 14
Silver			.. ..	.. ..	
Standard	1915	2	14 8	86 6	Sept. 14
Sugar	1914	2	185 12	593 6	" 20
Tennant	1916	2	.. ..	20 10	Aug. 24
Tragedy	1914	1	12 ..	418 15	" 8

Some of the best varieties of plums for planting are: Early Gold, Peach, Mallard, Pond's Seedling, Washington and Victoria.

The Italian prune is the most popular prune, but one of the poorest yielding sorts at this station.

CHERRIES—VARIETY EXPERIMENT

Cherries were a light crop during the past season, with prices good. Spraying controls brown rot effectively among the sweet cherries, with one or two exceptions. The variety Empress Eugenie being the chief of these. The following table gives the yield for the past season and also the total yield per tree for the past nine years.

SWEET CHERRIES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1927		Total yield per tree for nine years		Date of picking
			lb.	ozs.	lb.	ozs.	
Abbesse d'Oignies	1914	2	8	12	166	9	July 26
Abundance	1915	1	30	0	249	8	Aug. 1
Beauty of Ohio	1914	2	82	12	379	8	June 22
Belle de Choisy	1914	2	8	0	52	1	July 8
Belle d'Orleans	1914	1	4	0	143	2	June 22
Bing	1914	10	22	4	329	1	July 20
Black Hawk	1914	1	84	0	476	13	" 6
Black Republic	1916	1	113	0	293	10	" 26
Black Tartarian	1914	2	79	13	298	1	" 5
Burbank	1915	1	4	0	61	14	" 20
Deacon	1916	1	98	0	346	0	" 12
Elton	1914	3	50	6	316	8	June 25
Empress Eugenie	1914	4	38	6	245	14	July 8
Emperor Francis	1914	1	20	0	338	11	" 30
Früheste der Mark	1914	1	2	0	258	7	June 10
Garrafal	1916	1	14	0	125	14	July 13
Garrafal Grand	1916	1	2	0	59	3	June 18
Gros Noir	1914	1	1	8	24	10	July 15
Gros Rouge	1914	1	17	0	253	8	" 5
Guigne d'Annonay	1914	1	1	0	37	2	June 10
Guigne Pourpre Hâtive	1914	1	90	0	701	1	July 14
Guigne de Tarasçon	1914	1	2	0	49	4	" 29
Guigne précoce Rivers	1914	1	62	0	417	7	June 25
Jaboulay	1914	1	29	0	177	7	" 28
Jeffery Duke	1914	1	21	0	81	2	July 13
Lambert	1914	2	38	12	567	6	" 28
May Duke	1914	3	40	10	144	4	" 2
Marjolet	1914	2	9	8	94	8	" 8
Napoleon	1914	6	43	0	351	15	" 21
Pélissier	1914	1	7	0	157	6	" 25
Reine Hortense	1914	2	1	8	122	5	" 14
Reine Hortense Hâtive	1914	2	1	0	2	10	" 14
White Heart	1916	1	90	0	191	1	" 13
Windsor	1914	6	51	10	280	2	" 18

SOUR CHERRIES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1927		Total yield per tree for nine years		Date of picking
			lb.	ozs.	lb.	ozs.	
Baldwin	1914	1	8	0	110	2	July 7
Belle Magnifique	1914	3	41	10	264	11	" 26
De Belleu	1914	1	12	0	122	8	June 29
Early Richmond	1914	13	14	5	203	5	" 29
English Morello	1914	15	58	12	435	2	July 21
Gors Gobet	1914	22	37	0	274	6	" 13
Griotte Acher	1914	1	49	0	226	0	" 21
Montmorency	1914	15	81	1	492	6	" 16
Montmorency Brettonneau	1914	3	9	5	229	0	June 30
Montmorency Pleureur	1914	2	12	8	163	1	July 18
Nouvelle Royale	1914	1	53	0	241	6	" 20
Olivet	1914	16	28	0	291	1	" 28

Some of the best sweet cherries in order of ripening are:—Guigne précoce Rivers, Belle of Orleans, Beauty of Ohio, Elton, Black Tartarian, Windsor, Bing and Lambert.

The best sour cherries are:—Montmorency, Morello and Olivet.

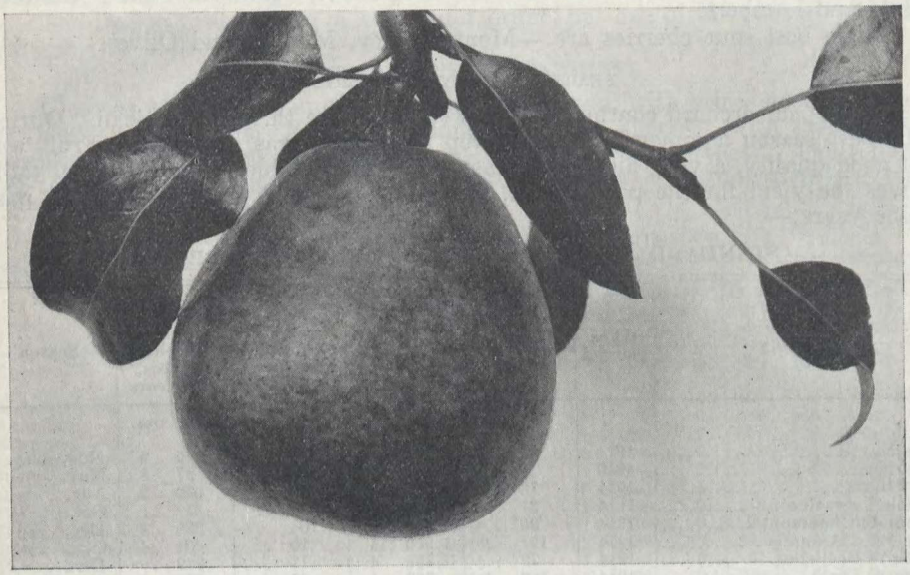
PEARS—VARIETY EXPERIMENT

The pear orchard continues to do well, trees are thrifty and clean. During the past season a somewhat lighter crop than usual was harvested. Fruit was of good quality, a very high percentage being marketable. The following table gives the yield for the past season, also the total yield per tree over the past nine years:—

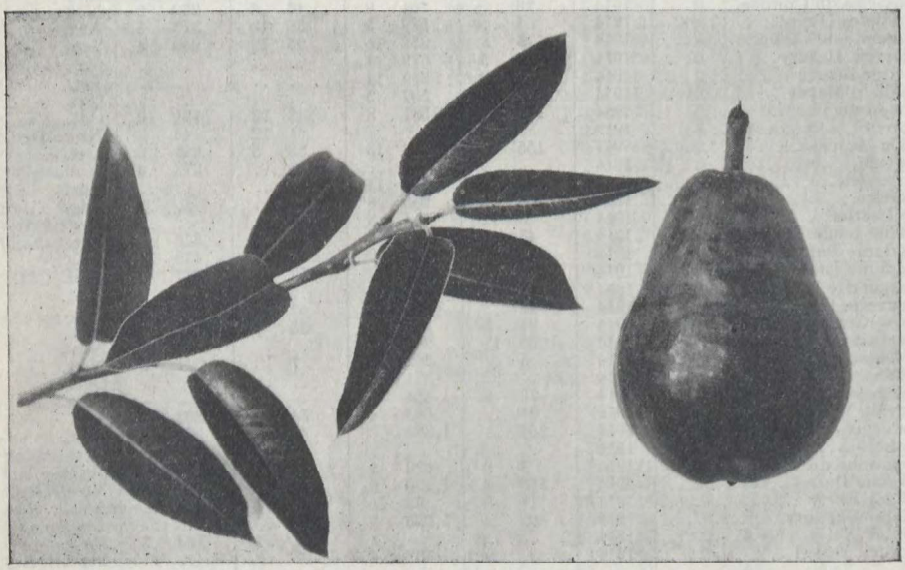
STANDARD AND DWARF PEARS—VARIETY EXPERIMENT

Variety	When planted	Standard		Dwarf		Season
		Yield per tree, 1927	Yield per tree, nine years	Yield per tree, 1927	Yield per tree, nine years	
		lb. ozs.	lb. ozs.	lb. ozs.	lb. ozs.	
Anjou	1914	40 6	640 12	55 4	246 9	Nov.-Dec.
Barry	1919	.. ..	.. ..	34 ..	97 8	Nov.
Bartlett	1914	78 0	661 12	93 ..	630 12	Aug.
Belle Lucrative	1914	31 8	504 10	.. ..	.. ..	Oct.
Besi de Chaumontel	1914	96 ..	180 8	108 ..	281 4	Dec.
Beurré d'Amanlis	1914	127 4	1,900 14	10 ..	404 4	Oct.
Beurré Bachelier	1914	72 ..	1,393 4	71 ..	242 ..	Dec.
Beurré Diel	1914	180 4	783 1	89 ..	678 8	Nov.-Dec.
Beurré Hardy	1914	68 0	449 0	36 8	473 9	Oct.
Beurré d'Avril	1914	15 12	618 ..	.. ..	.. ..	Mar.
Bosc	1914	55 10	562 10	.. ..	.. ..	Oct.-Nov.
Boussock	1914	154 7	982 1	196 ..	559 14	Sept.
Charles Ernest	1914	48 8	304 3	18 ..	121 ..	Nov.-Dec.
Clairgeau	1914	43 0	591 ..	.. ..	.. ..	Nov.
Crocker Bartlett	1914	136 0	633 ..	.. ..	.. ..	Sept.
Le Cure	1914	88 4	912 1	193 ..	1,119 4	Dec.
Doyenne d'Alençon	1914	10 ..	330 11	49 ..	468 11	Dec.
Doyenne du Comice	1914	26 ..	104 8	46 8	232 8	Nov.
Dr. Jules Guyot	1914	54 ..	539 5	58 12	373 5	Aug.
Favorite de Clapp	1914	115 8	932 15	95 12	640 4	Sept.
Flemish Beauty	1914	50 5	679 1	.. ..	.. ..	Oct.
Easter Beurré	1914	5 8	249 11	.. ..	.. ..	Jan.
Emile d'Heyst	1914	4 4	507 5	.. ..	.. ..	Oct.
Fondante Thirriot	1914	155 4	581 8	248 12	791 10	Oct.
Forelle	1919	.. ..	.. ..	61 12	146 8	Nov.-Dec.
Glou Morceau	1914	155 ..	467 13	83 8	641 0	Dec.
Howell	1914	.. ..	.. ..	133 ..	373 4	Nov.
Jargonelle	1914	113 8	291 11	.. ..	.. ..	Aug.
Koonce	1914	105 ..	285 8	.. ..	.. ..	Aug.
Le Lectier	1914	3 12	514 3	.. ..	.. ..	Dec.-Jan.
Louise bonne de Jersey	1914	43 ..	603 4	41 ..	356 ..	Oct.
Madame Baltet	1914	.. ..	307 2	.. ..	439 13	Jan.
Madame Ernest Baltet	1914	34 ..	181 ..	152 8	777 2	Sept.-Oct.
Marguerite Marillat	1914	43 12	533 2	.. ..	.. ..	Sept.
Nouvelle Fulvie	1914	28 ..	239 ..	62 8	311 6	Jan.
Passe Crassane	1914	24 8	291 ..	95 8	480 ..	Jan.
Pitmaston Duchess	1914	29 11	286 1	.. ..	.. ..	Nov.
President Deviolaine	1914	5 ..	242 8	7 8	341 6	Nov.
Princess	1914	.. ..	321 ..	.. ..	.. ..	Oct.
Rossney	1914	73 8	461 8	.. ..	.. ..	Sept.
Royale Vendée	1914	96 ..	685 4	54 ..	262 12	Jan.
Souvenir de Congres	1914	256 ..	1,399 ..	47 ..	370 9	Sept.
Seckel	1914	.. ..	.. ..	27 8	118 3	Oct.
Triomphe de Vienne	1914	3 8	626 8	.. ..	.. ..	Sept.
Virginie Baltet	1914	153 8	1,120 9	69 ..	587 13	Nov.-Dec.
Wilder Early	1914	14 8	99 ..	.. ..	.. ..	Aug.
Winter Bartlett	1914	401 ..	1,006 3	.. ..	.. ..	Dec.
Winter Nelis	1914	.. ..	.. ..	7 4	123 2	Jan.
Worden Seckel	1914	.. ..	137 4	.. ..	.. ..	Sept.-Oct.

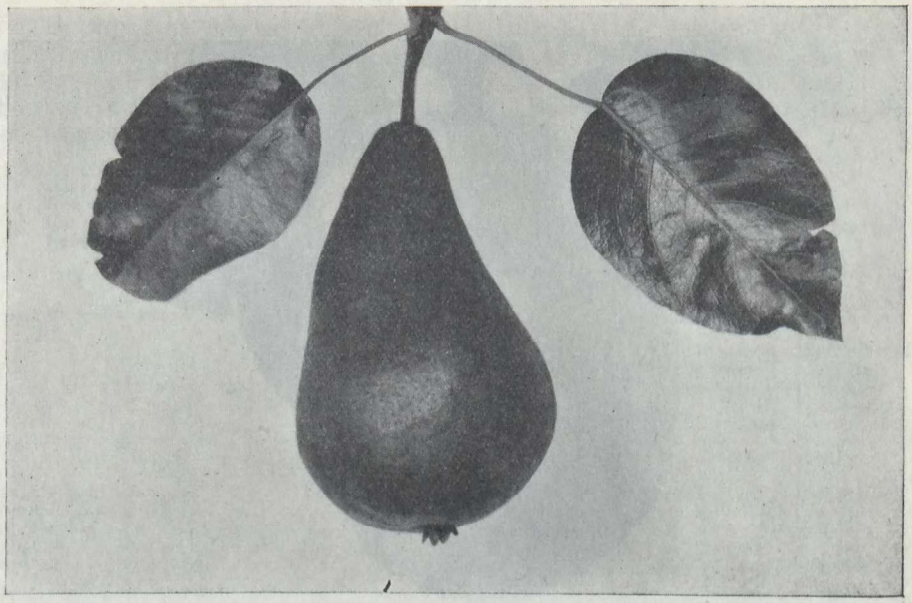
Some of the best varieties for planting are:—Bartlett, Boussock, Bosc, Clairgeau, Anjou and Passe Crassane.



Boussock.



Bartlett.



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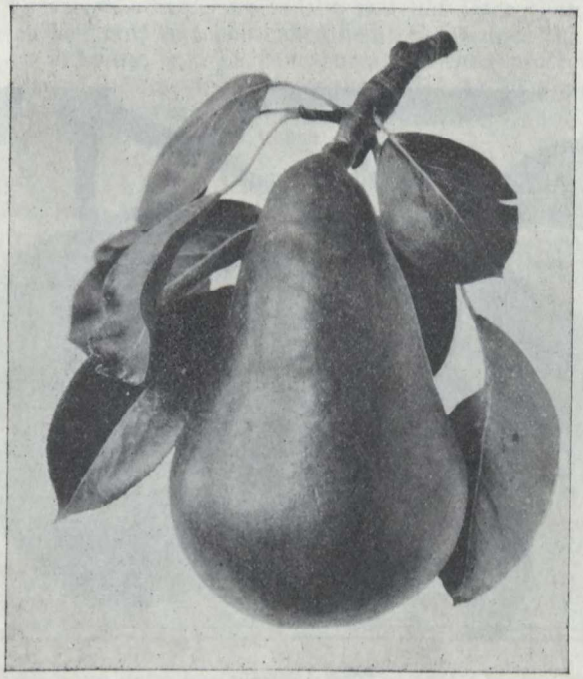
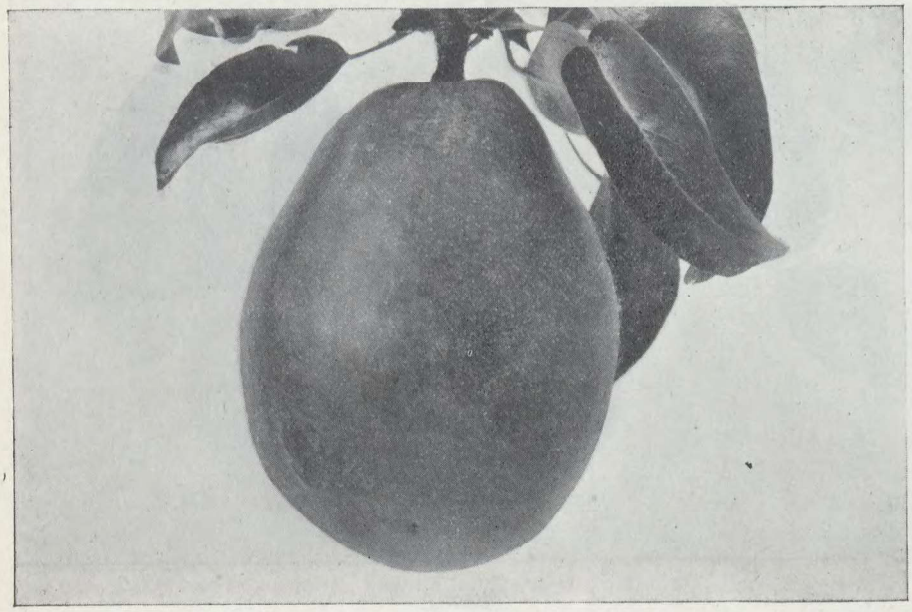
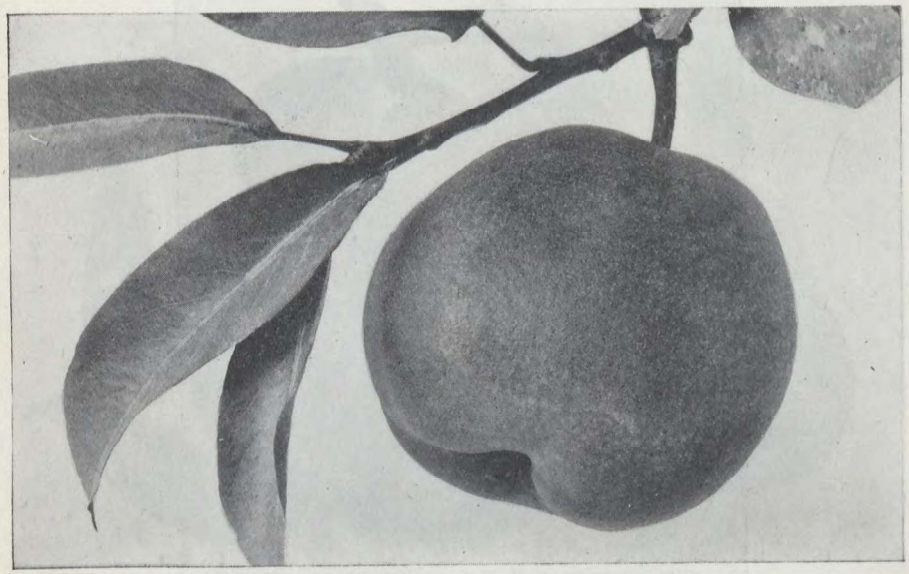


Clairgeau.



Anjou.



Passe Crassane.

FERTILIZER EXPERIMENT

The object of this experiment was to determine the value, if any, of the various chemical fertilizers, used singly or in combination, on the growth of pear trees. Six ranges of trees were set aside for this purpose, in which the following varieties occur:—Anjou, Cleargeau, Bosc, Dr. Jules Guyot, Bartlett and Boussock. Fertilizers were applied in the following manner:—

Range 1—Nitrate of soda—4 pounds per tree.
Range 2—Muriate of potash—4 pounds per tree.
Range 3—Acid phosphate—8 pounds per tree.
Range 4—Nitrate of soda 2 pounds, Acid phosphate 4 pounds per tree, Muriate of potash—2 pounds.
Range 5—Check—no fertilizer.

EFFECT OF FERTILIZER ON GROWTH OF PEAR TREES

Fertilizer used	Season's Growth Average for six trees		Gain in diameter for six trees		Total Yield of fruit from six trees for seven years
	1927	For six years	1927	For six years	
	inch.	inch.	inch.	inch.	lb. oz.
Nitrate of soda	3·0	12·0	$\frac{4}{16}$	$\frac{39}{32}$	5,643 12
Muriate of potash	4·5	12·0	$\frac{3}{16}$	$\frac{34}{32}$	4,440 5
Acid phosphate	5·0	11·5	$\frac{5}{16}$	$\frac{32}{32}$	4,346 4
Mixed	4·0	11·2	$\frac{4}{16}$	$\frac{42}{32}$	5,408 8
Check	3·0	8·6	$\frac{5}{32}$	$\frac{20}{32}$	2,782 8

PEACH—VARIETY EXPERIMENT

The past season was very favourable for the growing of peaches, and a large crop was harvested. Spraying in the fall not later than November, is important if peach-leaf curl is to be controlled. Sometimes the buds are well advanced early in January, and as the spores are then protected, cannot be reached by the spray. Lime sulphur (commercial) 1 to 16 gives good results.

The following table gives a list of the varieties under test, with the total yield per tree for the last nine years:—

PEACH—VARIETY EXPERIMENT

Variety	When Planted	Number of Trees	Yield per tree 1927		Total Yield per tree for nine years		Date picked 1927
			lb.	oz.	lb.	oz.	
Admiral Dewey	1919	1	50	0	97	2	Aug. 4
Alexander	1914	1	170	0	576	4	" 10
Alton	1918	1	5	0	31	0	Sept. 17
Early Crawford	1914	2	1	4	1	4	" 3
Early Elberta	1916	1	20	0	20	0	" 17
Early Imperial	1919	1	.....		.....		.....
Fitzgerald	1914	1	1	0	1	0	Sept. 3
Hale Early	1914	2	130	8	565	3	Aug. 10
Krummel October	1916	1	20	0	58	0	Oct. 13
*Mayflower	1919	2	.....		71	6	.....
Muir	1919	2	110	0	263	6	Sept. 9
Red Bird	1916	1	48	0	97	6	July 29
Royal George	1919	2	55	0	105	12	Sept. 7
Triumph	1914	1	94	0	357	0	Aug. 8
Trimuph	1916	1	46	0	131	0	" 8

*Pulled out 1927. Total yield for eight years.

Varieties which have done best at this station are:—Hale Early, Alexander and Triumph.

QUINCE—VARIETY EXPERIMENT

Several varieties are under test at the Sidney Station and fruit of good quality is produced. The market is limited and there seems to be little chance of this fruit becoming popular. Prices ranging from five to seven cents per pound have been obtained. The following table gives the yield per tree for the past nine years:—

QUINCE—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree 1927		Total Yield per tree for nine years		Season
			lb.	oz.	lb.	oz.	
Champion Orange	1914	7	25	2	43	0	Oct.
De Bereczki	1914	4	24	12	292	4	"
De Bourgeant	1914	4	39	6	318	14	"
De Portugal	1914	3	63	0	414	2	"
De Vranja	1914	2	16	8	78	0	"
Fabre	1914	4	21	0	202	4	"
Ordinaire	1914	3	6	11	48	14	"
Pineapple	1914	3	37	0	147	2	"

MEDLAR—VARIETY EXPERIMENT

This fruit is well known in England but seems to have little place here. Trees of four varieties were planted in 1914 and yields from these trees for the past nine years are recorded in the table below. This fruit cannot be recommended for planting.

MEDLAR—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree 1927		Total Yield per tree for nine years		Season
			lb.	oz.	lb.	oz.	
De Holland	1914	4	17	12	94	14	Dec.
Large Dutch	1919	1	7	0	15	12	"
Ordinaire	1914	2	39	0	345	6	"
Sans Pepin	1914	3	15	5	49	3	"

APRICOT—VARIETY EXPERIMENT

Plantings of this fruit include the following varieties: Moorpark, Superb, Royal and Du Chancelier. While Moorpack is one of the most popular varieties on the coast, none of these varieties shows any promise here and there is little indication that this fruit can be successfully grown under orchard conditions. Grown on the wall of a building heavy yields of fruit may be obtained.

NECTARINE—VARIETY EXPERIMENT

The following varieties are under test at this Station: Early Newington, Boston, Early Violet, Stanwick and Lord Napier, and of these the last two are the most promising. The trees are subject to the same diseases as the peach and the set of fruit is light. When grown on the wall of a building they do very well.

FIGS—VARIETY EXPERIMENT

Some of the varieties at the Station have borne fruit of good quality but there is no prospect of figs becoming of any commercial importance here. Of the many varieties grown, Ladero, Doree and Mission continue to do well. A good crop might be obtained if water could be applied during the very dry period. Twenty-eight varieties are under test.

SMALL FRUITS

STRAWBERRY BREEDING

In 1925, four hundred seedlings, resulting from open crossing, were grown and placed in the field in March, 1926. During that season the plants were not allowed to fruit and runners were kept cut. These plants bore fruit in 1927, when records were kept on individual plants as to size and vigour, form or habit, sex of flower, date of first bloom, amount of bloom and length of fruit stalk. It was obvious when the fruit began to ripen that many plants had little or no value. These were discarded immediately and no further record kept. The following table gives the names of the parent plants from which the seedling arose, also the number grown and retained.

STRAWBERRY SEEDLINGS

Parent Variety	Number Seedlings Grown	Number Seedlings Retained
Mariana	78	5
Burrill	61	5
Greenville	69	8
Bisel	73	8
Glen Mary	78	12
Lavinia	21	.....

Wide variation was shown in the character of the seedlings. In the same lots there was a difference in the date of ripening of from eight to ten days. Storage tests showed that some berries would stand up for nine days after picking and still retain their good qualities to a marked degree, while others were of little or no use after having been picked forty-eight hours. Size, flavour and yield were also very variable characters. After careful study some thirty-eight plants were staked and saved for further work as shown in the foregoing table.

In addition to the work already outlined some hybridizing has been done with several of the more prominent varieties. This work was done in 1926 and there are some eight hundred resulting hybrids in the strawberry plantation ready to fruit in 1928. The crosses were made as follows:—

Magoon X Royal Sovereign
Royal Sovereign X Magoon
Paxton X Magoon
Paxton X Mariana.
Greenville X Mariana
Greenville X Magoon

This work is being continued and will be reported on from time to time.

BLACK CURRANT—VARIETY EXPERIMENT

In 1922 two plantations of black currants were set out consisting of 200 plants of Boskoop Giant and 200 plants of Buddenborg. Plants were set 5 feet apart in the row with rows 6 feet apart. The accompanying table gives yields obtained for the past four years:—

BLACK CURRANT—VARIETY EXPERIMENT

Variety	Yield per acre 1924		Yield per acre 1925		Yield per acre 1926		Yield per acre 1927	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Boskoop Giant	710	8	2,247	8	3,103	0	5,429	0
Buddenborg	667	0	957	0	1,856	0	2,914	8

A serious drawback to the growing of black currants is the attack by the maggot causing wormy and unmarketable fruit. Poultry running through the plantation pick up great numbers of larvæ during the fall and early spring and therefore hold the pest in check to some extent. Digging over the soil around the bushes also destroys many of the larvæ.

GRAPES—VARIETY EXPERIMENT

In 1915 some eighteen varieties of grapes were planted in order to determine what variety or varieties would be most useful for outdoor planting on Vancouver Island. Many of these varieties have proven to be of little use; other varieties tested are suitable only for greenhouse culture, while a few have given very good results.

GRAPES—VARIETY EXPERIMENT

Variety	When set	Number of vines	Yield per vine 1927		Yield per vine nine years		Remarks
			lb.	oz.	lb.	oz.	
Brighton	1915	1	2	0	14	4	Good. Poor yielder.
Buckland Sweetwater	1915	1	6	0	10	8	No use outside.
Campbell Early	1915	2	18	0	156	0	Very promising.
Concord	1916	1	21	0	100	3	Fair but late.
Chasselas de Fontainbleau	1915	1	42	0	200	8	No use outisde.
Dattier de Beyrouth	1915	1	4	0	7	8	Useless.
Delaware	1916	2	5	10	56	10	Fair. Low yielder.
Flame Tokay	1917	1	16	0	120	0	No use outside.
Gros Colman	1915	1	12	0	133	0	No use outside.
Hartford	1915	5	13	13	141	6	Fairly good.
Lindley	1915	3	5	0	166	2	Fair, Imperfect fertilization.
Moore Early	1915	1	3	4	11	4	Very sweet. Poor yielder.
Peabody	1915	4	16	0	142	0	Fair.
Rose of Peru	1915	1	4	0	36	0	Late. Poor yielder.
Trentham Black	1915	1	20	0	57	0	No use outside.
Vergennes	1915	4	13	8	157	0	One of the best.
Winchell	1915	3	5	0	26	2	Good quality. Poor yielder.
RECEIVED FROM OTTAWA							
Brighton	1921	1	3	8	12	4	Fair.
Craig	1921	2	20	8	51	14	Very promising.
Early Daisy	1921	2	8	12	27	10	Small. Good quality.
Mary	1921	2	11	8	37	4	Promising.
Moyer	1921	2	3	0	7	10	Promising.
Lincoln (Read Hybrid)	1921	2	12	8	27	10	Good.
Wilkins	1921	2	16	8	36	8	Very promising.

The most promising varieties, considering quality and yield, are: Lindley, Moore Early, Vergennes and Campbell Early. In 1921 several newer varieties were sent from Ottawa. Some of these are yielding well and are of good quality. The best varieties are Craig, Early Daisy and Wilkins.

VEGETABLES

BEANS—DIFFERENT DISTANCES IN PLANTING

This project was begun five years ago in order to determine the distance apart which beans should be planted in the row to produce the most satisfactory results. Two varieties have been used,—Round Pod Kidney Wax and Stringless Green Pod. Seed was sown on April 27 in rows 30 feet long.

BEANS—DIFFERENT DISTANCES IN PLANTING

Variety	Distance apart in row	Date sown	Ready for use	Weight per 30′ row		Average five years 30 row	
	"			lb.	oz.	lb.	oz.
Round Pot Kidney Wax	2	April 27	July 8	23	4	18	10
	4	" 27	" 11	19	8	15	1
	6	" 27	" 11	18	9	12	2
Stringless Green Pod	2	April 27	July 9	21	12	15	0
	4	" 27	" 11	20	11	12	6
	6	" 27	" 11	18	0	10	10

Results obtained over a period of five years show that the closer the seed is planted the larger the yield and in most cases hastened maturity. No difference as to quality has been observed.

BEET—DIFFERENT DATES OF SOWING

The object of this project was to determine relative earliness, quality and yield as a green table vegetable, and also as a ripened crop for storing when grown at different dates. Seed was sown at ten-day intervals, one row each date, 30 feet long. One-half of the row was used to determine earliness, quality and yield as a green vegetable, and the other half of the row was left until the end of the season when the crop was harvested and stored. Detroit Dark Red was the variety used.

BEET—DIFFERENT DATES OF SOWING

Variety	When Sown	Green Vegetable Average yield for five years						Mature Crop Average yield for five years					
		Weight marketable		Weight unmarketable		Total Weight		Weight marketable		Weight unmarketable		Total Weight	
		lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Detroit Dark Red	Mar. 30	37	2	1	9	38	11	35	0	12	5	47	5
	April 10	34	6	1	12	36	2	33	0	12	0	45	0
	" 20	27	10	2	0	29	10	31	0	1	3	32	13
	" 30	24	0	5	0	29	0	23	0	9	0	32	0
	May 10	23	0	7	2	30	2	22	0	8	0	30	0
	" 20	20	2	7	0	27	2	19	0	10	0	29	0
	" 30	16	0	7	3	23	3	14	0	10	2	24	2
	June 10	12	0	7	10	19	10	10	0	8	0	18	0

Results obtained over a period of 5 years would show that early sowings are most profitable. For early table use seed should be in by March 23, but when seed is sown at this time those left to the end of the season are large and coarse. Yields are very low if seed is sown later than May 25th.

CABBAGE—DIFFERENT DATES OF SEEDING FOR STORAGE PURPOSES

In order to determine the best date for seeding cabbage for storage purposes, seed was sown on six different dates about 10 days apart. The first sowing was made in the cold frame February 28 with successive sowings being made in the open. Danish Ballhead and Copenhagen Market were the varieties used. Ten heads resulting from each date of seeding were weighed, placed in storage and their condition noted from time to time.

CABBAGE—DIFFERENT DATES OF SEEDING FOR STORAGE PURPOSES

Variety	Date sown outside	Date planted	Date stored	Average weight of ten heads four years		Days in storage
				lb.	oz.	
Danish Ballhead	Feb. 28	April 8	Sept. 8	72	0	Splits badly.
	Mar. 26	May 3	" 30	68	0	35
	April 7	May 17	Oct. 8	60	0	35
	" 14	" 25	" 15	54	0	40
	" 24	June 1	" 29	54	0	40
	May 4	" 15	" 29	47	0	50
	" 16	" 22	Nov. 4	48	0	50
	" 26	Too dry, not planted.				
Copenhagen	Feb. 28	April 8	July 16	50	8	Split badly.
	Mar. 26	May 3	" 29	48	0	"
	April 7	" 17	Aug. 26	32	0	30
	" 14	" 25	Sept. 2	32	8	30
	" 24	June 1	Oct. 26	24	0	36
	May 4	" 15				
	" 16	" 22	Too dry, did not mature			
	" 26					

Results obtained over a period of four years show that sowing in the cold frame gives the heaviest yields but splitting causes great loss. Later sowing resulted in loss of weight but produced heads that kept longer in storage. The best time to sow is about the end of March or early in April.

CARROTS—DIFFERENT DATES OF SEEDING

The detail of this project is the same as that for beets. Seed of the Chantenay variety was sown at eight different dates averaging 10 days apart, the first sowing taking place March 30. Thirty feet of row was sown in each instance, one half of the row being used to determine earliness, quality and yield as a green vegetable, the other half being left until the end of the season and placed in storage. The following table gives the results obtained over a period of five years:—

CARROTS—DIFFERENT DATES OF SEEDING

Variety	When sown	Green Vegetable. Average yield five years fifteen rows						Mature Crop. Average yield five years fifteen rows					
		Marketable		Unmarketable		Total weight		Marketable		Unmarketable		Total weight	
		lb.	ozs.	lb.	ozs.	lb.	ozs.	lb.	ozs.	lb.	ozs.	lb.	ozs.
Chantenay	Mar. 30	24	6	2	..	26	6	62	12	..	..	62	12
	Apr. 10	35	1	6	..	41	1	71	5	..	..	71	5
	" 20	30	12	..	..	30	12	54	12	..	..	54	12
	" 30	29	..	4	..	33	..	47	10	4	..	51	10
	May 10	22	..	2	8	24	8	36	..	..	..	36	..
	" 20	22	..	3	..	25	..	25	..	3	..	28	..
	" 30	12	..	4	..	16	..	15	..	5	..	20	..
	June 10	10	..	5	..	15	..	10	..	1	..	16	..

The results over a period of five years show that for yield the early sowings are the most satisfactory, and the resulting vegetables were in excellent condition for storage. Late sowings produce too small a yield unless water can be applied.

CELERY—BLANCHING EXPERIMENT

This experiment has been conducted for 5 years and has to do with the various methods of blanching celery. Seed of the Golden Self Blanching variety was sown in the frame on March 18 and the resulting plants set out in the open June 20.

CELERY—BLANCHING EXPERIMENT

	——	Earliness	Flavour	Crispness	Blanching	Weight twelve heads 1927	Average weight twelve heads five years
						lb. ozs.	lb. ozs.
1	Planted in a bed 6′ x 6′. Plants 6″ apart.	Medium early.	Very poor	Poor.....	Fair.....	14 ..	12 4
2	1 row, 15′ long, plants 6″ apart.....	Medium late.	Very good	Very good	Fair.....	23 ..	21 ..
3	2 rows alternating with those in the other row. 15′ long. Plants 6″ apart. Blanched with roofing material.	Very early.	Fair.....	Fair.....	Excellent.	22 ..	22 ..
4	1 row 15′ long; plants 6″ apart. Plants started in trench and gradually earthed up.	Medium late.	Good.....	Very good	Fair.....	29 ..	29 5
5	1 row 15′ long, plants 6″ apart, blanched with 12″ boards.	Early.....	Fair.....	Fair.....	Very good	26 ..	24 ..

Results obtained over a period of five years show:—

1. That close planting is not satisfactory; blanching is only fair and heads are very small and loose.
2. That blanching with boards or pliable roofing materials gives about the same appearance and increases the earliness of the crop. The blanching is excellent.
3. That celery earthed up with soil excels in crispness but is later.

CORN—SUCKERING EXPERIMENT

This experiment has for its object the testing of the value of removing the suckers from corn. In doing this two varieties were used, Early Malcolm and Golden Bantam, and planted in hills three feet apart each way. Seed was planted May 4. On one plot all suckers were removed as they appeared, while on the other they were allowed to grow. The following table shows the results obtained:—

CORN—SUCKERING EXPERIMENT

——	Date sown	Amount	Ready for use	Number of cobs	Weight	Average for five years	
						Number of cobs	Weight
					lb. ozs.		lb. ozs.
Early Malcolm							
Suckers removed.....	May 4	20 hills	Aug. 12	97	42 14	75	27 6
Suckers left on.....	" 4	20 "	" 16	98	42 ..	79	30 10
Bantam							
Suckers removed.....	May 4	20 hills	Aug. 23	82	36 12	57	25 3
Suckers left on.....	" 4	20 "	" 27	77	34 8	62	26 2

Results obtained over the five years show that the removal of suckers lessens the number of cobs, decreases the weight but slightly hastens maturity.

CORN—VARIETY EXPERIMENT

Fourteen varieties of Sweet Corn were tested to determine the relative value of each. Seed was sown May 4 in hills 3 feet apart each way. The following table gives the results obtained:—

CORN—VARIETY EXPERIMENT

Variety	Amount	Ready for use	Number of cobs	Weight	
				lb.	ozs.
Vanguard	20 hills	Aug. 19	92	51	..
Whipple Yellow	20 "	" 23	82	46	8
Early Fordhook	20 "	" 19	88	45	10
Whipple New Yellow	20 "	" 23	62	42	..
Early Malcolm	20 "	" 16	86	36	..
60 days Make Good	20 "	" 6	82	35	4
Gehu	20 "	" 12	76	34	12
Assiniboine	20 "	" 9	74	33	12
Sunshine	20 "	" 16	72	33	8
Early Dakota	20 "	" 16	70	32	8
Golden Bantam	20 "	" 27	52	24	..
Banting Strain 1926	20 "	" 3	75	18	..
Malakoff	20 "	" 19	44	17	..
Early June	20 "	" 9	57	14	4

It will be noted that the Banting Strain was the earliest variety but the cobs were very small. Vanguard gave the highest yield and is a corn of fairly good quality. Golden Bantam is the latest variety from the standpoint of maturity but it excels in quality.

ONION—TRANSPLANTING VS. SOWN IN OPEN

The object of this experiment was to determine the advantages, if any, of starting onion seed in a frame or greenhouse and then transplanting in the open. Seed of two varieties was sown in the greenhouse April 3 and transplanted in the open May 11. At the time of transplanting seed of the same two varieties was sown in the open with the results shown in the following table:—

ONION—TRANSPLANTING vs. SOWN IN OPEN

Variety	Transplanted. Yield per plot		Seeded in open. Yield per plot	
	lb.	ozs.	lb.	ozs.
Ailsa Craig	14	0	11	0
Giant Prizetaker Yellow	24	0	10	0

Average results obtained for three years show that much higher yields can be obtained from starting the seed in a frame or greenhouse and then transplanting to the open.

PARSNIP—DIFFERENT DATES OF SOWING

This experiment has for its object the determination of the best date for seeding parsnips in order to secure heaviest yield and highest quality. The various plots were seeded ten days apart, beginning March 30 and ending June 10. Rows were 30 feet long. The following table records the yields for the past season as well as the average yield for five years:—

PARSNIP—DIFFERENT DATES OF SOWING

Date sown	Date pulled	Variety—Hollow Crown				Unmarketable		Average five years			
		Length	Quality	Marketable				Marketable		Unmarketble	
				lb.	ozs.	lb.	ozs.	lb.	ozs.	lb.	ozs.
Mar. 30	Nov. 29	30′	Good.....	96	0	12	0	87	10	14	0
April 10	" 29	30′	"	84	0	16	0	79	14	13	0
" 20	" 29	30′	Fair.....	60	0	12	0	56	0	20	6
" 30	" 29	30′	"	42	0	14	0	46	6	15	6
May 10	" 29	30′	Poor.....	32	0	15	0	40	4	15	0
" 20	" 29	30′	"	22	0	17	0	32	4	17	0
" 30	" 29	30′	"	6	0	12	0	19	14	15	0
June 10	" 29	30′	"	7	0	12	0	13	4	19	0

It will be seen from the foregoing table that for the best results parsnips must be seeded early. Late seeding results in low yields and unmarketable crops.

PEAS—DISTANCE APART IN ROWS

This project was undertaken with the object of ascertaining the relative earliness, quality, yield as a green vegetable when planted 1 inch, 2 inches or 3 inches apart in the row. English Wonder, Thos. Laxton and Stratagem are the three varieties that have been used. Seed was sown in rows 30 inches apart. All varieties were seeded April 2. The accompanying table gives the results obtained during the past season and also the average yield for five years when plants were 1 inch, 2 inches, and 3 inches apart in the rows:—

PEAS—DISTANCE APART IN ROWS

Variety	Distance apart in row	Amount	Date sown	Ready for use	Height	Average weight five years			
						per 30′ row		per 30′ row	
	inch.				inch.	lb.	ozs.	lb.	ozs.
English Wonder.....	1	30′	April 2	June 25	24	22	10	16	0
	2	30′	" 2	" 27	24	21	6	15	14
	3	30′	" 2	" 27	22	21	5	12	6
Thomas Laxton.....	1	30′	April 2	June 24	30	25	12	18	14
	2	30′	" 2	" 25	30	18	4	15	4
	3	30′	" 2	" 26	29	15	2	13	15
Stratagem.....	1	30′	April 2	July 11	26	25	6	16	10
	2	30′	" 2	" 11	26	25	0	15	16
	3	30′	" 2	" 11	26	20	0	13	6

Results obtained over the five years this experiment has been conducted show that:—

1. The closer the plants the greater the yield up to at least 1 inch apart.
2. Closeness in row has little influence, if any, on quality or earliness.

POTATO—DIFFERENT DATES OF PLANTING

Two varieties, Burbank and Sir Walter Raleigh, were planted on five different dates at intervals of two weeks, the first planting being made May 4. This project begun in 1923 has for its object the determination of the best date to plant. The following table gives results obtained during the 1927 season and also the average yield for five years. Yields are based on 66 feet of row.

POTATO—DIFFERENT DATES OF PLANTING

Variety	Date planted	Date harvested	Marketable	Chats	Total	Yield per acre	Average yield five years
			lb. ozs.	lb. ozs.	lb. ozs.	tons lb.	tons lb.
Burbank	May 4	Oct. 29	48 0	10 0	58 0	7 1,313	6 1,675
	" 18	" 29	54 0	13 0	67 0	8 1,688	6 1,278
	June 2	" 29	50 0	14 8	64 8	8 1,028	6 1,411
	" 16	" 29	44 0	12 0	56 0	7 784	5 1,075
	" 30	" 29	39 0	11 0	40 0	5 560	3 1,324
Sir Walter Raleigh	May 4	Nov. 2	56 8	8 8	65 0	8 1,160	9 955
	" 18	" 2	58 0	8 0	68 0	8 1,852	10 935
	June 2	" 2	60 0	14 0	74 0	9 1,536	8 1,767
	" 16	" 2	56 8	12 0	68 8	8 1,984	7 1,595
	" 30	" 2	48 8	10 0	58 8	7 1,444	7 1,989

It would seem as though it is impossible to fix a date as being the best time to plant. Late planting in some years, when sufficient moisture is available to ensure the growing of all the seed, gives good results. In most cases this moisture is lacking at the Station and hence on the average the earlier planting gives higher yields.

POTATO—DIFFERENT DATES OF PLANTING TO SECURE BEST SEED

This project is based on the one immediately preceding, and has to do with the determination of the proper time to plant potatoes if intending to save the crop for seed purposes. The table is self-explanatory. Seed resulting from each of the different dates of planting the previous year was planted the same date (May 10) in 1927, and harvested October 28 and November 2.

Variety	Date planted 1926	Date planted 1927	Marketable	Chats	Total	Yield per acre	Average yield four years
			lb. ozs.	lb. ozs.	lb. ozs.	tons lb.	tons lb.
Burbank	May 3	May 10	35 0	10 0	45 0	5 1,880	6 837
	" 17	" 10	50 8	18 0	68 8	9 84	6 1,698
	" 29	" 10	49 0	19 0	68 0	8 1,852	6 746
	June 12	" 10	60 8	12 0	72 8	9 1,135	5 1,845
	" 25	" 10	49 0	18 0	67 0	8 1,688	4 1,801
Sir W. Raleigh	May 3	" 10	49 0	9 0	58 0	7 1,312	7 1,444
	" 17	" 10	58 8	12 0	70 8	9 612	8 1,259
	" 29	" 10	67 0	8 0	75 0	9 1,800	10 128
	June 12	" 10	78 0	9 0	87 0	11 968	11 737
	" 25	" 10	79 8	11 0	90 8	11 1,092	9 841

Results for four years show that early plantings of an early variety produce seed of greater vitality as indicated by higher yield. With Sir Walter Raleigh, a late variety, plantings made the end of May or early in June produced the best seed.

POTATO—SPRAYING EXPERIMENT

This project was undertaken in 1925 to determine the relative value of dust and liquid sprays for the potato crop. Sir Walter Raleigh was the variety used, planted May 10. Plot 1 was sprayed with Bordeaux 4-4-40 twice during the season. Plot 2 was dusted twice with 9 parts sulphur to 1 part arsenate of lead. On plot 3 no treatment was given. The following table gives the results for the past season along with the average yield for four years from 66 feet of row:—

POTATO—SPRAYING EXPERIMENT

Spray used	Date sprayed	Yield per plot, 1927		Yield per acre, 1927		Average yield per acre, five years	
		lb.	ozs.	tons	lb.	tons	lb.
Bordeaux 4-4-40	May 10	74	0	9	1,536	9	1,044
Dusted with 9 parts sulphur, 1 part arsenate of lead	May 10	67	0	8	1,688	8	1,127
No treatment	May 10	59	8	7	1,570	7	714

Spraying gives satisfactory results when carefully carried out. Results obtained over a period of years show that best results come from using Bordeaux as compared to dusting, both in yield and health of the plants.

POTATO—SPROUTED OR UNSPROUTED SEED

The chief object in this experiment was to determine the effect of sprouting on earliness and yield. Sixty-six sets each of sprouted and unsprouted potatoes of Rural Russet and Burbank varieties were planted on May 10. The sprouting was done by exposing the tubers to subdued light for six weeks at a temperature of about 50 degrees. The results, obtained during the past season along with the average yields for five years, are shown in the following table:—

POTATO—SPROUTED vs. UNSPROUTED SEED

Variety	Date planted	Date ready for use	Marketable		Unmarketable		Yield per plot, 1927		Yield per acre, 1927		Average yield per acre, five years	
			lb.	ozs.	lb.	ozs.	lb.	ozs.	tons	lb.	tons	lb.
Netted Gem—												
Sprouted	May 10	Sept. 7	29	8	17	0	46	8	6	272	7	364·0
Non-sprouted	" 10	" 7	26	0	15	0	41	0	5	824	5	645·8
Wee McGregor—												
Sprouted	" 10	" 1	37	0	7	8	44	8	5	1,748	9	905·8
Non-sprouted	" 10	" 11	31	0	10	8	41	8	5	956	8	394·0

Sprouted seed increases earliness by about ten days, and also increases yield as shown by results obtained over a period of five years.

RHUBARB—FORCING EXPERIMENT

This experiment has been conducted to obtain information on the advantage, if any, of exposing rhubarb roots to frost. One lot of roots was lifted and allowed to freeze for some days before storing, and then the two lots were

placed in the root cellar on December 22—each lot occupying 16 square feet of floor space. Temperatures were recorded on the various dates of picking each week. The following table gives the yields week by week and also the average yield for four years.

RHUBARB—FORCING EXPERIMENT

Treatment	Dates of harvesting, with temperatures										Yield per 16 square feet	Average yield four years
	40° Feb. 26	41° March 12	42° March 19	40° March 26	42° April 2	44° April 9	46° April 16	46° April 23	49° April 30	48° May 7		
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
Roots exposed to frost.....	1 8	3 8	4 0	54 0	6 0	4 0	12 0	6 8	5 0	9 0	56 12	61 10
Roots not exposed.....	.. ..	1 0	1 8	2 0	4 0	5 0	2 12	11 8	8 8	15 0	51 4	48 9

Exposure to frost before storing roots for forcing increases both yield and earliness.

Work has also been done to determine the best means of forcing rhubarb on a small scale suitable to the needs of the average family where a dark corner in the basement or root cellar is used. One lot of two large roots was covered with soil while another lot was covered with straw. The following table shows the yields obtained for the past year and the average yield for 4 years.

RHUBARB—FORCING

—	Dates of harvesting and temperature							Yield 1927	Average yield four years
	41° March 12	42° March 19	40° March 26	42° April 2	44° April 9	°46° April 16	48° April 30		
	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.	lb. oz.
Roots covered with soil. 2 large roots.	0 12	1 4	1 0	0 14	0 12	0 14	1 0	6 12	17 2
Roots covered with straw..... 2 large roots.	.. ..	0 10	1 6	1 0	0 4	1 2	1 0	5 6	13 2

Soil covered roots show a somewhat heavier yield than those covered with straw, and also have some advantage as to earliness.

TOMATOES—METHODS OF TRAINING

This experiment, begun in 1923, has for its object the determination of earliness, yield of total ripe, green, marketable and unmarketable fruit where plants were (1) not headed back, (2) stopped at third truss, (3) stopped at second truss, (4) stopped first truss. Rows were two feet apart with plants one foot apart in the row. Twenty-five plants of each of two varieties,—Alacrity and Bonny Best, were used in each test plot. Seed was sown March 4 in frames and planted out May 5 and trained to a single stem. The following table gives the results obtained over a period of four years:—

TOMATOES—METHODS OF TRAINING

Variety	Date ready for use	Total crop 1927	Average yield for five years				Green		Yield per plot	
			Marketable		Unmarketable		Black Spot			
		lb. oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Alacrity												
Stopped at 1st truss	Aug. 5	20 15	18	8	6	8	0	9	1	0	25	8
Stopped at 2nd truss	" 3	55 15	42	5	8	0	1	3	9	0	60	8
Stopped at 3rd truss	" 5	66 12	53	6	7	2	0	6	14	0	74	8
Not stopped	" 5	86 10	59	10	9	4	1	0	16	0	86	14
Bonny Best												
Stopped at 1st truss	Aug. 12	44 8	24	2	2	2	1	0	1	0	28	6
Stopped at 2nd truss	" 12	74 1	51	4	4	4	4	0	9	0	68	8
Stopped at 3rd truss	" 12	97 7	69	2	2	10	4	10	15	4	91	10
Not stopped	" 5	134 15	77	2	2	12	3	6	22	0	105	4

Results obtained over five years show that the more trusses allowed to remain the greater the yield. Very little difference was noticed in the time of ripening.

TOMATOES—VARIETY EXPERIMENT

Some eighteen varieties of tomatoes were tested out during the past season for yield and quality. The plants were not trained in any way. Plants were three feet apart each way. Yields in the following table are based on return from ten plants.

TOMATOES—VARIETY EXPERIMENT

Variety	Marketable		Unmarketable		Black Spot		Green		Yield per 10 plants	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Petaluma, Own seed 1926	67	0	10	10	2	12	22	0	103	6
Petaluma, No. 3 Novelty	*39	4	7	5	18	14	28	0	93	7
Novato, No. 1 Novelty	*42	3	10	5	2	6	33	0	87	14
San. Careina No. 5 Novelty	*33	14	10	6	13	7	23	0	80	11
Sonomoa, No. 6 Novelty	*40	10	3	4	6	13	28	0	78	11
Ignacio, No. 2 Novelty	*45	4	7	12	2	0	21	0	76	0
L.G.B.B. 11392, No. 3 C.E.F	48	12	5	0	2	0	17	0	72	12
V.I.S., No. 23	43	2	1	9	1	4	30	4	75	15
Tulare, No. 4 Novelty	*32	9	4	12	9	4	24	0	70	9
A.B.B. 11390, No. 2 C.E.F	47	6	2	14	2	12	14	0	67	0
Danish Export V.I.S	50	0	4	12	1	0	11	0	66	12
John Baer	47	7	3	3	2	4	12	0	64	14
Bonny Best V.I.S	31	10	1	9	10	9	19	0	62	12
Earliana First Picking	33	7	11	7	1	0	16	0	61	14
New 50 Days	34	13	9	12	0	12	15	0	60	4
Sunnybrook Earliana	32	9	13	8	0	8	13	0	59	9
Alacrity X Hipper	25	14	21	0	0	4	8	0	55	2
Alacrity X Early Bell	28	3	9	0	0	12	14	0	51	10

* Large, pink, poor quality and not recommended.

The two varieties tested received from the Central Experimental Farm were of fine colour and of good size and quality. V.I.S. No. 23 is also very promising, being of excellent quality with trusses large and close.

FALL SOWN VS. SPRING SOWN SEED

Owing to the mildness of the winters on Vancouver Island, seeds of many plants may be sown in the autumn with good results. This project has to do

with the fall seeding of vegetables, and has been conducted since 1923. The following table gives the results obtained during the past season from 15 feet of row:—

FALL SOWN vs. SPRING SOWN SEED

Variety	Fall Sown			Spring Sown		
	Date Sown	Ready for Use	Yield 15′ row	Date Sown	Ready for Use	Yield 15′ row
			lb. oz.			lb.oz.
Beet—Detroit Dark Red	Oct. 26	.....	.. ..	Feb. 28	July 8	36 0
Cabbage—Copenhagen Market	"	Ran to sseed	.. ..	"	Aug. 16	40 0
Carrot—Chantenay	"	Winter killed	.. ..	"	July 22	41 0
Radish—Scarlet W. Tipped	"	"	.. ..	"	May 1	*7 bunches
Spinach—Viroflay	"	"	.. ..	"	" 2	6 0
Lettuce—Grand Rapids	"	"	.. ..	"	" 23	5 8
Turnip—Ex. Ey. Purple Milan	"	"	.. ..	"	*	
Onion—L. R. Wethersfield	"	"	.. ..	"	Aug. 15	17 12

* Attacked by maggots, reducing yield over 50%.

Fall sown seed germinated well, but owing to the excessive moisture and cold weather the young seedlings were largely winter killed except the cabbage, which went to seed in the spring. From experience gained during the past four years it is not advisable to sow vegetable seeds in the fall, with the exception of spinach. Many years this crop will winter over.

POTATO—NORTHERN VS. SOUTHERN GROWN SEED

This project was begun in 1924 and has for its object the determination of the relative merits of northern and southern grown seed. For four years seed from Northern B.C. (Smithers) has been grown beside Southern grown seed of the same varieties, namely: Early St. George and Green Mountain. The following table gives yields obtained during the past season when seed was obtained from Smithers and Summerland.

POTATO—NORTHERN vs. SOUTHERN GROWN SEED

Variety	Northern Grown				Southern Grown			
	Yield per plot		Yield per acre		Yield per plot		Yield per acre	
	lb.	oz.	tons	lb.	lb.	oz.	tons	lb.
Early St. George	355	0	9	602	138	0	3	1,231
Green Mountain	398	0	10	855	100	0	2	1,240

The Southern grown seed during the past season developed mosaic, showing almost 100 per cent infection. This disease factor had much to do with curtailing the yield, though the yields for four years are much in favour of the Northern grown seed.

POTATO—BREEDING EXPERIMENT

Further work has been done during the past season in potato improvement. Some thirty selected hills, resulting from seed sown in 1925, were planted and observed throughout the season. Of these lots, tubers from three have been retained for further work. This work was begun in 1925 with 450 seedling plants.

VEGETABLE SEED—EASTERN VS. B.C. SEED STOCKS

This project has for its object the determining of the relative values of Eastern and British Columbia seed. Work was begun in 1926 when the bush bean Fordhook Favourite was used. During the past season seed was again obtained from the East and grown beside home-grown seed, with the results as outlined in the following table:—

EASTERN vs. B.C. SEED STOCKS

Variety	Date of Picking	Seed from Salt Spring Island, B.C.		Seed from Ottawa	
		lb.	oz.	lb.	oz.
Masterpiece (planted May 6)	July 27	14	12	10	0
	Aug. 2	2	10	2	0
	" 18	1	8	1	0
	Sept. 6	3	4	2	8

For the two years this work has been carried on, the B.C. or Home-grown seed has given considerably heavier yields.

THERMOGEN VS. DUST MULCH

During the past season thermogen has been used on garden peas. Three varieties of peas—Thos. Laxton, Stratagem and Pioneer were seeded April 30 and thermogen placed between the rows on the same date. The following table gives the yields and dates of picking for the varieties mentioned:—

THERMOGEN vs. DUST MULCH

Variety	Date picked	Yield Thermogen 24' row		Yield Check 24' row	
		lb.	oz.	lb.	oz.
Thos. Laxton	July 11	9	8	8	8
	" 16	4	0	1	4
Total		13	8	9	12
Stratagem	July 21	7	8	7	4
	" 26	3	4	2	12
Total		10	12	10	0
Pioneer	July 11	8	4	8	8
	" 16	5	0	0	8
Total		13	4	9	0

It will be seen that the thermogen gave some increase in yield, but from results obtained over the past two years it is doubtful if this treatment has very much to recommend it for this crop.

WALNUTS—VARIETY EXPERIMENT

The area in walnuts comprises some five acres on an eastern slope. In 1916 trees of eighteen grafted varieties and many seedlings were planted; but these have borne fruit only during the past two seasons. The two most promising varieties up to the present are the Franquette and Mayette. The seedlings are of the *Juglans regia* species and the product of two trees. Many of these are outstanding in yielding quality and thinness of shell. Some of the trees in 1926 bore 25 to 30 pounds of nuts.

The nuts are gathered just at the time they are falling from the tree and taken indoors, where they can be spread and dried. The nuts are then bleached. This consists of dipping in a solution of chloride of lime and sal soda to which sulphuric acid is added, the result being the liberation of chlorine gas which does the bleaching.

The bleaching formula, which was given out by the University of California Experimental Station, illustrates the details of this process: "Six pounds of bleaching powder (chloride of lime), twelve pounds of sal soda, fifty gallons of water. Dissolve the sal soda in about four gallons of water, stirring well until dissolved. Dissolve the bleaching powder in about four gallons of water, stirring well until dissolved. Add one solution to the other and stir well. Let the carbonate of lime settle to the bottom and draw off the clear liquid and add water to make a total of fifty gallons. Put the nuts in large dipping box or lath crate, immerse in the fluid, and then add one and one-fourth pounds of 50 per cent sulphuric acid and agitate by raising and lowering the dipping box. The bleach should be reached in five to ten seconds and the nuts are then washed in clear water and put to dry. The liquor can be used with new batches of nuts so long as the proper effect is produced and small additions of acid will prolong the efficiency of the liquor."

FILBERTS—VARIETY EXPERIMENT

The first planting of filberts was made at this Station in 1915. Since that time many other varieties and seedlings have been added until some twenty-six different sorts are to be found in the nut plantations. The following table gives the yields of the various varieties since the time of planting:—

FILBERTS—VARIETY EXPERIMENT

Variety	When set	Number of trees	Yield per tree since planted		Remarks
			lb.	oz.	
Corylus Avallana	1918	1	9	14	Very small.
" Calyculata	"	1	0	12	
" Colurne	"	1	..	..	
" Common	"	1	..	..	
" California Purple	1916	2	5	0	
" Barcelona Filbert	"	2	7	0	
" Du Chilly	"	2	5	12	
" English Filbert	"	2	12	14	
" Kentish Cob	"	2	22	0	Large nut.
" Merveille de Bollwiller	1915	6	46	0	Very late.
" Nottingham Filbert	"	7	41	9	Small, but early.
" Red Hazel	1916	1	31	0	Good.
" Spanish Purple	"	1	6	0	
" Macrocarpa	1915	5	22	0	Fair.
" Daviana	"	1	4	8	
" a feuille pourpre	"	2	36	0	Foliage attractive.
" lacinae	"	1	4	6	
" d'Angleterre	"	1	10	0	
" du Provence	"	2	30	4	Large. Good quality.
" Emperor	"	2	30	0	Good quality.
" du Bearn	1916	1	24	8	Promising.
" Gosford	"	2	12	10	
" Pellicule Rouge	"	1	13	2	
" Prolific	"	1	35	0	Promising.
" Fertile de Coutard	1915	7	82	0	One of the best.
" Fertile	"	2	27	0	Large size.

Trees do well and yield nuts of excellent quality. It is impossible to give a correct report on the yield as the Blue Jays begin taking the nuts each year long before they are ready to harvest. The best varieties are:—Red Hazel, Kentish Cob, Gosford, Merveille de Bollwiller and Fertile de Coutard.

ALMOND—VARIETY EXPERIMENT

A number of varieties of almonds were planted at the Station in the spring of 1916. For the most part the trees have proved hardy but have borne little fruit previous to the last two seasons. Some of the best trees bore as many as 15 pounds of nuts during the past season, the heaviest yields coming from two Texas Prolific trees. Other varieties in order of yield are: Paper Shell, Nonpareil, I.X.L. Jordan. The nuts borne were of fair size and good quality.

NARCISSUS FLY CONTROL

Much work has been done the past few years on the control of the narcissus bulb fly. In addition to the work in hand now and reported on last year, a new line of investigational work has been entered upon—namely, that of attempting to destroy the larvae infesting bulbs by means of a fumigant before planting. A number of lots of bulbs were treated, being exposed to the fumigant under pressure for various lengths of time, and with varying quantities of gas. The procedure in this work is set forth in the following table:—

NARCISSUS FLY CONTROL

Lot	Variety	Time vacuum pump was operated	Time taken introducing gas	Time bulbs were exposed	Pressure in pounds
		min.	min.	min.	
1	Lucifer	4	4	20	10
2	Poet Glory	5	5	80	10
3	Sir Watkins	4	2	60	
4	Grandis	5	2	40	

Fumigant used: 1 ounce sodium cyanide in 2 ounces of water, to which was added 1½ ounces sulphuric acid. Fumigation was carried out in a tank containing about 2½ cubic feet. The work will be reported on from year to year.

GREENHOUSE

The work in the greenhouse continues along lines previously laid out. The breeding of Rhododendrons, Gladioli, Carnations, etc., takes time, but has proceeded far enough to say that some good things have been produced. Subsequent reports will contain descriptions and photographs of some of the most outstanding creations. Among these may be mentioned a block of several hundred rhododendrons, grown from seed, and reaching the blooming period at the end of four years of waiting. The breeding of new potatoes, strawberries, etc., commenced in the greenhouse, has been continued in the field. One of the standard greenhouse crops on the island is the tomato.

TOMATO—VARIETY EXPERIMENT

Kondine Red, a variety of tomatoes grown for a number of years on the coast, remains the most popular greenhouse sort. The trade demands a small tomato, regular and firm. These characters are well combined in the Kondine in mid season, but the fruits run a little small before the crop is over. An effort is being made to retain the good qualities of the Kondine and to increase its size by crossing with larger sorts. A tomato from Echo, China, known as Sias huen fantae has been found to possess many excellent characteristics. Work is being continued with this fruit.

TOMATO—GREENHOUSE VARIETY EXPERIMENT

Variety	Seed sown	Planted in house	Ready for table	Yield per plant	Remarks
				lb.	
Kondine Red (Seed saved from plants grown outside).	Dec. 15-26	Mar. 10	May 16	6	Of good shape, even size, good colour. Our best all around tomato.
Abbotsford Argo.....	Dec. 15-26	Mar. 20	May 20	5	Too many No. 2's to be profitable.
Essex Wonder.....	Dec. 15-26	Mar. 10	May 5	7	Whilst yielding well and ripening early it is essentially an outdoor tomato. Too soft and corrugated under glass.
Payne Victory.....	Dec. 15-26	Mar. 10	May 26	3¼	Corrugated and very round in shape. Poor yielder and late.
Kondine Red (Seed saved from plants grown inside).	Dec. 15-26	Mar. 10	May 16	4¼	

Essex Wonder, though yielding well, has not the quality that one looks for in tomatoes grown under glass.

Payne Victory is wasteful of space, and a long-jointed variety. It is late and of poor quality when grown indoors—poorer, in fact, than when grown outside.

The return from crops grown in the greenhouse varies much with the years and crops grown. One tomato plant will occupy about 2½ square feet. Its yield with us is seldom greater than 6 or 7 pounds per plant. Thus the return was 62½ cents per square foot with tomatoes in 1925, but considerably less in 1927. Cucumbers may give a return of 50 cents per square foot or better, or half of that in certain seasons. Cucumbers of the English greenhouse type, such as Zion House, are popular. White Spine and Davis Perfect of the American sorts are the best.

CEREALS

The winter of 1926-27 was a very favourable one for the wintering of fall sown cereals. With the exception of a few days in December the season was quite mild. The spring, however, was cool with more precipitation than usual. In June 0.91 inches of rain was recorded, a great benefit to both fall and spring sown grain. The harvesting of the winter grains commenced the last week in June, and was completed by the end of July. The earliest variety of the spring cereals was cut on July 29 and the last on August 26.

All the variety test work was conducted in rod row plots of three rows each, replicated four times. The rows were sown seven inches apart and the rows eighteen feet six inches long. At harvest time one foot was cut off either end of the row, leaving a plot one rod in length. By this method the possible error arising from the outside row was eliminated. The yields were based on the centre row only, the other two rows being used as a guard against the effect that the stronger varieties would have over the weaker, and also to prevent the mixing of the varieties, in some measure.

SPRING WHEAT—TEST OF VARIETIES

Seven varieties of wheat were sown in rod row plots on April 21. Germination was good but growth rather slow during the early part of the season. The yield from spring wheat was heavier than for many years past, due to the ample rainfall in May and June.

SPRING WHEAT—TEST OF VARIETIES

Variety	Date ripe	Strength of straw on scale of ten points	Length of straw	Yield per acre	Average yield for two years
			inch.	bush.	bush.
Early Red Fife	Aug. 20	10	46	42·3	32·0
Marquis O 15	" 20	10	44½	34·7	27·3
Red Fife	" 23	10	46	34·6	26·7
Kitchener	" 24	10	46½	34·6	26·9
Huron	" 22	10	46	33·5	27·4
Red Stone	" 24	9	47	32·2	24·9
Dicklow	" 26	10	44	31·0	23·2

Early Red Fife.—A pure line selection made in 1903 from ordinary Red Fife. It is usually a few days earlier in ripening than is Red Fife, and the heads, instead of being pointed at the tip are somewhat blunt. The heads carry short apical awns, the chaff is smooth and yellowish, the kernels are of medium size, red and fairly hard, the straw of fair strength and length.

Huron.—A cross between Ladoga and White Fife. Heads bearded with long spreading awns. Smooth reddish chaff. Long red hard kernels. Straw better than most spring wheats on poor soils and stands up well under adverse weather conditions. Straw of medium height and stiffness.

Kitchener.—A beardless wheat; ripens early, straw strong and of good length, usually has a distinctly purplish colour just before maturity; kernels large and red.

Marquis.—This well known variety does not as a rule yield well on the Saanich peninsula. Heads small, small reddish kernels, fairly hard; straw strong and of good length.

Red Fife.—Heads beardless but with a few short awns at the tip; smooth yellowish chaff, kernels red and quite hard, straw of good length and strength.

Red Stone.—Obtained from Mr. Stone of Layritz Nurseries, Victoria, B.C. Straw only medium in strength, but of good length; small red kernels.

Dicklow.—An American variety received from Mr. Henry Brethour of Sidney, B.C. Kernels white, medium size and soft; straw strong but shorter than other varieties.

FALL SOWN WHEAT—TEST OF VARIETIES

Seventeen varieties and strains of wheat were sown on October 1st. The soil was moist and warm and in a good state of tilth. Germination was good and the plants made rapid growth during the six weeks following. The yield of straw and grain was above the average, due to the rains toward the latter part of the growing season.

FALL WHEAT—TEST OF VARIETIES

Variety	Date ripe	Strength of straw on scale of ten points	Length of straw	Weight per measured bushel	Yield per acre	Average for two years
			inch.	lb.	bush.	bush.
Dawsons Golden Chaff	July 25	10	50½	60	59·4	45·5
Victor	Aug. 5	10	55	60	58·9	39·8
Velvet (V.I.S.)	July 26	10	58	62	55·7	42·2
Marshall Foch	Aug. 5	10	50	59	55·1	35·7
V.I.S. No. 131	July 30	10	56½	60	51·5	38·4
Sun	Aug. 5	10	54½	60	51·5	39·6
Golden Sun V.I.S.	July 30	10	58½	60	50·3	37·3
V.I.S. No. 1	" 30	10	60	59	49·9	35·0
O.A.C. No. 104	" 23	8	57½	63	49·6	36·0
Yeoman	" 30	10	46	60	45·0	33·7

FALL WHEAT—TEST OF VARIETIES—*Concluded*

Variety	Date ripe	Strength of straw on scale of ten points	Length of straw	Weight per measured bushel	Yield per acre	Average for two years
			inch	lb.	bush.	bush.
Red Rock	" 18	8	60	63	44·5	35·6
Kanred	" 23	7	48	62	28·7	25·7
Kharkov	" 27	7	46½	59	28·4	25·0
Minturki	" 23	9	49½	63½	27·0	23·3
Minhardi	" 25	9	47½	63½	26·5	20·0
Williamson	" 29	10	50	63	26·5	
Dr. Hart's Durum	" 28	8	53	65	23·1	17·8

The autumn-sown cereals usually do well.

Dawson's Golden Chaff for the second year in succession heads the list of fall sown wheat. Victor and Marshall Foch did not give a very high yield in 1926, the first year of trial, but have subsequently done exceedingly well. Both of these varieties were received from Marsters, King's Lynn, England. They have large, compact, square heads, soft kernels and straw of medium height. Victor is a white grain, and Marshall Foch red.

Dawson's Golden Chaff.—The most popular winter wheat in Ontario; ripens early, straw strong and of good length, kernels white.

Velvet.—A cross made at this station between Burbank Super and a plant found in a field of Sun. Heads very large, the outer glume being covered with a thick coat of fine hair, giving the head a velvety appearance; medium sized, soft, reddish kernels; straw of fair length and good strength.

Sun.—Variety originated in Sweden; grown on the Saanich peninsula for several years; very strong straw, a consistent yielder, grain plump and soft.

Red Rock.—Introduced by Professor Sprague of Michigan, U.S.A. Thin, long bearded heads, red chaff, long hard kernels of good quality; the earliest of the winter wheats to ripen; straw very long and weak, inclined to lodge.

Golden Sun.—A cross made at this station in 1916 between Dawson's Golden Chaff and Sun; square head, slightly blunt, carrying a few short awns at the top; chaff smooth, reddish; grain medium sized and soft; straw strong and of good length.

V.I.S. No. 131.—Very similar to Golden Sun but straw not quite so strong, shorter.

Kanred.—An American variety received from Central Experimental Farm, Ottawa. Reported to have given splendid results in the United States; heads small, bearded; yellow chaff; straw weak.

Yeoman.—A Cambridge, England variety received from Marsters, King's Lynn, England. Grain pale red, hard and of medium size; heads fairly long, with a smooth, white, beardless chaff; straw short and very strong.

O.A.C. 104.—A cross bred wheat—Dawson's Golden Chaff x Bulgarian, made at the Ontario Agricultural College. This variety grows a very long, rather weak straw. The grain is white in colour and fairly hard.

Minhardi and Minturki.—American varieties received from Central Experimental Farm, Ottawa for test. Both appear to be very hardy, small hard kernels; straw of medium height and strength. The Durum wheat was sent for test by Dr. Hart of Victoria, who brought it from the Balkan States. Heads large with long awns and reddish chaff; grain large, pale yellow and very hard; straw long and weak, inclined to lodge.

The V.I.S. wheats are productions by this station.

Williamson, an Australian wheat, received from Robert Williamson and Sons of Royston, Vancouver Island. Large, hard, white grain; a few apical awns, strong straw.

OATS: SPRING SOWN—TEST OF VARIETIES

Fifteen varieties of oats were sown on April 21st in rod row plots replicated four times.

Variety	Date ripe	Length of straw	Strength of straw on scale of ten points	Weight per measured bushel	Yield per acre, 1927	Average yield per acre for two years
		inch.		lb.	bush.	bush.
Conqueror	Aug. 12	43¼	10	38½	60·6	51·1
Garton	" 10	43	10	37	55·6	45·4
Prolific	" 8	43	10	40	53·7	43·7
Columbian	" 13	43¾	10	37½	53·2	39·8
O.A.C. 72	" 10	42	10	40	51·7	42·2
Golden Rain	" 10	43½	10	38½	51·5	42·5
Victory	" 8	42½	10	40½	51·5	44·3
O 713	" 4	39	10	36	50·4	44·5
Longfellow	" 12	42½	10	37	47·4	46·5
Joanette	" 2	43¼	9	36	46·1	43·5
Leader A	" 3	42	10	31	39·6	42·5
Laurel	" 2	38½	10	48	38·7	25·3
Alaska	" 3	43	10	36	43·7	39·1
Banner	" 10	44	10	35	43·5	39·4
O.A.C. 3	" 30	35	9	34	29·5	32·8

Conqueror.—A variety received from a local salesman. Branching heads; grain plump, hulls white and of medium thickness; straw of good length and strength. Has been a consistent yielder at this station for some years.

Garton.—Very like Conqueror; branching heads, plump grain; strong straw. Much grown on Vancouver island.

Prolific.—A variety received from Central Experimental Farm, Ottawa. Panicles branching; awns few; hulls and kernels white; bosom oats few; straw stiff and of good length; weight per measured bushel better than most varieties.

Columbia.—A pure line selection made at Ottawa in 1908 from a commercial sort known as American Beauty. Branching heads; awns and bosom oats few; straw strong and of good length.

Banner.—A well known variety; does not do well on Vancouver island. Heads branching; grain and hull white but rather thin; weight per measured bushel less than most varieties on test.

Victory.—A Swedish variety, which closely resembles Banner.

Laurel.—A hulless variety; panicles branching; awns rare; kernels of fair size; straw of medium length and strength. A very poor yielder here.

Longfellow.—A cross made at Ottawa between Tartar King and Banner; heads sided; awns numerous; hulls white; bosom oats common; straw long and of good strength.

Leader A.—A selection made at Ottawa from the variety Leader. Branching heads; awns numerous; hulls white; straw of good length and strength.

OATS: FALL SOWN—TEST OF VARIETIES

Eight varieties of oats were sown on October 1. Four of the eight wintered well and gave good yields of both grain and straw. Joanette and Early Ripe, which are strictly speaking spring oats, were winter killed to some extent. The soil was of a peaty character, and all the varieties heaved a little during the frosty spell in December. From experience gained in the past five years we would recommend the seeding of winter oats on light or medium clay loam, providing that it is well drained.

OATS: FALL SOWN—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Strength of straw on scale of ten points	Weight per measured bushel	Yield per acre	Average yield per acre, two years
		inch.		lb.	bush.	bush.
Grey Winter	July 20	48½	9	38	62·4	50·3
Bountiful	" 18	52½	9	42	50·4	46·4
Winter Turf	" 20	46½	9	38	49·0	44·5
Kanota	" 4	47½	10	34	42·7	44·6
Marvellous	" 18	49	10	40	31·8	46·2
O 713	" 16	45½	10	38½	27·8	40·7
Early Ripe White	" 16	45	8½	35	14·1	27·1
Joanette	" 25	42½	9	26	12·5	32·3

Marvellous.—A recent introduction of Messrs. Gartons, received from Marsters, King's Lynn, England. A cross between the wild oats and an unknown cultivated variety. It has a remarkably strong straw of good length, well fur-

nished with numerous broad leaves; large, semi-branching panicles, awns few, chaff white; very large, bold white grain with rather thick hulls. A very promising variety.

0·713.—A cross made at Macdonald college, Quebec, between Early Triumph and Alaska; tall, stiff straw; branching head; few awns; grain white, plump and thin in the hull.

Joanette.—A black oat received from Macdonald College; straw of medium strength and length. The least hardy of the fall-sown oats.

Kanota.—Probably a selection from Fulghum. Received from the Experimental Farm, Manhatton, Kansas, in 1921. Ranks amongst the hardiest of the winter varieties. On well drained land it will survive 15 or 16 degrees of frost. The habit of the plant is erect, tillering well in the spring. The straw is of good strength, of a very even and medium height, well furnished with broad, dark green leaves; branching panicles of medium length; chaff yellow; grain grayish brown in colour; bosom oats plentiful.

Bountiful.—Received from Marsters, England. Branching panicles; awns few; grain large, very black; bosom oats few; straw of medium strength and length.

Early Ripe.—Seed received from Macdonald College, Quebec. Straw of fair strength but inclined to be short; grain rather thin; hull a brownish colour; not so hardy as many of the winter varieties.

Winter Turf.—One of the hardiest varieties on test at this station; branching heads; grain of a grayish colour and small, resembling the wild oat; bosom oats plentiful; straw very thin and rather weak. The habit of this variety during winter is of a recumbent nature, resembling that of some of the winter wheats.

Gray Winter.—Much like Winter Turf, except that it has a little longer straw, and more erect form of growth during winter.

BARLEY: SPRING SOWN—TEST OF VARIETIES

Eight varieties and strains of barley were sown in rod row plots on April 27.

BARLEY: SPRING SOWN—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Strength of straw on scale of ten points	Weight per measured bushel	Yield per acre	Average yield per acre for two years
		inch.		lb.	bush.	bush.
Barks	Aug. 17	37	10	46	69·5	44·7
Bearer	" 8	40	8½	46	62·6	52·3
Gold	" 10	29	9	53	61·8	
Dean Bros	" 4	28¾	9¼	49	60·6	48·2
Manchurian	" 7	31	9	50	60·6	49·9
Duckbill	" 6	42	9¾	48	52·2	44·1
Himalayan	July 29	28	7	60	49·6	41·0
Hulless	Aug. 2	28	9	60	43·9	35·7

BARLEY: FALL SOWN—TEST OF VARIETIES

Seven varieties were sown in the fall on October 1 in rod row plots replicated four times.

BARLEY: FALL SOWN—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Strength of straw on scale of ten points	Weight per measured bushel	Yield per acre	Average yield per acre for two years
		inch.		lb.	bush.	bush.
Dean Bros.	July 6	47½	9	47	72·4	58·5
Barks	" 16	48	10	48	71·2	56·9
Manchurian	June 30	52	10	48	70·2	49·2
Duckbill	" 30	37	8¼	48	65·4	54·8
Hulless	July 4	42½	8	60	63·3	46·6
Bearer	" 6	46½	9	48	54·4	44·8
Hamalayan	" 4	38½	8	60	16·2	20·6

The Hulless and Himalayan yields were figured at 48 pounds per bushel. Himalayan was badly winter killed.

Bearer (0·475).—A cross between Blue Longhead and Gordon. The latter is a cross-bred sort produced by crossing Baxter's six-row with Duckbill. Bearer belongs to the six-row group, has rather long awns; strong straw of medium length; is somewhat late in ripening, and much more productive when sown in the spring than in the fall.

Manchurian (0·50).—A selection out of barley of Asiatic origin. Heads six-rowed; awns long; kernels yellow; straw of good length and strength; yields best when sown in the spring; heads break off easily when matured.

Duckbill.—A two-rowed variety. Head broad at the base and tapering somewhat towards the tip; of medium length; awns strong; straw of medium length and strength; kernels large and of good weight per measured bushel; ripens rather late and gives a good yield whether sown in spring or fall.

Dean Bros.—Received for trial from Dean Bros. of Keating, B.C. Heads of the six-row type; bearded; awns long; kernels large and of a distinctly greenish colour; straw of medium length and strength. Does well when sown in the fall.

Himalayan (0·59).—A pure line selection from the commercial sort called Guymale (or Guy Male). Six-row type; awns of medium length. The kernels thresh out free from hull and are of a greenish colour. The straw is short and rather weak. Inclined to lodge badly.

Hulless.—Short, beardless heads; kernels free from hull and of a yellowish colour; straw short and of medium strength.

Barks.—A selection made by Mr. Don Bark of Brooks, Alta., from Californian seed. Heads of the dense six-row type; short and wide at the base; awns very long; straw short and strong. Yields best at Sidney when sown in the fall.

FIELD PEAS—TEST OF VARIETIES

Uniform test plots of eighteen varieties of field peas were sown on April 26. Each plot was replicated four times. The distance between each plot four feet. The weather conditions were very favourable and all varieties did exceptionally well, as will be seen from the yields per acre given in the following table. The returns are very high and far surpass any yield that could be obtained under field conditions. This is largely due to the distance between the plots, constant cultivation in keeping down weeds, and an abundance of moisture in the form of rain during the early growing period. If the reader will bear in mind the fact that this experiment is conducted for the purpose of comparing one variety of peas with another, under exactly the same condi-

tions, and not for the purpose of obtaining as high a yield as possible, he will not be misled. The varieties that constantly head the list in the experimental plot will be found to yield the best under field conditions.

FIELD PEAS—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Length of pod	Yield per acre	Average yield per acre for three years
		inch.	inch.	bush.	bush
Mackay	Aug. 6	41½	2	87·8	52·3
New Zealand Maple	" 2	38½	2	84·1	52·8
Prussian Blue	" 8	39¾	2¼	83·7	52·9
Gryllen	July 28	34	2	83·1	52·2
Early Raymond	" 23	39½	2½	82·9	
O.A.C. No. 181	" 28	37¾	1¾	74·8	45·7
Concordia	" 25	28¾	2	73·4	
Early Blue	" 18	35½	2	73·2	
Stirling	Aug. 5	37¼	2¾	65·6	51·7
Solo	" 2	35	2	62·3	45·2
Champlain	" 2	35½	1¾	61·8	39·0
Chancellor	July 28	34	1¾	56·3	39·9
Golden Vine	" 28	32	2	55·9	
Early Feed	" 23	35½	2	55·6	
Capital	" 20	34¾	2	54·2	
Cartier	" 31	36½	1¾	53·3	38·1
Canadian Beauty	" 25	32½	2	52·2	
Arthur	Aug. 4	33½	2	50·8	41·1

Early Blue.—A pure line selection from a commercial sort known as Rough English Marrowfat. Flowers white; seeds pale blue, medium size. Ripens early and is a good yielder.

Early Feed.—A cross made at Central Experimental Farm, Ottawa, in 1903, between Arthur and Early Britain. Flowers coloured; seeds greenish and brownish, not speckled, medium size. Ripens early.

Mackay.—A cross between Mummy and Black Eye Marrowfat. Flower white, borne in axils. The peas are round, dark yellow, with a black hilum (eye). Ripens rather late, very productive.

Stirling.—Received from Mr. C. W. Stirling of Sidney, B.C., who won first prize with it at the Chicago Hay and Grain Show in 1925. A large, round, smooth pea; seeds yellow; straw long; a good yielder.

Gryllen.—A variety obtained from Svalöf, Sweden. Flowers white; leaves of a light green colour; seeds yellow and of a medium and even size. Ripens early.

Concordia.—A Swedish pea. A pedigree sort of the old Blue Green English variety. Very productive; a good cooking pea.

Early Raymond.—A large white pea similar to Stirling, but not quite so round; yields well and ripens early.

Solo.—A pedigree sort from Svalöf, Sweden, out of Early Britain. It is especially good for soiling purposes. Seeds greenish grey, mottled with small purple specks. A consistent yielder.

Arthur 0.18.—A selection from the original Arthur, which was a cross between Mummy and Multiplier. Flowers white, borne chiefly at the tips of very coarse stems; seeds yellow, of medium size. Ripens rather early and gives a good yield.

Capital.—A Swedish pea noted for its cooking quality. Seeds small, white and round. Ripens rather late.

New Zealand Maple.—A very popular pea on Vancouver Island. Flowers coloured; foliage dark green; seeds brown slightly mottled with green, of medium size; a good pea for feed.

Cartier.—A cross made in 1903 between Mackay and Arthur. Flowers white, borne terminally; seeds yellow, round, and of medium size.

Prussian Blue.—An old standard variety. Seed of a bluish green colour and medium size.

O.A.C. 181.—A medium sized white early pea, originally from the Ontario Agricultural College.

Chancellor 0.26.—A pure line selection from an old stort known as Chancellor. Flowers white, borne axially; seeds yellow, very small. Ripens quite early.

Champlain.—A cross between Arthur and Early Britain. The flowers are white, borne terminally; seeds yellow, round and rather uneven in size.

FORAGE CROPS

The yields from corn and sunflowers did not measure up to the average of past years. Alfalfa, and the clovers, however, gave returns above those obtained during the past few years.

INDIAN CORN—VARIETY TEST

Twenty-three varieties and strains of corn for ensilage were sown on May 25 in rod row plots, thirty-six inches apart. Each plot was replicated four times. The plants were thinned to twelve inches apart in the rows. The soil, a medium clay loam, was manured and ploughed in the fall, and thoroughly cultivated previous to planting.

INDIAN CORN—VARIETY TEST

Variety	Date cut	Yield per acre green weight		Percentage dry matter	Yield per acre, dry matter, 1927
		1927	Average for		
		tons	tons		tons
Longfellow	Oct. 4	18·48	3 years—16·38	20·60	3·80
Longfellow	" 4	16·72	4 " 13·22	20·90	3·49
North Western Dent	Sept. 14	13·20	3 " 12·68	24·12	3·18
White Cap Yellow Dent	Oct. 4	11·88	4 " 12·10	18·36	2·18
North Western Red Dent	Sept. 14	13·20	3 " 13·67	20·70	2·73
Golden Glow	Oct. 4	13·64	4 " 14·88	19·82	2·70
Burr Leaming	" 25	15·40	2 " 15·91	17·58	2·70
Compton's Early	" 4	15·18	4 " 16·03	17·77	2·69
90 Day White Dent	" 10	13·20	3 " 15·03	20·12	2·65
Wisconsin No. 7	" 10	15·40	4 " 14·74	17·09	2·63
Yellow Dent	" 4	12·76	3 " 14·22	19·43	2·47
Minnesota 13	" 4	13·64	3 " 12·83	17·97	2·45
North Western Dent	Sept. 17	14·96	4 " 10·67	16·41	2·45
Bailey	" 21	12·76	3 " 11·82	19·14	2·44
Yellow Dent	Oct. 10	12·87	2 " 13·58	18·36	2·36
Quebec 28	Sept. 12	9·68	4 " 10·57	23·73	2·29
Leaming	Oct. 4	10·56	4 " 13·42	21·48	2·26
Early North Western Dent	Sept. 3	9·02	3 " 11·95	24·22	2·18
Twichell's Pride	" 3	8·80	4 " 11·44	21·09	1·85
North Dakota	Oct. 4	8·80	4 " 11·33	19·53	1·71
Stowell's Evergreen	" 1	8·80	3 " 9·90	19·34	1·70
Northern Prolific	" 10	9·13	2 " 8·41	17·97	1·64
Amber Flint	Sept. 14	7·26	3 " 9·79	19·43	1·41

The above table is arranged according to the yield of dry matter per acre. The late maturing varieties, generally speaking give the heaviest yield, but may or may not excel in dry matter. The North Western Dents, Quebec 28, Twich-

ell's Pride and North Dakota bear their ears too close to the ground, and much damage is done them by game birds. All varieties were harvested as soon as the grain reached the dough stage.

SUNFLOWERS—VARIETY TEST

Four varieties and strains of sunflowers' were sown on May 25. The same method of planting was followed as with the corn.

SUNFLOWERS—VARIETY TEST

Variety	Date cut	Yield per acre green weight		Percentage of dry matter	Yield per acre dry matter
		1927	Average for		
		tons	tons		tons
Mammoth Russian	Sept. 14	28·60	4 years=25·66	20·21	5·78
Early Ottawa	Aug. 31	17·60	4 " =13·64	20·12	3·54
Giant Russian	Sept. 3	16·72	3 " =23·10	19·92	3·33
Mixed Mennonite	Aug. 26	15·62	4 " =11·56	17·68	2·76

GRASSES AND CLOVERS

All varieties, except the Crimson Clovers, were sown on May 1 in duplicate plots one square rod in size, on land that had been summer-fallowed the previous year, and well cultivated before seeding. The seed germinated well, and the young plants made good growth under favourable weather conditions.

TIMOTHY—VARIETY TEST

—	Height on April 15 1927	Height when cut	Date cut	Yield per Acre		Average three years Dry
				Green	Dry	
	inch.	inch.		tons	tons	tons
Boon	5	52	July 16	8·48	3·90	4·34
Ohio Commercial	5	50	" 16	7·44	3·55	3·67
3937 Ohio (Huron)	4	41	" 16	6·80	3·24	3·10
Commercial	4	40	" 16	4·96	2·37	3·16

Boon has consistently given a higher yield than the other strains. It grows a little taller and the stalks are not as coarse. It makes a good quality hay.

ORCHARD GRASS—VARIETY TEST

Variety	Height on April 15, 1927	Height when cut	Date cut	Yield per Acre	
				Green	Dry
	inch.	inch.		tons	tons
Skandia Lot 7	6	36	June 9	4·88	1·67
Skandia Lot 11	8	42	" 9	4·72	1·61
Commercial	8	46	" 8	6·16	2·11
Svalof Early	7	40	" 4	3·76	1·22
Skandia	6	38	" 8	5·12	1·60
Mowing Strain	6	46	" 8	7·52	2·26
Grazing Strain	5	34	" 10	6·00	1·75
Glostrup	7	44	" 8	6·08	1·82

Orchard grass is very useful for early pastures. If used for hay it should be cut before the seeds form. When left too late the hay is very wiry and much

waste ensues when it is fed to stock. Mowing Strain gave a good yield; the stalks, however, were very coarse. The Commercial Strain also made a rank coarse growth. Svalof Early, Glostrup and Grazing Strain produced a fine stalk, well furnished with an abundance of foliage.

ALFALFA—VARIETY TEST

Eight varieties and strains of alfalfa were sown in duplicate plots at the rate of twenty pounds of seed per acre.

ALFALFA—TEST OF VARIETIES

Variety	Height on April 15, 1927	Height when cut	Date cut	Yield per Acre		Average yield for three years Dry matter
				Green 1927	Dry 1927	
	inch.	inch.		tons	tons	tons
Ont. Variegated	14	28	June 6	9·52	3·33	2·69
Registered Grimm	12	28	" 6	10·40	3·39	*2·72
McCannus	12	29	" 6	8·24	3·97	3·01
Cossack	12	34	" 6	14·64	4·58	2·88
Turkestan	11	28	" 6	9·46	3·24	2·07
Shoobut	10	26	" 6	11·42	2·95	1·98
Genuine Grimms	10	25	" 6	10·00	2·97	2·00
Yellow Flower	4	23	" 10	8·48	2·44	1·89

* Average for two years only.

All the above varieties except the Yellow Flower gave a second cut, and the figures in the yield per acre column are based on both cuttings. The strain received from McCannus is a strong and upright grower and has done well at this Station. Cossack, another good variety, was the heaviest yielder of green forage this year. There is but little to choose between Registered Grimm and Ontario Variegated; both are good, and give good yields. The Siberian Yellow Flower is not a desirable type, being recumbent in habit, and not bearing as many leaves as the other varieties.

RED CLOVER—VARIETY TEST

Twelve strains of Red Clover were sown in duplicate plots, one-one hundred and sixtieth of an acre each. The weather conditions were favourable and a good stand was obtained.

RED CLOVER—VARIETY TEST

Variety	Source	Height on April 15	Height when cut	Date cut	Yield per Acre		Average yield two years Dry matter	Per cent Dry matter
					Green 1927	Dry 1927		
		inch.	inch.		tons	tons	tons	
St. Clet 2	St. Clet, Que	4	30	June 17	11·36	3·45	3·32	30·37
Chateauguay 1	Chateauguay, Quebec	4	29	" 10	11·12	3·47	3·09	31·25
Late Swedish	Svalof, Sweden	4	26	" 27	11·04	2·72	2·74	24·71
Early Swedish	"	5	27	" 21	10·56	3·09	3·07	29·30
Kenora 3	Kenora, Ontario	4	25	" 21	10·56	3·12	2·58	29·59
Dauphin	France (southeastern)	8	27	" 16	9·60	2·82	2·82	29·39
Altaswede	Alberta	2	26	" 25	9·04	2·08	1·88	23·05
Marche	Italy (North Central)	9	23	" 17	8·88	2·95	2·57	33·30
Umbria	Italy	8	22½	" 17	8·24	2·60	2·38	31·64
Emilia	Italy (North Central)	6	23	" 17	8·00	2·28	2·43	28·61
Southern Italy	Italy (Southern)	10	19	" 16	7·76	2·44	2·20	31·54
Spadione	Italy (Northern)	8	20	" 17	7·76	2·47	2·28	31·84

The outstanding results obtained to date from this project are: First, That the Canadian grown seed gives higher yields than seed from Europe. Second, that the clovers from Italy and Southern France, while not giving as heavy yields, are a little earlier in maturing than the Canadian and Northern European strains. Alta Swede, a late variety, has not done well at this Station during the two years it has been on test.

CRIMSON CLOVER

Four strains of Crimson clover (*Trifolium incarnatum*) were sown in duplicate plots on August 31, 1926. All but the Commercial strain germinated well and were well established by November the first. The plants started to grow early in March, making a rapid headway despite the cool spring weather. The first flowers were seen on May 2 and the plots were harvested on May 30. Precocious, a white flower variety, was later in maturing than the others, but gave a good yield.

CRIMSON CLOVER—VARIETY TEST

Variety	Height on April 15	Height when cut	Date cut	Per cent Dry Matter	Yield per Acre	
					Green	Dry
	inch.	inch.			tons	tons
Sicily	14	28	May 30	23·24	14·72	3·42
Padova	12	28	" 30	23·24	14·40	3·34
Precocious	10	24	June 8	22·07	14·00	3·08
Commercial	10	25	May 30	21·87	6·88	1·50

Crimson Clover may be drilled on the stubble in the fall as soon after the first rains as possible, using about twenty pounds of seed per acre.

WHITE DUTCH CLOVER—VARIETY TEST FOR YIELD AND SUITABILITY

Varieties of White Dutch clover were sown in duplicate plots. The seed germinated well and plants made good growth the first year.

WHITE DUTCH CLOVER

Variety	Date cut	Height when cut	Per cent dry matter	Yield per Acre		Average yield green weight for three years
				Green	Dry	
		inch.		tons	tons	tons
Ladino	June 20	12	34·96	5·76	2·01	5·51
Scottish Wild	" 10	8	22·75	5·28	1·20	3·95
Commercial	" 15	10	24·90	4·88	1·21	*2·93
Danish Strino	" 7	9	24·80	4·72	1·17	4·27
Danish Morso	" 7	10	20·41	3·76	0·76	3·26

* Average for two years.

Ladino—the heaviest yielding of the White clovers—produces very large white flowers and large succulent leaves. It is a very promising variety. The Scottish Wild also does well on Vancouver island. It does not grow as high as the other varieties but produces a thick mat of foliage. Danish Strino and Danish Morso mature earlier than the others and are good yielders.

COMPARISON JERUSALEM ARTICHOKES, SUNFLOWERS AND CORN

The Jerusalem artichoke is the subterranean stem tuber of a native sunflower. The plant and its culture have been known for centuries, yet artichokes have never become popular over wide areas.

It is planted much after the manner of potatoes, and will grow and produce its smallish white edible tubers throughout the season with little care or attention. All farm stock seem to like the leaves, stalks and tubers. Raw or boiled and served cold with oil and vinegar, artichokes make a very palatable winter or spring salad. They are also used in the making of soups. Mammoth White French is supposed to be an improved strain of Jerusalem artichoke, and as such may have distinct value. About two years ago the Mammoth White French artichoke, or girasole, was receiving considerable attention in various parts of the country. At this time, or a little earlier, the plant was brought to Vancouver island and pushed among the farming fraternity by W. H. Crane of the Cedar district.

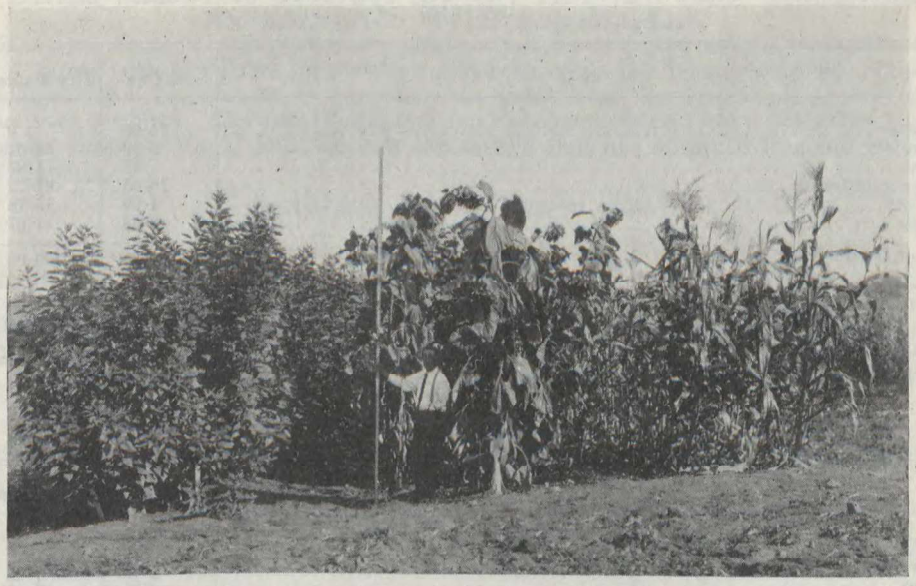
During the spring of 1927, in order to meet the wish of the Farmers' Institutes of the Cedar and Nanaimo districts, artichokes of the Mammoth White French variety were planted in some quantity beside sunflowers and corn, and a comprehensive test made of their usefulness from the standpoint of yield, dry matter and analysis. The soil was of two distinct types in the field in question, black peaty soil and chocolate loam, both common to the district. The rows were so arranged that in all cases they extended over both types, in order that two sets of results might be obtained, one for the peat and the other for the red loam. The rows were three feet apart, and the artichokes planted thirty-six inches apart. The sunflowers and corn were planted in rows thirty-six inches apart and thinned so that the plants stood twelve inches apart in the row.

COMPARISON OF YIELDS FROM MAMMOTH JERUSALEM ARTICHOKES, MAMMOTH RUSSIAN SUNFLOWERS AND LONGFELLOW CORN ON BLACK SOIL OF A PEATY NATURE

Table 1	Date planted	Average height when harvested	Date harvested	Yield per acre green weight
		ft. inch.		tons lb.
Artichokes	April 4	9 9	Oct. 20	32 1,450
Sunflowers	May 20	10 2	Oct. 12	30 1,600
Corn	May 20	9 0	Oct. 20	19 1,600

COMPARISON OF YIELDS WITH WEIGHT OF ARTICHOKE TUBERS ADDED TO THAT OF STALKS AND LEAVES

Table 2	Artichokes	Sunflowers	Corn
	tons lb.	tons lb.	tons lb.
Stalks and leaves	32 1,450	.. ..	.. ..
Tubers	17 1,750	.. ..	.. ..
Total	50 1,200	30 1,600	19 1,600



Artichokes, sunflowers and corn at Sidney.

COMPARISON OF ARTICHOKES WITH CORN AND SUNFLOWERS WHEN GROWN ON RED LOAM, OFTEN DESIGNATED ON VANCOUVER ISLAND AS STRAWBERRY LAND

Table 3	Date planted	Average height when harvested	Date harvested	Yield per acre green weight
		ft. inch.		tons lb.
Artichoke	April 4	6 4	Oct. 20	11 0
Sunflowers	May 20	7 0	Oct. 12	25 1,700
Corn	May 20	6 2	Oct. 20	11 0

COMPARISON OF YIELDS WITH WEIGHT OF ARTICHOKE TUBERS ADDED TO THAT OF STALKS AND LEAVES

Table 4	Artichokes	Sunflowers	Corn
	tons lb.	tons lb.	tons lb.
Stalks and leaves	11 0	.. ..	.. ..
Tubers	14 1,640	.. ..	.. ..
Total	25 1,640	25 1,700	11 0

The sunflower on red land gave a much greater yield than did the artichokes, stalks and leaves, and a slightly larger return than the artichokes when tubers, stalks and leaves are taken into consideration. The total yield from artichokes on black soil is double that from the red, but the proportion of tubers to stalks and leaves is greater on the red soil.

The following analyses are given by Dr. Shutt of the Central Experimental Farm:

Analysis.

ARTICHOKES (MAMMOTH WHITE FRENCH) COMPOSED OF TUBERS, LEAVES, STALKS

—	As Cut	Dry Matter
Water	74·00	0
Protein	2·50	9·61
Fat	·48	1·82
Carbohydrates	16·05	61·72
Fibre	4·09	15·78
Ash	2·88	11·07
	100·00	100·00

Approximately the composition of the entire plant is quite similar to sunflower forage, as will be seen by comparing the foregoing data with the following, which have been determined by analysis of 33 samples of sunflower silage.

ANALYSIS OF SUNFLOWER FORAGE

—	As Received	Dry Matter
Moisture	75·90	0
Protein	2·58	10·71
Fat	1·07	4·37
Carbohydrates	10·90	45·14
Fibre	6·48	26·87
Ash	3·07	12·91
	100·00	100·00

The results of our analysis of the tubers of the Mammoth White French artichoke are given in the following table: data for potatoes, mangels, corn and sunflowers are added for the purpose of comparison.

—	Artichokes (tuber)	Potatoes (tuber)	Mangels	Corn as cut for silo	Sunflowers
Moisture	73·23	78·8	88·9	76·9	80·1
Crude protein	2·33	2·2	1·2	1·9	1·3
Crude fat	0·13	0·1	0·6	0·3	1·0
Carbohydrates	1·46	17·4	7·2	13·4	9·2
Fibre	1·23	0·4	0·9	5·9	6·7
Ash	1·62	1·1	1·2	1·6	1·7

In point of composition the artichoke tubers are nearest to potatoes—some authorities giving these two as of practically equal nutritive value.

In the potato the carbohydrates consist entirely, or practically so, of starch—the feeding value of which is well known. In the artichoke tuber, about 2 per cent of the carbohydrates is inulin and while probably this can be utilized by the animal its nutritive value has never been definitely determined.

Summary

1. Artichokes (leaves, stalks and tubers) gave a total green weight on peaty soil of 50 tons 1,200 pounds per acre, much heavier than either sunflower or corn.
2. Artichokes tubers contain much the same feeding value as potatoes.
3. Artichoke ensilage is very like sunflower ensilage.
4. On red land artichokes (total crop) were beaten slightly by sunflowers.

EXPERIMENTS WITH FERTILIZERS

Work with fertilizers on potatoes and root crops has been continued. Some changes have been made in procedure to meet some particular phase of the fertilizer problem. Chemical fertilizers on Vancouver Island have not given the results that one would look for, nor the results that are obtained in some parts of Canada.

FERTILIZERS FOR THE POTATO CROP

This project was undertaken in the spring of 1923 to determine the influence of nitrogen, phosphoric acid and potash on the yield of potatoes, and has been continued since then. In 1927 the experiment was made as simple as possible, plots in each case being one rod square ($\frac{1}{160}$ acre), but replicated four times. The plan of the experiment will be clear by referring to the following table.

PLAN OF EXPERIMENT—FERTILIZERS FOR POTATOES

Plot	Fertilizer material in pounds per acre	Pounds per acre		
		N.	P_2O_5	K_2O
1	Nitrate of soda....400	62		
	Superphosphate....800	.....	128	
	Muriate of potash....250	.....	.....	125
2	Sulphate of ammonia....300	62		
	Superphosphate....800	.....	128	
	Muriate of potash....250	.....	.....	125
3	Superphosphate....800	.....	128	
	Muriate of potash....250	.....	.....	125
4	Nitrate of soda....400	62		
	Superphosphate....800	.....	128	
5	Nitrate of soda....400	62		
	Muriate of potash....250	.....	.....	125
6	Check (no treatment).....			

The check plots were well distributed over the field and placed to include any soil variations that might arise. The results follow:—

TABLE OF YIELDS—FERTILIZERS FOR POTATOES

—	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
	lb.	lb.	lb.	lb.	lb.	lb.
A	64½	62½	67½	94½	79½	67
B	97½	104	71½	69	73	66
C	95	70	102½	89½	113	75
D	75	79	70½	73	72½	77
Totals	332	315½	312	326	338	285

In studying the yields for the various plots it should be noticed that plots 1 and 2 received nitrogen, phosphoric acid and potash, while 3 received no nitrogen, 4 no potash, and 5 no phosphoric acid. No. 6 is check. Though the fertilizer in all cases appeared to have a beneficial effect, the dropping out of any one ingredient did not materially affect the yield.

TIME OF APPLICATION OF FERTILIZER

Fertilizers are applied at planting time, for the most part, throughout Canada, but on the Pacific coast considerable emphasis is placed on the time of application, it being thought that if the fertilizer is applied a few weeks in advance of planting it will be more readily taken up by the crop. To ascertain the truth of this, fertilizer was applied to the A and B plots under project C 50 about four weeks in advance of planting time, and to C and D at planting time.

FERTILIZER APPLIED BEFORE PLANTING

—	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
	lb.	lb.	lb.	lb.	lb.	lb.
A	64½	62½	67½	94½	79½	67
B	97½	104	71½	69	73	66
Totals	162	166½	139	163½	152½	133

Grand total.....916½ lb.

FERTILIZER APPLIED AT TIME OF PLANTING

—	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
	lb.	lb.	lb.	lb.	lb.	lb.
C	95	70	102½	89½	113	75
D	75	79	70½	73	72½	77
Totals	170	149	173	162½	185½	152

Grand total.....992 lb.

There is no indication, from this year's work, that the fertilizer applied before planting time proved more beneficial to the potato crop than when applied at planting time.

In 1927 an experiment was undertaken with Ephos Basic Phosphate to determine its value as a source of phosphoric acid when applied in conjunction with a nitrogenous and potassic fertilizer. The plots were one rod square, replicated four times. For comparison, treatment with superphosphate, basic slag and ground Nauru rock phosphate were included in the plan. There was also one plot which received nitrogen and potash but no phosphoric acid. This work was done with very great care. The planting, digging and, in fact, all processes connected with the crop were performed by hand. Two crops, mangels and potatoes, were used; hence, two sets of figures. The fertilizers applied to the various plots and the yields obtained are given in the following table.

EPHOS EXPERIMENT WITH POTATOES AND MANGELS

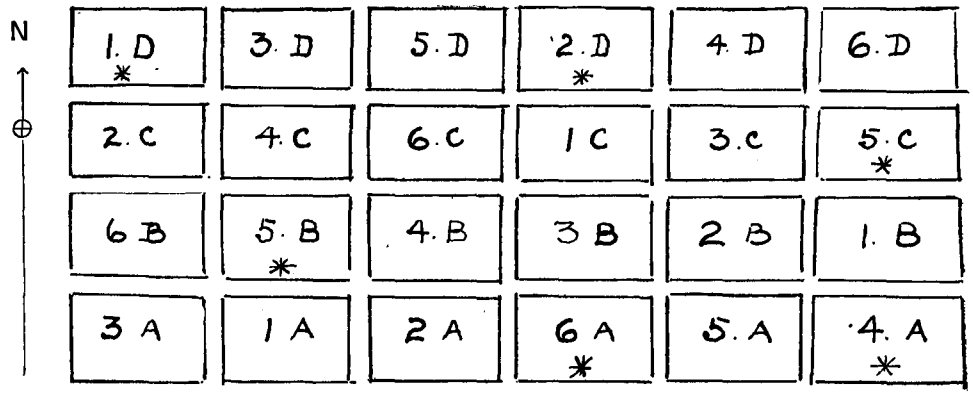
—	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
	lb. Nitrate of soda....200 Ephos.....292 Muriate of potash..100	lb. Nitrate of soda....200 Superphosphate....500 Muriate of potash..100	lb. Nitrate of soda....200 Basic slag.....500 Muriate of potash..100	lb. Nitrate of soda....200 Nauru rock.....200 Muriate of potash..100	lb. Nitrate of soda....200 Muriate of potash..100	Check.
Potatoes.....	35..... A 37..... B 46½..... C 41½..... D	37..... A 30..... B 46..... C 44..... D	44..... A 44½..... B 31..... C 37½..... D	43..... A 44½..... B 30..... C 38..... D	48..... A 48..... B 47½..... C 34½..... D	33.... A 44.... B 37.... C 36½... D
Total.....	160 lb.	157 lb.	157 lb.	155½ lb.	178 lb.	150½ lb.
Mangels.....	180..... A 166..... B 164..... C 134..... D	170..... A 131..... B 173..... C 163½..... D	151..... A 146..... B 127..... C 140..... D	171..... A 135..... B 126..... C 145½..... D	162..... A 167½..... B 148½..... C 138..... D	139.... A 146.... B 118.... C 116.... D
Total.....	644 lb.	637½ lb.	564 lb.	577½ lb.	616 lb.	519 lb.

It will be noticed that "Ephos", as well as other compounds containing phosphoric acid, have not demonstrated their worth.

In the spring of 1927, with the hope of determining why the various fertilizers have not been as effective as one would hope for, six soil samples were taken from various parts of the area devoted to the potato work, and forwarded to Dr. Frank T. Shutt, Dominion Chemist, Ottawa, for analysis. Dr. Shutt reports as follows:—

REPORT ON SOILS COLLECTED AT THE EXPERIMENTAL STATION, SIDNEY, B.C., APRIL, 1927

Six samples of soil, collected from the area devoted to experimental work with fertilizers for the potato crop at the Experimental Station, Sidney, B.C. were submitted to a complete physical and chemical analysis. The results of analysis are to be used in the interpretation of the field data. The samples were taken at a depth of 6 inches from plots 4A, 6A, 5B, 5C, 1D and 2D, shown in the following plan.



Plots 1/160 acre in area—Points of sampling marked *.

Mechanical Analysis.—The results of the mechanical analysis of this series of soils are given in table I. They show that the soil of this area varies from a gravelly, sandy loam on the west side to a clay loam on the east side.

Chemical Analysis.—The data from the chemical analysis of this series are given in table II.

The percentages of nitrogen and organic matter of all six soils are very satisfactory but Nos. 88856 and 88859 are distinctly the richest of the series in regard to these constituents and indicate that the eastern side of the area would be more productive than the west half.

All six samples are fairly well supplied with phosphoric acid, particularly those collected from the east side of the area. The percentages of this element which are " available " are in each instance quite high; they do not indicate, according to present standards, in the large number of plots any immediate necessity for phosphoric acid.

The percentages of potash, both total and ' available ', are fair but the series as a whole cannot be considered as being very rich in this element of plant food. As might be expected the clay loams, Lab'y. Nos. 88856, 59 and 61 are much higher in total potash than the sandy loams 88857, 58 and 60.

All the soils are quite well supplied with lime, although the data for the lime requirements indicate that a small dressing of ground limestone might prove beneficial for crops other than potatoes.

SOILS COLLECTED FROM POTATO FERTILIZER AREA—EXPERIMENTAL STATION, SIDNEY, B.C.

MECHANICAL ANALYSIS—MOISTURE-FREE BASIS

April, 1927.

Laboratory No.	Location	Gravel greater than 2 mm.	Fine Gravel 2·1 mm.	Coarse Sand 1·-·5 mm.	Medium Sand ·5·-·25 mm.	Fine Sand ·25·-·1 mm.	Very Fine Sand ·1·-·05 mm.	Total Sand	Silt ·05·-·005 mm.	Clay ·005·-·00 mm.	Classification
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	
88856	Plot 4 A.....	9·85	5·55	6·95	11·49	12·60	5·90	42·49	19·95	37·56	Clay.
88857	" 6 A.....	25·53	11·97	12·50	16·04	19·39	4·79	64·69	18·80	16·51	Sandy loam.
88858	" 5 B.....	23·04	10·86	10·97	15·27	17·77	4·76	59·63	24·62	15·75	"
88859	" 5 C.....	9·19	3·21	3·81	6·65	10·73	6·34	30·74	35·69	33·57	Clay.
88860	" 1 D.....	24·12	10·15	10·04	13·23	19·44	4·43	57·29	22·77	19·94	Sandy laom.
88861	" 2 D.....	4·88	3·94	3·92	5·90	8·25	4·92	26·93	43·84	29·23	Clay loam.

Chemical Laboratories, Central Experimental Farm,
Ottawa, January 3, 1928.

(Sgd.) FRANK T. SHUTT,
Dominion Chemist.

TABLE II—SOILS COLLECTED FROM POTATO FERTILIZER AREA—EXPERIMENTAL STATION, SIDNEY, B.C.

CHEMICAL ANALYSIS—ON AIR-DRIED SAMPLES

April, 1927.

Laboratory No.	Location	Moisture	Loss on Ignition (Organic Matter, etc.)	Soluble Mineral Matter	Insoluble Mineral Matter	Lime (CaO)	Magnesia (MgO)	Oxide of Iron and Alumina (Fe_2O_3+ Al_2O_3)	Nitrogen (N)	Phosphoric Acid $-(P_2O_5)$		Potash (K_2O)		Reaction	Lime Requirements Pounds per Acre of Ground Limestone
										Total	Available	Total	Available		
		p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	p.c.	pc..	p.c.	p.c.	p.c.	p.c.		
88856	Plot 4 A.....	5·99	11·77	13·75	68·49	1·29	1·30	16·69	·389	·341	·075	·257	·020	Sl. Acid..	3,340
88857	" 6 A.....	3·44	8·05	8·97	79·54	1·19	0·96	9·72	·254	·226	·067	·188	·015	" ..	2,440
88858	" 5 B.....	4·26	9·28	10·16	76·30	1·36	1·04	11·57	·310	·201	·059	·147	·012	" ..	1,870
88859	" 5 C.....	6·13	12·12	14·04	67·71	1·53	1·35	16·55	·419	·255	·073	·268	·019	V.S. Acid	1,410
88860	" 1 D.....	4·33	8·06	10·38	77·23	1·24	1·19	12·19	·277	·191	·044	·185	·017	Sl. Acid..	1,990
88861	" 2 D.....	4·54	8·79	12·11	74·56	1·55	1·46	13·34	·275	·195	·039	·246	·018	" ..	1,600

Chemical Laboratories, Central Experimental Farm,
Ottawa, January 3rd, 1927.

(Sgd.) FRANK T. SHUTT,
Dominion Chemist.

The analysis of the soils, both physical and chemical, would indicate that in no case may they be considered very poor. This in some measure explains the little effect arising from application of fertilizer.

POULTRY

Poultry-keeping, in all its branches, receives considerable attention on Vancouver island—greater attention than in many other parts of Canada. Of all the breeds the White Leghorn is most popular, followed by White Wyandottes and Barred Rocks. Rhode Island Reds increase in popularity with the years. White Wyandottes only are kept at the Station Farm. Considerable work is done in an experimental way covering incubation, breeding, feeding, housing, egg production and cost.

The whole poultry plant was moved to a new location during 1927. One-quarter of this area is given to the permanent laying houses. These houses have front and back yards, used in alternate years. The remaining part of the field is run in a three-year rotation, viz., roots, grain, hay. The chicks in each case are reared on the sod. The straw arising on the grain area will be used in the poultry department and the roots or kale used for green feed. In this way the chicks will be run over the area once in three years, and the whole plant as near complete in itself as may be.

The Egg-Laying Contest has been conducted at the Station as heretofore. Chicken-pox invaded the premises for the first time. This disease came in with the contest birds, but was held in check with little loss. No doubt more or less of this will appear in all future contests, as the disease seems to be well distributed over the country and extremely contagious. The contest was one of the most successful, though the production was not quite so high. The total number of eggs laid of sufficient size to count was 68,108. The average number of eggs per bird was 206.4, and the average number of points per bird 213.2. The winning pen (based on points) was that owned by J. J. Dougan, Cobble Hill, B.C., with 2.522.9 points; while L. Chaplin, with his Barred Rock, No. 3, the winning bird, won 335.4 points.

The production by breeds is as follows:—

Barred Rocks	215·2 points.
White Wyandottes	213·5 "
White Leghorns	205 "
Rhode Island Reds	198 "

BEST DATES FOR INCUBATION

The incubation of chicks on Vancouver Island begins in much earlier season than in many parts of Canada. The date fixed as the best time to incubate in Eastern Canada does not apply on the Pacific Coast. In an effort to determine the best date of incubation to secure maximum hatchability and livability this project was begun in 1922. In a general way it has been noticed, over the whole period, that late-hatched chicks lack in vitality and mature slowly, as compared with those hatched in earlier season. The following table sets forth results obtained during the 1927 season:—

BEST DATE FOR INCUBATION

Time set	Total eggs set	Number fertile	Percentage fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Number of chicks alive at 3 weeks of age	Per cent chicks alive at 3 weeks old	Total eggs required for 1 chick hatched	Total fertile eggs required for 1 chick hatched	Total eggs required for 1 chick alive when 3 weeks old
March	708	573	80·7	330	46·6	57·5	323	97·9	2·1	1·7	2·1
April	818	639	78·8	387	41·1	60·5	378	97·6	2·1	1·6	2·1
May	200	187	93·5	121	60·5	64·7	105	86·7	1·6	1·5	1·9

NOTE.—It will be noted that during 1927 the May hatches had the advantage, but this is the exception rather than the rule.

METHODS OF HANDLING FOR EGG PRODUCTION

This experiment has been conducted over the past four years at this Station in order to determine the relative merits or demerits of the range and confined methods of handling. The pullets used in this project were from dams that had been on free range during the previous year, and therefore both lots of pullets were on a par at the time of starting the project. The change of the pullets which had all been reared on free range to confinement is an important factor entering into the problem. The behaviour of each pen month by month throughout the year is shown in the following table. Each pen consisted of ten birds.

METHODS OF HANDLING FOR EGG PRODUCTION—CONFINEMENT vs. RANGE

Month	Number of eggs laid		Pounds Feed Scratch		Pounds Feed Mash		Pounds feed used per doz. eggs		Feed Cost		Feed Cost per doz. eggs	
	Range	Confined	Range	Confined	Range	Confined	Range	Confined	Range	Confined	Range	Confined
			lb.	lb.	lb.	lb.	lb.		$	$	cents	cents
November	169	125	40	40	30	28	5·0	6·5	1·69	1·65	12·0	15·8
December	153	175	38	38	28	34	5·2	5·0	1·60	1·72	12·5	11·7
January	134	115	36	30	30	30	5·9	6·2	1·80	1·62	16·1	17·0
February	101	50	30	36	28	30	6·9	15·9	1·56	1·79	18·5	43·0
March	151	91	28	30	30	30	4·6	7·9	1·58	1·63	12·5	21·5
April	148	109	30	30	35	40	5·2	7·7	1·80	1·93	14·5	21·4
May	109	85	23	20	24	25	5·1	6·3	1·30	1·24	14·3	17·5
June	121	33	23	13	25	12	5·7	9·0	1·30	·68	13·0	24·7
July	121	61	22	17	27	10	4·9	5·3	1·44	·79	14·3	15·5
August	140	102	27	14	30	15	4·9	2·5	1·66	·84	13·5	9·9
September	94	53	30	20	28	14	7·4	7·7	1·63	·96	20·8	21·7
October	58	16	23	18	20	12	8·9	22·5	1·21	·84	25·0	63·0
Totals	1,499	1,015	350	306	335	280	5·5	7·0	18·57	15·69	14·8	18·5
Average 5 years	1,705	1,451	*824·4		**813·6		5·94	7·1	21·05	20·71	15·16	18·2

* Total feed—Range Pen.
** Total feed—Confined Pen.

Averages over a period of five years, conducted for 10 months in the year in some cases and for the entire year in others, would indicate that both systems have some advantages; but where range is possible it should be utilized, as this system gives more eggs at a lower cost per dozen, to say nothing about the effect on the bird as a possible breeder the following year.

RELATION OF BODY WEIGHT TO EGG PRODUCTION

For five years the relation between body weight and egg production has been under test with the breed kept at the Station—White Wyandottes. The following table gives average results for five years:—

RELATION OF BODY WEIGHT TO EGG PRODUCTION

Weight of body	Average number of birds five years	Average production five years
Under 4½ lb.	9·5	171·4
From 4½ to 5 lb.	22·2	201·3
From 5 to 5½ lb.	29·2	201·4
From 5½ to 6 lb.	16·6	201·9
From 6 lb. up	9·6	208·5

From this it will be seen that so far as the Experimental Station birds are concerned, those weighing six pounds and over are heavier producers than others weighing less. During 1927 the scope of the project was enlarged to include all the Wyandottes in the Egg-Laying Contest for Vancouver Island.

RELATION OF BODY WEIGHT TO EGG PRODUCTION

Weight of birds	Number of birds 1927	Average production 1927	Average number of birds six years	Average production six years
Under 4·5 lb.	2	174·5	8·2	171·9
From 4·6 to 5·0 lb.	4	186·3	19·1	198·8
From 5·1 to 5·5 lb.	15	218·3	24·3	204·2
From 5·6 to 6·0 lb.	9	218·0	15·5	205·4
From 6·1 lb. up	13	202·0	10·2	207·6

COST OF EGG PRODUCTION

Detailed statements of costs have been published year by year, determined month by month. The following table gives a summary of this work for 8 years.

—	1925	1927	Average for eight years
Average production per bird	199·1	196·8	190·14
Pounds of grain and mash per dozen eggs	5·16	5·3	5·81
Cost of feed per dozen eggs	18·8c.	14·2c.	18·2c.
Month of highest cost	Dec.	July	
Month of lowest cost	April	April	
Month of highest production	April	April	
Month of lowest production	Jan.	Sept.	

It will be noted that two factors enter into the cost of producing one dozen eggs, viz.: the cost of the feed, and the production of the birds. Thus, if production is doubled, other things being equal, the cost of production is cut in half.

HOME MIXED GRAIN AND MASH VS. COMMERCIAL MIXED GRAIN AND MASH

For several years the mash as mixed at the Station Farm has been fed against various commercial mashes, including those put out by the Brackman-Ker Milling Co., Vancouver Milling Co., Vernon and Butterfield, Scott & Peden and during the past year by the Sylvester Feed Co. A summary of results obtained during the past year is set forth in the accompanying table. Each pen consisted of ten birds.

It will be noted that in 1927 the work was carried on for the entire twelve months. In fairness to the commercial feeds it should be said that at the beginning of the project when the birds are put on commercial feed there is usually a falling-off in egg production, due apparently to the change in feed, and thus the cost of the commercial feed appears unduly high.

It has been found that the Sidney ration costs more than the commercial feeds, but that the production and cost of one dozen eggs shows to the advantage of the Sidney feed.

HOME MIXED GRAIN AND MASH vs. COMMERCIAL MIXED GRAIN AND MASH

Month	Number of eggs laid		Pounds of feed used Scratch		Pounds of feed used Mash		Pounds of feed used per dozen eggs		Feed Cost		Feed Cost per dozen eggs	
	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial
									$	$	cents	cents
November	169	123	40	40	30	33	5·0	7·1	1·69	1·97	12·0	16·8
December	153	109	38	30	28	24	5·2	6·0	1·60	1·46	12·5	16·1
January	134	87	36	30	30	26	5·9	7·7	1·80	1·37	16·1	19·0
February	101	56	30	28	28	30	6·9	12·4	1·56	1·42	18·5	32·2
March	151	174	28	34	30	35	4·6	4·7	1·58	1·81	12·5	12·5
April	148	175	30	35	35	40	5·2	5·1	1·80	1·98	14·5	13·4
May	109	119	23	30	24	35	5·1	6·1	1·30	1·79	14·3	18·0
June	121	96	23	30	25	32	5·7	7·8	1·30	1·71	13·0	21·4
July	121	110	22	30	27	30	4·9	6·5	1·44	1·65	14·3	18·0
August	140	48	27	28	30	26	4·9	13·5	1·66	1·49	13·5	37·2
September	94	63	30	30	28	26	7·4	10·6	1·63	1·51	20·8	28·7
October	58	22	23	26	20	20	8·9	25·1	1·21	1·24	25·0	67·6
Total	1,499	1,182	350	371	335	357	5·5	7·4	18·57	19·40	14·8	19·7
Average for 5 years	1,705	1,549·2	*824·4		**783·2		5·94	6·62	21·05	18·95	15·16	16·04

* Total feed—"Home mixed" Pen.
** Total feed—"Commercial" Pen.

BEEF SCRAP VS. FISH MEAL

This experiment was begun in 1922, and has been continued, except for one year, since. Two pens of ten birds each were used and fed in precisely the same manner, with the exception that one pen received beef scrap and the other fish meal. The following table gives the results obtained during the past year:

FISH MEAL vs. BEEF SCRAP

Month	Number of eggs laid		Pounds of feed used Scratch		Pounds of feed used Mash		Pounds of feed used for one dozen eggs		Cost of Feed		Feed Cost for one dozen eggs	
	Beef Scrap	Fish Meal	Beef Scrap	Fish Meal	Beef Scrap	Fish Meal	Beef Scrap	Fish Meal	Beef Scrap	Fish Meal	Beef Scrap	Fish Meal
			lb.	lb.	lb.	lb.	lb.	lb.	$	$	cents	cents
November	169	137	40	40	30	26	5·0	5·7	1·68	1·68	12·0	14·7
December	153	127	38	34	28	24	5·2	5·5	1·60	1·48	12·5	14·0
January	134	102	36	30	30	20	5·9	5·9	1·80	1·35	16·1	15·9
February	101	118	30	32	28	34	6·9	6·9	1·56	1·75	18·5	17·8
March	151	155	28	30	30	37	4·6	5·2	1·58	1·75	12·5	13·5
April	148	149	30	30	35	35	5·2	5·2	1·80	1·71	14·5	13·7
May	109	111	23	25	24	30	5·1	6·0	1·30	1·43	14·3	15·4
June	121	103	23	25	25	28	5·7	6·1	1·30	1·41	13·0	16·4
July	121	94	22	20	27	22	4·9	5·6	1·44	1·18	14·3	15·0
August	140	89	27	17	30	20	4·9	5·0	1·66	1·02	13·5	13·7
September	94	52	30	25	28	18	7·4	9·9	1·63	1·17	20·8	27·0
October	58	37	23	24	20	15	8·9	12·7	1·21	1·06	25·0	34·4
Totals	1,499	1,274	350	332	335	305	5·5	6·0	18·57	16·99	14·8	16·0
Average 4 years	1,705	1,467	*824·4		**770·7		5·94	6·7	21·05	18·48	15·16	16·6

* Total feed—Beef Scrap Pen. ** Total feed—Fish meal pen

It will be seen that beef scrap, as in other years, has given best results from the standpoint of production and cost per dozen eggs.

BREEDING FOR EGG SIZE

The procedure in this work has been to mate males from dams with large egg-size eggs, with hens laying normal or small-size eggs, the object being to determine whether the unit character of egg size is transmitted through the male or female. In 1924 the project gave very marked indication that egg-size was transmitted through the male. In 1925 it would seem that no general law could be laid down, but that the trap nest was the safest way to prove the laying stock.

BREEDING FOR EGG SIZE

Sire			Dam			Daughters		
Leg band No.	Dam's egg size	Dam's production	Leg band No.	Egg size	Production	Number	Average egg size	Average production
	oz.	eggs		oz.	eggs		oz.	eggs
I.7	28	170	H.19	26·0	209	2	25·0	188·5
			H.115	24·0	217	3	25·5	150·0
			H.118	24·0	217	6	23·8	202·5
			B.292	23·2	245	3	23·1	153·6
			E.448	23·2	287	2	24·0	227·5
			B.296	22·7	227	3	24·3	180·3
E.24	24	204	H.79	27·0	218	4	26·2	234·8
			D.450	25·0	257	1	26·0	251·0
			H.28	24·0	202	2	26·5	190·5
			H.214	26·0	202	2	24·5	236·5
			I.691	25·0	250	2	24·0	235·5
			I.710	27·0	209	1	23·0	249·0
			H.101	26·0	252	4	23·5	244·2
J.1	25	305	I.712	30·0	204	1	25·0	230·0
			I.730	24·0	186	1	25·0	209·0
			I.746	28·0	230	3	24·2	220·3
			I.753	25·0	226	2	24·8	216·0
			I.755	24·0	148	5	24·2	213·0

To attempt to draw conclusions from an experiment like this is difficult, and likely to end in misapprehension. It will be noticed that egg-size is up at one time and down at another without apparent reason. Averages are equally misleading. The work of breeding for egg size is being continued.

GREEN FEED VS. NO GREEN FEED OR SUBSTITUTES

This project was undertaken with the view of not only gathering data on the value of green feed for poultry, but also for the purpose of obtaining information of the value of yeast as a poultry food. In former years four pens were included in this work as follows:—

Pen No. 1 received green feed—kale.
Pen No. 2 received yeast.
Pen No. 3 received both yeast and green feed.
Pen No. 4 received neither yeast nor green feed.

The mortality of Pen No. 4 was so great that it was thought well to change the experiment somewhat as follows:—

Pen No. 1—Green feed.
Pen No. 2—Cod liver oil.
Pen No. 3—Green feed and cod liver oil.

Thus it will be noticed that yeast was not on trial, but cod liver oil as a substitute for green feed was used in Pen No. 2.

GREEN FEED vs. NO GREEN FEED OR SUBSTITUTES

Pen	Number died	Value feed per bird	Eggs laid per bird	Value eggs per bird	Profit over feed, per bird
		cts.		$ cts.	$ cts.
Green feed	3	83	65·8	2 16	1 33
Cod liver oil	2	81	66·5	2 19	1 38
Green feed and cod liver oil	2	85	69·1	2 24	1 39

It would seem that cod liver oil has distinct value in the feeding of poultry. We do not conclude, however, that it entirely takes the place of green food.

APIARY

The apiary at the Experimental Station has been carried on as heretofore, more for the sake of demonstration than as a commercial enterprise. The number of colonies at the farm has been increased somewhat, but the colonies kept in out apiaries have been drawn in.

Flowers are everywhere and continuous over a long period, but real honey plants are not in sufficient quantity to carry any great number of colonies. The winters are mild and the springs changeable, bringing about a considerable amount of spring dwindling. It is very easy, in a country like this, to overstock a given area. We are convinced that this locality will not carry any great number of colonies until the amount of pasturage is increased. It is our intention to use the apiary at the station for study and demonstration mainly.

The colonies at the Experimental Station, Sidney, are all run for extracted honey. All colonies are wintered outside in Kootenay cases. As soon as weather conditions permit in the spring, colonies are examined, and strength, quantity of stores and condition of brood nest are noted. Thirty-three per cent sugar syrup is fed where needed, and weak colonies are strengthened by frames of brood and bees from stronger colonies. All colonies are examined about every nine days, watch being kept for queen cells, and every facility given to induce the queen to lay.

The mildness of the winter, in some respects, is a great drawback from the beekeepers' standpoint. It is quite impossible to keep the bees in the cluster for any length of time, for every bright day they fly and are chilled before they can return, due to climatic conditions.

The dearth of honey plants on the Saanich peninsula renders spring feeding imperative until the maple trees come into bloom, and from that time onward bees are able to maintain themselves until the time of white clover, when whatever surplus there may be is gathered. If extracting is done in July, and the bees are deprived of their stores, close observation must be maintained, as from this time onward they will not be able to do much more than gather enough to maintain themselves. Feeding for winter is commenced about September, as October is often very damp and prevents the bees maturing the syrup fed to them, and unmatured stores will result in mildewed combs and loss of bees from dysentery during winter.

In 1926 foul brood was discovered in the apiary for the first time. Every effort was made to clean up the difficulty, yet in 1927 a few cells containing diseased brood were found in one hive. Since that time foul brood has been

discovered in several places on the Island, both American and European foul brood. Though not so common as on the mainland of British Columbia, we are satisfied that the malady is common enough. Beekeepers are advised to be on the lookout, for repeatedly foul brood has made its appearance in the most unlooked for situations. Among possible sources of contagion may be mentioned discarded honey tins or jars, bee trees, cages that have been repeatedly used, as well as candy and syrup coming with bees purchased by the pound. The future demands greater care on the part of the apiarist if the various brood diseases are to be held in check.

TOBACCO

Perhaps no crop has attracted more attention on Vancouver island during the past year than tobacco. For three or four years variety tests have been conducted under dry and irrigated soil conditions at this station. That tobacco will grow both with and without water has been amply demonstrated, but whether the district will yield normal crops of good quality leaf is quite another matter. It is doubtful whether the southern end of Vancouver island, without water, will produce leaf of high quality.

Three varieties were grown in 1927, namely, Connecticut Havana 38, Belge, and Station Standup Burley.

The seed was sown in flats in the greenhouse at this station, "pricked out" and set in the field at the proper time. Cold frames may answer just as well, if protected from the cold winds and covered with the ordinary sash or cotton cloth. Seeding is usually possible near the first part of April, and the transplanting to the field during the first half of June. The rows were laid out three feet apart, and the plants set from two to three feet apart in the row, depending upon the variety. The plants were so set that each variety could get water, which was artificially supplied, and thus grown beside those which had none except the natural soil water. The plants were cultivated frequently throughout early season, and the height of plant and length of leaf recorded every two weeks. "Green weight" and "length of leaf" were determined at harvest. Plants were "strung" and placed in the shed to cure. Later the leaves were "stripped" and forwarded to Ottawa. Field planting before the advent of very dry weather is strongly recommended. The period of greatest growth at this station is from the middle of July to the middle of August. The plants are very subject to damping-off while in the seed bed, and to flea beetles when first set in the field.

TOBACCO—VARIETY TESTS

Name of variety	Average height 25 plants		Average length leaf 25 plants		Yield cured leaves per acre	
	Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated
	inch	inch	inch	inch	lb.	lb.
Connecticut Havana	36	30	26	20	2,238	1,270
Belge	34	29	21	19	2,420	1,331
Standup Burley	34	26	30	24	1,996	938

The irrigated plots were treated in precisely the same way as the dry land plots, except that they were watered from time to time. Again the quality of the leaf was only fair.

GENERAL NOTES

BUILDINGS

No new buildings were put up during 1927. The old buildings were painted and kept in repair throughout the year.

ROADS, DRIVES, ETC.

Work in the park is continued from time to time. This area is constantly taking on a more lovely appearance, making it an ideal spot for the entertainment of our farm guests and picnic parties.

EXTENSION AND PUBLICITY

The annual report is a feature of our work each year. This report covers, in some measure, all the activities of the farm. Every effort is made to have this placed in the hands of farmers and others directly concerned. Beside the report a news letter is published one or more times each year, in which some phase of our work is stressed, and given wide publicity at the right moment. This service is one highly appreciated, and might be extended. The press, as heretofore, have given us every consideration, both in the publishing of articles and favourable comment.

POULTRY CONGRESS

The delegates from the World's Poultry Congress, on their trans-Canadian tour, were entertained at the station farm. The poultrymen interested in our contest were also invited and spent a pleasant day with poultrymen from many lands. The Canadian Seed Growers were also entertained at the time of their convention in Victoria. Scores of picnic parties, farmers' organizations, churches and many others have used our grounds, and have been welcomed.