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 1925

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EXPERIMENTAL STATION FOR VANCOUVER ISLAND SIDNEY, B.C.

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

THE SEASON

The winter of 1924-25, really parts of two winters, was very similar to others, yet the frost injury was greater. The preceding summer was dry—the advent of the fall rains late. When the rains really did come, vegetation, which had suffered all summer, became surcharged with water. Frost immediately following was disastrous. Autumn-sown cereals were greatly injured, especially oats. Even the hardy wheats, when sown in late season, suffered, but when sown in September, as recommended by the Experimental Station, came through fairly well. The summer was dry, as all summers are on Vancouver Island. However 1925 was drier than many. The spring was favourable to planting, but many crops suffered for moisture before the end of the season. December 1925 was exceptionally mild. At the end of the year, the time of writing this report, little frost injury had occurred. Camelias and roses were still being picked on the Farm, while the tree fruits were coming into bud.

The season was a favourable one for fruits. Cherries, pears, plums and apples all yielded well,—cherries and pears remarkably well.

METEOROLOGICAL RECORDS, 1925

Month	Highest temp.	Lowest temp.	Mean temp.	Precipitation	Sunshine	Possible sunshine
	Deg. F.	Deg. F.	Deg. F.	Inches	Hours	Hours
January	51·0	30·0	39·2	5·50	71	273
February	52·0	32·0	42·0	3·88	60	286
March	58·0	32·0	42·5	1·46	128	370
April	68·0	33·0	48·0	1·75	748	411
May	85·0	40·0	57·5	0·51	298	473
June	93·0	42·0	59·2	0·37	289	482
July	84·0	48·0	63·5	0·23	364	486
August	89·0	44·0	62·2	0·81	267	444
Sept	72·0	39·0	56·8	0·59	213	377
October	65·0	37·0	48·6	1·06	129	335
November	53·0	30·5	42·6	2·49	68	276
December	57·0	32·0	43·7	5·43	49	259

PRECIPITATION AT SIDNEY, B.C.

Month	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	Average 11 years
January	8·47	2·77	2·51	4·07	3·75	4·45	3·28	4·23	1·65	6·81	3·03	4·09
February	3·21	1·66	5·49	2·97	4·78	4·02	1·61	3·97	1·79	3·62	6·00	3·56
March	1·26	1·65	4·85	2·72	4·68	3·42	2·33	1·67	1·20	2·09	0·47	2·38
April	1·63	1·65	1·52	4·09	0·21	2·15	1·45	1·13	0·71	1·68	1·08	1·57
May	0·28	2·06	0·73	0·70	0·44	0·18	1·24	1·57	0·54	1·29	0·16	0·92
June	2·14	0·74	0·55	1·06	0·45	0·77	1·17	1·36	0·27	0·51	0·33	0·85
July	0·13	1·30	1·72	0·18	1·96	0·27	0·67	0·04	0·00	0·92	0·31	0·59
August	0·14	0·03	0·32	0·44	1·41	0·06	2·52	1·02	0·82	0·65	0·77	0·74
September	1·97	0·30	0·66	1·35	0·16	1·85	2·96	2·74	1·96	1·62	3·12	1·70
October	3·63	4·17	2·01	0·61	2·73	1·30	4·03	4·80	2·21	1·95	3·35	2·80
November	8·20	4·82	3·18	1·85	3·34	5·94	3·32	4·00	1·47	2·58	5·50	4·02
December	1·21	6·89	6·59	9·21	6·77	4·75	3·68	3·60	9·06	6·88	4·51	5·73
Totals	32·27	28·04	30·03	29·25	29·28	30·16	27·26	30·13	21·68	30·60	28·63	28·85

ANIMAL HUSBANDRY

The Jersey is the most popular breed on Vancouver Island. There are no beef breeds, but some of the best dairy cows in Canada may be found there. The mildness of the climate and other conditions, so like those found in the south of England, have perhaps had something to do with popularizing the Jersey, the only breed kept on the Farm.

DAIRY CATTLE

MILK PRODUCTION

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 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 lb.
Gluten meal	100 lb.
Cottonseed meal	100 lb.
Oilcake meal	100 lb.

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.

MILK PRODUCTION AND VALUE

Name of Cow	Age	Date of dropping calf	No. of days milking	Total pounds milk	Total pounds fat	Value of fat	Value of skim milk	Total value of product
	yrs.					$	$	$
Plashe's Model Jessie	12	Mar. 7, '25	254	6,831·1	279·09	152·38	17·70	170·08
" "	11	Feb. 18, '24	317	1,147·7	565·52	237·10	28·77	265·87
Lakeview Royal Blossom	6	Feb. 13, '24	411	9,733·1	509·84	214·26	24·10	238·36
Majesty's Honeymoon Bess	8	April 9, '24	349	9,683·4	480·61	199·34	24·24	223·58
Rioters Florence of V.I.S	2	Nov. 22, '24	300	3,700·2	171·61	81·05	9·38	90·43
White Robin's Queen	3	Feb. 6, '24	479	7,790·0	479·68	205·35	18·57	223·92
White Robin's Buttercup	3	Aug. 21, '24	406	5,730·8	351·29	167·58	13·68	181·26

FEED CONSUMPTION AND COST

Name of Cow	Age	No. of days fed	Meal	Roots and ensilage	Hay	Total cost of feed	Total cost 1 lb. fat	Profit over cost of feed
	yrs.		pounds	pounds	pounds	$	c.	$
Plashe's Model Jessie	12	254	3,324	6,147	2,564	124·18	44·5	28·19
" "	11	317	4,295	8,995	3,350	163·37	28·9	73·73
Lakeview Royal Blossom	6	411	3,954	9,211	4,260	214·25	42·0	49·77
Majesty's Honeymoon Bess	8	349	3,822	8,415	3,660	153·29	31·8	46·06
Rioter's Florence of V.I.S	2	300	2,684	5,680	3,120	112·50	65·5	−31·45*
White Robin's Queen	3	479	3,566	10,280	4,860	163·45	34·0	41·89
White Robin's Buttercup	3	406	3,834	8,955	4,270	160·93	46·1	6·65

* Minus (−) sign means loss.

HERD BULL

Our herd bull, "Jessie's Aviator of V.I.S." is a young animal born February 18, 1924, the son of Plashe's Model Jessie, with a milk record of 16,018 pounds of milk in 1922-23, as already reported.

MINERAL FOOD FOR DAIRY CATTLE

Quite recently breeders have given much attention to mineral feeds as a part-ration for dairy cows. The mineral drain on the animal's body, in producing milk and carrying a calf, is very great, greater than the amount supplied in the meal and roughage. An attempt is being made to meet this deficiency by a mineral ration composed as follows:—

25 pounds bonemeal.
25 pounds charcoal.
3 pounds sulphur.

This 53 pounds of mineral is being fed, mixed with 1,200 pounds of meal, varying the amount with the amount of meal fed. The work has not been carried far enough to speak definitely concerning this project.

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 mineral through the milk pail as with cows. It has also 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 mixture is being used:—

10 pounds calcium phosphate.
10 pounds sodium phosphate.
10 pounds,Epsom salts.
10 pounds bonemeal.
10 pounds sulphur.
4 pounds Glauber salts.
4 ounces potassium iodide.

RELATIONSHIP BETWEEN GROWTH AND AGE OF DAIRY CALVES

It is frequently noticed that calves do not make regular and consistent gains. At one time they gain rapidly, at another time they apparently stand still on the same feed. Is such behaviour expected from dairy calves of certain age?

The weights month by month are being recorded from birth to the freshening period. Nothing constant has developed during the time of the investigation other than fluctuations due to season, pasture, feed, etc. The investigation is being continued.

FIELD HUSBANDRY

ROTATIONS

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 only 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 hay.
1924—Roots.
1925—Wheat.

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 a 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 seeding 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, 1 yr.	Value	Cost of operations	Profit or loss
			$	$	$
Wheat (Sun)	1922	38 bush.	93·80	66·43	Prof. 27 37
Timothy and clover hay	1923	3·32 ton	83·00	54 24	" 28 76
Summer-fallow	1924			45 65	Loss 45 65
Wheat (Sun)	1925	42·18	75 90	49 52	Prof. 26 38

Owing to unfavourable conditions, summer-fallow replaced the roots in the rotation, and the cost of operations entered as a loss. The average yield of wheat per acre for a two year period on this area was 40 bushels 9 pounds.

ROTATION "B" (FOUR-YEAR ROTATION)

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

An attempt will be made to maintain the fertility of the soil without hay or grass 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 production	Profit or loss
			$	$	$
Winter wheat	1923	25·2 bush.	84 86	67 10	Prof. 17 76
Peas (Maple)	1924	22 "	59 70	68 34	Loss 8 64
Corn	1925	7·16 tons	42 96	90 19	Loss 47 21

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 high in price, gave us a credit balance of $17.76 per acre. The high cost of production on 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 the cost. The yield of 22 bushels is below the average, which also adds to the cost of production.

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.

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
			$ cts.	$ cts.	$ cts.
Vetch	1923	16·7 bush.	83 68	73 20	Prof. 10 48
Corn	1924	9·69 tons	58 14	99 59	Loss 41 45
Peas	1925	27·0 bush.	73 20	66 71	Prof. 6 49

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 $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 $24 per ton, the value of corn ensilage is $6 per ton. This figure was used in computing the value of the crop. The cost of producing one ton of ensilage was $10.26.

The total value of the 1925 pea crop includes the straw valued at $15 per ton. Straw on Vancouver Island is always high in price and often hard to get, large quantities being used every year in the strawberry fields. The cutting of the crop was done with a pea-harvester and buncher attached to the mowing machine, saving considerable hand labour.

ROTATION "D" (FOUR YEARS DURATION)

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

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 to this work.

SUMMARY OF YIELDS, VALUE AND PROFIT OR LOSS PER ACRE

Crop	Year	Yield per acre	Value	Cost of production	Profit or loss
			$ cts.	$ cts.	$ cts.
Wheat, Red Rock	1923	26·3 bush.	85 31	67 23	Prof. 18 08
Timothy and clover	1924	2·05 tons	49 20	53 64	Loss 4 44
Mangels	1925	12·13 "	121 30	112 37	Prof. 9 26

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

Owing to the very dry season, the 1924 hay crop was much below the average, and the cost per ton, $26.17 is consequently greater than usual.

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.

ROTATION "E" (FOUR YEARS DURATION)

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

Potatoes continually become a crop 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 are sown in the fall, 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
			$ cts.	$ cts.	$ cts.
Wheat, oats, and vetch	1924	2·69 tons	61 87	63 38	Loss 1 51
Potatoes	1925	4·39 "	131 70	137 61	Loss 5 91

Four acres are devoted to this rotation, one of which was planted to Sir Walter Raleigh and the remainder to Burbank potatoes in 1925. The Raleighs continued to grow through the long dry season, and gave a yield of eight and one-quarter tons per acre. The yield from the Burbank, however, only amounted to 3.1 tons per acre, lowering the average production per acre to 4.39 tons, and leaving a debit balance of $5.91 per acre.

COMPARATIVE YIELDS OF CORN, SUNFLOWERS, AND CORN AND SUNFLOWERS

Plots one twenty-second of an acre were used for this work. The soil, a light loam, was manured and well ploughed in the fall. Previous to seeding the land was thoroughly cultivated to destroy the weeds. Both corn and Sunflowers were planted in rows three feet apart and thinned to eight or ten inches apart in the rows. In the mixed plot two rows of corn and one of sunflowers were planted alternately.

HEIGHT AND MATURITY AT HARVEST AND YIELD PER ACRE

Plot crop	Date cut	Height when cut	Maturity at harvest	Yield per plot green	Yield per acre
		ft. ins.		lb.	tons
1. Corn	Sept. 21	6 0	Dough	1,140	12 54
2. Sunflowers	" 2	4 9	Full bloom	1,200	13 20
3. Corn and sunflowers	" 21	4 5	Past full bloom	1,110	12 21

Minnesota 12 was the variety of corn used. The sunflower purchased for Mammoth Russian did not turn out to be true to name being of a much more dwarfed habit than this variety. From the results obtained it would appear that neither the corn nor the sunflowers do so well when planted together as when grown separately. This, however, is not conclusive as the figures are based on one year's records only. In harvesting the crop, the corn and sunflowers when mixed are much more difficult to handle than the corn alone, especially when feeding to a small ensilage cutter.

HORTICULTURE

Much of the work being carried on at this Station comes under this division. Special attention is paid to the culture of tree fruits, small fruits, tender fruits, vegetables, and flowers and nuts. No effort is being spared in the endeavour to obtain reliable information on cultural methods, varieties, yields and costs of the many crops, the tests extending over a period of several years.

The work in this division is too extensive to permit of the results being presented in detail in this report each year, however, the results presented cover the major part of the work, and especially those projects which it is hoped will prove of interest to growers.

TREE FRUITS

The severe frosts of the 1924-25 winter caused very little, if any, injury to fruit trees. All continued to thrive and are remarkably clean and free from serious insect pests and fungous diseases. Pear scab made its appearance for the first time, and while some varieties showed a considerable percentage of infection, its spread is not anticipated. Loss from brown rot was confined to a few varieties of stone fruits. Blossom blight was severe on two or three varieties of plums, the variety Black Diamond sustaining the greatest loss.

A huge crop of pears of splendid quality was harvested and sold to a select market in Victoria. Cherries gave a tremendous crop, especially the sour varieties, the entire cherry block of orchard yielding over five tons of fruit.

Clean cultivation is practised throughout the entire orchard during the growing season. Fall wheat (Red Rock) sown in September gives the greatest amount of growth of any crop we have been able to obtain that would function as a cover-crop. During the fall and winter months the wheat makes satisfactory growth and by the end of March is frequently 15 to 18 inches high, giving a fine mulch to turn down.

SPRAYING

The entire orchard, comprising the areas planted to apples, pears, cherries, plums, peaches, apricots, nectarines, medlars and quince, is given dormant and calyx sprays each year. Additional special sprays are applied to plums, sweet cherries, and nectarines in some cases chiefly because of the disease, brown rot. The dormant spray keeps the bark in healthy condition, and destroys spores of fungous diseases from the previous season which otherwise would carry over and become established. The combination spray, applied as soon as the petals have fallen, is designed to prevent diseases and insect pests from becoming established on the fruit and foliage. Observations show that these two sprays under ordinary conditions are sufficient to insure fruit of good quality.

The sprays were made up in the following manner.

1. *Dormant spray*—consisting of commercial lime-sulphur, 10 to 100, and applied to all tree fruits.
2. *Calyx spray*— 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

The cost of materials used in spray-mixtures was as follows: commercial lime-sulphur 45 cents per gallon; arsenate of lead 35 cents per pound; and Black-leaf 40, $13.75 per gallon. In reckoning the cost of labour, 35 cents per hour per man and 17½ cents per hour per horse is allowed. With the spraying-outfit used, two men and one horse were required, bringing the total cost per hour up to 87½ cents. Nothing has been allowed for the spray-outfit which consisted of a hand-spraying motor-pump fitted to a one-hundred-gallon barrel.

COST OF SPRAYING—1925

—		Apples		Pears	
		Dormant	Calyx	Dormant	Calyx
Number of trees sprayed		184	184	318	318
Quantity sprays used per application	gal.	200	368	300	475
Quantity spray used per tree	"	1·08	2·0	0·94	1·5
Spray used per acre, 50 trees	"	54·0	100·0	47·0	75·0
Cost of spray material per tree	cents	4·86	8·5	4·23	6·4
Cost of spray material per acre—50 trees	$	2 43	4 25	2 11	3 20
Time taken for spraying	mins.	240·0	441·6	381·0	570·0
Time to spray 1 tree	"	1·3	2·4	1·2	1·5
Time to spray 1 acre	"	65·0	120·0	60·0	75·0
Cost of time applying spray	$	3 50	6 44	5 25	8 31
Cost of time applying spray, 1 tree	cents	1·9	3·5	1·65	2·61
Cost of time applying spray, 1 acre	"	95·0	$1 65	82·5	$1·305
Cost of labour and materials, 1 tree	"	6·76	12·0	5·88	9·01
Cost of labour and materials, 1 acre	$	3 38	6 00	2 94	4 50

APPLES—VARIETY EXPERIMENT—PROJECT H. 33

The apple orchard at the Station is now 11 years old. Of many of the less common commercial varieties only two trees were set in the original plantings in order to test out the variety. A few of these promise to become popular, while others are almost useless. The yields of fruit have been compiled over a period of seven years in terms of total pounds per tree. Following is a list of the varieties under test.

APPLES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1925		Total yield per tree, 7 years		Season
			lb.	oz.	lb.	oz.	
Alexander	1915	2	62	8	190	1	Sept.-Nov.
Black Ben Davis	1916	2	..	..	..	..	
Blenheim Orange	1916	2	63	0	75	2	Nov.-Dec.
Carolina Red June	1916	3	15	0	20	2	Aug.
Charles Ross	1914	2	89	10	175	10	Sept.-Oct.
Cox Orange Pippin	1914	12	58	5	126	13	Dec.
Duchess of Oldenburg	1914	9	29	3	152	0	Aug.-Sept.
Early Colton	1916	2	96	8	180	4	Aug.
Goal	1916	1	77	8	80	8	
Gravenstein	1914	10	56	14	115	4	Oct.
Grimes Golden	1914	13	98	12	317	0	Jan.
Jonathan	1914	12	26	9	90	9	Dec.-Feb.
King David	1914	2	258	12	658	8	Dec.-Feb.
King of Tompkins Co	1914	10	64	8	238	14	Oct.-Jan.
Linton	1914	1	127	12	301	4	Aug.-Sept.
Lowland Raspberry	1914	7	72	14	155	9	Aug.
McIntosh Red	1914	6	24	4	249	0	Nov.-Dec.
Melba	1921	2	37	0	43	2	Aug.-Sept.
Melba	1914	1	99	0	259	15	
Monsieur Gladstone	1914	2	1	8	42	0	Sept.-Oct.
Missing Link	1919	2	52	4	114	2	Dec.-Jan.
Newtown Pippin	1916	2	21	10	48	1	Jan.-April.
Peasgood Nonsuch	1916	1	29	0	55	12	Sept.-Oct.
Northern Spy	1916	2	63	8	65	8	Jan.-Feb.
Red Astrachan	1914	14	56	6	137	7	Aug.-Sept.
Ribstone Pippin	1916	1	1	8	1	8	Nov.-Dec.
Rome Beauty	1917	2	96	8	290	15	Jan.-Mar.
Percival	1914	1	83	0	285	10	Sept.
Petrel	1914	1	84	8	241	0	Aug.-Sept.
Saint Germain	1914	3	..	11	23	1	
Spitzenburg	1916	2	36	0	64	0	Dec.-Jan.
Sweet Bough	1914	2	3	0	37	0	Aug.
Transparent de Croncels	1914	2	68	2	185	13	Sept.
Trenton	1914	1	186	0	443	10	Aug.
Vanderpool	1916	2	10	0	50	12	Dec.-Jan.
Wagener	1914	11	108	7	282	12	Dec.-Feb.
Wealthy	1914	4	59	8	196	11	Sept.-Oct.
Winter Banana	1914	2	140	0	428	1	Jan.-Feb.
Winterstein	1919	2	22	8	22	8	
Wismer Dessert	1914	2	80	8	80	8	Oct.-Nov.
Yellow Transparent	1914	10	67	7	229	12	Aug.
York	1916	1	..	..	17	0	Sept.-Oct.

The highest-yielding varieties in order are:—King David, Trenton, Winter Banana, Charles Ross, Grimes Golden and Linton. Some of the best varieties in order of season are:—Yellow Transparent, Alexander, Trenton, Charles Ross, McIntosh Red, King, Wagener and Grimes Golden.

METHODS OF ORCHARD SOIL MANAGEMENT WITH APPLES—PROJECT H. 331

This experiment was begun in 1917 with the object of determining the best practice for Vancouver island. Three systems of management have been studied during this period, sod mulch, clean cultivation, and cover-crop. The orchard was divided into blocks and a definite system of management practised in each. During the past season the area in sod has been ploughed up and brought under clean cultivation as it was found impossible to continue it further and save the trees.

CLEAN CULTIVATION VS. SOD MULCH

Variety	When set	Average season's growth for seven years		Total yield per tree for seven years			
		Clean cul.	Sod	Clean cul.		Sod	
		inch	inch	lb.	oz.	lb.	oz.
Cox Orange Pippin	1914	14·0	5·2	133	12	50	12
Duchess of Oldenburg	1914	14·0	10·0	161	5	101	4
Gravenstein	1914	15·4	9·9	146	6	62	9
Grimes Golden	1914	16·5	9·2	224	3	107	8
Jonathan	1914	12·2	10·8	161	10	29	6
King of Tompkins Co	1914	20·9	18·5	244	11	331	0
Red Astrachan	1914	11·9	9·7	199	13	88	10
Wealthy	1914	13·7	11·2	201	12	74	14

From a careful study of the working of the project over the entire period of seven years, the following conclusions have been arrived at:—

1. That clean cultivation is much to be preferred over sod for Vancouver island conditions.
2. That trees in the sod area lack vitality and become more or less stunted in growth.
3. That a much lower yield of fruit of inferior quality results from trees in sod.
4. That winter wheat (Red Rock) seeded in September gives the greatest amount of humus and fibre to be ploughed down in March of any crop tried.
5. That there is little use in seeding any cover-crop until the autumn rains begin, usually in the latter part of September.

APPLE—FERTILIZER EXPERIMENT—PROJECT H. 26

The fertilization of the apple orchard has given many of the fruit growers on the Island much concern. In many places the soils lack in depth and are deficient in plant food. 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.

The following varieties of apples occur in the range under fertilizer test: King of Tompkins Co., Gravenstein, Red Astrachan, Lowland Raspberry, Grimes Golden, Cox Orange Pippin and Wagener.

EFFECT OF FERTILIZERS ON GROWTH OF APPLE TREES

Fertilizer used	Season's growth		Gain in diameter		Total yield fruit, 4 years	
	1925	For 4 years	1925	For 4 years		
	inches	inches	inches	inches	lb.	oz.
Nitrate of soda	7¾	16	13/32	19/32	1,498	12
Muriate of potash	7	13¾	14/32	15/32	1,381	10
Acid phosphate	7	14½	18/32	18/32	1,602	10
Mixed fertilizer	5½	12	14/32	16/32	975	12
Check	6½	12¾	13/32	17/32	855	14

Over the period of four years during which this project has been carried the nitrate of soda has given the greatest growth, and acid phosphate the highest yield of fruit. While the trees in the check range are equal in most respects to those in the ranges receiving fertilizer, the yield of fruit has been the lowest of any. The whole area is under clean cultivation.

PLUMS—VARIETY EXPERIMENT—PROJECT H. 48

Some thirty varieties of plums are under test at this Station, the first plantings having been made in 1914. In most cases there are at least two trees of each variety. Here and there a tree, having died, has been replaced by one of some other variety. Brown rot of stone fruits has been prevalent with a few varieties the past few years. Careful spraying has kept this disease in check and the loss small. During the past season a splendid crop was harvested, many of the trees requiring props in great number. The yield per tree for 1925 together with the total yield per tree over the past seven years is given in the following table.

PLUMS—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1925		Total yield per tree, seven years		Season
			lb.	oz.	lb.	oz.	
Apple	1922	1	..	..	..	..	
Bartlett	1922	2	..	..	..	..	
Black Diamond	1914	2	115	10	966	3	Sept. 1
Bradshaw	1914	2	154	0	463	11	Aug. 24
Burbank	1914	1	13	8	53	8	Sept. 6
Columbia	1914	2	79	10	278	24	Aug. 27
Combination	1916	2	7	6	37	9	Aug. 21
Conquest	1915	1	..	..	42	6	
Drap D'Or	1914	2	61	8	128	15	Aug. 8
Early Gold	1916	1	347	4	791	12	Aug. 14
Damson	1914	2	4	2	30	9	Sept. 16
First (Jap)	1916	1	..	..	1	4	Aug. 17
Formosa (Jap)	1914	2	..	..	3	6	Aug. 18
Gaviota (Jap)	1914	1	..	..	..	..	
Gold	1916	2	..	..	..	..	
Giant	1916	3	76	1	125	2	Sept. 16
Greengage	1914	2	108	12	297	7	Sept. 22
Jaune Hative de Thoisey	1914	2	58	6	129	4	Aug. 4
Le Plus Precoce de Tous	1914	1	..	..	1	12	Aug. 1
Mallard	1914	2	236	8	799	1	Aug. 18
Mammoth Gold	1916	1	..	..	6	10	Aug. 18
Peach	1914	11	45	8	201	15	Aug. 10
Pond Seedling	1914	2	191	2	673	13	Sept. 12
Reine Claude de Bavay	1914	7	69	7	340	3	Sept. 15
Shippers Pride	1916	1	76	0	135	7	Sept. 7
Satsuma	1916	1	..	..	..	..	
Shropshire Damson	1914	15	28	4	148	15	Sept. 25
Santa Rosa	1914	3	7	5	21	5	Aug. 15
Victoria	1914	2	145	14	452	14	Sept. 5
Washington	1914	2	242	15	648	6	Sept. 3
Yellow Egg	1914	2	135	2	498	2	Sept. 17

PRUNES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1925		Total yield per tree, seven years		Season
			lb.	oz.	lb.	oz.	
Dosch	1916	2	.....		3	3	Sept. 26
German	1914	3	46	4	284	0	Sept. 20
Golden	1916	2	23	0	44	0	Sept. 10
Imperial Epineuse	1919	2					
Italian	1914	19	68	5	246	3	Sept. 20
Quetsche de Létricourt	1914	2	83	4	259	6	Sept. 20
Quetsche précoce d'Ebersweier	1914	4	19	7	50	7	Aug. 22
Quetsche précoce de Buhlerthal	1914	4	88	14	268	4	Aug. 25
Quetsche précoce de Zimmer	1914	2	94	14	363	14	Aug. 25
Quetshce Minôt	1914	1	5	0	72	14	Sept. 18
Pacific	1916	2	46	2	130	0	Aug. 15
Silver	1914	2	33	12	100	4	Sept. 22
Standard	1915	2	..	..	61	14	Sept. 16
Sugar	1914	2	135	4	401	14	Aug. 24
Tennant	1916	2	..	..	14	10	Aug. 28
Tragedy	1914	1	95	4	285	15	Aug. 10
Miracle	1916	2	.....		12	5	Aug. 23

The six highest yielding plums for seven years in order are:—Black Diamond, Mallard, Early Gold, Pond Seedling, Washington and Yellow Egg.

The six highest yielding prunes over a period of seven years in order are:—Sugar, Zimmer, Tragedy, German, Buhlerthal and Letricourt. While the Italian is undoubtedly the most popular prune in the locality, it has not given satisfactory yields up to the present time.

CHERRIES—VARIETY EXPERIMENT. PROJECT H. 35

The Station harvested during the past season the best cherry crop known at this Farm. Weather conditions seemed to be right for a heavy set of fruit. Brown rot which was troublesome among sweet cherries a few years ago, appeared slightly on only a few varieties during the season. The sweet cherry block of orchard was sprayed when the blossom buds were showing pink and again after the petals had fallen. It would appear from careful observation that these sprays were largely instrumental in controlling brown rot. The pink spray used consisted of commercial lime-sulphur 1-30. The calyx spray was a combination spray consisting of commercial lime-sulphur 1-33 with arsenate of lead (powdered) $2\frac{1}{2}$ pounds to 100 gallons and black leaf 40, 1 pint to 100 gallons. Further information about sprays will be found in the section of the report on spraying.

The following table gives the yield for the season and also the total yield per tree for the past seven years.

SWEET CHERRIES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree 1925		Total yield per tree seven years		Season
			lb.	oz.	lb.	ox.	
Abbesse d'Oignies	1914	1	86	8	58	3	July 16
Abundance	1915	1	139	4	145	8	Aug. 1
Belle de Choisy	1914	2	..	..	15	1	July 15
Bing	1914	10	66	10	141	13	July 15
Black Hawk	1914	1	64	2	137	13	July 14
Black Tartarian	1914	2	48	12	145	12	July 8
Black Republic	1916	1	66	6	86	10	July 24
Beauty of Ohio	1914	2	38	7	217	8	June 26
Belle of Orleans	1914	1	1	6	123	2	June 15
Choque	1914	1	66	0	246	8	July 10
Deacon	1914	1	61	2	166	0	July 19
Elton	1914	3	66	8	132	12	July 5
Empress Eugenie	1914	4	41	5	126	4	July 10
Emperor Francois	1914	1	87	8	156	11	July 18
Fruhest der Mark	1914	1	42	0	116	7	June 6
Garrafal	1916	1	36	10	32	11	July 5
Garrafal Grand	1916	1	20	0	42	11	June 20
Gros Blanc	1914	1	..	..	1	2	July 5
Gros Noire	1914	1	..	..	2	2	July 7
Guigne d'Annonay	1916	1	8	14	32	2	June 10
Guigne Pourpre Hâtive	1914	1	162	8	406	1	July 6
Gigne de Tarascon	1914	1	..	..	34	8	July 6
Guigne précoce Rivers	1914	1	60	2	226	7	June 17
Jaboulay	1914	1	31	12	47	7	July 24
Jeffrey Duke	1914	1	4	0	29	2	July 10
Lambert	1914	2	173	4	355	10	July 22
Marjolet	1914	2	15	4	37	15	July 10
Napoleon	1914	6	57	8	140	2	July 18
Pelissier	1914	1	150	6	..	..	July 15
Reverschon	1914	1	45	14	155	6	June 30
Reine Hortense	1914	2	12	9	67	13	July 18
Reine Hortense Hâtive	1914	2	..	..	1	10	
White Heart	1916	1	48	12	46	1	July 20
Windsor	1914	6	53	5	107	2	July 14

SOUR CHERRIES—VARIETY EXPERIMENT

Variety	When planted	Number of trees	Yield per tree, 1925		Total yield per tree, seven years		Season
			lb.	oz.	lb.	oz.	
A. Brindilles	1914	3	..	..	9	10	Aug. 25
Baldwin	1914	1	21	2	37	2	July 13
Belle de Franconville	1914	1	26	0	63	3	Aug. 7
Belle Magnifique	1914	3	59	1	122	12	Aug. 12
De Belleu	1914	1	21	12	42	8	June 26
Early Richmond	1914	15	47	0	133	13	July 6
English Morello	1916	1	71	6	88	10	July 18
Gros Gobert	1914	2	99	15	173	6	July 15
Griotte Archer	1914	1	25	4	95	0	July 17
Late Duke	1916	3	8	12	17	5	July 24
May Duke	1914	2	104	8	232	8	July 19
Montmorency	1914	20	119	1	319	5	July 15
MontmorencyBretteneau	1914	3	41	10	149	6	June 30
Montmorency Pleureur	1914	2	49	8	106	9	July 10
Morello	1914	15	111	0	293	6	July 16
Nouvelle Royale	1914	1	68	12	113	6	July 15
Olivet	1914	17	49	7	157	13	Aug. 1
Ostheim	1917	3	64	7	131	5	July 19

A few 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.

Some of the best sour cherries are:—Early Richmond, Montmorency, May Duke, Morello and Olivet.

PEARS—VARIETY EXPERIMENT. PROJECT H. 44

The pear gives the most satisfactory results of any of the tree fruits grown at the Station. Yields of most varieties are large, and a splendid market exists at the present time for fancy-packed pears. Hundreds of props are used each year in the pear area, and considerable attention paid to thinning, but even with these precautions considerable difficulty is experienced in keeping trees from breaking down with the load of fruit. Thinning is more necessary in order to preserve the tree rather than to secure size of fruit. With most varieties fruit attains a good marketable size unthinned. Clean cultivation is practised throughout the entire area. The following table gives the yields for the past season and also the total yield per tree over the past seven years.

STANDARD AND DWARF PEARS—VARIETY EXPERIMENT

Variety	When set	Standard		Dwarf		Season
		Yield per tree, 1925	Total yield per tree, seven years	Yield per tree, 1925	Total yield per tree, seven years	
		lb. oz.	lb. oz.	lb. oz.	lb. oz.	
Andre Desportes	1914	207 7	409 2	59 8	176 11	Aug.
Anjou	1914	67 11	191 0	72 0	.. ..	Nov.-Dec.
Barry	1919	.. ..	.. ..	19 0	29 0	Oct.-Nov.
Bartlett	1914	95 6	438 2	107 8	419 4	Aug.
Belle Lucrative	1914	123 8	316 10	.. ..	.. ..	Oct.
Besi de Chaumontel	1914	83 0	84 8	106 0	146 12	Dec.
Beurre d'Amanlis	1914	221 12	1,244 10	60 8	288 4	Oct.
Beurre Bachelier	1914	280 0	1,055 12	.. ..	150 0	Dec.
Beurre Diel	1914	168 10	312 9	140 0	428 8	Nov.-Dec
Beurre Giffard	1914	8 0	151 12	2 4	89 0	Aug.
Beurre d'Hardenpont	1914	37 8	151 1	138 0	396 8	Dec.-Jan.
Beurre Hardy	1914	147 12	185 1	93 0	222 9	Oct.
Beurre d'Avril	1914	90 12	482 4	.. ..	.. ..	Mar.
Beurre de Naghan	1914	219 0	687 12	111 8	199 10	Feb.
Bon Chretien	1916	75 0	258 12	.. ..	.. ..	Aug.
Bosc	1914	108 5	333 3	.. ..	.. ..	Oct.
Boussock	1914	139 0	585 11	94 14	181 6	Sept.
Charles Ernest	1914	88 0	155 11	33 8	62 8	Nov.-Dec.
Clairgeau	1914	105 2	458 0	.. ..	.. ..	Nov.
Crocker Bartlett	1914	93 4	332 0	.. ..	.. ..	Sept.
De Cure	1914	151 14	582 8	156 8	695 4	Dec.
Doyenne d'Alencon	1914	38 1	206 7	106 0	260 11	Jan.
Doyenne de Comice	1914	20 0	47 0	103 12	157 12	Nov.
Doyenne d'Hiver	1914	48 11	261 14	141 0	150 7	Jan.
Dr Jules Guyot	1914	47 1	391 4	28 0	266 3	Sept.
Duchess d'Angouleme	1914	71 11	190 7	.. ..	.. ..	Nov.
Favourite de Clapp	1914	185 0	669 15	93 12	399 0	Sept.
Flemish Beauty	1914	135 8	430 12	95 14	249 3	Sept.-Oct.
Easter Beurre	1914	116 12	320 10	.. ..	.. ..	Jan.-Feb.
Emile d'heyst	1914	97 8	306 1	.. ..	.. ..	Oct.
Fondante Thirriot	1914	165 0	453 0	164 12	469 14	Nov.
Forellle	1919	.. ..	.. ..	34 8	36 0	Nov.-Dec.
Howell	1919	.. ..	.. ..	55 0	83 0	
Jargonelle	1919	50 0	141 11	.. ..	.. ..	Aug.
Koonce	1916	.. ..	81 8	.. ..	.. ..	Aug.
Le Lectier	1914	71 8	312 3	.. ..	.. ..	Dec.-Jan.
Lincoln Coreless	1914	.. ..	316 7	.. ..	.. ..	Feb.-Mar.
Louise Bonne de Jersey	1914	80 0	379 4	.. ..	.. ..	Oct.
Louise Bonne d'Avanches	1914	144 0	.. ..	39 0	155 8	Sept.
Madame Baltet	1914	110 8	200 2	149 8	260 4	Jan.
Madame Ernest Baltet	1914	35 0	105 12	132 14	409 2	Sept.-Oct.
Marguerite Marrillat	1914	72 8	364 2	.. ..	.. ..	Sept.
Nouvelle Fulvie	1914	26 8	128 8	.. ..	.. ..	Jan.
Passe Crassane	1914	50 8	181 12	110 12	320 4	Dec.-Jan.
President Deviolaine	1914	13 8	28 0	34 12	168 6	Nov.
Princess	1914	107 10	122 0	.. ..	.. ..	Oct.
Rossney	1914	141 0	170 8	.. ..	.. ..	Sept.
Royale Vendeé	1914	611 8	317 12	54 0	63 4	Jan.
Souvenir de Congrés	1914	204 0	868 8	24 8	274 1	Sept.
Seckel	1914	.. ..	.. ..	24 4	33 11	Oct.
Triomphe de Vienne	1914	48 8	407 0	93 12	297 12	Sept.
Virginie Baltet	1914	126 4	768 13	103 0	401 13	Nov.-Dec.
Wilder Early	1914	.. ..	71 4	.. ..	.. ..	Aug.
Winter Bartlett	1914	59 8	134 3	.. ..	.. ..	Dec.
Winter Nelis	1914	.. ..	.. ..	25 4	52 14	Dec.
Worden Seckel	1914	23 0	94 12	.. ..	.. ..	Sept.-Oct.

Dwarf trees are usually grown on quince stocks; standards on pear stocks. Some varieties do well on dwarf stock, but in the main standard stock is used. Dwarf trees are more manageable than standard trees when the orchard area is small. Some of the best varieties for planting are:—Bartlett, Boussock, Souvenir de Congres, Bosc, Clairgeau, Anjou, Beurre Bachelier, and Passe Crassane.

PEARS—FERTILIZER EXPERIMENT—PROJECT H. 329

The object in undertaking this experiment was to determine the effect of various fertilizers on the pear trees, and also to determine if possible whether chemicals should be used in Combination or whether equally good results might not be obtained if used singly. Five ranges of trees have been set aside in which the same varieties occur and fertilizers applied in the following manner.

EFFECT OF FERTILIZERS ON GROWTH OF PEAR TREES

Fertilizer used	Season's growth		Gain in Diameter		Total yield fruit 4 years	
	1925	For 4 years	1925	For 4 years		
	ins.	ins.	ins.	ins.	lbs.	oz.
Nitrate of soda	6	13·5	3/32	12/32	3,139	10
Muriate of potash	6¼	14·3	12/32	11/32	2,342	5
Acid phosphate	4⅞	13·1	10/32	9/32	2,472	2
Mixed fertilizer	5¼	13·3	14/32	12/32	2,912	0
Check	3	11	11/32	8/32	1,313	0

From the preceding table it will be seen that all fertilizers had a marked beneficial effect as compared to the check range of trees. Nitrate of soda gave the greatest yield over a four-year period with the mixed fertilizer range next highest in yield. Growth was also well marked in both of these ranges. The check range is low in both growth and yield.

PEACH—VARIETY EXPERIMENT—PROJECT H. 332

Peaches do not do well in the open on Vancouver Island. Leaf curl, mildew and brown rot are the chief diseases causing loss. All trees were sprayed with three sprays, viz. dormant, pink, and calyx. Notwithstanding very careful spraying operations, leaf curl was very bad, and in an effort to check the ravages of this disease the dormant spray is being applied much earlier, before the buds swell.

The following table gives a list of the varieties under test with the total yield per tree for the past seven years.

PEACHES—TEST OF VARIETIES

Variety	When set	No. of trees	Yield per tree 1925		Total yield per tree 7 years		Season
			lb.	oz.	lb.	oz.	
Admiral Dewey	1919	1	11	12	25	12	Aug. 6
Alexander	1914	1	61	8	119	2	Aug. 10
Alton	1918	1	8	0	10	0	Aug. 30
Early Crawford	1914	2	..	..	..	..	
Early Elberta	1916	1	..	..	..	..	
Early Imperial	1919	1	..	..	..	..	
Fitzgerald	1914	1	..	..	..	..	
Hale Early	1914	2	103	10	254	3	Aug. 11
Krummel October	1916	1	..	..	..	..	
Mayflower	1919	2	36	8	46	10	Aug. 1
Muir	1919	2	96	8	105	8	Sept. 15
Red Bird	1916	1	24	8	28	14	July 28
Royal George	1919	1	..	..	34	0	Sept. 24
Triumph	1014	1	55	8	178	8	July 30
Triumph	1916	1	19	14	59	14	July 30

Hale Early and Triumph are the two most promising varieties. Some recent plantings have been made of the Rochester, but it is too early yet for results.

QUINCE—VARIETY EXPERIMENT—PROJECT H. 335

Very few commercial plantings of quince have been made on the Island. Several of the common varieties were planted at the Station in 1914, and the following table gives their yield over the past seven years.

QUINCE—VARIETY EXPERIMENT

Variety	When set	No. of trees	Yield per tree 1925		Total yield per tree 7 years		Season
			lb.	oz.	lb.	oz.	
Champion Orange	1914	7	15	10	68	3	Oct. 16
De Bereczki	1914	4	9	9	215	1	Oct. 10
De Bourgeant	1914	4	..	..	248	8	Oct. 6
De Portugal	1914	3	..	..	278	2	Oct. 6
De Fabre	1914	4	43	10	137	14	Oct. 16
De Vranja	1914	2	22	4	37	4	Oct. 10
Ordinaire	1914	3	11	11	38	0	Oct. 17
Pineapple	1914	3	34	12	98	2	Oct. 15

De Portugal is the highest yielder and De Vranja the lowest for the past seven years. Early harvesting decreases loss through cracking. Pick while still hard.

MEDLAR—VARIETY EXPERIMENT—PROJECT H. 336

A few of the Old Country varieties are being tried at the Station.. There seems to be a very limited market for this class of fruit and they cannot be recommended for planting. The following table gives the results obtained over a period of seven years.

MEDLAR—VARIETY EXPERIMENT

Variety	When set	No. of trees	Yield per tree 1925		Total yield per tree 7 years		Season
			lb.	oz.	lb.	oz.	
De Hollande	1914	4	2	10	33	2	Nov. 13
Large Dutch	1919	1	4	0	8	12	Nov. 13
Ordinaire	1914	2	57	8	220	8	Nov. 13
Sans Pepin	1914	3	7	7	23	14	Nov. 13

APRICOT—VARIETY EXPERIMENT—PROJECT H. 334

Several varieties are under trial including Moorpark, Superb, Royal, Tilton and Du Chancelier. Of these Moorpark has done best, but there is little hope of this fruit becoming of any importance.

NECTARINE—VARIETY EXPERIMENT—PROJECT H. 333

The following varieties are under test:—Early Newington, Boston, Early Violet, Stanwick and Lord Napier, and of these the two last mentioned 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—PROJECT H. 337

While a few of the varieties grown at the Station have fruited there is no hope that the fig will become of any commercial importance here. Of many varieties Ladero continues to do well, also Mission. Trees are quite hardy.

SMALL FRUITS

STRAWBERRIES—HILL SYSTEM VS. MATTED ROW—PROJECT H. 16

This project was undertaken to secure definite data as to the merits of the various systems of growing strawberries. The hill method is the only one in general use on the Island, but other systems are employed in other strawberry areas of Canada and the United States. During the past season the plot planted for this purpose bore its second crop. All fruit picked was carefully weighed and graded as crate or jam berries. The past two seasons have been very dry and hence yields are low. The following table gives the total yield of the two crops under the various methods of growing, viz. the hill, hedge, half-matted and full-matted row.

STRAWBERRIES—HILL SYSTEM VS. MATTED ROW

Method of growing	When planted	Yield crate berries 2 years	Yield jam berries 2 years	Total yield 2 years	Per cent crate berries
		lb.	lb.	lb.	
Hill	1923	4,640	2,973	7,613	60·9
Hedge-Row	1923	4,483	2,395	6,878	65·1
Half Matted Row	1923	4,940	2,864	7,804	63·3
Full Matted Row	1923	2,831	2,286	5,117	55·3

These results are for the seasons 1924-25. The average date of first picking was June 4 and of last picking June 24. While this project is being continued the work already done would suggest that the hedge and half-matted rows have possibilities that further work may bring out.

The inferior quality of the fruit from the full-matted row as well as the low yield is much against it although the cost of growing is less.

The full-matted row gave good results the second year. The hill and hedge rows gave best results during the first year, being about equal. In the second year of the plantation the half-matted row gave highest yield with largest percentage of crate berries.

STRAWBERRIES—RUNNERS AND YIELD CORRELATION—PROJECT H. 20

Owing to the lack of definite experimental data, this project was undertaken in 1923 to determine the relative vigour and vitality of first-, second- and third-generation plants produced from parent plants that were allowed to throw one, two and three runners respectively. The first-, second- and third-generation plants thus secured were grouped and planted in nine separate plots in the spring of 1924, and hence bore their fruit crop during the past season. The accompanying diagrams show how the plants were secured and grouped.

Parent plant

A —— A1 —— A2 —— A3

Parent plant

B —— B1 —— B2 —— B3

—— B1 —— B2 —— B3

Parent plant

C —— C1 —— C2 —— C3

—— C1 —— C2 —— C3

—— C1 —— C2 —— C3

The following table gives the yields of the generation plants during 1925.

STRAWBERRIES—RUNNERS AND YIELD CORRELATION

Generation	Yield of crate berries		Yield of Jam berries		Total yield		% crate berries
	lb.	oz.	lb.	oz.	lb.	oz.	
A. 1. 50 plants	16	0	7	2	23	2	69·5
A. 2. "	11	13	7	1	18	14	63·1
A. 3. "	12	9	5	7	18	0	69·5
B. 1. "	18	2	7	0	25	2	72·0
B. 2. "	12	11	7	10	20	5	62·5
B. 3. "	12	0	6	2	18	2	66·6
C. 1. "	14	0	6	7	20	7	68·3
C. 2. "	13	6	7	5	20	11	65·8
C. 3. "	12	14	9	0	21	14	59·1

As would be expected the A1, B1, and C1 plants did equally as well as, or better than, any of the others. The variation in soil is always a factor to be considered, and no doubt accounts in some measure for results obtained.

STRAWBERRY—VARIETY EXPERIMENT—PROJECT H. 21

Some forty-three varieties are under test at the Station. These include the common varieties grown in many of the strawberry areas of America as well as many new varieties originated at the Central Experimental Farm, Ottawa. The Magoon is the commercial berry of Saanich, being a good shipper though lacking in quality.

The highest yielding varieties for 1925 in order of merit were—Glen Mary, Greenville, Mariana, Bisel, Cassandra, Dr. Burrill and Givans.

A berry is being sought equal as a shipper to the Magoon, but superior in quality. The Magoon is medium to large, deep red, flesh deep red, firm, but, as grown in the strawberry districts of the Island, lacks in quality. In an attempt to meet the need, hundreds of seedlings are being grown at the Station with the hope that a variety suiting our paricular requirements will be evolved. Some hybridizing is also being carried out.

CURRANTS—VARIETY EXPERIMENTS—PROJECT H. 4

Of thirteen varieties tested over a period of ten years, Boskoop Giant and Buddenborg proved to be the two best black currants. Plantings of the two varieties were made in 1922, and subsequent yields recorded in the following table.

BLACK CURRANTS—VARIETY EXPERIMENTS

Variety	When planted	Yield per acre 1924		Yield per acre 1925	
		lb.	oz.	lb.	oz.
Boskoop Giant	1922	710	8	2,247	8
Buddenborg	1922	667	0	957	0

GRAPES—VARIETY EXPERIMENT—PROJECT H. 40

This project begun in 1915 was intended to determine what varieties could be expected to do well under outdoor conditions here. Some of the varieties succeed only under glass. The following table gives the behaviour of all varieties grown here.

GRAPES—VARIETY EXPERIMENT

Variety	When set	No. of vines	Yield per vine 1925		Yield per vine 7 yrs.		Remarks
			lb.	oz.	lb.	oz.	
Black Hamburg	1918	2	9	..	36	0	No use outside.
Brant	1915	7	21	8	126	0	Destroyed, sour.
Brighton	1915	1	5	0	..	..	
Buckland Sweetwater	1915	1	..	..	..	..	
Campbell Early	1915	2	37	4	114	12	Excellent.
Canada	1915	5	21	8	127	8	Destroyed, sour.
Concord	1916	1	9	8	68	8	Fair.
Chasselas de Fontainebleau	1915	1	18	9	66	8	Too late.
Dattier de Beyrouth	1915	1	..	..	..	..	
Delaware	1916	2	17	8	44	4	Good quality, small.
Foster Seedling	1915	1	..	..	..	..	No use outside.
Flame Tokay	1917	2	34	0	140	5	" "
Gros Colman	1915	1	82	0	202	0	" "
Hartford	1915	5	26	6	106	0	Fair, ripen unevenly.
Lindley	1915	3	14	8	148	8	Very good, recommended.
Moore Early	1915	1	..	..	5	8	Very sweet, poor yielder.
Peabody	1915	4	14	0	114	11	Fair.
Rose of Peru	1915	1	2	0	11	0	Good.
Trentham Black	1915	1	12	0	35	0	
Vergennes	1915	3	39	12	120	10	One of the best.
Winchell	1915	3	5	12	18	10	Good, low yielder.
Grapes from Ottawa, 1921							
Brighton	1921	1	2	8	2	8	
Craig	1921	2	6	14	18	2	Promising.
Early Daisy	1921	2	4	8	4	8	
Mary	1921	2	7	4	12	0	Good quality.
Moyer	1921	2	..	..	..	..	
Read Hybrid (Lincoln)	1921	2	7	4	7	4	Fair.
Wilkins	1921	2	5	4	11	4	Good Quality.

Hartford and Lindley have been recommended, but must give place to Campbell Early and Vergennes because of the superior quality of the latter two varieties. Lindley is one of the best early varieties. Winchell, Delaware and Craig, though low in yield, are of excellent quality. Brant and Canada have been destroyed as having no value. Rose of Peru does well on the southern wall of a building, but is too late for general planting.

BLACKBERRY BREEDING—PROJECT H. 1

In 1923 some 1,200 Himalayan blackberry seedlings were planted out and grown on trellises. These plants have made enormous growth each year, and bore fruit in 1925. All plants have been carefully studied, and while there is considerable variation in leaf and habit of growth, nothing outstanding has been noticed. Fruit from all seedlings was reasonably uniform in all respects. Time of ripening was approximately the same for all plants. The plantation is being carried another year when further study of the behaviour of the young seedlings will be made.

VEGETABLES

BEAN—DIFFERENT DISTANCES IN PLANTING—PROJECT H. 58

In this project an attempt is made to determine the distance apart beans should be planted in the row when sown for a green vegetable, and also to determine the influence on yield, earliness and quality of product when planted different distances apart in the row. Round Pod Kidney Wax and Stringless Green Pod were the two varieties used in this project since its inception in 1923.

The following table gives the results obtained during the 1925 season, and also the average yields for the past three years.

BUSH BEAN—DIFFERENT DISTANCES IN PLANTING

Variety	Distance apart.	Date sown	Ready for use	Yield per 30'-row	Av. Yield for 3 years
	inches			lb. oz.	lb. oz.
Round Pod Kidney Wax	2	Apr. 20	July 10	9 14	17 13
	4	"	" 18	7 4	12 12
	6	"	" 18	6 8	10 10
Stringless Green Pod	2	"	" 10	9 2	13 7
	4	"	" 12	8 0	10 3
	6	"	" 12	5 14	8 5

Results obtained over a period of three years would indicate that:—

1. The greatest yield is obtained at not farther than two inches apart.
2. An earlier product is obtained by close planting.
3. No difference in quality of the vegetables from the various plantings has been noticed.

BEET—DIFFERENT DATES OF SOWING—PROJECT H. 65

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 on each date 30 feet long. One-half of the row was used to determine earliness, quality and yield as green vegetables, 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.

The results obtained in this project over the past three years would show that:—

1. For early table use seed should be in by March 23.
2. For storing during late fall and winter, seed about the beginning of May.
3. Sown too early beets grow too large and coarse by the end of the season for table use.
4. When seeded about March 23 they were ready as a green table vegetable early in July.
5. When seeded after May 25 yields were low, chiefly due to the dry summer season.

CABBAGE—DIFFERENT DATES OF SEEDING FOR STORAGE PURPOSES—PROJECT H. 72

In order to determine the best date for seeding for storage purposes cabbage seed was sown on six different dates ten days apart. Danish Ballhead and Copenhagen Market were the varieties used. Ten heads resulting from each date of seeding were weighed and placed in storage, and their condition noted from time to time.

CABBAGE—DIFFERENT DATES OF SEEDING FOR STORAGE PURPOSES

Variety	Date seeded	Date trans-planted	Date stored	Wgt. 10 heads av. two years	Days kept in good condition
	1925	1925	1925	pounds	1925
Danish Ballhead	Feb. 28	April 18	Sept. 26	71	56
	Mar. 29	May 2	Oct. 4	60	56
	April 11	May 14	Oct. 11	45	59
	April 22	June 4	Oct. 11	52	59
	May 2	June 4	Oct. 20	43	73
	May 13	June 18	Oct. 29	35	73
Copenhagen Market	Feb. 28	April 18	July 11	56	49
	Mar. 29	April 21	July 18	48	54
	April 11	May 14	July 25	43	73
	April 22	June 4	Aug. 19	39	68
	May 2	June 4	Sept. 5	36	76
	May 13	June 18	Oct. 3	32	66

Seedings made after May 13 resulted in practically no crop owing to the extreme drought. Copenhagen Market is a much earlier cabbage than Danish Ballhead and is recommended for an early crop. Both varieties store well. The best time to plant seed would seem to be about the end of March.

CARROTS—DIFFERENT DATES OF SEEDING—PROJECT H. 79

Selected Chantenay was the variety used in this project. Seed was sown on eight different dates beginning March 23, ten days apart, the object being to determine the best time to sow to obtain a green table vegetable and also a crop matured for storing. The detail of the project was the same as that for beets.

The work has been conducted over a period of three years and the results already obtained would show that:—

1. The earliest sowings give the heaviest yields, i.e., from March 28 to April 14.
2. To secure an average yield do not seed after May 15.
3. All sowings after May 5 had to be irrigated to insure germination.
4. Seed sown the latter part of March gave a vegetable large enough for table use by July 15.

CELERY—BLANCHING EXPERIMENT—PROJECT H. 90

This project was undertaken with the object of gathering data on the various methods of blanching. Golden self blanching was the variety used. Seed was sown in the frame March 19 and plants set out June 10. Cultural methods with results are set forth in the following table:—

CELERY—BLANCHING EXPERIMENT

Cultural Method	Earliness 1925	Flavour 1925	Crispness 1925	Blanching 1925	Weight 12 plants av. 3 yrs.	
					lb.	oz.
1. Bed 6′ x 6′. Plants 6″ apart	med. early	v. poor	poor	fair	10	10
2. One row 15′ long. Plants 6″ apart grown on level, earthed up	Late	v. good	v. good	Fair	20	0
3. Two rows 15′ long, Plants 6″ apart alternating with those in other row. Blanched with roofing paper	v. early	Good	Fair	Excellent	22	6
4. One row 15′ long. Plants 6″ apart, started in trench 6″ deep and gradually earthed up	Late	Good	v. good	Fair	27	10
5. One row 15′ long. Plants 6″ apart. Grown on level blanched with boards	Early	Fair	Fair	v. good	23	0

From a study of results obtained over a three-year period, the following conclusions may be drawn:—

1. The first method outlined is a failure, heads being too small and loose.
2. Blanching with boards or roofing paper as in method 3 and 5 is satisfactory both with respect to earliness and quality.
3. Celery blanched with soil excells in crispness.
4. Plants started in trench and earthed up to give the greatest weight.
5. Double row blanched with boards is recommended.

CORN—SUCKERING EXPERIMENT—PROJECT H. 101

Two varieties, Early Malcolm and Golden Bantam have been used in this work. On plot 1 all suckers were removed as they appeared. On plot 2 all

suckers were allowed to remain. Seed was sown on May 11, 1925, and the following table shows the results obtained. Seeded planted in hills three feet apart each way.

CORN—SUCKERING EXPERIMENT

Variety	Ready for use 1925	No. of cobs 1925	Weight of 20 hills 1925		Average yield 20 hills for 3 years %	
			lb.	oz.	lb.	oz.
Early Malcolm—						
Plot 1. suckers removed	Aug. 10	53	18	12	21	9
Plot 2. suckers left on	Aug. 14	64	22	0	26	14
Golden Bantam—						
Plot 1. suckers removed	Aug. 16	46	17	12	23	7
Plot 2. suckers left on	Aug. 21	54	19	0	24	10

Results for three years show that suckers removal tends to hasten maturity, but lessens the yield.

PARSNIPS—DIFFERENT DATES OF SEEDING—PROJECT H.142.

Hollow Crown was the variety used in this project to determine the best date for seeding in order to secure highest yield. The various plots were seeded ten days apart beginning March 23, and ending June 5. The results obtained over a period of three years are tabulated.

PARSNIPS—DIFFERENT DATES OF SEEDING

Variety	Date seeded 1925	Av. No. Bunches per plot, 3 years	Av. weight per plot, 3 years		Remarks
			lb.	oz.	
Hollow Crown	Mar. 23	21	85	5	Quality good.
	April 4	21	79	0	"
	April 14	13	53	0	"
	April 24	13	46	10	Quality fair.
	May 5	11	42	11	"
	May 15	9	34	11	Quality poor.
	May 25	6	23	0	"
	June 5	5	15	11	"

Crop was harvested December 7. Results over a three-year period would indicate that:—

1. Parsnips must be sown early to obtain the best yield.
2. The percentage of cull parsnips is very high if seed is sown after April 15.

PEAS—DIFFERENT DISTANCES OF PLANTING—PROJECT H. 148

This project was undertaken with the object of ascertaining the relative earliness, quality, and 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 8. The accompanying table gives the results obtained during the past season and also the average yield for three years when plants were 1 inch, 2 inches and 3 inches apart in the rows:

PEAS—DIFFERENT DISTANCES IN PLANTING

Variety	Distance apart	Dates ready for use	Height	Yield per 30-in. row		Average yield 30-in. row for 3 years	
	inches		inches	lb.	oz.	lb.	oz.
English Wonder	1	June 25	14	17	0	16	6
	2	" 24	16	14	8	13	8
	3	" 24	16	13	8	11	12
Thos. Laxton	1	" 19	28	19	6	17	15
	2	" 22	28	15	14	15	0
	3	" 22	26	14	6	14	6
Stratagem	1	" 10	22	17	0	15	15
	2	" 10	20	18	8	15	11
	3	" 10	19	16	0	13	9

Over a period of three years results would indicate:

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

PEAS—VARIETY EXPERIMENT—PROJECT H. 153

The object of this experiment as conducted this year has been to secure data on many common varieties of garden peas as to their suitability for canning purposes. With this in view some twenty-four varieties were planted on April 7, and pickings made of pods for use as green peas. A quantity of each variety was sent to the Laurel Canners, Victoria, with whom arrangements had been made to conduct the tests as to the canning qualities of the peas. The following tables outline some of the data obtained on the work both before canning and after.

PEAS—VARIETY EXPERIMENT

Variety	Yield per 85 feet of row		Notes on pods and peas
	lb.	oz.	
Seedling No. 1. Invermere	59	0	Pod well filled, sweet, uniform in size.
McLean Advancer	53	8	Easy to shell, small, sweet, well filled.
Seedling No. 2	49	8	Full pod, sweet.
The Daisy	47	8	Well filled, large, pale green.
Lincoln	47	0	Small pea, good colour.
Advancer	45	0	Small, uniform, sweet.
Gregory Surprise X English Wonder	38	0	
Laxtonian	35	8	Easy to shell, good colour.
Sutton Excelsior	32	0	Uniform, sweet.
Gradus x Am. Wonder	31	0	Hard to shell, vary in size, full pod.
Thomas Laxton	30	8	Full pod, green colour.
Seedling, No. 6	28	8	Full pod, easy to shell, sweet.
American Wonder	25	0	Very full pod, good colour.
Gregory Surprise	24	0	Full pod, uniform, good colour.
Seedling No. 3	23	8	Sweet, good colour, large.
English Wonder	23	0	
Little Marvel	22	8	Full pod, uniform, sweet.
Pioneer	19	0	Full pod, good colour.
Stratagem	18	8	Uniform, sweet.
Bromfield Early 6 Weeks	18	0	Easy to shell, uniform, sweet.
Gradus	17	8	Large, well filled, deep green, uniform.
Prosperity	17	0	Slack pod, uneven in size.
Manifold	16	0	Hard to shell, not sweet.
Extra Early Pedigree Novelty	14	8	Full pod, uniform.

PEAS—VARIETY EXPERIMENT—REPORT ON CANNING QUALITY

Variety	Quality	Size	Colour of liquid	Appearance	Remarks
Seedling No. 1	good	v. large	good	good	
McLean Advancer	.....	good	.....	.....	Spoiled in canning.
Seedling No. 2	.....	uneven	good	fair	
The Daisy	good	too large	fair	fair	Uneven.
Lincoln	poor	uneven	good	good	
Advancer	good	fair	good	good	
Gregory Surprise X English Wonder	.....	.....	.....	.....	
Laxtonian	good	good	good	v. good	Even in size.
Sutton Excelsior	fair	poor	good	fair	Uneven in size.
Gradus X Am. Wonder	good	poor	good	good	Uneven in size.
Thomas Laxton	.....	.....	.....	.....	
Seedling No. 6	poor	good	good	good	Poor.
American Wonder	fair	too large	good	good	Lacks sugar.
Gregory Surprise	good	large	good	.....	
Seedling No. 3	fair	fair	good	v. good	
English Wonder	.....	.....	.....	.....	
Little Marvel	fair	good	good	good	Even in size.
Pioneer	poor	large	good	good	
Stratagem	fair	good	fair	fair	Uneven in size.
Bromfield Early 6 weeks	fair	good	good	good	
Gradus	good	good	good	good	A very good pea.
Prosperity	poor	uneven	milky	poor	
Manifold	good	uniform	good	lt. colour	
Extra Early Pedigree Novelty	poor	uneven	cloudy	poor	

Further work is being done with peas for canning purposes.

A good garden pea suitable for canning and a good yielder is urgently required. The object is to follow up the work begun this year until a satisfactory pea has been found from the growers' standpoint as well as from the canner's. Seedling No. 1 on the one year's work is very promising.

POTATO—DIFFERENT DATES OF PLANTING TO OBTAIN BEST SEED—PROJECT H. 161

An attempt is being made in this project to determine what influence the time of planting has on the resulting crop for seed. Seed was planted of Early St. George and Sir Walter Raleigh on five successive dates, two weeks apart, beginning April 16. Seed from each of these plots was saved and planted on April 22, 1925, with the results as shown in the following table.

POTATO—DIFFERENT DATES OF PLANTING TO SECURE BEST SEED

Variety	Date planted 1924	Date harvested 1925	Yield per plot 1925		Yield per acre 1925	
			lb.	oz.	tons	lb.
Early St. George—						
Plot 1	April 16	Sept. 25	48	8	6	804
Plot 2	" 30	" 25	45	0	5	1,882
Plot 3	May 14	" 25	41	0	5	825
Plot 4	" 28	" 25	39	0	5	294
Plot 5	June 11	" 25	36	0	4	1,504
Sir Walter Raleigh—						
Plot 1	April 16	Oct. 29	48	0	6	672
Plot 2	" 30	" 29	50	0	6	1,200
Plot 3	May 14	" 29	64	0	8	890
Plot 4	" 28	" 29	65	0	8	1,160
Plot 5	June 11	" 29	49	0	6	936

All seed was planted in the plots April 22, 1925, and results over a two-year period would show that:

1. With an early variety, early planting gave better seed as indicated in greater yield.
2. With an early variety the later the planting the lower the vitality of the resulting crop.
3. With late varieties results would show that from the middle to the end of May is the best time to plant to produce seed.

POTATO—DIFFERENT DATES OF PLANTING—PROJECT H. 162

In this work the first planting was made April 22, and successive plantings every two weeks until June 18. Early St. George and Sir Walter Raleigh were the two varieties used. The following table gives results obtained during the 1925 season and also average yield for three years.

POTATO—DIFFERENT DATES OF PLANTING

Variety	Date planted	Date harvested	Yield per plot, 1925	Yield per acre, 1925	Average yield per acre for 3 years
			lb. oz.	tons lb.	tons lb.
Early St. George	April 22	Sept. 25	36 0	4 1,504	6 936
	May 6	" 25	29 0	3 1,650	5 778
	" 20	" 25	28 0	3 1,392	6 364
	June 4	" 25	23 0	3 72	4 1,174
	" 18	" 25	17 0	1 1,488	3 134
Sir Walter Raleigh	April 22	Oct. 29	56 8	7 916	9 1,360
	May 6	" 29	63 0	8 632	10 1,285
	" 20	" 29	38 8	5 164	10 636
	June 4	" 29	29 0	3 1,656	8 1,672
	" 18	" 29	38 0	5 32	9 282

The average yield over three years does not indicate any hard and fast date as being the best for planting potatoes. Sir Walter Raleigh may be seeded up to the middle of June with good results. Early St. George seeded April 22 gave the highest yield and even earlier dates might be found advantageous. In the last threee plantings of Sir Walter Raleigh for 1925 from 40 per cent to 50 per cent of the sets failed to grow owing to the exceptionally dry season.

POTATO—NORTHERN- VS. SOUTHERN-GROWN SEED—PROJECT H. 174

This experiment was begun to collect data on the merits of northern- and southern-grown seed. The results obtained during 1925 are tabulated as follows:—

POTATO—NORTHERN VS. SOUTHERN-GROWN SEED

Variety	Source of seed	Length of row	Marketable	Unmarketable	Total yield	Yield per acre
		feet	lb.	lb.	lb.	tons lb.
Green Mountain—						
(North)	Smithers	280	315	85	400	10 742
(South)	Sidney	280	259	97	356	9 461
Early St. George—						
(North)	Smithers	210	98	67	165	5 1,408
(South)	Sidney	210	93	62	155	5 717

The northern and southern seed in each case was grown side by side under the same conditions. The results show a balance in favour of the northern seed, but this is not consistent over a period of years.

POTATO—SPRAYING EXPERIMENT—PROJECT H. 182

This experiment was undertaken to determine the relative value of dust and liquid sprays. The dust spray used consisted of 9 parts sulphur and 1 part arsenate of lead. For liquid spray Bordeaux mixture 4-4-40 was used. Plots were sprayed twice during the season with each spray—on June 19 and July 26. Sir Walter Raleigh was the variety used in all plots.

POTATO—SPRAYING EXPERIMENT

Spray used	Date planted	Yield per plot, 1925	Yield per acre, 1925	Average yield per acre for 3 years
		lb. oz.	tons lb.	tons lb.
Bordeaux mixture 4-4-10	April 22	52 8	6 1,860	9 300
Dust. sulphur 9 parts, arsenate of lead 1 part	" 22	48 8	6 804	7 1,581
No treatment	" 22	46 0	6 144	6 1,200

Largest yield was obtained by using Bordeaux mixture, this spray also gave an improved general condition to the plants to which it was applied.

POTATO—SPROUTED VS. UNSPROUTED SEED—PROJECT H. 183

Everyone has noticed differences, either real or imaginary, in yield and earliness when using sprouted and unsprouted seed. This project was begun in the spring of 1923 to gather data with respect to these differences. Sprouted seed was obtained through exposing tubers in subdued light and at a temperature of about 50 degrees for about six weeks. The unsprouted seed was kept in storage until the time of planting. An early variety, Early Rose, and a main crop variety, Netted Gem, were used. The following table gives results obtained during the 1925 season.

POTATO—SPROUTED VS. UNSPROUTED SEED

Variety	Date planted	Date harvested	Marketable per plot	Unmarketable per plot	Yield per per plot, 1925	Yield per per acre, 1925
			lb. oz.	lb. oz.	lb. oz.	tons lb.
Early Rose—						
Sprouted	May 21	Sept. 25	40 8	10 0	50 8	6 1,332
Unsprouted	" 21	" 30	36 0	12 0	48 0	6 672
Netted Gem—						
Sprouted	" 21	Oct. 10	40 0	12 8	52 8	6 1,860
Unsprouted	" 21	" 24	38 0	11 0	49 0	6 936

Observations over a three-year period show that:—

1. With a main crop variety sprouted seed gave a slight increase in yield.
2. With an early variety sprouted seed gave a substantial increase in yield.
3. Sprouted seed increases earliness by one week or more.

POTATO—VARIETY EXPERIMENT—PROJECT H. 186

For many years a large number of varieties have been grown at the Station and reported on in previous reports. Because of this work having been fairly well covered, only a limited number of varieties were grown in test plots during the past season. Co-operating with the University of British Columbia, which

supplied the seed, the following varieties were grown.—Gold Coin, Up-to-Date, Sir Walter Raleigh, Jersey Royal and Eureka. Two other varieties, Cowichan Leader and Bernadotte Sport were also under test, the former having been found in a lot of Gold Coin purchased from a seed-house, while the latter variety made an appearance in the Up-to-Date crop of G. M. Bernard, Parksville in 1923. Bernadotte Sport gave such tremendous yields, the variety was sent here for trial.

POTATO—VARIETY EXPERIMENT

Variety	Yield per plot	Yield per acre	
	lb.	tons	lb.
Bernadotte Sport	66	8	242
Up-to-Date	62	7	1,257
Eureka	45	5	1,057
Sir Walter Raleigh	38	4	1,352
Jersey Royal	24	2	1,906
Gold Coin	22½	2	1,632
Cowichan Leader	17	2	256

RHUBARB—FORCING—PROJECT H. 194

This work was undertaken to determine the best means of forcing rhubarb on a small scale suitable to the needs of the average family where a dark corner of the basement or root-cellar might be used. One lot of roots was covered with straw, another lot covered with soil, another exposed to the frost before storing, while yet another lot was stored not exposed to frost, both lots being covered with soil when stored.

The results obtained over two years would indicate that:—

1. Roots exposed to frost give the greatest yield and are slightly earlier.
2. Soil is preferable to straw for covering roots both from the standpoint of earliness and yield.

TOMATOES—METHODS OF TRAINING—PROJECT H. 207

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 at first truss. Rows were 2 feet apart, and plants 1 foot apart in the row. Twenty-five plants were used in each test of the varieties Alacrity and Bonny Best. Seed was sown March 23 in frames and planted out May 14 and trained to single stem. The following table gives the results obtained over a period of three years.

TOMATOES—METHODS OF TRAINING

Variety	Stopped at	Average yield for three years							
		Ripe fruit		Unmarketable		Green		Yield per 25 plants	
		lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Alacrity	1st truss	20	5	4	8	1	5	26	4
	2nd truss	45	3	5	2	..	6	59	8
	3rd truss	50	10	5	15	12	13	69	9
	Not stopped	50	9	7	8	22	12	80	13
Bonny Best	1st truss	22	6	..	6	1	9	24	10
	2nd truss	52	6	..	13	1	9	63	11
	3rd truss	65	15	..	15	13	6	82	6
	Not stopped	68	9	..	10	18	0	89	2

From a study of this work over a period of three years the following observations have been made:—

1. The greatest yields were obtained where plants were allowed to produce as many trusses as possible.
2. That stopping at the first truss gives a small quantity of earlier fruit but a large percentage of unmarketable fruit as well.

VEGETABLES—FALL VS. SPRING SEEDING—PROJECT H. 218

On Vancouver Island many kinds of plants do well when seeded in the autumn owing to the mild winters. To determine what vegetables might be seeded in the fall, seed of many kinds was sown in the autumn of the same sorts as in the spring.

Results obtained over three years would show that:—

1. Beets, cabbage, carrot, radish, lettuce, turnip and onion all kill out during the winter when fall seeded.
2. Spinach will sometimes survive the winter.
3. The fall seeding of most vegetables cannot be recommended.

ONION—TRANSPLANTED VS. SOWN IN OPEN—PROJECT H. 137

Two varieties of onions, Prizetaker and Ailsa Craig, were sown February 5 in the greenhouse. Later they were transplanted to the open, and seed of the same variety sown directly out of doors at that time. From 117 feet of row 43 pounds of Prizetaker were taken September 4 from the transplanted lot, and 11 pounds from seed, while the Ailsa Craig yielded 35 pounds transplanted and 13 pounds from seed. In both cases the transplanted very greatly outyielded the seed. The seed suffered much for water, and the young seedlings often perish outright or ripen in early season, while the bulbs are still small.

NUTS

WALNUT—VARIETY EXPERIMENT—PROJECT H. 351

In the area occupied by walnuts there are some eighteen grafted varieties, and many seedlings that can scarcely be called varieties. These trees were planted out in 1916 but previous to the past season had not borne to any extent. During 1925 a considerable quantity of nuts was produced. The Franquette and Mayette are the two most promising varieties. Among the numerous seedlings a few seem to have considerable merit, all being from Juglans regia, having comparatively thin shells and yielding well.

Nuts were gathered just about the time they were beginning to fall from the trees, a pole with hook being used to knock many down. These nuts were then taken to the greenhouse and dried on the empty benches. This scheme for drying works out at the Station well, as at that time the benches were not in use for other purposes.

The bleaching process as followed at the Station consists in dipping the nuts into a solution of chloride of lime and sal soda to which sulphuric acid is added, the result being a liberation of chloride gas which brings about the bleaching process.

The following formula, which was given out by the University of California Experimental Station illustrates the details of this process. "Six pounds of bleaching (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 lah 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 out 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."

ALMONDS—VARIETY EXPERIMENT—PROJECT H. 352

Several varieties are being grown at the Station, but very little fruit has been produced. The trees have done well since time of planting in 1917, most of the varieties produce some bloom but the set of fruit is almost nil. There seems to be little chance of the almond becoming of any importance here. Among the varieties under test are:—Paper Shell, Jordan, Nonpareil, Eureka, Llewellyn and Lanquedoc. The first two are the only varieties to fruit up to the present time.

FILBERT—VARIETY EXPERIMENT—PROJECT H. 338

Although this project was begun in 1915 many trees were added during the next two or three years to the plantation. Trees are ten feet apart in rows, with the rows 20 feet apart. Most varieties have made exceptionally good growth and many varieties are fruiting well. In 1925 as in previous years, loss through the bluejay pest has made it impossible to give the true record of yield.

The following table gives the yield as harvested as well as remarks on characteristics of the various varieties.

FILBERTS—TEST OF VARIETIES

Variety	When set	Number of trees	Yield per tree since planted	Remarks
			lb. oz.	
Corylus Avellana	1918	1	4 14	
" Calyculata	1918	1	.. 12	
" Colurne	1918	1	.. ..	
" Common	1918	1	.. ..	
" California Purple	1916	1	.. ..	
" Barcelona Filbert	1916	2	4 2	
" du Chilly	1916	2	4 10	
" English Filbert	1916	2	3 1	
" Kentish Cob	1916	2	7 8	Large nut, promising.
" Merveille de Bollwiller	1915	6	33 14	Good, very late.
" Nottingham Filbert	1915	7	25 9	Small, very early.
" Red Hazel	1916	1	10 4	Good.
" Spanish Purple	1916	1	3 ..	
" Macrocarpa	1915	5	12 10	Late, fair.
" " Daviana	1918	1	4 8	Fair.
" " a feuille pourpre	1916	2	23 8	Fine appearance, excellent, copper-coloured foliage.
" " a feuille lacinae	1916	1	3 ..	
" " d'Angleterre	1915	1	7 ..	
" " du Provence	1915	2	16 12	Promising.
" " Emperor	1915	1	15 ..	Good quality.
" " du Bearn	1916	1	6 8	Good.
" " Gosford	1916	2	4 ..	Large nut, promising.
" " Pellicule rouge	1916	1	4 2	
" " Prolific	1915	1	22 ..	
" " Fertile de coutard	1915	7	62 ..	Excellent, the best yet.
" " Fertile	1915	2	14 ..	Good.

Fertile de Coutard is still the highest-yielding nut, and of excellent quality. Kentish Cob, Gosford and du Bearn are coming on to bearing and are large and promising. It is important in planting out that several varieties be used in order to insure perfect fertilization of the flowers.

FLORICULTURE

TULIP—VARIETY EXPERIMENT—PROJECT H. 290

Bulbs have been grown extensively at this Station since its inception in 1914. Of all these the tulip stands pre-eminently first from the standpoint of stateliness and quality of bloom. It does particularly well on Vancouver Island and gives a wealth of bloom from early April until the end of May. The object has been not to grow tulips commercially, but to test out many varieties, noting height attained, time of flowering, and length of flowering season. Various cultural methods have been employed but space will not permit of this work being treated under this project. Those interested are referred to the bulletin "Bulbs and Bulb Bloom" which may be had upon application to this Station.

Tulips are hardy and of easy culture, flowering freely in either direct sun or partial shade and producing showy blooms under a great variety of conditions.

Too much cannot be said in praise of the Darwin tulip. It excels in brilliancy of colour, perfection of form, and in length and strength of stem, giving a splendid effect wherever planted. The following tables give classified lists of the tulips grown at the Station with remarks as to colour, season, quality, etc. Bulbs should be planted in September or early October to obtain best results.

TULIPS—CLASSIFICATION

Variety	Height av. 5 yrs.	Time of bloom av. 5 yrs.	Remarks
	ins.		
Early flowering single—			
Artus	12	Apr. 15	Brilliant, scarlet, good bedder.
Chrysolora	13	" 12	Pure yellow.
Cottage Maid	12	" 23	Delicate rose, white flush.
Couleur de Cardinal	12	" 25	Velvety crimson, good forcer, excellent bedder.
Duchesse de Parma	16	" 22	Dark red, margined, flushed gold.
Keisers Kroon	17	May 2	Scarlet edged br't gold, excellent.
LaReine	12	Apr. 18	White, shaded rose.
La Remarquable	15	" 22	Purpled-red, white edge.
Pink Beauty	14	" 25	Br't pink and white, handsome.
Pottebakker Red	15	" 22	Beautiful scarlet.
Pottebakker White	15	" 14	Pure white.
Prince of Austria	16	" 20	Orange shaded scarlet, beautiful.
Proserpine	16	" 17	Rich satiny carmine-rose.
Thomas Moore	17	" 22	Terre cotta, gold flush, fragrant.
Vermillion Brilliant	12	" 24	Dazzling scarlet, brilliant.
White Swan	17	" 26	White, globula form.
Wouverman	13	" 22	Brilliant rich purple.
Yellow Prince	12	" 12	Golden -yellow, sweet-scented.
Early Double Tulips—			
Couronne d'or	16	Apr. 20	Yellow shaded orange.
Gloria solue	13	" 24	Scarlet-red yellow edged.
Imperator rubrorum	12	" 22	Rich scarlet.
Lac Van Haarlem	12	" 25	Brilliant velvety rose, unique.
Murillo	11	" 20	Delicate rose shaded white.
Rubro Maximo	10	" 26	Rich dark-vermilion.
Vuurbaak	11	May 6	Brilliant orange-scarlet.
Rose d'Amour	12	" 8	Lovely pale-flesh.
Yellow Rose	14	" 9	True deep-yellow, late.
Parrot tulips—(These with their large curiously marked petals are very effective in flower border.)			
Cramoise Brilliant	21		
Lutea Major	21		
Perfecta	20		

TULIPS—CLASSIFICATION—*Con.*

Variety	Height av. 5 yrs	Time of bloom av. 5 yrs.	Remarks
	ins.		
May-flowering or Cottage Tulips—			
Caledonia	18	May 12	Orange-scarlet, centre green-black.
Columbus	20	" 12	Golden-yellow, vermilion blotches.
Ellen Willmott	21	" 14	Soft creamy-yellow, reflex petals fragrant.
Fairy Queen	22	" 14	Rosy-heliotrope, suffused yellow.
Gesneriana Spathulata	25	" 11	Rich crimson-scarlet, blue-black centre.
Inglescombe Yellow	20	" 12	Glossy canary-yellow, large. Globular.
Isabella	16	" 10	Beautiful rose-pink, shaded white.
La Candeur	15	" 8	Whited, edged pink.
La Merveille	17	" 12	Orange-red, yellow centre, scented.
Orange Globe	22	" 12	Scarlet, rose, tinged, long flower.
Picotee	20	" 10	White-margined, carmine-rose.
Sunset	19	" 11	Orange-yellow, feathered scarlet.
The Fawn	21	" 10	Rosy-fawn, turn to bluish-rose.
Darwin Tulips—			
Anthony Rootzen	30	May 6	Rose-pink shaded flush-blue and whitew centre.
Baronne de la Tonnaye	'27	" 12	Rose shaded, silvery-rose margin.
Bartigon	23	" 11	Fiery red, white centre.
Beauty	22	" 10	Silvery-pink, base white, distinct.
Clara Butt	23	" 8	Beautiful soft salmon-rose.
Dream	31	" 4	Lilac, flush deep-heliotrope.
Edmee	26	" 8	Deep cherry-rose, pink edge.
Europe	27	" 8	Fiery salmon-scarlet, white centre.
Faust	30	" 4	Dark maroon, purple, to dark violet.
Farncombe Sanders	28	" 8	Beautiful scarlet, rose-tinged.
Galathea	27	" 9	Deep cherry, carmine.
Geefs	34	" 8	Lilac shaded to heliotrope, tall.
General de Cordous	27	" 9	Brilliant scarlet.
Glow	26	" 10	Brilliant vermilion, scarlet centre.
Isis	27	" 11	Bright crimson-scarlet, blue and white base.
King Harold	25	" 12	Dark-maroon, scarlet.
La Tulipe Noire	25	" 10	The finest black tulip.
Loveliness	24	" 10	Soft rosy carmine.
Margaret	22	" 12	Blush, white.
Madame Krelage	27	" 10	Rose-carmine, silvery margin.
Ouida	27	" 10	Fiery scarlet-red, pale-blue base.
Phillippe de Commine	29	" 14	Velvety purplish-maroon.
Pride of Haarlem	29	" 6	Red, tinged purple, excellent.
Rev. Ewbank	25	" 7	Heliotrope, soft shade.
Sultan	24	" 8	Glossy maroon-black.
Suzon	25	" 12	Deep blush-rose.
Whistler	22	" 9	Crimson-scarlet.
William Copeland	27	" 9	Beautiful soft-lavender.
William Pitt	21	" 10	Deep scarlet.
Yellow Perfection	30	" 12	Rich bronze and yellow excellent.

The tulip on reaching maturity divides into two or more bulbs of various sizes which are removed and grown to flowering size in the bulb nursery. In 1924 an attempt was made to obtain exact information on the rate of natural increase of the various sizes of bulbs, i.e., first grade, second grade and baby bulbs. The bulbs used in this experiment were weighed before planting. Rows were one foot apart and 12 feet long. Clara Butt was the variety used, planted October 4, 1924.

BULBS—RATE OF INCREASE

—	Weight before planting	Weight harvested	Weight increase	No. of large size	Weight	No. of 2nd size	Weight	No. of small size	Weight	Total number bulbs	Number which bloomed
	lb. oz.	lb. oz.	lb. oz.		lb. oz.		lb. oz.		lb. oz.		
1st size (5)	2 1	4 7	2 6	66	2 14	50	15	80	10	196	50
2nd size (100)	1 12	4 11	2 15	80	3 3	50	14	60	10	190	64
3rd size (200)	1 10	5 5	3 12	80	2 12	100	12	205	18	385	44

While observations with respect to increase have been made for a number of years the past season has been the first occasion that this work has been systematized and accurate data secured.

The tabular results show that:—

1. There was a slight increase in total weight of the second-grade bulbs over the first-grade.
2. The small bulbs which are frequently discarded gave the best results in gain in total weight, and in natural increase of first- and second-grade bulbs.

It will be borne in mind that in the foregoing table comparisons are made between 50 first-grade, 100 second-grade and 200 baby bulbs, when each grade occupied the same length of row.

NARCISSUS—VARIETY EXPERIMENT—PROJECT H. 278

The narcissi are amongst the most popular spring flowering plants, being early, hardy, free blooming and of interesting form and colour. The varieties are exceedingly numerous. The following list gives those varieties tested here since 1915, with classification, average height for 5 years and date of full bloom.

The narcissus has not been so great a success as the tulip owing to the destructive work of the Narcissus bulb fly. Experiments are now under way to secure the best means to control this serious pest.

NARCISSI—VARIETY EXPERIMENT

Variety	Average height	Average time of bloom	Remarks
	ins.		
Large Trumpet—(Trumpet as long as or longer than the perianth segments; with yellow trumpet; perianth of the same shade or lighter, but not white white.)			
Cornelia	17	Apr. 11	Soft canary-yellow, broad smooth perianth.
Emperor	20	" 12	Perianth deep-primrose, trumpet rich-yellow.
Glory of Leiden	17	" 8	Perianth pale-yellow, trumpet rich-yellow.
Golden Spur	18	" 20	Perianth large and spreading, trumpet large yellow.
Henry Irvine	24	" 7	Perianth broad spreading, yellow, large yellow trumpet.
King Alfred	20	" 4	Large, intense-yellow, trumpet large.
Van Waveren Giant	19	" 15	Very large, perianth primrose, yellow trumpet.
Bicolour—(With white or whitish perianth, and a yellow-lemon, or pale-primrose trumpet.)			
Duke of Bedford	9	Apr. 12	Perianth white, trumpet clear soft-yellow.
Empress	17	" 9	Perianth white, trumpet rich-yellow.
Grandis	15	" 14	Perianth white, trumpet yellow.
Horsfieldii	14	" 18	Perianth white, trumpet full-yellow.
F. B. McCamm	15	" 19	Perianth white, trumpet rich deep-cream.
Madame Plemp	19	" 16	White large and twisted trumpet, golden-yellow.
Princeps	16	" 18	Perianth sulphur-white, trumpet yellow.
Victoria	16	" 15	Perianth broad creamy, white, clear yellow trumpet.
Incomparabilis.—(Large chalice cup measuring one third to nearly the length of the segments of the perianth.)			
Cynosure	21	Apr. 8	Perianth primrose, cup orange-red.
Figaro	21	" 14	Perianth pale-yellow, cup gold suffusedw orange.
Frank Miles	22	" 14	Perianth soft-yellow, gracefully twisted.
Lucifer	21	" 21	Perianth white cup glowing orange-red.
Sir Watkin	19	" 19	Perianth primrose, cup yellow tinged orange.
Will Scarlet	11	" 20	Perinth creamy, cup large.

NARCISSII—VARIETY EXPERIMENT

Variety	Average height	Average time of bloom	Remarks
	ins.		
Barri—(Small chalice cup measuring less than one third the length of the segments of the perianth).			
Conspicuous	23	Apr. 17	Perianth bright-yellow, cup orange edged scarlet.
Incognita	16	" 20	Perianth white, large frilled cup bright-yellow, margined orange.
Red Beacon	18	" 20	Perianth ivory-white, cup fluted of fiery orange-red.
Fire Brand	18	" 11	Perianth creamy-white shaded to lemon, cup intense fiery-red.
Leedsii—(Comprising all star narcissus,—large chalice supped and short chalice cupped—which have pure-white or silvery-white perianth segments, and cup white, cream, buff-orange, apricot or pale-citron.)			
Duchess of Westminster	18	Apr. 16	Perianth white, long cup canary-yellow tinged orange.
Evangeline	21	" 16	Broad white perianth, cup large open citron-yellow.
White Lady	21	" 17	Perianth broad white, cup pale-yellow, prettily crinkled.
Poeticus—(Narcissus all having snowy-white perianth segments and a small flattened eye, yellow edged with scarlet or crimson.)			
Pheasant Eye	20	May 12	Perianth pure-white, eye margined deep-orange-scarlet.
Ornatus	20	Apr. 20	Perianth pure-white, eye edged scarlet.
Glory	16	" 24	Perianth pure-white, eye yellow, margin scarlet.
Grandiflora	22	" 26	Perianth white eye yellow, margin orange-scarlet.
King Edward VII	14	" 14	Perianth pure-white, eye yellow, margin orange-scarlet.
Poetaz—(A new race produced by crossing Poeticus Ornatus with the Polyanthus varieties.)			
Alsace	14	Apr. 26	Perianth pure-white, eye bright-yellow edged scarlet.
Elvira	17	" 24	Perianth white imbricated eye bright-gold-orange fringed.
Triumph	15	" 23	Perianth white suffused yellow, eye bright-deep-gold.
Polyanthus—(These narcissus produce fine clusters of flower.)			
Formosa	14	Apr. 22	Perianth creamy-white, crown pure-gold.
Jaune Supreme	14	" 20	Perianth bright-yellow, crown orange.
Luna	12	" 22	Perianth white, crown pale-golden-yellow.
Mont Cenis	13	" 22	Perianth white, crown bright-gold.
Queen Victoria	12	" 10	Perianth white, crown bright-yellow.
Totus Albus	10	" 14	Perianth pure-white, crown white.

ANNUALS—VARIETY EXPERIMENT—PROJECT 261

For many years a large and comprehensive list of annuals has been grown at this Station. Flowers of all kinds grow remarkably well on Vancouver Island. Where water is available much better results may be expected, this is especially true for plants blooming during the dry summer season. Many annuals are seeded in the open ground at this Station where they are intended to bloom, these are shown in the one group, many others are started in the cold-frames and hot-beds as the case may be. In some cases where a plant might be perfectly hardy if seeded in the open, yet in order to secure earliness it may be

seeded in the cold-frame or hot-bed. Owing to the scarcity of water for irrigation purposes no water has been used on the plots of annuals after the plants become established in the location where they are intended to bloom. This procedure necessarily reduces the height of the plants.

In the case of annuals seeded in the open ground, the average date of sowing seed for a number of years is April 20. All annuals seeded in cold-frame or hot-bed have been sown on the average about April 8. The more important sorts of annuals and their varieties are given in the accompanying lists.

ANNUALS GROWN AT THE STATION—SOWN IN THE OPEN

Variety	Hardiness	Commence to bloom	Average height	Remarks
Clarkia—			inches	
Brilliant mixture	H.A.	June 20	30	Selection of finest doubles.
Cornflower—				
Blue	H.A.	" 18	36	Valuable for border.
Special mixture	H.A.	" 18	36	Fine selection.
Echium Plantagineum	H.A.	July 1	24	Free growing and continuous bloomer.
Eschscholtzia—				
Cherry red	H.	.....	.....	Very rich glowing colour.
Gaiety	H.	.....	.....	Brilliant red, inside pure white.
Godetia—				
Apple Blossom	H.	July 7	16	Pink and white.
Duchess of Albany	H.	" 14	20	Large, pure white, free bloomer.
Ladybird	H.	" 7	20	White, spotted crimson.
Lady Albermarle	H.	" 7	14	Large, bright crimson.
Scarlet Queen	H.	" 14	20	Large, dazzling scarlet.
Double Rose	H.	" 7	25	Good, double.
Jacobaea—				
Bright Rose	H.	Aug. 1	8	Brilliant and showy.
Double Rose	H.	" 5	5	
Double White	H.	" 8	5	
Rudbeckia—				
Golden Sunset	H.	" 11	18	Attractive.
Sunflower—				
Miniature	H.	July 7	.....	Small, golden-yellow, black centre.
Primrose Stella	H.	" 7	48	Pale primrose, tinted petals.
Stella red Hybrids	H.	" 5	50	Small disc, long ray petal, well marked with bronzy-red.
Mignonette—				
Giant White	H.	June 20	.....	Good white.
Sweet-scented	H.	" 22	.....	
Larkspur—				
Stockflowered blue	H.	July 1	40	Fine spikes of bloom, attractive.
Rosy Scarlet	H.	" 1	36	" " "

ANNUALS SOWN IN COLD FRAME

Variety	Hardiness	Date planted outside	Commence to bloom	Average height	Remarks
Aster—				inches	
Giant Anemone—flowered—					
Mauve	H.H.A.	June 6	July 9	18	Striking decoration.
Pink	"	" 6	" 10	17	Striking for vase.
American Beauty	"	" 6	" 20	20	Large, rich rose.
Blushing Beauty	"	" 6	Aug. 10	22	Pure white, elegant.
Buff Beauty	"	" 6	" 2	18	Delicate pale primrose.
Giant Pink Ray	"	" 6	" 10	16	Long petals, bloom for long time.
King of the Belgians	"	" 6	" 14	17	Apricot, good cut flower.
Meteor	"	" 6	" 3	12	Brilliant carmine, large.
Primrose Queen	"	" 6	July 31	14	Good yellow.
Snow Queen	"	" 6	June 20	12	Very early, good for border.
Salmon Pink	"	" 6	July 20	18	Novel shade of colour.

ANNUALS SOWN IN COLD FRAME—*Continued*

Variety	Hardiness	Date planted outside	Commence to bloom	Average height	Remarks
Aster—Con.					
Single Mauve Gem	"	" 6	" 26	15	Pale mauve.
Single Firefly	"	" 6	" 29	17	Scarlet petals, yellow centre.
Legion of Honour	"	" 6	" 28	12	Rose, yellow centre.
Southcote Beauty, mauve	"	" 6	" 30	20	Good border plant and for cut flower.
Southcote Beauty (pink)	"	" 6	" 30	20	" " "
Venus	"	" 6	" 28	18	Attractive.
Giant French Brilliant rose	"	" 6	" 27	17	
Dark blue	"	" 6	" 26	18	
Fiery Scarlet	"	" 6	Aug. 8	20	Fine for exhibition, flowers large.
Light blue	"	" 6	July 20	22	
Rose	"	" 6	Aug. 6	18	
White	"	" 6	" 8	20	
Giant Comet, azure blue	"	" 6	July 20	18	
Rose pink	"	" 6	" 24	16	As a border plant makes brilliant display.
Scarlet	"	" 6	" 24	17	
White	"	" 6	" 20	18	
Superb Bedding Blue	"	" 6	" 26	8	
Bright Rose	"	" 6	" 26	6	
Delicate Rose	"	" 6	" 26	7	Splendid variety good for bedding
Lilac	"	" 6	" 31	7	
Scarlet	"	" 6	Aug. 4	6	
White	"	" 6	Aug. 4	7	
Antirrhinum—					
Tom Thumb	H.A.	" 6	July 15	.....	
Carmine and White	"	" 6	" 15	10	
Copper Red	"	" 6	" 15	12	Valuable strain for small beds and for edging.
Crimson	"	" 6	" 16	12	
Orange	"	" 6	" 20	10	Very showy colours.
White	"	" 6	" 12	11	
Yellow	"	" 6	" 14	11	
Intermediate—					
Bright Crimson	"	" 6	" 14	20	Brilliant colour.
Fire King	"	" 6	" 14	20	Orange, white throat.
Pale Apricot	"	" 6	" 20	14	Handsome variety.
Rosy Queen	"	" 6	" 18	20	Pink with paler lips.
Carmine and pink	"	" 6	" 12	14	Very effective.
Variety	"	" 6	" 10	15	Rich buff-pink.
Yellow	"	" 6	" 12	14	
Tall Chamois	H.A.	" 6	" 12	30	
Deep crimson	"	" 6	" 20	48	
Delicate Rose	"	" 6	" 12	36	Good for forming bold group in large borders.
Pink and White	"	" 6	" 10	48	
Pure White	"	" 6	" 12	36	
Yellow	"	" 6	" 15	30	
New Bedding—					
Apricot	"	" 6	" 24	9	
Bright pink	"	" 6	" 24	9	
Orange Red	"	" 6	" 30	10	Free-flowering, admirably adapted for bedding purposes.
Pale pink	"	" 6	" 24	9	
Yellow	"	" 6	" 22	9	
Salpiglossis—					
Creamy White	H.A.	" 4	" 12	40	
Crimson and Gold	"	" 6	" 14	42	
Golden Yellow	"	" 6	" 12	36	Very showy in borders.
Purple and Gold	"	" 6	" 20	40	Very attractive.
Rose—gold-veined	"	" 6	" 22	36	
Violet	"	" 6	" 15	34	
Helichrysum—					
Crimson	H.A.	" 6	" 22	40	
Purple	"	" 6	" 25	42	
Rose	"	" 6	" 28	36	Popular everlasting flower.
Salmon	"	" 6	Aug. 2	36	
Yellow	"	" 6	July 30	38	
White	"	" 6	" 25	30	
Cosmea—					
Crimson	H.A.	" 6	" 2	38	Remain in bloom long period
Rose	"	" 6	" 4	38	
White	"	" 6	June 29	38	

ANNUALS SOWN IN COLD FRAME—*Concluded*

Variety	Hardiness	Date planted outside	Commence to bloom	Average height	Remarks
Scabious—				inches	
Cherry Red	H.A.	" 12	July 30	32	
Dark purple and white	"	" 12	" 30	36	
Flesh colour	"	" 12	Aug. 2	40	One of the most beautiful annuals. Invaluable for vase.
Lilac	"	" 12	" 2	36	
Rose	"	" 12	" 2	36	
White	"	" 12	" 2	40	
Zinnia—					
Giant Double—				30	Immense double-flowering, of gorgeous colouring.
Orange	"	May 26	July 12	28	
Scarlet	"	" 26	" 9	22	
Queen of the Rose	"	" 26	" 10	20	Brilliant orange-scarlet.
Double Fill Ball	"	" 26	June 26	22	Beautiful deep red.
Crimson Monarch	"	" 26	" 29	24	Lavender to purple.
Dream	"	" 26	July 1	22	Large flower, two shades of rose.
Exquisite	"	" 26	June 29		
Meteor	"	" 26	" 2	22	Splendid red.
Oriole	"	" 26	" 4	25	Orange and gold bi-colour.
Old Rose	"	" 26	" 4	22	Old rose, good shade.
Polar Bear	"	" 26	" 29	22	Best white zinnia.
Scarlet Flame	"	" 26	" 30	25	Bright scarlet.
Dimorphotheca—					
Auranticea-hybrids	H.A.	May 26	June 16	10	Produces wide range of charming colours.
Globe Amaranthus—					
Flesh colour	H.H.A.	June 6	July 12	14	
Rose	"	" 6	" 12	13	Make a fine show. Excellent for winter decoration.
Purple	"	" 6	" 15	15	
White	"	" 6	" 14	14	

ANNUALS SOWN IN HOT-BED (Gentle Heat)

Verbena—					
Superb bedding—					
Blue	H.H.	May 22	July 15	16	
Pink Shade	"	" 22	" 15	12	
Purple white eye	"	" 22	" 10	14	Popular subject for summer bedding.
Scarlet	"	" 22	" 10	16	
Striped	"	" 22	June 27	14	
White	"	" 22	" 28	15	
Ellen Willmott	"	" 22	July 10	14	Beautiful salmon-rose with white eye.
Nemesia—					
Scarlet	"	June 17	July 2	12	
Rich Orange	"	" 17	" 10	12	Makes a grand display.
Rose Pink	"	" 17	" 10	11	
White	"	" 17	" 2	12	
Phlox Drummondii—					
Pink Beauty	H.A.	May 29	June 20	9	
Purity	"	" 29	" 26	9	
Grandiflora					
Blue-white eye	"	" 26	" 20	12	
Carmine—white eye	"	" 29	" 24	12	Large beds of Phlox make an amazing show of wonderful colours.
Deep Crimson	"	" 29	" 24	12	
Pure White	"	" 29	" 20	13	
Salmon Rose	"	" 29	" 20	14	
Vivid Scarlet	"	" 29	" 20	15	Very showy.
Salvia—					
Fire Bell	H.H.	June 15	July 22	12	Plants compact, covered with long spikes of scarlet flowers.
Stocks—					
Giant Perfection—					
Chamois	H.H.	June 6	July 12	20	
Crimson	"	" 6	" 12	18	
Delicate Pink	"	" 6	" 15	18	Fine type of largest flowering 10-weeks stocks. Strong growth.
Light blue	"	" 6	June 24	20	
Purple	"	" 6	July 10	16	
White	"	" 6	" 10	16	
Improved Dwarf—					
Brilliant Rose	"	May 30	July 8	15	
Copper Red	"	" 30	" 8	12	
Dark Blue	"	" 30	" 10	13	Good selection of colours.
Light blue	"	" 30	" 10	12	
Scarlet	"	" 30	" 6	13	
White	"	" 30	" 6	14	

ANNUALS SOWN IN HOT-BED (Gentle Heat)—*Concluded*

Variety	Hardiness	Date planted outside	Commence to bloom	Average height	Remarks
Kochia—				inches	
Trichophizlia	H.A.	June 18		38	Rapid-growing, graceful.
Statice—					
Sinuata—					
Mauve	H.H.	" 12	July 14	24	Great value for winter decoration.
Royal Blue	"	" 12	" 20	30	
Yellow	"	" 12	" 14	36	
Rose	"	" 12	" 29	30	
Hybrids	"	" 12	June 30	24	
Cockscomb—					
Celosia crislata	H.H.	June 12	June 20	7	Admired.

HYACINTH—VARIETY EXPERIMENT—PROJECT H. 275

The hyacinth has not been a great success at the Farm. This has been due to some extent to unsuitable soil.

The small Narcissus Bulb Fly (*Eumerus Strigatus*) has been a source of loss. In a general way greater care must be exercised in cultural methods than with other bulbs, and every precaution taken to prevent the spread of disease. The following table gives the results of tests made here of many varieties since 1915.

HYACINTHS—VARIETY EXPERIMENT

Variety	Average height 5 years	Full Bloom	Remarks
Pure-White to Blush—	inches		
Alba Maxima	12	April 15	Splendid pure-white.
Buff Beauty	10	" 10	Light-buff, semi-double.
Geothe	13	" 20	Delicate-cream, double.
La Grandesse	13	" 22	Purest white, fine large bells.
Mad. Vander Hoop	12	" 26	Pure-white, splendid.
Miss Nightingale	11	" 22	Good white.
Light-Blue to Dark-Blue—			
Electra	12	" 16	Light silver-blue, large flowers.
Enchantress	12	" 15	Clear light-blue, fine colour.
Grand Lilas	13	" 20	Azure-blue, large spikes.
Ivanhoe	12	" 16	Deep-purple, light centre.
King of the Blues	12	" 24	Dark-Blue, compact truss.
Lord Derby	12	" 20	Silvery-porcelain, splendid spikes.
Menelik	15	" 20	Purplish-black, very distinct.
Rose to Rose-Pink—			
Delicatissima	13	" 9	Beautiful pale-pink.
Gigantea	13	" 20	Blush-pink, small bells.
Jacques	12	" 12	Delicate coral-pink, loose spike.
Lady Derby	13	" 13	Beautiful rose-pink, excellent.
Linneaus	11	" 11	Reddish-pink.
Moreno	13	" 12	Fine pink, extra large spikes.
Dark-Red—			
General Pelissier	10	" 15	Deep-scarlet.
La Victoire	9	" 16	Brilliant carmine-red.
Stanley	12	" 20	Bright-scarlet.
Lilac and Violet—			
Charles Dickens	14	" 20	Large, dark-lilac.
L'Esperance	11	" 28	Dark-purple.
Lord Balfour	13	" 20	Lilac, tinged violet.
Yellow—			
City of Haarlem	12	" 19	Pure-yellow, large truss.
King of the Yellow	11	" 25	Bright-yellow, compact spike.
Yellow Hammer	10	" 24	Lovely creamy-yellow.

DAFFODIL—FLY CONTROL—PROJECT H. 570

This project was undertaken in 1925 to determine some method of controlling this serious pest. Some investigational work had already been done in controlling this insect, but not as a definite Station project. A comprehensive plan of procedure has been adopted in the treatment of bulbs, outlined as follows:—

Plot 1. Bulbs treated with formalin, same strength as for potatoes.
Plot 2. Bulbs treated with corrosive sublimate, same as for potatoes.
Plot 3. Crude naphthaline scattered under bulbs at planting time.
Plot 4.—Bulbs soaked in water for various lengths of time.
Plot 5. Bulbs soaked in solution of household ammonia.

The small Narcissus Bulb Fly (*Eumerus Strigatus*) is more prevalent and causes somewhat greater loss than the large Narcissus Bulb Fly (*Merodon Equestris*).

Scores of larvae of the Small Narcissus Bulb Fly may be found in badly infested bulbs in the advanced stage. The interior of the bulb is entirely destroyed and is full of a semi-liquid decaying mass. The attack seems to begin at the neck and in mild cases the larvae are found in the neck or under the scales at one side. The presence of many larvae and the complete decay produced distinguishes the damage done by *Eumerus* from that done by *Merodon*. The larva or maggot of the small Narcissus Bulb Fly is about one-half-inch in length when full grown, is greyish-yellow in colour and has a distinctly wrinkled appearance. The mouth parts are brown and the respiratory processes at the front end are brownish red. The adult is about one-quarter-inch in length, is blackish-green in colour with white marks on the side.

The adult of the Large Narcissus Bulb Fly is about one-half-inch long and resembles a bee in appearance and actions. The egg is very small, oval in shape and white in colour. The larva or maggot is whitish or yellowish in colour and when full-grown is from one-half to three-quarters of an inch in length. The larvae pupates in the bulb or in the soil nearby. The eggs are reported as being laid at or near the base of the leaves of narcissii or on the necks of the bulbs when these are exposed. The young larvae bore into the bulb and feed upon the tissues which they rasp or tear apart by means of strong hooked mouth parts. The bulbs usually become soft and as feeding goes on rot frequently sets in.

Much remains to be done studying the habits of these two Narcissus Bulb Flies that are causing considerable anxiety and loss to bulb growers. Further progress in the study and control of these insects will be outlined in next year's report.

STUDIES IN SWEET PEA SEED PRODUCTION—PROJECT H. 357

For the last four years much work has been undertaken covering many phases of sweet pea seed production. The yield per acre, variety tests, distance apart in row, effect of hilling, sticking, lime, innoculation, etc., have been studied. For report covering this work see the Annual Report for this Station for the past years. All these are of minor importance to the problem of the breaking up of varieties, the crossing in the field, or whatever the nature of the break-up really is. One thing is certain, rogues continually appear with the best growers. Theoretically peas do not cross in the field, yet many things cannot be explained unless this crossing really takes place.

The work during 1925 was to secure information of a basic character to determine definitely whether natural crossing is possible, and if so, what insect or other agency is responsible.

Major Hurst has published a list of sweet pea colours arranged in order of dominance as follows:—

Cream is the lowest recessive colour.
White is dominant to cream.
Tinged white is dominant to white.
Orange and salmon to tinged white.
Pink to orange and salmon.
Crimson to pink.
Deep and pale-blue to crimson and red.
Lavendar to deep and pale blue.
Mauve to lavender.
Maroon to mauve.
Purple-maroon to maroon.
Wild purple bicolour is dominant to all other colours.

From this list it will be seen that cream, being the lowest recessive, should be made the basis of investigation for cross-fertilization.

In the spring of 1925 twenty-five varieties of sweet peas were grown in the greenhouse and later transplanted out. There was considerable volume to this work, the whole field amounting to about three quarters of an acre. The peas were set in such a way that the row of Feltons Cream was flanked on the one side by Commander Godsal, a blue, and on the other by Splendour, a dark-red; the idea being to give the varieties as good a chance as possible to cross, and if crossing actually did occur to be able to detect it without failure the following season. Ten cages were constructed and placed over as many individual plants of Feltons Cream. The soil under the cage was treated with Tipulite, a soil-disinfectant. Later in the season plant lice developed in some quantity in some of the cages, but since there was but one plant in each cage there should be no crossing from this source. The cages were placed before the appearance of the first bloom, and kept on until all petals had fallen. The seed from each caged plant was kept separately and will be planted in 1926. If this caged Feltons Cream shows no rogues, and Feltons Cream grown without protection shows the effect of the blue and the red, we think it a fair inference that the varieties were crossed in the field by some agency. Work is being continued.

CHRYSANTHEMUMS—VARIETY EXPERIMENT—PROJECT H. 222

The character of the winter on Vancouver Island makes it possible to grow some chrysanthemums out of doors that in other parts of Canada would be regarded as greenhouse flowers. To classify this formidable list as outlined is the work of the project. For outdoor work we have found the following:—

CHRYSANTHEMUMS—VARIETY EXPERIMENT

	Pompom	Single	Double
Best	Baby Doll	Alex. Rowbottom	Mrs. F. Calliar.
	Buena	Mrs. U. P. Hedrick	Henry Vincent.
	Beth	Irene Craig	Oconto.
	Florence Huckvale	Jessie Curtis	Gaston Quineaux.
	Little Tot	Kitty Bourne	Rose Perfection.
	Mrs. Nellie Clevis	Kitty Connell	O. H. Broomhead.
Poorest	Ouray	Mrs. Filkins	Smith Imperial.
	Margaret Clark	Polly Duncan	Solomon Gold.
	Klondike	Josephine	October Herald.
	Button Rose	E. V. Godfrey	Victory.
	Fire Bird	Golden Star	Wells Late Pink.
		Sea Shell	White Chieftain.

THE GREENHOUSE

The completion of the greenhouse in the winter made it possible to undertake several new projects in the spring of 1925. The house was found to be

satisfactory in every way, while the heating-plant was equal to all requirements, in fact capable of heating larger houses. Some difficulty was experienced in obtaining seed of the varieties wanted in midwinter for greenhouse work, but the problems were attacked with such varieties as were available.

TOMATO—VARIETY EXPERIMENT—PROJECT H. 255

Many varieties of tomatoes are grown by the greenhouse men, but little definite knowledge is known concerning their relative value for greenhouse purposes. The trade demands a small tomato, regular and firm. Seedling plants of various varieties were obtained from different concerns on the island, and transplanted to the greenhouse in February. It was not possible to obtain the exact date of planting seed, but the time from the arrival of plants at the Farm until fruiting is given in days.

TOMATO—GREENHOUSE VARIETY EXPERIMENT

Variety	Yield per plant	Earliness	Size and shape	Colour and texture of flesh	Remarks
	lb.				
Kondine Red	6½	1st	1st	A.1.	Ripe in 79 days.
Sutton Best of All	5	2nd	2nd	2nd	Ripe in 88 days.
Utility	4	4th	4th	3rd	Ripe in 88 days.
Early Defiance	4½	3rd	5th	3rd	Ripe in 88 days.
Devon Surprise	3 1/10	3rd	3rd	A.1.	Ripe in 95 days.
Unknown	6	1st	1st	A.1.	Ripe in 83 days.
Unknown	5½	4th	1st	2nd	Ripe in 95 days.

One of the unknown varieties was probably Kondine Red, while the other may have been this variety also. Both sorts are grown in a small way by Chinese growers. Kondine Red was the best yielder, first to ripen and of excellent quality. The variety is too small for eastern markets but in great demand on the coast. The Devon Surprise is a tomato greatly liked by everyone, but has not yielded well.

CUCUMBER—VARIETY EXPERIMENT—PROJECT H. 245

Cucumbers of several varieties were grown in the greenhouse during the spring of 1925. The object of the work was to determine the best for greenhouse purposes.

CUCUMBER—GREENHOUSE VARIETY EXPERIMENT

Variety	When sown	Transplanted	Ready for table	No. cukes per plant	Remarks
Davis Perfect	Feb. 5	Mar. 7	April 28	18	Good colour and shape.
Early Russian	Feb. 5	Mar. 7	April 28	14	Too small for market.
Long Green	Feb. 5	Mar. 7	April 28	14	Good colour and shape.
White Spine	Feb. 5	Mar. 7	April 28	14	Good colour and shape.
Giant Pera	Feb. 5	Mar. 7	April 28	9	Colour greenish yellow Unsaleable.

The Davis Perfect is an excellent cucumber, good yielder, colour and shape first-rate, but the White Spine is the favourite on the market in so far as the American sorts are concerned.

A few melon plants were also used in the variety testing, but they were not in sufficient number or variety to speak definitely.

RETURN PER SQUARE FOOT OF GREENHOUSE SPACE—PROJECT H. 492

The return from crops grown in the greenhouse varies much. Little information is available, however, as to what one may expect per square foot of greenhouse space when planted to the different crops. With the hope of determining this point Project H. 492 was planned. For the first season starting in midwinter few crops were available, but the work was begun. Other crops will be added from time to time.

RETURN PER SQUARE FOOT OF GREENHOUSE SPACE—TOMATOES

Variety	Number of plants grown	Sq. ft. per plant	Yield per plant	Yield per square foot	Returns per square foot
			lb.	lb.	cts.
Kondine	150	2½	6¼	2·5	62½
Unknown	30	2½	6	2·4	70
Unknown	30	2½	5½	2·2	55
Suttons Best of All	24	2½	5	2	50
Utility	24	2½	4	1·60	40
Early Defiance	16	2½	4·5	1·80	45
Devon Surprise	24	2½	3·9	1·50	37½

It will be noticed that with the best-yielding sort, Kondine Red, the return per square foot was 62½ cents, and the poorest Devon Surprise, 37½ cents.

RETURN PER SQUARE FOOT OF GREENHOUSE SPACE—CUCUMBERS

Variety	Number of plants grown	Sq. ft. per plant	Value of yield per plant	Value of yield per square foot
			$ cts.	cts.
Davis Perfect	20	4	2 16	54
Early Russian	8	4	0 98	24½
Long Green	28	4	1 56	39
White Spine	8	4	1 68	42
Giant Pera	4	4	Unsaleable	

The return from Davis Perfect, the best yielder, was 54 cents per foot, while Giant Pera was quite unsaleable, not quite equal to the return from tomatoes.

CEREALS

For several years the area devoted to this work has been cropped under a definite rotation; twenty-five per cent to spring cereals, twenty-five per cent to roots, twenty-five per cent to summer-fallow, and twenty-five per cent to fall cereals. The fall cereals follow the summer-fallow, and the spring cereals the roots. By this method the grain is sown on clean land and the danger of volunteers in some measure overcome. The winter of 1924-25 was the most severe in the history of this Station. Many varieties of barley, oats and wheat that had hitherto proved quite hardy were winter-killed. In spite of the set-back received this year the winter sowing of oats will be continued on even a larger scale.

WHEAT—TEST OF VARIETIES

Several varieties of wheat were sown in duplicate test plots one-eightieth of an acre each, on April 8, 1925. The seed used for this purpose was taken from the test plots of the previous year.

WHEAT—SPRING-SOWN—TEST OF VARIETIES

Variety	Date ripe	Strength of straw on scale of 10 points	Length of straw	Yield per acre	Remarks
			ins.	bush. lb.	
Huron	Aug. 1	9	46	26 40	Awns 3½ inches. Kernels hard.
Early Red Fife	July 8	8	48	26 40	
Red Fife	Aug. 1	9	46	22 ..	
Marquis 0·15	" 1	9	46	22 40	
Red Stone	" 1	8	44	18 40	Few awns. Hard red kernel.
Kitchener	July 28	10	48	24 ..	
Purple Marquis	Aug. 4	9	50	19 20	
Bluestem X Marquis	" 1	9	44	23 40	

WHEAT—FALL-SOWN

Nine varieties of wheat were sown in one-eightieth-acre plots and seven varieties in rod-rows on September 30 and October 3 respectively. Those sown in the rod-rows were spring wheats and all were winter-killed. The varieties in the eightieth-acre plots did not fare quite so badly, but their condition in the spring was such as to necessitate ploughing and seeding the land to spring grain.

WHEAT—FALL-SOWN—TEST OF VARIETIES

Seeded in rod-rows		Seeded in 1/80-acre plots	
Varieties	Per cent winter-killed	Varieties	Per cent winter-killed
Marquis 0·15	100	Bluestem X Marquis	100
Red Fife	100	Red Rock	85
Huron	100	Velvet	75
Kitchener	100	*V.I.S. No. 1	80
Early Red Fife	100	V.I.S. No. 14	100
Purple Marquis	100	V.I.S. No. 131	90
Dr. Harts Durum	100	Red Stone	100
	100	Golden Sun	85
		Sun	80

*The V.I.S. Wheats are introductions of this Station.

OATS—SPRING-SOWN—TEST OF VARIETIES

Twenty-two varieties of oats were sown on April 7, ten in duplicate plots one-eightieth-acre in size, and twelve in rod-rows replicated four times. The season, being unusually dry, was unfavourable for spring-sown oats. The crop harvested was below the average.

OATS—SPRING-SOWN—TEST OF VARIETIES
(1/80-acre Plots)

Variety	Date ripe	Length of straw	Yield per acre	Remarks
		ins.	bush. lb.	
Early Ripe White	July 17	36	42 30	Thin grain.
Longfellow	" 22	32	50 10	
Conqueror	" 25	36	48 ..	Plump grain.
Joanette	" 25	30	46 30	Black oat.
Victor	" 22	32	44 24	
Banner	" 23	30	49 5	
O. 713	" 19	34	43 15	Plump grain.
Garton	" 25	34	49 5	Plump grain.
Garton's Abundance	" 25	36	46 10	Plump grain.
O.A.C. 72	" 23	34	44 24	

OATS—SPRING-SOWN—TEST OF VARIETIES

(Rod-Rows)

Variety	Date ripe	Length of straw	Yield per acre	
		ins.	bush.	lb.
Alaska	July 20	40	41	20
O.A.C. 3	" 20	34	35	12
Laurel	" 28	32	20	27
Gold Rain	Aug. 3	34	41	20
Leader A	" 7	35	35	12
Prolific (0·77)	" 11	44	39	17
Victoria	" 7	38	49	31
Bountiful	" 11	50	45	25
Columbian	" 7	38	43	22
Marvelous	" 11	47	58	7
Banner 0·49	" 7	40	56	5
Longfellow	" 7	40	43	22

BARLEY—SPRING-SOWN—TEST OF VARIETIES

Seven varieties of oats were sown in one-eightieth-acre plots on September 30. With the exception of a few plants, these were all winter-killed. The few surviving plants were planted into small increase plots and the following records kept.

OATS—FALL-SOWN—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Panicle		Colour of hull
			Shape	Length	
		ins.		ins.	
Winter Turf	July 29	34	Branching	9	Grey.
Grey Winter	" 25	38	"	9	"
Marvellous	" 18	50	"	12½	White.
Early Ripe White	" 7	46	"	9	Brownish-yellow.
O. 713	" 16	52	"	11	" "
Kanota	" 4	34	"	7½	" "

The seventh variety, Joanette, was completely winter-killed.

O. 713 is one of the most promising oats for fall seeding. It is a cross of Early Triumph (108), a pure-line selection of Early Triumph made in 1908 at Macdonald College, Quebec. The other parent was Alaska. Eight other varieties were sown in rod-rows for test purposes. All winter-killed.

BARLEY—FALL-SOWN—TEST OF VARIETIES

Four varieties of barley were sown in duplicate plots, one-eightieth-acre, on April 7 at the rate of 2½ bushels per acre.

BARLEY—SPRING-SOWN—TEST OF VARIETIES

Variety	Date ripe	Length of straw	Yield per acre		Remarks
		ins.	bush.	lb.	
Barks	Aug. 11	30	36	32	A consistent yielder.
Duckbill 0·57	July 6	34	27	24	
Himalayan	" 10	32	31	32	Greenish kernel, easy to thresh.
Manchurian 0·50	" 21	38	30	..	

Three varieties of barley were sown in rod-rows, replicated four times, on April 13.

Variety	Date ripe	Length of straw	Yield per acre	Remarks
		ins.	bush. lb.	
Duckbill (057)	July 25	26	30 44	
Ottawa Borer	" 29	38	38 14	
Hulless	" 21	28	25 2	Heads very small.

BARLEY—FALL-SOWN—TEST OF VARIETIES

Six varieties of barley, Chinese, Manchurian, Bark's O.A.C. 21, Hulless, and Himalayan, were sown in the fall. All were winter-killed.

FIELD PEAS—SPRING-SOWN—TEST OF VARIETIES

Uniform test-plots of field peas were sown on April 14. Each plot was replicated four times. Fairly large quantities of peas of a good quality are raised in this district and sold on the eastern market. The growing of peas is becoming more popular with the farmer year by year.

FIELD PEAS—SPRING-SOWN—TEST OF VARIETIES

Variety	Per cent stand	Date ripe	Length of straw	Length of pod	Yield per acre	Remarks
			ins.	ins.	bush. lb.	
Stirling	100	July 27	50	3	44 47	Large yellow. Good quality.
Solo	100	" 25	46	2·5	34 46	Grey. Sidney seed.
Solo	96	" 25	44	1·7	31 13	Seed from Ottawa.
New Zraland Maple	100	" 27	40	2	37 7	Very popular.
Arthur	97	Aug. 1	36	1·5	34 10	Yellow, medium size.
Prussian Blue	100	" 7	42	2	39 28	Blue, old stand, var.
Chancellor	95	" 20	30	1·5	31 13	Small yellow seed.
O.A.C. No. 181	100	" 20	32	1·5	27 41	Early yellow med.
Cartier	100	" 27	38	1·5	24 44	Yellow, med. size.
Champlain	100	" 27	30	1·2	24 44	Seed yellow.
McKay	100	" 29	38	2	26 31	D'k-yellow, blk. hilum.
Gryllen	100	" 20	42	2	31 49	Seeds yellow.

The New Zealand Maple and Solo peas were also sown in duplicate one-eightieth-acre plots on April 7. The Maple pea gave a yield of 46 bushels per acre, and the Solo 32 bushels.

FORAGE CROPS

The returns from roots, corn, grasses, clover and hay mixtures were again much below the average. The first cut of alfalfa, however, gave a very satisfactory yield, being well above the average. The clover stand in the hay mixtures was very thin, due to the drought of 1924, when a large percentage of the young plants were killed.

INDIAN CORN—VARIETY TEST

Twenty-four varieties and strains of corn for ensilage were sown on May 12, in rod-row plots, thirty-six inches apart. Each plot was replicated four times. The plants were thinned to twelve inches apart in the row.

INDIAN CORN—VARIETY TEST

Variety	Per cent stand	Height 1925	Height Average for 3 years	Date cut	Yield per acre 1925	Yield per acre Average for 3 years	Percentage dry matter 1925	Yield per acre dry matter 1925
		ft. ins.	ft. ins.		tons lb.	tons lb.		tons lb.
*Yellow Dent	100·0	6 0	7 2	Sept. 17	8 720	11 660	23·93	1 1,999
Twichell	100·0	5 3	5 4	" 4	9 920	12 640	28·42	2 1,288
*Early N.W. Dent	98·5	5 3	6 5	Aug. 28	9 1,580	13 840	24·80	2 899
*N.W. Red Dent	100·0	5 9	6 1	Sept. 10	11 660	15 690	23·44	2 1,310
*N.W. Dent	100·0	5 3	5 1	" 10	11 1,540	12 860	21·29	2 1,011
N.W. Dent	97·0	4 0	5 3	" 4	8 280	9 480	28·91	2 705
Longfellow	98·5	6 9	6 11	" 17	10 1,340	12 1,392	21·19	2 521
Quebec 28	98·5	5 4	5 5	Aug. 28	8 940	10 1,925	25·29	2 283
*Hybrid	95·5	6 6	6 6	Sept. 21	10 460	16 1,000	24·22	2 954
Golden Glow	100·0	7 6	7 10	" 26	10 900	15 580	27·93	2 1,836
Comptons Early	98·5	6 4	6 10	" 17	12 860	16 1,292	21·39	2 1,317
Wisconsin No. 7	100·0	7 2	7 5	" 26	13 1,280	16 120	25·29	3 897
Wisconsin No. 7	100·0	7 2	7 6	" 26	11 ..	14 1,040	24·71	2 1,436
Leaming	100·0	7 8	7 8	" 14	12 1,080	14 745	81·26	2 578
Leaming	100·0	7 0	7 3	" 21	15 360	13 1,573	27·93	4 478
*Burr Leaming	100·0	7 0	7 3	Oct. 2	14 1,260	16 340	19·53	2 1,713
*Stowells E'Green	91·1	5 3	5 7	" 2	8 60	10 900	19·82	1 1,181
*Minnesota 13	100·0	6 0	6 2	Sept. 21	10 20	12 860	22·85	2 573
*King Philip	95·5	6 3	6 1	" 17	10 1,780	13 70	24·22	2 1,273
North Dakota	100·0	5 6	5 9	" 17	11 660	12 345	22·85	2 1,176
White Cap Yellow Dent	100·0	6 3	6 4	" 14	11 880	12 345	26·85	3 142
Northern Prolific	100·0	6 0	.....	" 21	7 1,400	.....	24·80	1 1,819
Bailey	88·2	6 8	.....	" 12	10 1,780	.....	24·80	2 1,401
Argentine	100·0	6 6	.....	Oct. 9	13 620	.....	21·87	2 1,821

*Average columns are for two years only.

The varieties Twitchell, Early North Western Dent, Quebec 28, North Western Dent, and North Dakota bore their ears less than 24 inches from the ground, and considerable damage was done to the cob by game birds.

SUNFLOWERS—VARIETY TEST

Ten varieties and strains of sunflowers were sown on May 12. The same method of planting was followed as with the corn.

SUNFLOWER—VARIETY TEST

Variety	Per-centage stand	Height 1925	Height Average for 3 years	Date cut	Yield per acre 1925	Yield per acre Average for 2 years	Percentage dry matter 1925	Yield per acre dry matter 1925
		ft. ins.	ft. ins.		tons lb.	tons lb.		tons lb.
*Mammoth Russian	100·0	5 9	6 10	Aug. 31	20 1,580	23 1,352	19·43	4 78
Mammoth Russian	88·2	4 9	5 3	Sept. 14	11 1,600	15 140	16·11	2 1,720
Russian Giant	88·2	6 9	7 6	" 1	17 980	26 580	19·63	3 866
*Ottawa 76	82·9	3 9	4 11	Aug. 17	12 200	12 1,669	18·36	2 441
Mixed	88·2	4 9	5 1	" 14	10 1,560	15 250	18·55	1 1,997
Black	100·0	3 9	4 6	" 14	12 860	15 1,400	17·48	2 345
Manteca	100·0	4 6	4 9	Sept. 1	14 50	15 954	19·14	2 1,368
*Mixed Mennonite	88·2	3 3	3 4	Aug. 11	6 100	10 460	15·82	1 955
Manchurian	82·9	4 4	4 9	" 17	11 220	14 1,370	16·70	1 1,709
*Manchurian	100·0	4 6	4 11	" 24	11 880	12 272	19·04	2 197

*Average columns are for three years.

Much damage was done to the young sunflower plants by game birds eating the cotyledons upon their first appearance above ground, thus making it necessary to re-seed many of the plots. The late-maturing varieties of sunflowers are the better adapted for planting with corn. Those ripening early become too dry and woody by the time the corn is ready to cut for the silo.

GRASSES AND CLOVER—VARIETY TEST

Four strains of timothy and three of orchard grass were sown in duplicate plots on May 6, 1924. Owing to the excessive drought the young plants were completely destroyed soon after germination.

Seven varieties of alfalfa, thirteen strains of red clover and five of white Dutch clover suffered a like fate from the same cause.

CRIMSON CLOVER

Three strains of crimson clover *Trifolium incarnatum* were sown in duplicate plots on January 18, 1924. Two of the strains were received from Europe and one was obtained from a local seedsman. The seed purchased locally did not germinate.

CRIMSON CLOVER—VARIETY TEST

Source	Date of bloom	Date cut	Height when cut	Yield per acre green	Percentage dry matter	Yield per acre dry matter
			ins.	ton lb.		lb.
Padova	May 10	May 16	16	3 ..	17·77	1,064
Sicily	May 10	May 16	18	4 400	17·58	1,544
Commercial			..	.. ..		

ALFALFA—BROADCAST VS. ROWS FOR HAY PRODUCTION

The row-system permits of cultivation and is a success. The broadcasting system has some advantages in that it holds the weeds in check, and the crop is easier to mow and rake.

ALFALFA CULTIVATED VS. BROADCAST

System	Yield per acre green				Yield per acre hay			
	1925		Average 2 years		1925		Average 2 years	
	Tons	lb.	Tons	lb.	Tons	lb.	Tons	lb.
Cultivated	15	300	13	635	4	1,750	4	740
Broadcast	17	470	12	855	4	1,960	4	438

The first cutting was made on May 26. The broadcast-area yielding no less than eleven tons seven hundred and ten pounds of green forage per acre.

MANGELS—BREEDING OF PURE STRAINS

The seed of mangels and other field roots, as offered commercially, varies much. The object of this experiment was to develop superior varieties of desirable types. For this purpose three varieties were grown, Sutton's Special Yellow Globe, Sutton's Devon Yellow Globe, and Sutton's Golden Globe. The seed from ideal roots selected in the fall of 1923 was sown alongside of imported seed of the same strain and in every case gave much better returns in both germination and yield.

BREEDING OF PURE MANGEL STRAINS

Variety	Suttons Special Yellow Globe		Suttons Devon Yellow Globe		Suttons Golden Globe	
Source of seed	Commercial	From selected roots	Commercial	From selected roots	Commercial	From selected roots
% stand	84·8	93·6	83·5	94·9	79·9	93·6
Yield per acre	tons lb. 15 1,660	tons lb. 16 1,660	tons lb. 19 940	tons lb. 20 480	tons lb. 16 1,000	tons lb. 16 1,880
Average weight of roots	lb. 2·1	lb. 2·0	lb. 2·6	lb. 2·4	lb. 2·3	lb. 2·0

That the roots from selected seed were a little smaller than those from the commercial is largely due to the fact that there were more plants per given area, due to better germination. This also accounts for the larger yield obtained from the roots grown from the selected seed. These roots were also of a better type and more even in size than those from the commercial seed.

EXPERIMENTS WITH FERTILIZERS

FERTILIZERS FOR THE POTATO CROP—PROJECT C. 50

This project was undertaken in the spring of 1923 to determine the influence of nitrogen, phosphoric acid and potash on crop-growth with especial reference to potatoes. This work also provided for a comparison of nitrate of soda and sulphate of ammonia as sources of nitrogen. All plots were in duplicate. Fertilizers were applied on May 23 at the time of planting. The following table gives the rates of application and yields obtained.

FERTILIZER EXPERIMENT—POTATOES

Plot	Sulphate of ammonia	Nitrate of soda	Superphosphate	Muriate of potash	Barnyard manure	Yield per plot, $\frac{1}{10}$ acre	
	lb. per acre	lb. per acre	lb. per acre	lb. per acre	tons per acre	lb.	oz.
1A		200	400	150		489	8
1B		300	400	150		474	8
2A		150	400	150		440	8
2B	225		400	150		532	8
3	75	100	400	150		506	..
4		100	200	75		431	..
5		200	400			494	..
6		200		150		433	..
7			400	150		569	..
8					10	420	..
9		200	400	150	10	537	..
10		100	200	75	10	429	..
Check	(Average of six plots)					452	..

In trying to harmonize yield with fertilizer, a word of explanation might be in order. The season from the time of applying the fertilizer was very dry. Only two or three showers fell during the latter part of May and June. July was rainless, and August nearly so. Under these conditions it may be assumed that the fertilizer was unable to make itself felt to any great extent. These plots as laid out in 1925 are being continued through 1926 with the crop that naturally follows in the rotation of that area. Possibly in this succeeding crop more difference in yield may be noted due to the residual effect of the fertilizer.

CHART OF PLOTS, 1925—EXPERIMENT WITH POTATOES

Yields of plots given in pounds. Plots $\frac{1}{10}$ of an acre.

Check No. 6 354 lb.	4 336 lb.	1A 423 lb.	1B 422 lb.	10 400 lb.
3 483 lb.	5 436 lb.	2A 401 lb.	Check No. 5 404 lb.	9 512 lb.
Check No. 4 529 lb.	6 878 lb.	3 529 lb.	2B 593 lb.	8 388 lb.
2B 472 lb.	7 436 lb.	4 526 lb.	Check No. 3 453 lb.	10 458 lb.
Check No. 2 470 lb.	2A 480 lb.	5 552 lb.	7 702 lb.	9 562 lb.
1A 556 lb.	1B 427 lb.	5 488 lb.	Check No. 1 500 lb.	8 452 lb.

FERTILIZER EXPERIMENT. DIFFERENT DATES OF APPLICATION—PROJECT C. 110

It is a common practice to apply fertilizer at or near the time of planting potatoes or other crops. To determine the most suitable time of applying fertilizers, the following system of plots was used.

Plot 1. Mixed fertilizer applied one month before seeding April 23.
Plot 2. Mixed fertilizer applied two weeks before seeding May 9.
Plot 3. Mixed fertilizer applied at time of seeding, May 23.

The following table gives results obtained in 1925 from 117′ of row.

FERTILIZER EXPERIMENT—DATES OF APPLICATION—1925

Plot	Date fert. applied	Length of time before planting	Marketable per plot		Unmarketable		Total yield per plot	
			lb.	oz.	lb.	oz.	lb.	oz.
No. 1	April 23	4 weeks	29	0	10	0	39	..
No. 2	May 9	2 weeks	38	8	13	8	52	..
No. 3	May 23		30	8	10	8	41	..

This project was begun in 1924 but owing to the drought causing partial crop failure no striking results were obtained in that year. The data obtained in 1925 show that the largest yield was obtained from the plot which received the dressing of fertilizer two weeks before planting. However before a definite conclusion can be arrived at with respect to the most suitable date of application of the fertilizer for the potato crop, further data are necessary, and the experiment is being continued.

SUGAR BEET INVESTIGATION

To determine the suitability of the district for sugar beet production, several varieties of beets were planted in 1925. The yield per acre was below the average but the quality both as to sugar content and purity was excellent.

SUGAR BEETS—VARIETY TEST

Variety	Weight root		Sugar in juice	Coefficient of purity	Yield per acre	
	lb.	oz.	%	%	tons	lb.
Kitchener	1	3	18·91	83·58	6	760
Schreiber & Sons	1	9	19·29	86·58	9	40
Vilmorins Imp	1	4	18·27	86·00	4	1,460
Dieppe	1	2	19·25	86·42	7	960
Horning	2	1	18·15	86·64	10	680
Dr Burgmann	1	5	19·05	88·41	6	760
Henning & Harving	1	3	18·28	88·49	6	980
Chatham	1	4	18·72	88·92	6	760

The high percentage of sugar in juice is well above the average for the Station. This is due presumably to the dry autumn weather conditions, favourable to the proper ripening of the beet. The coefficient of purity is high throughout the series, a favourable feature from the standpoint of the sugar manufacturer.

SULPHUR AS A FERTILIZER

The results obtained from experiments already conducted by different investigators would indicate that sulphur has some value as a fertilizer for

certain crops, especially the legumes on some soils. To obtain data on this point sulphur was applied to plots of alfalfa one-thirtieth of an acre in extent at rates of 100 and 300 pounds per acre. The yields for 1925 and the average for two years are given below.

SULPHUR EXPERIMENT—ALFALFA

Sulphur applied per acre	First cut May 26th.		Second cut		Total yield per acre		Average yield° per acre 2 years	
	tons	lb.	tons	lb.	tons	lb.	tons	lb.
300 lb	2	1,580	1	340	3	1,920	3	1,510
100 lb	2	1,790	1	1,030	4	820	4	422½
Check (none)	3	540	1	1,420	4	1,960	4	617½

During 1925 the check-plot yielded 1,140 pounds of hay per acre more than the plot to which 100 pounds of sulphur has been applied, and in no case did the plot that had received a dressing of 300 pounds of sulphur per acre yield as much as either of the other two. The results show that sulphur has not increased the yield of alfalfa and that larger amounts than 100 pounds of sulphur per acre retard rather than encourage its growth.

GYPSUM EXPERIMENT

The objects of this experiment were, first to determine the value of gypsum as a fertilizer, second to ascertain if it may be profitably used as a substitute for lime in the production of farm crops. The plots were one square rod each in size, replicated four times, and the crop, field peas, sown March 28, 1925.

Plot	Carbonate of Lime 700 pounds per acre				Gypsum 1,100 pounds per acre				Sulphur 200 pounds per acre				Carbonate of Lime 700 pounds and Sulphur 200 pounds				Check				Shell 700 pounds per acre			
	Peas		Straw		Peas		Straw		Peas		Straw		Peas		Straw		Peas		Straw		Peas		Straw	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
1	17	10	19	5	15	8	16	8	14	4	27	3	12	14	11	14	15	12	28	4	23	8	25	13
2	20	0	27	11	17	14	22	5	18	10	23	4	21	10	26	4	24	24	17	3	23	9	27	8
3	17	11	22	2	18	12	25	3	20	8	22	0	19	3	21	13	26	15	31	1	15	9	22	0
4	16	14	20	0	17	4	15	13	22	4	24	13	16	11	20	14	15	8	22	12	10	6	14	1
Total	72	3	89	12	69	6	69	13	75	10	97	4	70	6	80	13	83	1	99	14	73	0	89	6

Average yield per acre from four plots:—

		Peas		Straw	
Check	55	bush.	22 lb.	1 ton	1,995 lb.
Sulphur	50	"	25 "	1 "	1,890 "
Shell	48	"	40 "	1 "	1,575 "
Carbonate of lime	48	"	7 "	1 "	1,590 "
Carbonate of lime and sulphur	46	"	55 "	1 "	1,232 "
Gypsum	46	"	15 "	1 "	792 "

The lime and sulphur were applied to their respective plots in the same proportion as they are found in gypsum. Gypsum contains approximately 18 per cent sulphur and 34 per cent calcium oxide (quick lime) in the form of sulphate of lime ($CaSO_4 \cdot 2H_2O$). Therefore 1,100 pounds of gypsum would supply the equivalent of about 200 pounds of sulphur and 350 pounds of lime (calcium oxide) or 700 pounds of agricultural lime. Finely ground clam-shell from the canning factory was applied at the same rate as agricultural lime, it having been found on analysis to contain 94 per cent calcium carbonate.

It will be noticed that the check-plots gave a higher yield than those to which the chemicals had been applied, owing no doubt to the dry season and lack of soil-moisture. During the ensuing year the plots will be sown to oats, and a careful record kept of the growth and yields. It is expected that the crop the year following the application of the chemicals will be productive of better results, owing to the effect of the action of winter rains on the lime and gypsum, etc.

BOTANY

Many plant diseases common to the potato throughout Canada are practically unknown on Vancouver Island. Mosaic is, however, at its worst. The certified-seed growers are doing much to produce good seed, and to build up the industry, but the process of deterioration is rapid unless the work of selection is constant. During the spring of 1924 two lots of seed potatoes were obtained from Prince Edward Island, perhaps as nearly disease-free as any in Canada. These potatoes were of two varieties, Green Mountain and Irish Cobbler. They were planted at the Station and carefully scored for disease. Field inspection revealed Irish Cobbler as being free from disease, while Green Mountain contained one per cent mosaic, and a similar amount of wilt. The potatoes were dug in due time, graded for seed and stored in a root-house. In the spring of 1925 one set was cut from the tubers to the number of 200 Irish Cobbler and 208 of Green Mountain, and planted in prepared beds in the greenhouse. Each set was given a number, while the remaining part of the tuber was dipped in sulphur, wrapped in paper, given a corresponding number and held in storage for subsequent use. The surprising thing was the great number of tubers found affected by mosaic. They were scored carefully by three pathologists separately and classified as (*a*) being free from disease, (*b*) attacked by mosaic, or (*c*) doubtful. From this score it was easy to pick out a large number pronounced free from disease by all, and a similar lot of mosaic plants. A series of five cages were arranged and plants transferred to them as follows:

1. One healthy plant and one mosaic. Leaves of healthy plant tied to one diseased.
2. One healthy plant and one mosaic. Leaves of healthy plant tied to one diseased. Both punctured.
3. As in (2). Aphis introduced inside cage. Leaves not tied together.
4. Check.

In no place could it be seen that mosaic had invaded the tissue of the healthy plant. Probably another year the plants arising from the tubers grown in the cages will show more or less mosaic. Several healthy hills of each variety were also grown to maturity in the control cages. Isolated plots of disease-free plants of the two varieties were also grown in the field. This was made possible by going back to the original tubers kept in storage, from which the greenhouse sets were cut. From the beginning made in 1925 the work will be carried on in 1926.

We wish to call attention to the fact that in this method we have a plan of detecting the percentage of mosaic in seed potatoes long before planting time. This work would be undertaken by the Experimental Station for any person interested.

POULTRY

The White Wyandotte is the only breed of poultry kept at the Sidney Station. Considering the whole of Vancouver Island, the White Leghorn is the most popular breed, with the White Wyandotte standing second in order.

The stock on hand at the beginning of the year consisted of 200 pullets, 200 yearling birds and 60 old birds. The average production per bird for the past seven years is 189.19 eggs. In order to permit the poultry plant to be moved to a new location the stock has been greatly reduced during the past three months. All birds are trap-nested and pedigreed.

VANCOUVER ISLAND EGG-LAYING CONTEST

During the year the second egg-laying contest was conducted, accommodation being given to thirty-four pens of ten birds each. This second contest surpassed the first in almost every particular. The production was only exceeded by one contest in the whole of Canada. The following table gives the production results and feed costs per pen for 52 weeks beginning November 1st, 1924.

VANCOUVER ISLAND EGG-LAYING CONTEST—1924-25

Breed	No. of Pens	No. eggs per pen	Revenue from eggs	Cost of feed	No. of birds registered
			$	$	
White Leghorns	23	2,133·8	64 95	30 51	102
White Wyandottes	6	1,991·0	61 54	30 87	14
Barred Plymouth Rocks	4	2,090·7	65 68	33 93	12
Rhode Island Reds	1	2,172·0	66 85	32 05	4
All breeds	34	2,104·7	64 25	31 02	132
Light breeds	23	2,133·8	.....	.....	.....
Heavy breeds	11	2,044·0	.....	.....	.....

LEADING BIRDS

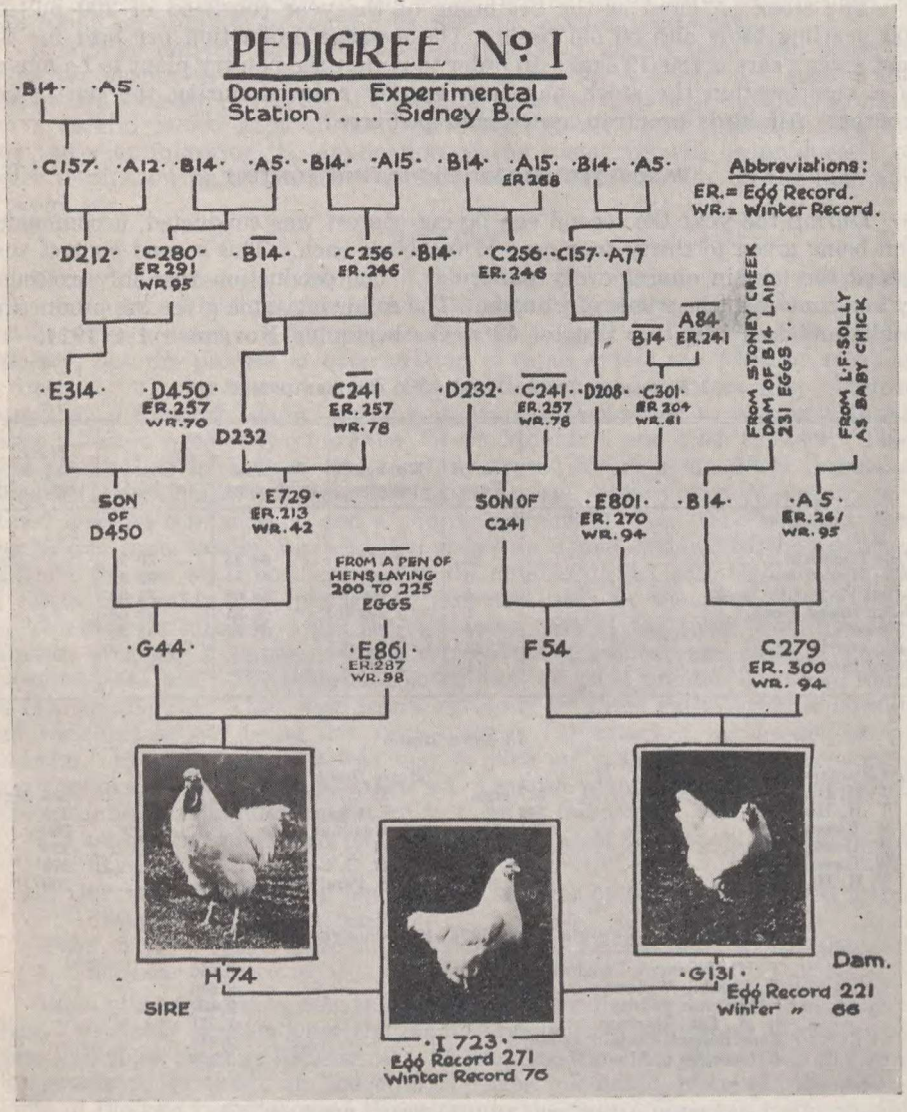
Light Breeds—		*Heavy Breeds*	
T. H. Hayward	327 eggs	H. C. Cooke	286 eggs
T. H. Hayward	303 "	L. Chaplin	284 "
W. Russell	301 "	Reade & King	280 "
W. Russell	300 "	H. C. Cooke	279 "
W. Russell	291 "	H. C. Cooke	279 "
T. H. Hayward	289 "	S. Percival	269 "

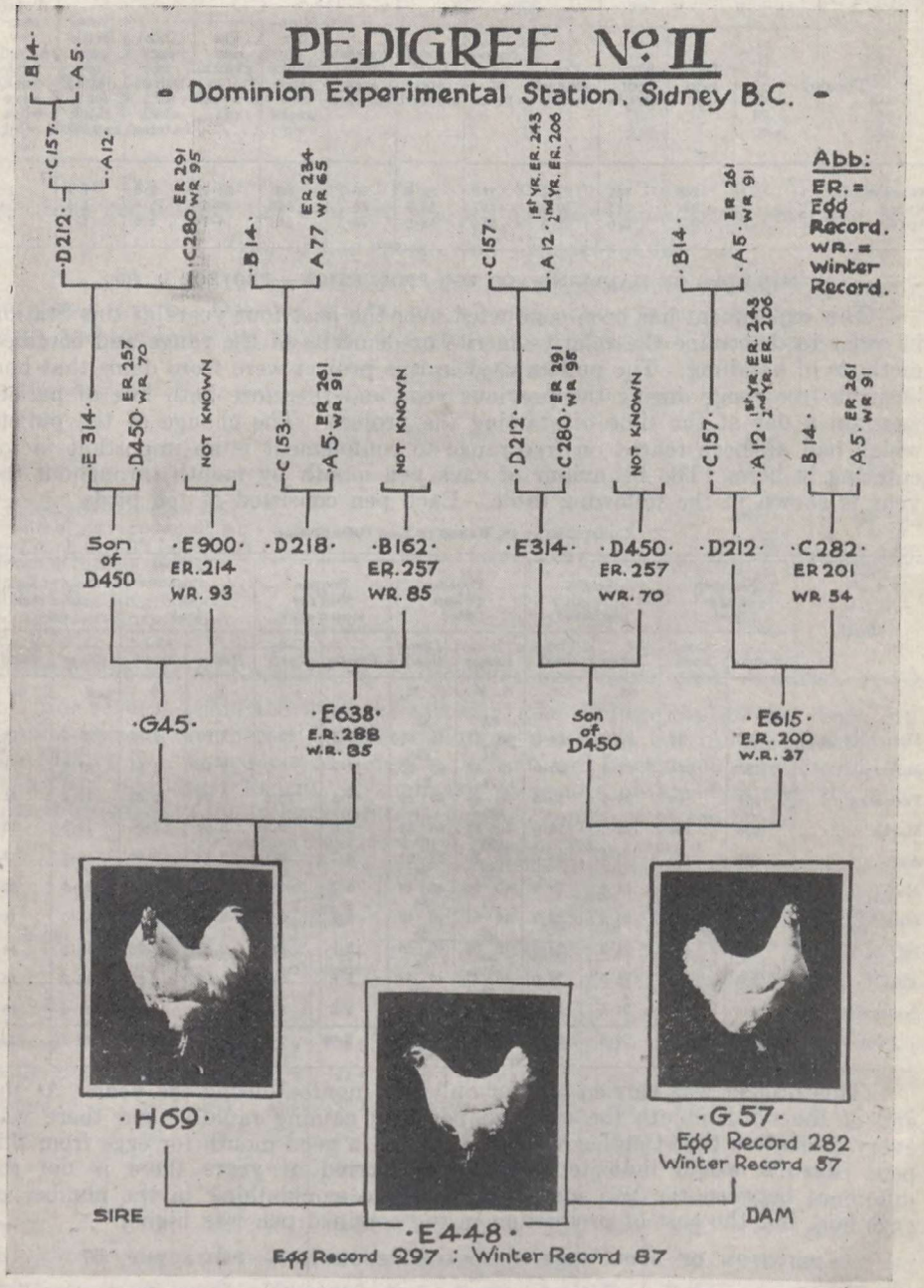
LEADING PENS—1924—1925—CONTEST

T. H. Hayward, Langford	2,650 eggs
W. Russell, Victoria	2,640 "
E. Gwynne, Sidney	2,409 "
R. W. Tull, Duncan	2,371 "
Experimental Station, Sidney	2,348 "
A. Georgeson, Albert Head	2,304 "

BEST DATES FOR INCUBATION—PROJECT P.S.

The hatching season is earlier on Vancouver Island than in any other part of Canada. This project, begun in the spring of 1922 was intended to determine the best date of incubation to secure maximum hatchability and livability.


PEDIGREE Nº I
Dominion Experimental Station . . . . Sidney B.C.
·B14· ·A5·
·C157· ·A12· ·B14· ·A5· ·B14· ·A15· ·B14· ·A15· ER 268 ·B14· ·A5·
Abbreviations:
ER. = Egg Record.
WR. = Winter Record.
·D212· ·C280· ER 291 WR 95 ·B14· ·C256· ER. 246 ·B14· ·C256· ER. 246 ·C157· ·A77
A84 ER. 241
B14
FROM STONEY CREEK DAM OF B14 LAID 231 EGGS . . .
FROM L.F. SOLLY AS BABY CHICK
·E314· ·D450· ER. 257 WR. 70 D232 C241 ER. 257 WR. 78 ·D232· ·C241· ER. 257 WR. 78 ·D208· ·C301· ER 204 WR. 81
SON OF D450
·E729· ER. 213 WR. 42
SON OF C241
·E801· ER. 270 WR. 94
·B14·
·A5· ER. 261 WR. 95
FROM A PEN OF HENS LAYING 200 TO 225 EGGS
·G44·
·E861· ER. 287 WR. 98
F54
C279 ER. 300 WR. 94
H74
SIRE
·I 723·
Egg Record 271
Winter Record 76
·G131·
Egg Record 221
Winter " 66
Dam.


PEDIGREE No II
Dominion Experimental Station. Sidney B.C.
Abb:
ER. = Egg Record.
WR. = Winter Record.
B14 A5
C157 A12
D212 C280 ER 291 WR 95
B14 A77 ER 234 WR 65
C157 A12 1st YR. ER. 243 2nd YR. ER. 206
B14 A5 ER 261 WR 91
E314 D450 ER 257 WR 70
NOT KNOWN
C153 A5 ER 261 WR 91
NOT KNOWN
D212 C280 ER 291 WR 95
NOT KNOWN
C157 A12 1st YR. ER. 243 2nd YR. ER. 206
B14 A5 ER 261 WR 91
Son of D450
E900 ER. 214 WR. 93
D218
B162 ER. 257 WR. 85
E314
D450 ER. 257 WR. 70
D212
C282 ER 201 WR 54
G45
E638 E.R. 288 W.R. 85
Son of D450
E615 E.R. 200 W.R. 37
H69
G57
Egg Record 282
Winter Record 57
SIRE
DAM
E448
Egg Record 297 : Winter Record 87

The following table sets forth results obtained during the 1925 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 old	Per cent chicks alive 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
February	268	195	72·7	168	62·6	86·1	139	82·7	1·6	1·1	1·9
March	921	745	80·8	497	53·9	66·7	440	88·5	1·8	1·5	2·0
April	377	276	73·2	234	62·0	73·2	183	78·1	1·6	1·1	2·0

METHODS OF HANDLING FOR EGG PRODUCTION—PROJECT P. 55

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 in here. The behaviour of each pen month by month throughout the year is shown in the following table. Each pen consisted of ten birds.

CONFINEMENT VS. RANGE IN EGG PRODUCTION

Month	Number of eggs laid		Weight of eggs per dozen		Pounds of feed used		Pounds feed per dozen eggs		Cost of feed		Cost of feed per dozen eggs	
	Range	Confined	Range	Confined	Range	Confined	Range	Confined	Range	Confined	Range	Confined
			oz.	oz.	S. M.	S. M.			$	$	c.	c.
December	122	67	22·0	22·5	85 48 37	88 48 40	8·3	15·6	2 39	2 34	23·5	41·9
January	135	124	23·0	23·0	87 40 47	90 40 50	7·7	8·7	2 46	2 54	21·8	24·5
February	137	90	24·0	23·5	78 30 48	79 30 49	6·8	10·5	2·20	2 23	19·2	31·0
March	233	164	25·0	24·0	109 40 69	73 40 33	5·6	5·3	3 09	2 06	15·9	15·0
April	225	194	24·2	24·6	108 38 70	99 38 61	5·7	6·1	3 13	2 86	16·6	17·1
May	208	190	24·5	23·8	90 40 50	86 40 46	5·2	4·8	2 52	2 40	14·5	15·1
June	204	203	25·5	24·3	91 40 51	88 40 48	5·3	5·2	2 55	2 46	15·0	14·5
July	195	190	24·8	24·5	96 40 56	86 40 46	5·9	5·4	2 47	2 28	13·5	14·4
August	184	161	25·5	24·0	77 40 37	84 40 44	5·0	6·2	1 96	2 23	12·7	16·6
September	146	164	24·5	24·3	54 40 14	83 40 43	4·4	5·0	1 34	2 20	11·0	16·1
Totals	1,789	1,547	24·3	23·8	875	856	5·99	7·28	24 11	23 60	16·3	20·6

This project was carried out for only ten months during the year. At the end of the tenth month the confined pen was gaining rapidly, and there was every indication that October would have been a good month for eggs from this pen. Results would indicate that over a period of years there is not the difference between the two methods that some would think in the number of eggs laid, but the cost of production in the confined pen was higher.

RELATION OF BODY WEIGHT TO EGG PRODUCTION—PROJECT P. 57

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 the results for 1925, and also the average results for five years.

RELATION OF BODY WEIGHT TO EGG PRODUCTION

Weight of Birds	No. of birds 1925	Av. production 1925	Av. No. of birds 5 yrs	Av. production 5 yrs
Under 4·5 lb.	4	103	9·5	171·4
From 4·5 to 5 lb.	12	202·2	22·2	201·3
" 5·0 " 5½ "	13	193·2	29·2	201·4
" 5·5 " 6 "	19	205	16·6	202·9
" 6·0 lb. up	12	216·1	9·6	208·5

From the results obtained over five years it is found that Wyandottes weighing six pounds and over are heavier producers than birds weighing less.

COST OF EGG PRODUCTION—PROJECT P. 62

The cost of producing one dozen eggs has been determined month by month for seven years. Detailed statements of costs have been published year by year, and the following table gives a summary of this work for seven years.

COST OF EGG PRODUCTION

	1925	Average for 7 years
Average production per bird	199·1	189·19
Pounds of grain and mash per 1 doz. eggs	5·16	5·89
Cost of all feed for 1 doz. eggs	18·8c.	18·8c.
Month of highest cost	Dec.	Dec.
Month of lowest cost	April	June
Month of highest production	April	March
Month of lowest production	Jan.	Nov.

HOME MIXED GRAIN AND MASH VS. COMMERCIAL GRAIN AND MASH—PROJECT P. 79

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

HOME MIXED GRAIN AND MASH VS. COMMERCIAL GRAIN AND MASH

Month	Number of eggs laid		Weight of eggs per dozen		Pounds of feed used		Pounds feed per dozen eggs		Cost of feed		Cost of feed per dozen eggs	
	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial	Home mixed	Commercial
			oz.	oz.	S. M.	S. M.			$	$	c.	c.
December	122	43	22·0	22·5	48 85 37	48 78 30	8·3	21·7	2 34	1 85	23·5	51·6
January	135	100	23·0	23·0	40 87 47	40 88 48	7·7	10·4	2 54	2 00	21·8	24·0
February	137	163	24·0	23·4	30 78 48	40 84 44	6·8	6·2	2 23	2 20	19·2	16·2
March	233	226	25·0	24·5	40 109 69	40 88 48	5·6	4·6	2·06	2 28	15·9	12·1
April	225	196	24·2	24·8	38 108 70	35 73 38	5·7	4·4	2 86	1 90	16·6	11·6
May	208	197	24·5	24·6	40 90 50	40 72 32	5·2	4·4	2 40	1 92	14·5	11·7
June	204	144	25·5	24·5	40 91 51	40 72 32	5·3	6·0	2 46	1 92	15·0	16·0
July	195	164	24·8	24·1	40 96 56	40 85 45	5·9	6·2	2 28	2 21	13·5	16·2
August	184	137	25·5	25·0	40 77 37	40 62 22	5·0	5·4	2 23	1 70	12·7	14·8
September	146	162	24·5	24·2	40 54 14	40 66 26	4·4	4·8	2 20	1 78	11·0	13·1
Totals	1,789	1,532	24·3	24·0	875	763	5·99	7·4	24 11	19 76	16·3	18·7

As will be noted this project was carried on for ten months only. In fairness to the commercial feed it should be noted that at the beginning of the project when the birds were put on commercial feed there was a falling off in egg production due apparently to the change in feed and thus the cost of commercial feed for December was unduly high.

As has been the case in pervious years, the pen fed on the Station home-mixed feeds gave somewhat better results in both egg production and lower cost per dozen eggs.

BEEF SCRAP VS. FISH MEAL—PROJECT P. 87

This experiment begun in 1922, has for its object the determination of the relative value of beef scrap and fish meal. 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.

BEEF SCRAP VS FISH MEAL

Month	Number of eggs laid		Weight of eggs per dozen		Pounds of feed used		Pounds feed per dozen eggs		Cost of feed		Cost of feed per 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
			oz.	oz.	S. M.	S. M.			$	$	c.	c.
December	122	56	22·0	21·0	48 85/87	47 71/70	8·3	15·2	2 39	1 92	23·5	41·1
January	135	96	23·0	21·8	40 47/78	40 30/92	7·7	8·7	2 46	1 87	21·8	23·3
February	137	184	24·0	22·0	30 48/109	40 52/87	6·8	6·0	2 20	2 43	19·2	15·8
March	233	233	25·0	23·2	40 69/103	40 47/79	5·6	4·5	3 09	2 30	15·9	11·8
April	225	185	24·2	23·4	38 70/90	38 41/64	5·7	5·1	3 13	2 08	16·6	13·4
May	208	150	24·5	24·2	40 50/91	40 24/64	5·2	5·1	2 52	1 72	14·5	13·7
June	204	152	25·5	24·1	40 51/96	40 24/92	5·3	5·0	2 55	1 72	15·0	13·6
July	195	143	24·8	24·6	40 56/77	40 52/63	5·9	7·7	2 47	2 30	13·5	19·3
August	184	128	25·5	23·8	40 37/54	40 23/77	5·0	5·9	1 96	1 60	12·7	15·0
September	146	105	24·5	23·7	40 14	40 37	4·4	8·8	1 34	1 94	11·0	22·1
Totals	1,789	1,432	24·3	23·1	875	759	5·99	7·2	24 11	19 88	16·3	19·9

The pen receiving beef scrap gave best results both from the standpoint of production and cost per dozen. The best grades of beef scrap and fish meal were used. Over a number of years the beef scrap has given better results.

EFFECT OF GREEN FEED ON WATERY EGGS—PROJECT P. 96

This project was begun in December 1924 to obtain information regarding the effect of green feeds on producing dark yolks or watery eggs. Four pens were used, one of which received yeast, one green food in the form of kale, mangels or alfalfa, one received both yeast and green feed, and one was used as a check receiving neither yeast nor green feed. The following table gives the data obtained during the course of the year.

EFFECT OF GREEN FEED ON WATERY EGGS

Feed Used	No. eggs candled	No. watery eggs
Yeast	2,763	1
Green food	2,880	.....
Yeast and green food	2,780	.....
Check	2,080	3

Results obtained over one year would indicate that green feed causes large percentages of heavy yolks, and that it reduces the number of watery eggs to a minimum.

EFFECT OF GREEN FEED ON EGG-SIZE—PROJECT P. 97

Owing to the ever increasing number of enquiries among poultry raisers concerning the effect of green feed upon egg production, this project was started at the beginning of the year to ascertain the influence of green feed upon egg-size. Full sisters from each mating were used, one being placed in each of the four pens. Kale was used as green feed and each egg weighed throughout the year with the results as set forth in the following table.

EFFECT OF GREEN FEED ON EGG-SIZE

Sire	Dam	Check	Green feed	Green feed and yeast	Yeast
		oz. per dox.	oz. per doz.	oz. per doz.	oz. per doz.
G. 18	F. 161	22½	24½	25	24
H. 68	G. 6	23	24	24½	23
H. 69	G. 57	22½	26	25½	25
H. 69	G. 138	22½	25	24½	24
H. 72	G. 205	23	25	25	24

From one year's work it will be noticed that green feed and green feed and yeast gave best results. It would seem too, that while yeast gives some improvement in egg-size, it does not take the place of green feed. This work is being continued.

BREEDING FOR FERTILITY, HATCHABILITY AND LIVABILTY—PROJECT P. 111

At the Station pullets are not used in the breeding pens. Only birds that have passed through the laying-houses one year, and trap-nested, are mated. However in order to secure data on the relative merits of pullets versus hens for breeding stock, this project was undertaken. The following table records the results obtained during the past year.

HENS AND PULLETS FOR BREEDING

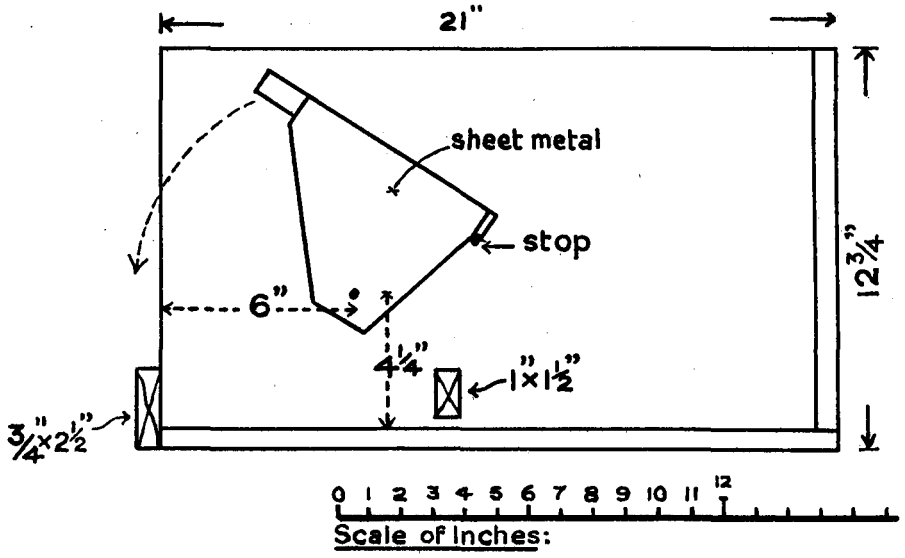
—	Total eggs set	Number fertile	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched	Number chicks alive when wing-banded	Per cent chicks alive when wing-banded	Total eggs required for 1 chick hatched	Total fertile eggs required for 1 chick hatched	Total eggs required for 1 chick when wing-banded
Hens	1,766	1,362	77·0	984	53·1	69·6	778	82·0	1·8	1·4	2·0
Pullets	300	163	54·3	84	28·0	51·5	60	71·4	3·5	1·9	5·0

In 1925 it took 2½ times as many pullet eggs as those from hens to produce one live chick at the end of three weeks, and the chicks from pullet eggs could be picked out in the brooder at any time. They were smaller and lacked vitality. Four years' results indicate that hens have more value as breeders than pullets.

BREEDING FOR EGG-SIZE

The procedure in this work has been to mate males, from dams with large-size eggs, with hens laying normal-size eggs, the object being to determine whether the unit character of egg-size is transmitted through the male or

female. Last year this project gave very marked indications that egg-size was transmitted largely through the male. This past year's work would show that the trap-nest is the safest way to prove the breeding stock.



The sire used was from a dam laying 190 eggs averaging 27 ounces. He was mated to birds with varying egg-size and production. Unfortunately no pullets resulted from some of the birds he was mated with that laid 22 ounce eggs. The result of the matings is given below.

BREEDING FOR EGG-SIZE

Sire	Dam			Daughters		
	No.	Egg-Record	Egg-Weight	No.	Egg-Record	Egg-Weight
			oz.			oz.
H. 73	D. 450	257	25	I. 619	145	24
H. 73	D. 450	257	25	I. 735	155	26
H. 73	D. 450	257	25	I. 760	161	24
H. 73	D. 450	257	25	I. 775	147	26
H. 73	F. 109	246	24	I. 731	133	24
H. 73	G. 37	193	27	I. 627	190	24
H. 73	G. 37	193	27	I. 713	128	28
H. 73	G. 60	226	24	I. 648	152	26
H. 73	G. 60	226	24	I. 666	162	24
H. 73	G. 60	226	24	I. 701	122	26
H. 73	G. 60	226	24	I. 774	222	24

While there has been a considerable falling off in number of eggs, the size of eggs remains about the same with usual variations. This work is being continued.

CONFINEMENT VS. RANGE IN BREEDING—PROJECT P. 120

This project has for its purpose the determining of what effect confinement has on breeding stock, as indicated in hatching and rearing results. Six birds were used in each the confinement and range pens. Two males were used in the mating, these being exchanged every morning. The male in the confined pen being transferred to the range pen, and vice versa. The results obtained during the 1925 hatching season are tabulated.

CONFINEMENT VERSUS RANGE IN BREEDING

Pen	Number of eggs set	Per-centage fertile	Number of chicks hatched	% total eggs hatched	Number of chicks alive in 3 weeks	% chicks alive in three weeks	Chicks alive July 1	Eggs required for 1 chick July 1
Range	50	64%	30	60%	28	56%	24	2·08
Confined	50	80%	19	38%	18	36%	9	5·55

Results obtained over a period of three years show that range is necessary to the breeding-pen for best results. In hatchability and livability of chicks the range pen was outstandingly good.

EFFECT OF VARIOUS GREEN FEEDS ON FERTILITY—PROJECT P. 159

In planning this project four pens were set aside consisting of six birds each. Pen 1 received one-half pound of Fleischmann's yeast in every 100 pounds of dry mash. Pen 2 received yeast in mash and green food. Pen 3 received green food alone, and Pen 4 received no yeast or green food. The following table gives hatching results obtained.

EFFECT OF VARIOUS GREEN FEEDS ON FERTILITY

Pen	Number of eggs set	Number fertile	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent fertile eggs hatched
Yeast	50	30	60%	17	34%	56·6%
Yeast and green feed	50	33	66%	32	54%	96·9%
Green feed	50	35	70%	31	62%	88·5%
No yeast or green feed	50	23	46%	.....	.....	.....

From the table it will be seen that vitamines are necessary to obtain fertility and hatchability. The pen receiving no yeast or green feed, out of a 46 per cent fertility, gave no living chicks.

VITAMINE FEEDS FOR CHICKS—PROJECT P. 160

This project has for its object the determination of the effects on chicks of various feeds considered high in vitamines. Six birds were mated from each of the following pens.

Pen No. 1. Received yeast.
Pen No. 2. Received yeast and green feed.
Pen No. 3. Received green feed.
Pen No. 4. Received neither yeast nor green feed.

Eggs from each of the four pens were incubated, and results obtained are recorded in the following table.

VITAMINE FEEDS FOR CHICKS

Pen	Num-ber of chicks	Alive in 3 weeks	Per cent alive in 3 weeks	Con-dition	Alive in 6 weeks	Per cent alive in 6 weeks	Con-dition	Alive July 1	Per cent alive July 1	Con-dition	Eggs re-quired for 1 chick, July 1
Yeast	17	15	88·1	poor	9	52·9	poor	5	29·4	bad	10·0
Yeast and green feed	32	27	84·6	good	24	75·0	good	21	65·6	good	2·3
Green feed	31	23	74·2	good	25	80·6	good	13	41·9	fair	3·7

The chicks hatched were given to hens to brood and received the same vitamine feeds as the pen had received from which the eggs were taken for hatching. Chicks from No. 1 pen were brooded in a poultry-house until eight weeks old so that it would be impossible for them to receive any green feed but at the end of eight weeks it was quite apparent that yeast did not take the place of green food. The pen receiving both yeast and green food gave the best results. No live chicks were hatched from Pen No. 4, all dying in the shell.

GREEN FEED VS. NO GREEN FEED OR SUBSTITUTES—PROJECT P. 90

This project was undertaken with the view of not only gathering data on the value of green food for poultry but also for the purpose of obtaining information on the value of yeast as a poultry food. Four pens of birds were included in this work, being handled 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.

With the exception of the feeds mentioned, all pens were fed and handled in the same manner. Results obtained from December 1 to September 30 are set forth in the following table.

There were forty birds in each pen at the beginning of the experiment.

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.
1. Green feed	5	2 29	154·1	4 68	2 32
2. Yeast	10	2 39	142·9	4 31	1 99
3. Yeast and green feed	6	2 33	151·7	4 54	2 21
4. Check	17	2 07	137·8	4 24	2 17

It is interesting to note that in the foregoing table, based on one year's work, green food alone gave best results. In Pen No. 4, the mortality was very high, and of the 23 birds remaining at the close of the experiment only one was fit to use as a breeder.

APIARY

As the seasons come, each apparently drier than the last, one is forced to the conclusion that the southern end of Vancouver Island is not well suited to the production of honey. 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 pasture is increased. It is our intention to use the apiary at the Station for study, and to provide for increase with which to stock out-apiaries in more favourable locations.

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 conditions 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 beekeeper's 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 no doubt to some change in climatic conditions.

The dearth of honey-plants on the Saanich peninsula renders spring feeding imperative, until the maple trees come into blossom, 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 from maturing the syrup fed to them, and unmatured stores will result in mildewed combs and loss of bees from diarhœa during winter.

An out-apiary of considerable size is maintained at Courtenay. Bees at Courtenay when placed in the bush during the fire weed season, do very well, and the honey produced is remarkable for its clarity and mildness of flavour.

Another apiary of nine colonies was started at Union Bay, but owing to some temporary dearth of fire weed for the season, the yield was not great. These colonies will probably be added to the out-apiary at Courtenay during the coming season.

TOBACCO

GENERAL VARIETY TESTS—PROJECT T. 47

Some tobacco for home use is grown in a small way by a number of people on Vancouver Island. Frequently enquiries are made at this Station as well as to the Tobacco Division, Ottawa, as to varieties, cultural methods and possibilities of tobacco-growing on the island. In order to meet this need for definite information, work with several varieties was undertaken during the past year.

Seven varieties were seeded in flats in the greenhouse April 1, and transplanted to permanent location in field on May 22. Each plot was cultivated every week throughout the season. Height of plants was recorded every two weeks, measurement being made from the ground to the bud of the plant. The average length of the longest leaf on twenty-five plants, and green weight at time of harvest was also taken. Plants were hung on laths in the implement shed to dry, and then stripped and leaves weighed, packed and forwarded to the Tobacco Division, Central Experimental Farm, Ottawa, for the final tests to be made.

On set of plots was irrigated throughout the season, but in every other way treated the same as the non-irrigated plots. The behaviour of the seven varieties is shown in the following table.

TOBACCO—VARIETY TESTS

Variety	Average height irrigated	25 plants non-irrigated	Average irrigated	Length of leaf non-irrigated	Green weight 25 plants		Weight cured leaves		Yield cured leaves per acre	
					Irrigated	Non-irrigated	Irrigated	Non-irrigated	Irrigated	Non-irrigated
	inch	inch	inch	inch	lb.	lb.	lb.	lb.	lb.	lb.
Connecticut Havana	31·0	19·0	21·0	15·0	41	25·0	15·0	11·0	1,860·0	1,365·0
Standup Burley	19·0	14·0	23·0	19·0	45	23·0	13·75	9·5	1,705·0	1,179·0
Hickory Pryor	34·0	17·5	19·75	17·5	42	30·0	13·5	6·75	1,866·8	837·7
Warne	31·0	17·0	19·25	17·0	35	18·0	11·5	8·75	1,424·3	1,086·0
Greenwood	37·5	18·25	23·5	17·0	65	35·0	19·0	11·25	2,627·6	1,390·1
Cuban	16·25	12·0	10·5	9·25	9	6·0	4·75	6·5	656·8	806·6
Canelle	14·0	14·0	9·25	9	7	3·5	3·5	3·0	484·0	372·3

FIBRE PRODUCTION

The profitable production of hemp and flax for seed and fibre can hardly be hoped for on Vancouver Island. The dry summer season and cool nights are not conducive to best results. This, combined with the high price of land and labour, are the chief factors prohibiting the growing of these crops.

FLAX—VARIETY TEST—PROJECT NO. E. 3

The object of this experiment was to determine the best variety for fibre and seed. The seed was sown broadcast in duplicate plots 46 by 18½ feet. At harvest time one foot of the border was taken off in order to give field conditions, leaving a plot 1/60 of an acre. The crop was harvested by hand, pulled when the straw became a golden-yellow, tied in sheaves and air-dried in stooks. After drying, the sheaves were shipped to Ottawa for deseeding, retting and scutching.

FLAX—VARIETY TEST

Variety	Weight of air-dried straw per plot	Date sown	Date pulled
	tons lb.		
Pureline No. 5	2 155	April 17	Aug. 1
Longstem	2 350	" 17	" 7
Riga Blue	1 1,780	" 17	" 1

Longstem was a little later in maturing but yielded a heavier crop that the other varieties.

HEMP—TEST OF VARIETIES—PROJECT E. 4

The project was undertaken to determine the best variety of hemp for fibre. The procedure was the same as in project No. 3 except that the crop was cut instead of being pulled by hand. The seed was sown broadcast on April 17 at the rate of 44 pounds per acre, and covered by a light harrowing. As soon as the first pollen appeared, the crop was cut and stooked until dry, and then shipped to Ottawa.

HEMP—VARIETY TEST

Variety	Date of harvest	Yield per acre
		tons lb.
Chington	Sept. 19	1 805
Minnesota 8	" 19	1 610

Very little information can be gathered from this experiment, except that a heavy clay soil is unsuitable for growing hemp. The plants in the above lots only grew to a height of from two to three feet, while that grown on a sandy soil attained a much greater height.

FLAX—DATE OF SEEDING—PROJECT NO. E 7

The same method of procedure was followed as in Project E. 3. The first series of plots were sown as soon as the land was fit. The second one week later, the third two weeks later, and the fourth three weeks later than the first sowing. The variety used in this test was Riga Blue.

FLAX—DATES OF SEEDING

Date sown	Date harvested	Yield of air-dried straw per acre
		tons lb.
April 17	August 1...	1 1,780
April 24	August 7...	2 80
May 1	August 13...	1 795
May 8	August 22...	.. 120

On the southern end of Vancouver Island it is very necessary that flax be sown by the middle of April. If left till later the seed either does not germinate, or the young plants are affected by the drought which usually commences in May and continues throughout the summer months. The plots sown on April 24 gave the best returns. These results, however, are not conclusive, as the figures are based on one year's record only.

HEMP—DATE OF SEEDING—PROJECT E. 8

The method followed was the same as in Project E. 4. Four sets of plots were sown on a heavy clay soil, the first two plots on April 17, the second series one week later than the first, the third two weeks later than the first, and the fourth three weeks later than the first seeding.

HEMP—DATES OF SEEDING

Date of Sowing	Date cut	Yield per acre
		lb.
April 17	Sept. 19....	1,403
April 24	" 24....	967
May 1	Oct. 2....	1,357
May 8	" 5....	293

The low return from the second series of plots is partly due to the fact that they were sown on a much heavier clay soil than the others. The seed planted on the 8th did not germinate. It would seem that early seeding is necessary to obtain the best results.

GROWING HEMP SEED—PROJECT NO. E. 26

The object of this experiment was to ascertain if hemp seed could be successfully grown in Canada. The plots used in this instance were one tenth of an acre, and the soil a well-drained sandy loam. Four or five hemp seeds were planted in hills set four feet apart each way, and a thorough and frequent cultivation kept up during the summer. As soon as the plants came into bloom all but three or four of the staminated plants were removed, all the pistillate plants were left to be cut when the seed ripened. The plants made a fairly satisfactory growth, reaching the height of six feet. The foliage was still green when the hemp was cut on December 2. Unfortunately, however, the seed was very late in setting and did not mature. Two varieties of hemp were grown for this test, Chington and Minnesota No. 8.

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