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 1922

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1923

EXPERIMENTAL STATION FOR VANCOUVER ISLAND, SIDNEY, B. C.

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

SEASONAL NOTES

The winter of 1921-22 was unusually severe. It is true that colder weather has been known on Vancouver island and snowfall heavier and more continuous, but for genuine unpleasant weather, drawn out into a late spring, 1921-22 will be long remembered.

The spring was backward and vegetation slow, owing to the sodden condition of the soil, but conditions improved, making possible the seeding of most areas under fair conditions. The spring of 1922 confirmed former observations, that many spring-sown crops have little chance in competition with the fall-sown of the same variety. New projects are being undertaken and information sought as to how far the autumnal seeding idea may be carried into the production of forage crops, etc., as well as of cereals. Other things being equal, a crop that can be found sufficiently hardy to withstand the Vancouver island winter, will probably yield twice as heavily as the same variety planted in the spring. Further reference will be made to this phase of the work under other headings. Several degrees of frost during fruit blossoming time did some injury to cherries and strawberries. No doubt the yield of cherries was much lessened because of the frost, but on the whole the damage was not so great as at one time feared. The summer was fine as Vancouver island summers usually are, but 1922 excelled in this. The days were quiet, cloudless and for two months and a half the Saanich peninsula was practically without rainfall. It is true that in certain parts rain fell for a few minutes, but not in measurable quantities. Crops suffered, especially the spring sown cereals, hay and pasture, but were harvested in good condition. The autumn, usually the time of great storms, was quite dry. The rainfall for November was about one-third of that expected for the month, while the total for the year was only a little greater than half of the average. About the first of December, 1922, the change from summer to winter conditions was very abrupt. Fourteen degrees of frost with considerable snow, was the order. On the whole the year has been unusual—quite unlike the average for Vancouver island.

METEOROLOGICAL RECORDS

Month	Highest Temp.	Lowest Temp.	Mean Temp.	Precipitation	Bright Sunshine	Possible Bright Sunshine
	Degrees	Degrees	Degrees	Inches	Hours	Hours
January	48·0	17·0	34·5	1·65	97	273
February	46·5	20·0	35·1	1·79	89	286
March	54·5	28·0	39·6	1·20	116	370
April	63·5	31·0	44·7	0·71	180	411
May	84·0	31·0	53·0	0·54	282	473
June	82·0	43·5	60·3	0·27	321	482
July	89·0	38·0	62·1	.....	336	486
August	82·5	46·0	61·2	0·82	226	444
September	73·0	42·0	55·9	1·96	163	377
October	69·0	34·0	49·8	2·21	100	335
November	49·0	31·0	41·3	1·47	82	276
December	48·0	16·0	35·2	9·06	50	259
	.....	.....	.....	21·68	2,042	4,472

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ANIMAL HUSBANDRY

The work in animal husbandry at this Station has not as yet, nor is it likely to be developed to the extent that it can be considered a major project. The nature of the district and the rather intensive type of farming followed on most farms in the district precludes the possibility of developing live stock farming on a very large scale.

DAIRY CATTLE

However, as indicated in previous reports, a herd of Jersey cattle is being established. At present the herd consists of one bull, five cows, two heifers and four calves, all good individuals of excellent breeding. They should make an excellent foundation from which to build up a profitable dairy herd from which breeding stock may be disseminated throughout the district.

These cattle were all purchased subject to the tuberculin test and have since passed further tests with a clean bill of health. To date no other contagious diseases such as abortion have broken out in the herd, so that a good start from the health standpoint has been made.

All cows in the herd are being entered in the Record of Performance for pure-bred dairy cattle as they freshen, so that all stock sold from the herd may have the backing of official records of production. In addition records are being kept of the feed consumed for animals of all ages so that data on the cost of rearing and cost of milk production will be available under conditions obtaining in the district.

HORSES

Horses are maintained at the Station for work purposes only, no breeding or experimental work being conducted.

SHEEP

A small flock of Southdown sheep has been established, there being a good demand for lamb and mutton on the island. Disposal of the wool, however, has not to date been so advantageous owing to the distance it is necessary to ship to a grading centre and consequent high freight charges. The Southdown breed of sheep has furnished meat of excellent quality with a small percentage of bone, but the individuals appear rather small for local conditions as well as rather slow in maturing. A ram of a little greater scale than the one formerly used has been purchased with the idea of increasing the size on the forthcoming lamb crops.

FIELD HUSBANDRY

Two or more definite rotations were originally planned for the Vancouver Island Station, but after these rotations had been carried on for a number of years it was found that they were not workable under southern Vancouver island conditions and they were, consequently, abandoned. It is not easy to plan a practical rotation for the Saanich district, because good farming methods, as they apply to the greater part of Canada, are unsatisfactory when attempted here. One of the most important reasons for this is the price of land, which is hindering the farming industry more than any other one factor. In a word, land is too high priced to be farmed. Land that sells on the market for $800 per acre, as much farm land does, with money worth 7 per cent, is farmed under the serious handicap of $56 per acre interest on land investment. It is readily seen that land, when put down to farm crops, has no chance of winning from the

monetary standpoint. The future of the island is the small holding, systematically, scientifically, and intensively farmed. Another factor which must not be lost sight of is the cost of operation. The land is not easily worked, the depreciation of implements is excessive and the price of labour high.

The rotations given below as nearly fill the requirements as conditions will permit. Charges are based on price of labour, seed, manure, etc., such as obtain during the season in question.

DESCRIPTION OF ROTATIONS

The following are the rotations undertaken at Sidney, together with some description of the mode of operation and, where possible, detailed figures for 1922, both of costs and returns:—

ROTATION A (THREE YEARS' DURATION)

1922—Winter wheat.

1923—Timothy and clover hay.

1924—Roots.

This rotation is one that appeals to the dairyman and one that is used to a considerable extent. The field consists of 5·5 acres and varies somewhat in texture, but for the most part is heavy. The winter wheat, usually Washington Sun, is sown some time during the latter half of September and not later than October 1. The seeding of the grasses is done by broadcasting in February. After the hay is cut the following year, the land is ploughed deeply, fertilized and put in the best shape possible for early spring seeding the following year. The rotation has much to recommend it. The soil is always well stocked with humus and comparatively clean.

COST OF PRODUCING ONE BUSHEL OF WHEAT

5½ acres at $30 per acre	$165 00
Ploughing, 49½ hours at 70c	34 65
Liming, ⅓ of 6 2/5 tons lime at $10	21 33
Spreading lime, 27½ hours at 35c	9 62
Discing twice, 11 11/12 hours at 70c	8 34
Planking, 7⅓ hours at 70c	5 13
Harrowing, 3⅔ hours at 70c	2 56
Seed, 11 bushels at $1.50	16 50
Seeding, 5½ hours at 70c	3 85
Rolling, 4 7/12 hours at 70c	3 20
Cutting, 6 5/12 hours at 70c	4 49
Twine, 16½ pounds at 22c	3 63
Stooking, 6 5/12 hours at 35c	2 25
Hauling, 7⅓ hours at 70c	5 13
Loading and stacking, 16½ hours at 70c	11 55
Threshing, 209 bushels at 11c	23 00
Total cost	$320 23

Cost per acre	$58 22
Yield	209 bushels
Area of field	5½ acres
Yield per acre	38 bushels
Cost of producing one bushel	$ 1 53

ROTATION B (FOUR YEARS' DURATION)

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

This rotation occupies three acres. An attempt will here be made to maintain the fertility of the soil, to produce crops without hay or grass mixture

appearing in the rotation. After the peas have been harvested in midsummer, some such crop as Dwarf Essex Rape will be sown as a green manure to supply humus, etc.

ROTATION C (FIVE YEARS' ROTATION)

Seed Production

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

The island offers considerable inducement to the seed grower. The rotation was planned to secure information concerning the culture and cost of producing seed for farm crops, and incidentally to provide the farm and public with a seed supply of such strains of seed as have been found of value at the Station farm. The area given to this rotation amounts to two acres.

ROTATION D (FOUR YEARS' ROTATION)

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

This rotation, similar to rotation B, provides for the turning down of a sod, the return of vegetable fibre and fertility to the soil, and furnishes roots for the dairy cattle instead of an ensilage crop. This rotation is popular with the man without a silo. Three (3) acres are given to this work.

ROTATION E (FOUR YEARS' ROTATION)

1922—Oats.
1923—Hay.
1924—Vetch, wheat, oats (ensilage).
1925—Potatoes.

Potatoes continually become a crop of greater importance in British Columbia.

The introduction of this crop is intended to clean the ground, and to keep the soil in a good mechanical condition, taking the place of roots in the rotation. We think favourably of this at the Vancouver Island Station.

ROTATION F (FOUR YEARS' ROTATION)

1923—Vetch, wheat, oats (ensilage).
1924—Wheat.
1925—Clover hay.
1926—Potatoes.

Potatoes have again been introduced in this rotation, but with a different combination of crops. All of these rotations are intended to meet the mixed farming conditions found on the island. Cost of production will be carefully kept, and the return per acre determined. As has been indicated we have no hope of showing any profit on the island with crops of this kind. Cost figures for several crops have been kept, although the work did not arise as a part of the rotations. These figures are being submitted as a check on the work of next and succeeding years.

COST OF PRODUCING ONE TON TIMOTHY AND CLOVER HAY

Area of field		Eight (8) acres
Seed mixture consisted of: 10 pounds red clover, 4 pounds alsike, 6 pounds timothy, seeded at the rate of 20 pounds per acre.		
Rent of eight (8) acres at $30		$ 240 00
Seed, 160 pounds at 8½c		13 60
Seeding, 5 hours at 35c		1 75
Rolling, 7½ hours at 70c		5 25
Mowing, 8½ hours at 70c		5 95
Raking, 6 hours at 52c		3 12
Coiling, 44 hours at 35c		15 40
Hauling, 34 hours at 70c		23 80
Stacking, 136 hours at 35c		47 60
Total cost		$356 47
Cost per acre	$44 56	
Total yield	46,270 pounds	
Yield per acre	2 tons 1,783 lbs.	
Cost of one ton hay	$15 40	

COST OF PRODUCING ONE TON OF GREEN ENSILAGE

Wheat, Oats, Vetch Mixture. Fall Sown

Rent, four acres at $30 per acre		$120 00
Ploughing, 32 hours at 70c. per hour		22 40
Harrowing, 8 hours at 70c		5 60
Seed, 480 pounds at $3.66 per 100 pounds		17 56
Seeding, 3½ hours at 70c. per hour		2 45
Cutting, hauling, ensiling, 100 hours at 35c		35 00
Use of ensilage cutter 18½ hours at 50c		9 25
Total cost		$212 26
Cost per acre	$53 07	
Total yield from four acres	56 green tons	
Yield per acre	14 tons	
Cost of one ton green ensilage in silo	$3 79	

NOTE.— The soil was a light sandy loam that did not require excessive tillage while the crop produced was very heavy. It will be noted that the crop was sown in the autumn, as this mixture must be, for best results.

COMPARISON OF WHEAT OATS AND VETCH MIXTURE WITH CORN AND SUNFLOWER FOR ENSILAGE

The most popular ensilage in the district is a mixture of wheat, oats and vetch sown in the autumn. The mixture consists of 50 pounds wheat, 40 pounds oats and 30 pounds spring vetch, sown at the rate of 120 pounds to the acre.

During the spring of 1922 the project was planned, knowing that best results could not be expected from spring sowing, yet it was done in order that we might have figures besides those obtained on corn and sunflowers. As has been noticed the season was exceptionally dry, thus reducing yield and bringing about unsatisfactory results from every standpoint.

HORTICULTURE

No part of Canada offers greater inducements to the horticulturist than does Vancouver island. Fully seventy-five per cent of the people are to some extent interested in horticulture. The future of southern Vancouver island is very securely linked up with the work. If horticulture should fail, the whole farm structure would crumble, for the holdings are small, and not suited to general agriculture, as is the great central plain. Several factors hinder greater development in this line, but the solution will be found in succeeding years. Among these we mention:—

First: Water.—The summers are exceptionally dry. The yield of small fruits is cut fifty per cent many years from this cause alone. With the advent of the Greater Victoria water scheme we longingly hope and look for the coming of water to the whole of the Saanich peninsula and southern Vancouver island. Water on the Saanich peninsula would double the crop and double the population.

Second: The Marketing problem.—To produce a crop is one thing, to market it another. The future will see more canning establishments, a better express rate and a greater co-operation on the part of the people. The country is young; its problems are numerous, while at the same time the island is separated from the remainder of Canada; but with a hard working optimistic people arising from an iron breed, the ultimate success of the Island grower is assured. Coupled with this is the demand for horticultural products arising on the prairies, which must of necessity increase with Canada's increase of prairie population.

Killing frosts during fruit blossoming time injuriously affected prospects for yield in 1922, especially with strawberries and cherries, but the failure was only slight as compared with that at one time feared. Plums and pears were an abundant crop. Fruit set in such quantity that the trees required support.

TREE FRUITS

Among the tree fruits apples may be regarded as only fairly well suited to the district, pears, plums, and cherries cannot be beaten anywhere; peaches a success only in a protected situation; and apricots a failure.

TEST OF APPLE VARIETIES

The young apple orchards are now bearing well although the trees are small. These orchards have been sprayed, pruned, etc., as required. Records as to their behaviour have been kept as heretofore, and some interesting information obtained.

APPLES—TEST OF VARIETIES

Name of Variety	Number of trees	Total yield per tree, 1922		Total yield per tree, four years	
		lbs.	oz.	lbs.	oz.
Alexander	2	14	9	46	5
Black Ben Davis	2	..	..	..	..
Blenheim Orange	2	3	..	3	..
Charles Ross	2	106	8	175	4
Carolina Red June	3	..	..	2	8
Cox Orange Pippin	12	13	..	35	..
Duchess of Oldenburg	9	21	15	55	..
Early Colton	2	29	8	53	2
Goal	1	..	..	..	..
Gravenstein	9	4	1	15	7
Grimes Golden	13	26	..	64	15
Jonathan	12	8	2	31	14
King David	2	..	..	123	14
King of Tompkins	10	14	6	55	12
Linton	1	70	8	109	..
Lowland Raspberry	7	6	2	26	6
McIntosh Red	6	47	1	75	10
Melba	1	4	..	45	5
Monsieur Galdstone	2	10	8	17	12
Missing Link	2	..	..	..	..
Newtown Pippin	2	..	..	2	7
Peasgood Nonsuch	1	..	..	6	0
Northern Spy 1916	1	..	..	..	..
Percival	1	62	0	107	10
Red Astrachan	14	19	2	28	5
Petrel	1	37	0	71	8

APPLES—TEST OF VARIETIES—*Concluded*

Name of Variety	Number of trees	Total yield per tree, 1922		Tptal yield per tree 1923	
		lbs.	oz.	lbs.	oz.
Ribston Pippin	1	2	0	2	0
Rome Beauty	2	..	..	30	0
Saint Germain	3	12	0	7	9
Spitzenburg	2	..	..	4	0
Sweet Bough	2	..	..	11	8
Transparent de Croncels	2	73	14	106	8
Trenton	1	38	0	79	14
Vanderpool	2	4	8	7	8
Wagener	11	27	11	80	8
Wealthy	4	21	6	65	8
Winter Banana	2	51	8	114	12
Winterstein	2	..	..	..	..
Wismer Dessert	2	36	8	47	1
York	1	..	..	..	..
Yellow Transparent	10	30	5	60	1
Crab Apples—					
Florence	2	71	12	134	1
Rondo	1	..	..	..	..
Transcendent	..	87	..	121	..

Among the apples so far tested the following are outstanding: Charles Ross, Cox Orange Pippin, Grimes Golden, McIntosh Red, Melba, Transparent de Croncels.

ORCHARD SOIL MANAGEMENT

Three systems of management have been in vogue in the orchard for a number of years, viz., sod mulch, clean cultivation, and vetch cover crop. It was noted in last year's report that though the total yield of the individual trees did not do justice to clean cultivation, yet the appearance of the trees

FIG. 1.—Sod mulch vs. clean cultivation. McIntosh Red trees in foreground of same age.

was such as not to permit of question. The appearance of the trees, the season's growth and size of apples are all effectively told by photographs of the trees, the apples and twigs, placed side by side. The apples and twigs were all taken from the trees appearing in the foreground of figure 1. The photographs are more eloquent than words. The trees in sod are stunted in growth, yellow in appearance and though still bearing fruit look as if they would die outright before long, while the cultivated trees of the same variety are vigorous, healthy and making abundant growth. We shall continue the experiment until the passing of the trees in sod. It may be added that the grass grown on the sod area was not removed, but cut and placed around the trees with the hope that the moisture might be retained.

EFFECT OF VARIOUS FERTILIZERS ON GROWTH OF APPLE TREES

During March, 1922, an experiment was undertaken to determine the effect of various fertilizers on growth of apple trees. The following fertilizers were used separately:—

1. Nitrate of soda—2 pounds to each tree.
2. Muriate of potash—2 pounds to each tree.
3. Acid phosphate—4 pounds to each tree.
4. The three foregoing mixed together and used at the rate of 4 pounds to each tree.

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

Effect of Fertilizers on Growth of Apple Trees

—	Average season's growth		Inches in diameter
	feet	in.	in.
Nitrate of soda	2	6½	13/32
Muriate of potash	1	10½	16/32
Acid phosphate	2	..	21/32
Mixed fertilizer	1	8½	16/32
Check	2	2	20/32

The trees were carefully measured by callipers 12 inches from the ground at the beginning and end of the season, and measurements taken of season's growth from many twigs. The results are not easy to follow, and show the necessity of continuing work of this kind for many years, to arrive at truth. In view of the fact that the tree without fertilizer made much advancement both in diameter and season's growth is conclusive evidence that other factors beside that of fertilizer enter into the problem. It will be noticed that the nitrate of soda, as would be expected, seemed to induce growth so far as twig lengthening was concerned, but that the diameter of the tree was not increased. The work will be continued for several years on these trees.

APPLE HYBRIDIZATION

Standard apples on Vancouver island have not done so well as at one time expected. The variety, the soil and the climate are all factors entering into the problem. Apple hybridization was undertaken in May, 1918, with the hope that the new varieties might be created well suited to the island. Crosses of many standard sorts were made. Scions and buds were taken from the resulting seed-

ings and placed on larger trees in order to obtain fruit as quickly as possible. Many of these scions and buds are growing well, and promise much from the vegetative standpoint, but have not yet borne fruit.

VARIETY TEST WITH PLUMS

Plums from many sources were obtained and planted at the farm during the early days of the Station. Many of these are well known to the district, and among them may be found some of our best yielders, yet others of supreme quality and near the top from the standpoint of yield, are practically unknown.

VARIETY TEST WITH PLUMS

Name of Variety	Planted	Number	Yield per tree 1922		Total yield per tree for four years	
			lbs.	oz.	lbs.	oz.
Apple	1919	2	..	..	..	..
Bartlett	1919	2	..	..	..	..
Beauty	1919	2	..	..	..	..
Black Diamond	1914	2	109	12	238	14
Bradshaw	1814	2	165	8	240	3
Burbank	1914	1	23	0	29	4
Columbia	1914	1	53	8	138	12
Combination	1916	2	6	10	11	3
Conquest	1916	1	10	0	11	14
Climax	1919	1	..	..	..	..
Drap d'Or	1914	2	3	2	44	11
Early Gold	1916	1	94	0	174	14
English Damson	1914	2	2	6	24	6
First	1916	1	1	4	1	4
Formosa	1916	2	..	..	..	..
Gaviotta	1914	1	..	..	..	..
Gold	1916	2	..	..	..	..
Giant	1916	2	0	8	0	8
Greengage	1914	2	89	0	170	8
Jaune Hâtive de Thoisey	1914	2	18	0	56	6
Le Plus Précoce de Tous	1914	1	1	12	1	12
Mammoth Gold	1916	1	10	12	10	12
Mallard	1914	2	73	4	275	16
Morris White	1919	1	..	..	..	..
Peach	1914	11	60	9	116	1
Pond Seedling	1914	2	141	6	328	0
Reine Claude de Bavay	1914	7	187	6	230	9
Slipper Pride	1916	1	22	0	26	11
Satsuma	1916	1	..	..	..	..
Shiro-Sum	1919	1	..	..	..	..
Shropshire Damson	1914	15	10	1	32	6
Suika-Moma	1919	1	..	..	..	..
Sultan	1916	1	..	..	..	..
Santa Rosa	1914	1	4	0	6	4
Victoria	1914	2	44	8	157	2
Washington	1914	2	128	8	304	4
Yellow Egg	1914	2	97	0	258	10

It will be noted that the heaviest yielders of last year are still among the best six, but that they do not stand in the same order as before, with Pond Seedling at the top. The six heaviest yielders, in order of merit, are as follows:—

	Total for four years per tree
Pond Seedling	328 pounds
Washington	304 "
Mallard	275 "
Yellow Egg	258 "
Bradshaw	240 "
Black Diamond	238 "

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VARIETY TESTS WITH PRUNES

Name of Variety	When set	Number of trees	Total yield per tree, 1922		Total yield per tree for four years	
			lbs.	oz.	lbs.	oz
Dorch	1916	2	2	15	2	15
Giant	1916	2	78	8	106	8
Golden	1916	2	1	8	6	14
German Prune	1914	3	36	5	50	4
Imperial Epineuse	1919	2	.....	.....	.....	.....
Italian Prune	1914	17	53	2	87	10
Quetsche de Letricourt	1914	2	78	8	117	14
Quetsche precoce de Buhlerthal	1914	4	16	2	89	4
Quetsche precoce d'Ebersweier	1914	4	3	7	9	14
Quetsche precoce de Zimmer	1914	2	28	0	107	10
Minot	1914	1	4	0	16	14
Sugar	1914	2	86	4	176	12
Standard	1915	2	9	0	19	8
Silver	1914	1	6	0	60	8
Tennant	1916	2	4	4	6	4
Tragedy	1914	2	41	4	163	3
Pacific	1916	2	8	0	26	8
Miracle	1916	2	11	12	12	5

VARIETY TESTS WITH CHERRIES

Our work with cherries under this project has been the same as with other fruits. Other things being equal the yield per tree added to the total yield running over a period of years is the best criterion by which a tree may be judged.

CHERRIES—TEST OF VARIETIES—(SWEET CHERRIES)

Name of Variety	When set	Number of trees	Years in bearing	Total yield per tree 1922		Total yield per tree for four years	
				lbs.	oz.	lbs.	oz.
Abesse d'Oignies	1914	1	3	12	8	19	8
Abundance	1915	1	3	..	..	2	4
Bing	1914	12	3	17	1	25	1
Bing	1917	2	..	..	..	..	..
Belle de Choisy	1914	2	4	2	0	17	8
Black Hawk	1914	1	3	1	4	28	0
Black Tartarian	1914	2	4	5	14	22	13
Black Republic	1916	1	..	..	..	..	..
Burbank	1915	1	3	..	..	7	2
Choque	1914	1	4	7	8	102	14
Deacon	1916	1	3	3	0	21	2
Elton	1914	3	4	..	..	63	8
Empress Eugenie	1914	4	4	2	10	69	3
Empereur Francois	1914	1	8	5	0	28	2
Fruneste der Mark	1914	1	2	5	4	16	12
Gawafal	1916	1	4	2	8	2	15
Gawafal le Grand	1916	1	4	..	..	1	6
Governor Wood	1916	1	3	..	..	8	0
Gros Blanc	1914	1	4	..	..	1	2
Grois Noire	1914	1	2	..	..	0	8
Guigne d'Annonay	1916	1	3	..	..	0	12
Guigne Belle d'Orleans	1914	1	3	..	..	35	12
Guigne Beaute d'l'Ohio	1914	2	3	2	8	57	15
Guigne Poupre Hative	1914	1	4	6	0	109	5
Guigne Precoce de Taragon	1914	1	3	4	12	31	0
Jaboulay	1914	2	3	..	..	5	9
Guigne Precoce Rivers	1914	1	3	..	..	19	12
Jeffery Duke	1914	1	4	1	2	19	4
Lambert	1914	3	4	15	10	54	6
Lambert	1917	2	1-3	2	10	3	13
Marjolet	1917	2	2-3	3	5	11	1
Napoleon	1914	1	3	..	..	11	8
Pellissier	1914	1	1	5	0	22	4
Reverschon	1915	1	3	..	..	9	12
Pleurer	1914	1	..	..	..	..	..
Reine Hortense	1914	2	4	2	6	42	4
Reine Hortense Hative	1914	2	1-2	..	..	1	10
Royal Anne	1914	6	3-4	11	3	58	14
Tardif de Lade B Agathe	1914	2	4	..	..	38	0
Windsor	1914	7	3-4	5	14	34	15
White Heart	1916	1	3	6	4	24	0

CHERRIES—TEST OF VARIETIES—(SOUR CHERRIES)

Name of Variety	When set	Number of trees	Years in bearing	Total yield per tree, 1922		Total yield per tree for four years	
				lbs.	oz.	lbs.	oz.
A. Brindillier	1914	3	3	..	..	3	8
Anglaise Hative	1914	3	3	1	12	38	4
Belle de Franconville	1914	1	4	3	4	32	0
Belle Magnifique	1914	3	3–4	..	..	41	12
Baldwin	1916	1	3	..	..	2	4
De Bellue	1914	1	4	2	8	4	12
Early Richmond	1914	10	3–4	7	1	73	9
English Morello	1916	1	4	..	..	6	14
Gros Gobet	1914	2	4	15	12	64	1
Griotte Acher	1914	1	4	5	4	39	14
Late Duke	1916	3	3–4	..	..	3	0
Griotte du Nord	1914	1	4	..	..	42	12
May Duke	1915	2	3–4	9	12	56	5
Montmorency Bretteneau	1914	3	4	6	15	60	2
Montmorency Pleureur	1914	2	4	9	7	23	15
Montmorency	1914	14	4	25	13	122	13
Morello	1914	14	4	23	11	142	1
Nouvelle Royale	1914	1	4	..	..	59	5
Olivet	1914	4	4	8	11	107	11
Ostheim	1917	3	4	3	3	14	9

The cherry as intimated is perfectly at home on Vancouver Island. If sweet cherries of greater excellence can be produced anywhere they have not been seen by the writer. In an attempt to discover how cherries would ship to the prairie, the cost of shipping, etc., a crate of Bings was expressed to Winnipeg. The report may be summarized as follows:—

1. The fruit arrived in perfect condition.
2. The express charges were almost prohibitive.
3. Cherries of same excellence were not found on the Winnipeg market.

VARIETY TESTS WITH PEARS

Pears, like cherries, constitute a crop of first-rank importance all over the Saanich peninsula. Some varieties lack flavour when grown at the Station, but from the standpoint of size they outdo themselves. Four "Souvenir de Congres" pears used in our exhibition work during the past summer weighed six (6) pounds. With the hope of securing definite information concerning the behaviour of these fruits over a number of years, the project "Variety Tests With Pears" was planned.

We are often asked what is the best pear or pears. No definite answer to such question can be given. One pear is large, another small; one early, another late; one pleasing in colour, another not; one begins to decay before it can be picked, while another carries well on into the winter; one is supreme in flavour, while another is as insipid as a pumpkin. The best pear is the one that suits one's purpose best, but it is not always easy to make this point clear.

TEST OF STANDARD PEAR VARIETIES

Name of Variety	When set	Number of trees	Years bearing	Yield per tree, 1922		Total yield per tree for four years	
				lbs.	oz.	lbs.	oz.
Andre Desportes	1914	2	4	21	0	60	14
Anjou	1914	35	3–4	1	5	35	5
Beurre d'hardenpont	1914	1	4	1	0	80	0
Besi de Chaumontel	1914	1	2	1	4	1	8
Beurre Bachlier	1914	1	4	168	0	310	0
Beurre d'Amanlis	1914	2	4	116	8	418	8
Beurre Died	1914	2	4	93	4	283	12
Beurre Giffard	1914	2	3–4	34	8	49	12
Beurre Hardy	1914	2	4	2	12	11	8
Beurre de Naghlin	1914	2	4	54	8	193	8
Bosc	1914	20	4	26	10	110	0
Boussock	1914	17	4	43	10	186	6
Bartlett	1914	20	4	68	15	198	5
Belle Lucrative	1914	2	4	71	14	170	6
Beurre d'Avril	1914	2	4	56	8	188	14
Bon Chretien	1916	1	4	60	11	127	11
Charles Ernest	1914	2	1–4	35	8	50	8
Clairgeau	1914	20	4	60	11	127	11
Conference	1919	2	1	5	8	5	8
Crocker Bartlett	1916	1	4	10	8	36	8
De Cure	1914	2	4	80	8	216	0
Dr. Jules Guyot	1914	21	4	42	12	122	12
Doyenne d'Alencon	.....	4	1–2	19	6	20	14
Doyenne de Merode	1914	2	4	60	0	92	4
Doyenne d'Hiver	1914	2	4	31	4	82	12
Doyenne du Comice	1914	1	4	6	0	14	0
Duchess d'Angouleme	1914	2	4	32	0	46	12
Emile de Heyst	1914	2	4	..	..	78	4
Faster Beurre	1914	2	4	43	8	110	2
Favourite de Clapp	1914	2	4	54	0	245	2
Fondante des Bois	1914	1	4	29	0	46	8
Fondante Thirriot	1914	2	4	56	8	163	4
Flemish Beatuy	1914	1	4	..	..	202	8
Jargonelle	1914	2	4	5	8	47	0
Kroonce	1916	1	3	..	..	24	0
Le Leetier	1914	2	4	93	4	163	4
Louis Bonne d'Avranches	Grft	3	2	9	13	10	6
Lincoln Coreless	1914	2	4	22	4	245	15
Madame Ernest Baltet	1914	1	4	9	0	27	0
Louise Bonne de Jersey	1914	16	4	65	6	102	4
Madame Baltet	1914	1	3	..	..	21	0
Marguerite Marillat	1914	2	4	72	0	123	4
Nouvelle Fulvie	1914	1	4	37	0	102	4
Passe Crassane	1914	3	4	70	0	109	12
Passe Crassane	Grft	3	3	2	8	4	7
Pitmaston Duchess	1914	2	4	30	12	140	12
President Deviolaine	1914	1	3	18	0	29	0
Princess	1914	2	3–4	5	2	15	11
Royale Vendee	1914	1	4	..	..	28	6
Rosney	1916	1	3	..	..	11	0
Souvenir du Congres	1914	1	4	81	0	230	8
Triomphe de Vienne	1914	1	4	134	0	229	8
Vicar of Winkfield	1914	2	4	42	0	158	8
Virginie Baltet	1914	1	4	..	..	345	0
Williams (Bartlett)	1914	2	4	164	0	220	3
Wilder Farly	1914	2	4	12	9	38	11
Winter Bartlett	1914	1	4	..	..	56	3
Worden Seckel	1916	1	4	..	..	24	8

VARIETY TESTS WITH DWARF PEARS

Name of Variety	When set	Number of trees	Total yield per tree, 1922		Total yield per tree for four years	
			lbs.	oz.	lbs.	oz.
Andre Desportes	1914	2	9	10	60	4
Anjou	1919	2	..	..	..	..
Barry	1919	2	..	..	..	..
Beurre Bacbelier	1914	2	8	14	14	10
Beurre d'Amanlis	1914	1	28	8	124	8
Beurre Diel	1914	1	32	8	146	6
Beurre Giffard	1914	2	29	0	35	6
Beurre Hardy	1914	1	..	..	37	8
Besi de Chaumontel	1914	2	3	4	33	4
Besi d'Hardenport	1914	2	5	8	208	8
Besi de Naghlin	1914	2	13	8	40	8
Charles Ernest	1914	1	8	0	29	0
De Cure	1914	2	44	14	238	5
Dr. Jules Guyot	1914	2	48	0	122	12
Doyenne de Merode	1914	2	..	..	21	9
Doyenne d'Alencon	1914	2	41	0	62	4
Doyenne du Comice	1914	2	15	4	38	0
Doyenne d'Hiver	1914	1	35	0	233	0
Favorite de Clapp	1914	2	56	14	190	14
Fondate des Bois (Flemish Beauty)	1914	2	29	2	124	0
Fondante Thirriot	1914	2	39	0	153	8
Forelle	1919	2	..	..	..	..
Madame Ernest Baltet	1914	2	2	12	96	10
Madam Baltet	1914	1	..	..	12	8
Howell	1919	2	2	8	2	8
Luise Bonne d'Avranches	1914	1	11	0	85	0
Nouvelle Fulvie	1914	2	0	12	71	6
Passe Crassane	1914	2	30	0	68	8
President Deviolaine	1914	2	12	8	40	5
Royale Vendee	1914	1	..	..	..	..
Seckel	1914	2	..	..	..	..
Souvenir du Congres	1914	1	21	0	79	0
Triomphe de Vienne	1914	1	79	0	114	0
Virginie Baltet	1914	2	..	..	139	12
Williams	1914	1	72	0	151	0
Winter Nelis	1919	2	..	..	0	8

The Souvenir de Congres is the largest pear grown here; the Bartlett one of the most popular; the Bosc one of the best flavoured pears; Beurre d' Amanalis one of the heaviest yielders, and Duchesse d' Angouleme one of the poorest.

ORCHARD SOIL MANAGEMENT WITH PEARS

We have attempted a comparison of various soil management systems with pears as with apples. Just what cultivation and the lack of it will do to the pear orchard is evident to all persons who see our orchards.

EFFECT OF VARIOUS FERTILIZERS ON PEAR TREES

The following varieties of pears came in the range of this test: Anjou, Clairgeau, Bosc, Dr. Jules Guyot, Bartlett, Boussock.

The fertilizers used were:—

1. Nitrate of soda, 2 pounds to the tree.
2. Muriate of potash, 2 pounds to the tree.
3. Acid phosphate, 4 pounds to the tree.
4. Mixed fertilizer. This fertilizer was made up of Nos. 1, 2 and 3 mixed, and applied at the rate of 4 pounds to the tree. The results obtained were quite consistent, and show clearly enough the effect of the nitrate singly and in mixture.

FERTILIZER RESULTS IN THE PEAR ORCHARD

——	Average season's growth		Increase in diameter
	ft.	in.	
Nitrate of soda	3	0	16/32
Muriate of potash	2	7	12/32
Acid phosphate	1	8	7/32
Mixed fertilizer	2	6	14/32
Check	1	10	10/32

The measurements of diameter were taken before and after season's growth, 12 inches from surface soil. This project would seem to confirm our opinion that the soils here are especially poor in nitrogen. Other projects arising out of this work remain for the future, viz.:—

1. What effect has the various fertilizer on the early maturing of the fruit?
2. What effect has the various fertilizer on the keeping quality of the fruit?

PEAR HYBRIDIZATION

The object of the experiment was the creation of new varieties. The procedure was the same as with apples, viz., selection of parent stock and crossing of varieties thought to be most useful, the growing of seedlings in the nursery, and the grafting or budding of this wood on standard trees. This last procedure was intended to hasten the fruit-bearing period. Since the experiment was begun in 1918, there are no results on which to report.

VARIETY TESTS WITH PEACHES

Contrary to early expectation the peach has not done well on Vancouver Island. It has seemed next to impossible to maintain the tree in a healthy condition, saying nothing about spring frosts, cool nights, etc. As a commercial proposition the peach is not grown. Many varieties have been grown and records kept. The work will be continued with the hope that a satisfactory solution may be found.

VARIETY TESTS WITH PEACHES

Name of Variety	When set	Number of trees	Total yield per tree for 1922		Total yield per tree, four years	
			lb.	oz.	lb.	oz.
Admiral Dewey	1919	1	2	8	2	8
Alexander	1914	2	.....		46	12
Alton	1916	2	.....		.....	
Early Crawford	1914	2	.....		.....	
Early Imperial	1919	2	.....		.....	
Early Elberta	1916	1	.....		.....	
Fitzgerald	1914	1	.....		.....	
Hale Early	1914	2	5	15	94	4
Krummels October	1916	1	.....		.....	
Mayflower	1919	2	.....		.....	
Muir	1919	2	.....		.....	
Persica	1916	1	.....		.....	
Red Bird	1916	1	.....		.....	
Royal George	1919	2	.....		.....	
Triumph	1916	2	3	12	17	9

Hale Early and Triumph, trees of some promise, are being further experimented with.

PEACHES, GROWN ON TRELLIS, ESPALIER SYSTEM

As noticed under last project, peaches have not done well, yet when grown on the side of a building they are quite promising, and yield satisfactory crops of good quality. Would the protection of a hedge serve the same purpose as a building? The answer is being sought at the Station but the truth not yet determined. Peaches, apricots and nectarines are being grown on a trellis (Espalier system), directly on the south side of a hedge composed of a double row of filbert and cob seedlings. We hope that the future will show the plan feasible, at least from the standpoint of home production.

QUINCE—TEST OF VARIETIES

Quince varieties have been under test for several years. Though no great success has attended our efforts heretofore, the trees bore well during the season of 1922, while the fruit was of good size and of an attractive appearance.

QUINCE—TEST OF VARIETIES

Name of Variety	When set	Number of trees	Years bearing	Total yield per tree, 1922		Total yield per tree, four years	
				lb.	oz.	lb.	oz.
Champion Cornina Orange	1914	7	3	16	1	21	4
De Bereckzi	1914	4	4	46	12	60	0
De Bourgeant	1914	4	4	150	0	175	6
De Portugal	1914	3	4	63	0	130	12
De Fabre	1914	4	3	26	8	84	10
De Vranza	1914	1	4	5	0	9	14
Ordinaire	1914	3	1-3	2	4	4	13
Pineapple	1914	3	4	9	5	18	8

It is noteworthy that some quince trees, coming from Japan, grown as ornamentals, have produced quince of excellent quality.

APRICOTS—TEST OF VARIETIES

The failure of apricots has been more complete than that of peaches. The greater number of varieties have died, and the remaining trees are not bearing. Apricots are again being planted, grown on a trellis (Espalier). It is hoped that these trees, with the greater circulation of air made possible by the system, together with the protection afforded by a hedge may succeed.

NECTARINES

What has been said concerning peaches and apricots is equally applicable to nectarines. They do not succeed in the open, but the work is being continued under other systems, until success or complete failure is established.

MEDLAR—TEST OF VARIETIES

This fruit can be grown, and though liked by some people is not popular in Canada. There is practically no demand and consequently no sale.

MEDLAR VARIETIES

Name of Variety	When set	Number of trees	Years bearing	Total yield per tree, 1922		Total yield per tree, four years	
				lb.	oz.	lb.	oz.
De Hollande	1914	4	3-4	14	3	31	14
Large Dutch	1919	1	3	2	6	3	12
Ordinaire	1914	2	4	39	8	95	0
Sans Pepin	1914	3	4	2	10	9	2

FIGS—VARIETY TESTS

Twenty-eight varieties of figs have been under test. Some of these varieties date back to 1914. Fig trees are comparatively hardy; they produce fruit but we think that commercially they have no place here. No horticultural problem presents greater difficulty than does this fruit. Some day we hope some one may be available to run down some of the problems connected with fig growing, but much yet remains.

FIGS—TEST OF VARIETIES

Name of Variety	Number of trees	Condition of trees
Agen	1	Good.
Angelique	6	Killed.
Black Ishia	3	Poor. Top died.
Brown Turkey	3	Med. to poor.
Brunswick	2	Medium.
Californian Black	3	Killed to ground, 1919.
Calimyrna	2	
Celeste	4	Vigorous.
Drap d'Or	5	Good.
Dauphine	1	
Ladaro	7	Good vigorous.
Milco (Caprifig)	4	Good.
Mission	2	Strong grower.
Pastiliere	4	Good.
Ronde Noir	7	
Royal Vineyard	4	
San Pedro White	5	Died back.
Smyrna	3	Medium.
Warren Brown Turkey	5	Very poor.
White Adriatic	5	Fair.
White Genoa	4	Fair.
White Ischia	4	Killed to ground line.
White Semoa	1	Poor.
Wilson Smyrna	4	Very poor.
Ficus Carica	4	Very vigorous.
Doree	2	Good.

SMALL FRUITS

All of the small fruits do well on Vancouver Island. Strawberries from Gordon Head and Keating have long since made a name for themselves. The business has been developed in these districts until they are better known for their strawberries than for any other product. Other fruit areas are being located and developed farther up the Island, and though comparatively new, promise to be winners. Raspberries and Loganberries are being planted extensively. The Loganberry awaits only the coming of jam factories, drying plants, etc., in order to expand enormously, for it is quite at home on the Island.

STRAWBERRIES—TEST OF VARIETIES

Records on yield and behaviour of strawberries have been kept for five years at the Station. The yield during 1922 owing to dry weather and an attack of strawberry root weevil was small. The average yield for five years only is here considered:—

Mariana—The heaviest yielder	6,175	lbs. per acre.
Paxton—The largest berry	3,747	" "
Magoon—The best shipper	4,689	" "
Patagonia—The poorest yielder	377	" "

Magoon is the great commercial berry in the district, largely because of its shipping qualities, and its ability to yield. It may not be as hardy as some

other sorts, for failure with it was noticed a year ago, when other varieties, such as the Paxton, came through the winter without injury. Another plantation of strawberries was set in the spring of 1922, consisting of fifty-six new varieties along with a few of the older sorts that have proven their worth, while others have been discarded. These newer sorts will be grown for a number of years until their standing in the strawberry world has been demonstrated.

RASPBERRIES—VARIETY TESTS

The old raspberry plantation has been under test for so long a time that the yields from same are quite misleading. A new plantation has been set consisting of some of the newer and more reliable varieties as follows:—

RASPBERRY VARIETY TEST

Variety	Source	Condition
California Surprise	Wagner, Cal.	Very poor.
Cuthbert	Sidney	Good.
Golden Queen	Sidney	Good.
Herbert	Morden, Man.	Very good.
Latham	Valley River Nursery	Poor.
Minnetonka	" "	Poor.
Newman	" "	Good.
Sunbeam	Morden	Fair.

These plants have not fruited in measurable quantities up to the present.

BLACK CURRANTS

The black currant is a very popular small fruit on Vancouver island. The market is good. The only objection the growers have to offer, is the fact that the fruit is difficult to pick and the picking costly.

BLACK CURRANTS—TEST OF VARIETIES

Name of Variety	Total crop for eight years		Average yield in eight years		Average yield for last four years		Yield, 1922	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Boskoop Giant (Layritz)	49,368	0	6,170	0	6,239	0	5,687	0
Boskoop Giant (Ottawa)	45,791	0	5,724	0	6,668	4	5,556	12
Buddenborg	49,831	8	6,229	0	5,999	8	4,235	0
Collins Prolific	27,043	8	3,380	4	3,471	3	4,114	0
Climax	41,729	4	5,216	4	5,800	6	7,865	0
Clipper	34,999	0	4,374	7	4,779	7	4,991	0
Eagle	37,207	8	4,651	0	5,233	4	5,808	0
Eclipse	29,131	0	3,441	3	3,887	3	4,295	12
Kerry	36,647	14	4,580	4	4,212	5	5,566	0
Magnus	42,697	14	5,337	4	5,883	10	8,107	0
Saunders	34,972	2	4,371	4	4,416	8	4,719	0
Topsy	37,736	6	4,672	0	5,414	12	6,292	0
Victoria	35,277	10	4,410	0	5,229	10	3,872	0

Boskoop Giant and Buddenborg though still at the top have fallen off during the last few years.

RED CURRANTS

The demand for red currants is not great. The fruit is subject to ravages of insect pests.

RED CURRANTS—TEST OF VARIETIES

Name of Variety	Total crop for eight years		Average yield in eight years		Average yield for last four years		Yield, 1922	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Admirable	20,288	8	2,536	8	2,939	8	2,964	8
Chautaqua	27,842	4	3,977	7	4,708	0	4,356	0
Cherry	21,719	8	2,714	0	3,418	4	3,025	0
Cumberland	88,511	8	11,063	8	12,432	12	9,680	0
Grape	80,766	8	10,098	3	10,984	8	9,196	0
Greenfield	76,018	0	9,502	4	10,791	11	6,050	0
Perfection	60,875	2	7,609	6	7,471	12	5,445	0
Red Cross	98,852	2	12,356	12	12,122	11	11,676	8
Rankin Red	82,833	4	10,354	2	11,926	6	10,708	8
Red Dutch	46,147	12	5,768	7	4,605	4	1,603	0
Victoria	66,057	0	8,257	2	9,269	6	6,867	0
Wilder	72,947	14	9,108	8	9,967	6	5,626	0

WHITE CURRANTS

There is absolutely no sale for white currants. The cultivation of this fruit is not recommended.

WHITE CURRANTS—TEST OF VARIETIES

Name of Variety	Total crop for eight years		Average yield in eight years		Average yield for last four years		Yield, 1922	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
Cherry	68,939	12	8,605	0	9,778	5	7,018	0
Large White	66,792	0	8,347	0	9,120	6	6,776	0
White Grape	72,418	8	9,052	6	9,559	0	8,167	8

VARIETY TESTS WITH GRAPES

The grape is not much grown on the Island. Owing to cold nights and a moisture laden atmosphere the grape does not do well. Of the varieties tested the Lindley and Hartford are among the best. Lindley is perhaps the earliest grape we have, and more nearly approaches a dessert grape than others. Winchell ripened fruit this year for the first time. This grape was considered excellent by all persons who tried it. It is by far too late for the district and cannot be recommended.

VARIETY TESTS WITH GRAPES

Name of Variety	When set	Number of vines	Yield per vine, 1922		Yield per vine for four years	
			lb.	oz.	lb.	oz.
Black Hamburg	1918	2	.....		.....	
Black Prince	1916	1	10	8	10	8
Brant	1915	7	22	10	57	10
Brighton	1915	2	4	8	11	14
Buckland Sweetwater	1915	1	4	0	4	0
Campbell Early	1915	2	47	14	83	14
Canada	1915	5	22	14	57	1
Concord	1916	1	15	0	21	0
Dattur de Beyreuth	1915	1	.....		.....	
Delaware	1916	2	.....		.....	
Foster Seedling	1915	1	.....		33	5
Flame Tokay	1916	2	.....		.....	
Gros Colman	1915	2	14	0	51	10
Hartford	1915	5	11	13	37	12
Lindley	1915	2	23	9	73	12
Moore Early	1915	1	.....		1	0
Peabody	1915	4	17	10	41	14
Rose of Peru	1916	1	.....		.....	
Trentham Black	1915	1	.....		.....	
Vergennes	1915	3	14	8	33	13
Winchell	1915	3	2	8	2	8
Chasselas de Fontainbleau	1915	2	.....		1	8

GOOSEBERRIES

Gooseberries are only of minor importance. Several European and American varieties have been grown. The European varieties are subject to mildew as elsewhere, but not to the same extent as in other parts of Canada.

GOOSEBERRIES—TEST OF VARIETIES

Name of Variety	Total yield for eight years		Average yield in eight years		Average yield for last four years		Yield, 1922	
	lb.	oz.	lb.	oz.	lb.	oz.	lb.	oz.
European—								
Industry	18,500	3	2,312	8	2,545	6	3,058	7
Whitesmith	20,401	12	2,550	3	3,801	2	4,310	10
Victoria	24,365	8	3,079	7	3,875	0	4,864	3
American—								
Champion	58,760	10	7,345	1	9,267	13	7,381	0
Houghton	21,518	10	2,689	14	3,202	11	2,752	12
Josselyn (7 years)	25,820	2	3,688	9	4,844	3	5,598	0

BLACKBERRIES

The blackberry is not a good shipper, hence the lack of importance attached to the industry. The berry grows with the greatest ease. The fact that a plant or two of Himalayan blackberries is sufficient to supply fruit for a family destroys any local demand that there otherwise would be. The Himalayan stands in a class by itself so far as yield is concerned. The quality is excellent. The season is long.

BLACKBERRIES—TEST OF VARIETIES

Name of Variety	When set	Number of bushes	Produce per acre for five years		Average yield per acre for five years		Remarks
			lb.	oz.	lb.	oz.	
Erie	1913	12	27,094	6	5,418	14	Fair.
Himalayan	1916	12	79,468	14	15,893	10	Good.
Laciniatus	1916						Destroyed.
Mammoth	1913	8	10,478	8	2,095	11	Fair.
Phenomenal	1913	12	16,849	15	3,569	15	Fair.
Low	1919	3	6,503	11	2,167	14	Fair.
Snyder	1913	12	2,129	10	425	14	Fair.

BLACKBERRY—THORNLESS VARIETIES

Thornless blackberries are now possible. In 1921 two varieties were planted, viz., Corey Thornless and Burbank Thornless. Both sorts have made wonderful growth and are in excellent shape to produce during the coming year. Some experimental work will be undertaken in regard to methods of training, etc. No results are yet available.

LOGANBERRIES—METHODS OF TRAINING

Several methods of training loganberries have been tried successfully, but no systematic attempt has been undertaken to determine what system should be followed. In 1921 logans were set under four systems. Records will be kept for several years. Plants were set 8 feet apart in rows, and 9 feet between rows. Ten plants set under each system. The systems in use are as follows:—

System 1.—Plants trained on four wires firmly fastened to cedar posts. The wires are placed about one foot apart. *"Weaving system."*

System 2.—Same as system 1 except that two wires are used in place of four. *" Rope system."*

System 3.—*Cross Arms.* In this system two cross arms are used with wire on each end of both arms. Four wires in all used in this system.

System 4.—*Cross Arm.* This system is the same as No. 3 except that one cross arm is used instead of two. One wire is used at the bottom fastened to the posts; and one wire on either end of crossarm farther up. Three wires are used in this system. It is hoped to prove or otherwise the advantage of extra wires, and to determine whether extra picking faces are possible by means of the cross arms. No results are yet available.

VEGETABLE GARDENING

Vegetable gardening on Vancouver island does not occupy so large a place as one would expect. Vegetables of good quality are grown and the demand for same is keen, but the industry is almost wholly in the hands of the Orientals. This is true not only in the growing but the trading in same, both wholesale and retail. Growing under glass still interests many people, yet many of the larger glass houses have passed out of the hands of white men. Gardening under glass will receive more attention at the Station. A range of glass houses will probably be put up during the coming summer. Potatoes are receiving more attention year by year, largely because of the advertising given accredited seed, and the consequent demand for same.

POTATOES

Thirty-four varieties of potatoes were grown in uniform test plots. They were planted on heavy black loam that had not grown potatoes for several years. They were planted May 13 and harvested September 21. It was noticed that many varieties grown here were poor in quality, low in yield and lacking greatly in vitality. In view of this, several new varieties were brought in from various sources. It is interesting to note that these varieties outyielded the old sorts beyond our hope. Burbank Special, which is not a Burbank at all, a potato obtained from Queen Charlotte Islands through Mr. Tice, was the heaviest yielder. Early Surprise, Carman No. 3 and Netted Gem, all varieties not grown at the Station for some time, outyielded the older sorts considerably. Ten of the best yielding varieties are here tabulated. Many other sorts have been discarded.

POTATOES—TEST OF VARIETIES

Variety	Source	Marketable		Unmarketable		Total for plot		Yield per acre	
		lb.	oz.	lb.	oz.	lb.	oz.	tons	lb.
Burbank Special	Queen Charlotte Islands.	104	4	10	0	114	4	15	162
Early Surprise	Sidney	98	0	6	8	104	8	13	1,588
Carman No. 3	Saanichton	91	8	11	4	102	12	13	1,106
Netted Gem		62	8	8	0	70	8	9	612
American Wonder	V.I.S.	62	8	4	8	67	0	8	1,688
Kerr Pink	V.I.S.	46	8	8	0	54	8	7	256
Rural Red	Sidney	48	0	6	0	54	0	7	256
Irish Cobbler	Morden	42	4	6	4	48	8	6	784
Green Mountain	V.I.S.	40	8	6	8	47	0	6	408
Million Dollar	V.I.S.	41	8	4	8	46	0	6	144

POTATOES—MATURE VS. IMMATURE SEED

It is generally thought that immature seed has some advantage over mature seed and so it would seem from results obtained from one year's work.

POTATOES—MATURE VS. IMMATURE SEED

Variety	Mature Seed		Immature Seed	
	bush.	lb.	bush.	lb.
Netted Gem	272	15	335	46

Several other projects with potatoes will be reported on under Chemistry, having to do with fertilizers.

ONIONS

Many varieties of onions from various sources were planted in spring of 1922. Onions do not succeed any too well on our heavy black soil, but from standpoint of germination and relative yields much may be learned.

ONIONS—VARIETY TEST

Variety	Source	Number of seed germinated in two feet of drill	Weight from sixty feet
Large Red Wethersfield	0-988	38	43
Giant Prize Taker	Graham	49	42
Yellow Prize Taker	Steele-Briggs	27	36
Yellow Globe Danvers	Graham	32	32
Large Red Wethersfield	Sy	30	30
Yellow Globe Danvers	0-931-2	34	29
White Barletta	McDonald	25	26
Red Globe Southport	Steele-Briggs	17	26
Yellow Globe Danvers	Steele-Briggs	30	26
Ailsa Craig	Graham	21	23
Southport White Globe	Steele-Briggs	15	20
Australian Brown	McDonald	18	14
Ex. Early Flat Dutch	McDonald	12	10

The difference in germination was very noticeable not only from count but from the appearance of plants in field.

ASPARAGUS

Asparagus in some quantity was planted in 1922. Various plans as to spacing in row and distance between rows were observed. Reports are not yet available.

SPINACH

Six varieties of spinach were under test during 1922. The vegetable is popular on the coast and well worth growing.

SPINACH—TEST OF VARIETIES

Variety	Source	Date sown	Ready for use	Weight from thirty feet	
				lb.	oz.
New Zealand	McDonald	April 8	Sept. 2	26	12
Broad Flanders	"	" 8	June 7	5	14
Bloomdale	"	" 8	" 7	5	12
Long Standing	"	" 8	" 12	4	12
Victoria	"	" 8	" 7	4	8
Viroflay	Sidney	" 8	" 7	4	8

New Zealand, though very slow in maturing, was of good quality and yielded well. The snow of December covered all and prevented further harvest.

CARROTS

Nine varieties of carrots were under test during 1922. These were sown in drills on April 15 and harvested in November.

CARROTS—TEST OF VARIETIES

Variety	Source	Germination	Weight from thirty feet	
			lb.	oz.
Chantenay	McDonald	Fair	64	0
Chantenay	0-206-9	Good	63	0
Oxheart	Steele-Briggs	"	59	8
Garden Gem	McKenzie	"	59	0
Nantes Half Long Scarlet	Steele-Briggs	Fair	51	0
Improved Danvers	D. & F.	"	47	8
Intermediate	McDonald	Good	41	8
Early Scarlet Horn	D. & F.	Fair	39	0
Half Long Danvers	Rennie	Poor	36	0

Carrot "Chantenay," one of the best table carrots, was also at the head of the list from standpoint of yield.

EGG PLANT

Egg plants have little economic worth at best, but the plant is of no value at the Station during the average season. During 1922 the best results with this vegetable were obtained.

EGG PLANTS—TEST OF VARIETIES

Variety	Source	First ripe fruit
Black Beauty	McDonald	Sept. 24.
New York Imp	"	" 8.

PEPPER

Two varieties were under test during 1922, planted April 8, 18 inches apart in the row and 30 inches between the rows.

PEPPERS—TEST OF VARIETIES

Variety	Source	Ripe		Green		Total	
		lb.	oz.	lb.	oz.	lb.	oz.
Harris Early	Summerland	7	12	3	4	11	0
Neapolitan	"	4	6	2	4	6	10

CAULIFLOWER

Two varieties were under test during 1922.

Variety	Source	Ready for use	Weight from twenty feet row	
			lb.	oz.
Early Snowball	McDonald	Aug. 4	48	12
Ex. Early Dwarf Erfurt	"	" 12	42	0

Both varieties have value, and are well suited to the district, providing that moisture in sufficient quantity can be maintained.

BUSH BEANS

Beans have not been the success on the island that one would reasonably hope for. The growth is slow and disease common. Ten varieties were under test during 1922.

BEANS—TEST OF VARIETIES

Name of Variety	Source	Yield of pods from thirty feet row	
		lb.	oz.
Refugee or 1,000 to 1	Carters	24	8
Round Pod Kidney Wax	0–1638	22	8
Davis White Wax	McDonald	20	8
Refugee or 1,000 to 1	0–1631	20	12
Hodson Wax	0–1635	17	12
Plentiful French	V.I.S.	16	12
Ex. Early Red Valentine	0–1639	16	2
Hodson Wax	Harris	15	6
Wardwell Kidney Wax	0–1634	14	2

Round Pod Kidney Wax, Davis Wax and Plentiful (French) are among the best varieties.

BROAD BEANS

Broad beans are grown and well thought of on Vancouver Island, though little known in the remainder of Canada. We think that the beans have little future. They were sown in drills 6 inches apart, with 30 inches between rows. Thirty feet of each variety was under test.

BROAD BEANS—VARIETY TEST

Variety	Source	Ready for use	Weight from thirty feet drill	
			lb.	oz.
Exhibition Long Red	Sidney	July 12	42	8
Aquadula	"	" 10	33	8
Minnedosa	"	" 12	32	8
Seville Long Pod	"	" 15	29	0
Giant Long Pod	"	" 12	25	8
Windsor	"	" 15	24	0

Exhibition Long Red is the heaviest yielder but not earlier than some other sorts.

CUCUMBERS

Eight varieties were under test during 1922. The seeds were sown in strawberry punnets and placed in frame April 20. Two seedlings were allowed to remain in each punnet. These were set in field six feet by six feet, May 26. The yield was not heavy, owing to lack of moisture.

Three hills of each variety under test.

CUCUMBERS—TEST OF VARIETIES

Variety	Ready for use	Weight		Remarks
		lb.	oz.	
Boston Pickling	July 6	58	13	Good.
Early Russian	"	54	6	Bitter.
Davis Perfect	" 8	52	12	Crisp.
Prolific	" 8	48	5	Good.
Imp. Long Green	" 8	44	3	Excellent.
Prize Pickle	" 15	41	12	Fair.
Early Green Cluster	" 6	30	7	Good.
West India Gherkin				

Davis Perfect or Perfection is one of the finest cucumbers for slicing, while Boston Pickling remains one of the best for the pickle industry.

PUMPKINS

Four varieties under test during 1922. These plants were started in the frame and transferred to field 9 feet by 9 feet. Two plants were allowed to each hill, and three hills of each variety were under test.

PUMPKINS—TEST OF VARIETIES

Variety	Yield	
	lb.	oz.
Quaker Pie	138	0
Commercial Field	69	0
Genuine Mammoth	64	8
Small Sugar	40	0

Contrary to our expectation Quaker Pie outyielded all other varieties, even the Mammoth which has no value except for cattle feeding.

SQUASH

Squash received the same treatment as pumpkins. Two plants were allowed to each hill, while three hills of each variety were under test.

SQUASH—TEST OF VARIETIES

Variety	Yield	
	lb.	oz.
Delicious	64	8
Hubbard	60	8
Golden Hubbard	35	0

Delicious is certainly of delicious quality, but only a fair yielder, though heading the list for the year.

CABBAGE ROOT MAGGOT DESTRUCTION

The cabbage root maggot is very destructive. During certain seasons the crop is ruined because of the insect. Control measures were under test during 1922, viz. paper discs, corrosive sublimate, moth balls, vaporite, gas flakes. The crop was successfully grown, but the weakness of the experiment for the year was the fact that maggots were not very destructive. Danish Ballhead was the variety used.

CABBAGE—TREATMENTS FOR ROOT MAGGOTS

Treatment	Number plants set	Number alive at end of season
Tar Paper Discs	33	32
Corrosive Sublimate	33	33
Moth Balls	33	30
Vaporite	33	32
Gas Flakes, 8 oz. to 50 feet	33	None
Check	33	30

Gas flakes killed all plants outright. It is yet to be determined whether a strength can be found sufficient to kill the insects and not to injure the plants. Check work with soil and insect in jars would indicate that this is possible. Moth balls are used by the Chinese growers, and apparently with success.

CITRONS

The Colorado and Red Seeded Citron were sown in strawberry boxes and placed in frames. They were transferred to the open May 20, and set in hills 9 feet by nine feet. Three hills of each variety were under test. The Colorado yielded 70 pounds 12 ounces, and the Red Seeded 50 pounds 8 ounces. The Colorado produced specimens weighing up to 18 pounds each.

GARDEN PEAS

Peas enjoy the cool moisture laden atmosphere of the coast and yield well. Eighteen varieties were under test. The peas were planted in drills 30 inches apart and not supported. Product from 30 feet of each variety was determined.

PEAS—TEST OF VARIETIES

Variety	Source	Germ.	Ready for use	Number of pods to pound	Average height		Weight of pods from 30 feet	
					feet	in.	lb.	oz.
Pioneer	Sidney	Good	June 27	75	1	10	28	10
Heroine	"	"	" 27	66	2	6	25	2
English Wonder	"	"	" 27	110	1	2	21	6
Juno	"	Fair	July 3	65	2	8	19	..
Manifold	McKenzie	Good	June 27	79	2	6	18	5
English Wonder	G.A.C.E.	Fair	" 25	86	1	2	18	..
Thomas Laxton	C.E.F.	Good	" 23	59	2	6	15	10
Best of All	Sidney	Fair	" 29	50	2	6	15	4
Harrison Glory	Invermere	Good	July 6	66	3	6	14	1
Early Morn	Sidney	Fair	June 21	70	2	6	14	4
V.I.S. 2360	"	"	" 21	64	1	2	13	10
Laxtonian	Graham	"	" 29	59	2	..	13	8
American Wonder	Carter	Poor	" 29	70	2	..	13	6
Lord Raglan	Jersey Is.	Fair	" 28	88	2	..	12	10
Gregory Surprise	Gregory	"	" 27	123	4	..	12	9
Sutton Excelsior	Harris	"	" 27	71	1	10	12	3
Eight Weeks	Sidney	Good	" 21	91	1	4	11	8
Little Marvel	Rennie	Poor	" 20	98	1	5	8	10

Pioneer was most prolific and one of the largest pods under test, with Heroine a close second. The variety known as V.I.S. 2360 is one of our largest podded peas, and of superior quality.

GARDEN PEAS—PERCENTAGE OF PEAS IN POD, AND LOSS BY EVAPORATION

Experimental Stations have repeatedly subjected the varieties of garden peas to comparative yield tests. Though their findings have varied much, yet valuable information for certain districts has been tabulated. In fact little remains to be done from the standpoint of variety test.

Everyone has noticed that some varieties have pods well filled, while others have large pods poorly filled. What the housewife is mostly concerned with is not pods but peas, yet the relative merits of the varieties from this standpoint have not been determined, or touched by most writers.

Having this problem in mind, one pound of peas of the varieties grown at the Station were picked when at the green pea stage, shelled and the green peas weighed. It was found that the difference in weights was striking. as follows:—

PEAS—PERCENTAGES AND WEIGHTS

Variety	Weight of peas	Percentage of peas
	oz.	p.c.
One Pound Green Pods—		
American Wonder	6	37
Juno	7½	46
Manifold	7	43
Harrison Glory	7	43
Suttons Excelsior	6	37
Gregory Surprise	7	43
Killarney	6	37
Lord Raglan	6½	40
Thomas Laxton	6½	40
English Wonder	6½	40
Best of All	6	37
Saanich Gentleman	7	43
Canadian Wonder	8	50
Merchant of Venice	8½	53
Erimineus	8	50
Nicholas Nickleby	7½	46

Though this has interest, another point of supremely greater importance came out in the investigation. The peas were picked and left in the office for 24 hours before being shelled, at which time they were much lighter than when brought in. American Wonder had lost in total weight 9·37 per cent; Harrison Glory, 6·25 per cent; Sutton Excelsior, 12·5 per cent; Juno, 3·12 per cent; Manifold, 6·25 per cent; Gregory Surprise, 12·5 per cent; Killarney, 18·75 per cent; Lord Raglan, 12·5 per cent; Best of All, 12·5 per cent; Saanich Gentleman, 6·25 per cent; Erimineus, 6·25 per cent; Canadian Wonder, 6·25 per cent; Merchant of Venice, 6·25 per cent; Nicholas Nickleby, 6·25 per cent. This loss by evaporation may not interest the grower to the same extent as the tradesman, for the grocer's profit may be entirely eaten up by an unseen factor without his suspecting its presence. In cases of Killarney, one of the best peas on the market, the loss in twenty-four hours from this source was 18·75 per cent, but the loss did not stop there, for in the next twenty-four hours the average loss in all varieties was 15 per cent, slightly greater than the first. Probably this was due to the fact that during the second twenty-four hours the pods were exposed to the air on both sides, inside and out.

MELONS

Melons, though always found on the market in season, are practically not grown on the island. Considerable work was done during the past summer to secure information concerning varieties and cultural methods. The melons were planted in hotbeds, pricked out in 3-inch pots and set in the open, covered by cold frame measuring 6 feet by 12 feet. Each frame was covered by four

standard sash, measuring 3 feet by 6. Four plants were set in each frame, from which records were taken.

MELONS—TEST OF VARIETIES

Variety	First ripe fruit	Number of melons	Heaviest melon		Total yield	
			lb.	oz.	lb.	oz.
Page Early (Musk)	July 22	13	2	8	18	3
Paul Rose (Musk)	Aug. 2	20	1	8	19	12
Rocky Ford (Musk)	" 12	22	1	9	20	9
Phinney Early (Water)	" 5	11	8	0	51	12
Tom Watson (Water)	" 1	8	12	4	57	4

It will be seen that results were obtained from 4 plants of each variety. Paul Rose is a melon of exceptional flavour, but as grown here rather small for the trade. Phinney Early is earlier than Tom Watson but averages smaller. Both Phinney Early and Tom Watson are very like varieties grown under other names.

COMPARISON OF COLD FRAMES, FORCING HILLS AND OPEN GROUND IN THE CULTURE OF MELONS

In this project the melons were planted in hotbed and cared for as in the preceding experiment. When they were taken to the field four (4) plants of each variety were set in:—

I. Cold frames.

II. Forcing hills.

III. Open ground.

The cold frames were standard 6 by 12 feet, and the forcing hills were simply boxes sixteen inches square, with a sliding glass top, but without bottom. Where plant was set the forcing hill was placed over and tilted slightly toward the south and east.

MELONS—COMPARISON OF COLD FRAMES, FORCING HILLS AND OPEN GROUND

Variety	Cold Frame			Forcing Hill			Open Ground		
	First ripe fruit	Number of melons ripe	Total weight	First ripe fruit	Number of melons	Total weight	First ripe fruit	Number of melons ripe	Total weight
			lb. oz.			lb. oz.			lb. oz.
Page Early (Musk)	July 22	13	18 3	July 17	11	15 14	Aug. 24	8	9 4
Paul Rose (Musk)	Aug. 3	20	19 12	Aug. 9	7	5 12	Sept. 3	19	21 10
Rocky Ford (Musk)	" 12	22	20 9	" 21	15	12 13	" 7	7	7 1
Phinney Early (Water)	" 5	11	51 12	" 3	8	42 15	Aug. 16	9	35 13
Tom Watson (Water)	" 1	8	57 4	Sept. 10	3	19 8	" 24	3	24 2

There is no doubt as to the function of the glass in dealing with this fruit. It requires heat as few plants do, while cold is it greatest enemy. With the aid of the hotbed and cold frame we see no reason why the melon cannot be grown.

TOMATOES—CULTURAL METHODS

Very seldom will two men agree as to how tomatoes should be grown. Results obtained this year confirm our former opinion that tomatoes require little in the way of staking, pruning or tieing. A vigorous plant, well rooted,

correctly grown is the first essential, and the biggest factor in the problem. When growing tomatoes commercially a few years ago it was found that a box about sixteen inches square, without top or bottom, placed over the plant, provided an excellent support, and at the same time plants yielded better than others. Similar boxes gave larger yields than any other method at the Sidney Station during the past season. The plants were grown as per standard method; seed sown in hotbed, plants pricked out and transferred to open only when soil becomes warm. Variety under test, Bonny Best.

(*a*) Wooden Frame vs. No Treatment

Method	Fruit ripe	Total ripe		Green		Total		Yield per acre
		lb.	oz.	lb.	oz.	lb.	oz.	lb.
Wooden frame	Aug. 16	42	12	11	8	56	4	30,625
No frame	" 29	37	8	6	0	43	8	23,680

(*b*) Ten-Inch Drain Tile vs. No Treatment

Method	Fruit ripe	Total ripe		Green		Total		Yield per acre
		lb.	oz.	lb.	oz.	lb.	oz.	lb.
Tile	Aug. 19	38	11	12	8	51	3	27,889
No tile	" 29	37	8	6	0	43	8	23,680

(*c*) Pruning vs. No Pruning

Method	Ripe		Green		Total		Yield per acre
	lb.	oz.	lb.	oz.	lb.	oz.	lb.
Pruned	33	4	15	0	46	4	25,180
Not pruned	38	11	12	8	51	3	27,899

(*d*) Pruning and Stakes vs. No Pruning

Method	First ripe	Ripe fruit		Green		Total		Yield per acre
		lb.	oz.	lb.	oz.	lb.	oz.	lb.
Staking and pruning	Aug. 14	22	7	2	8	24	15	13,578
No pruning	" 29	37	8	6	0	43	8	23,680

(*e*) Trellis vs. No Treatment

Method	Fruit ripe	Total ripe		Green		Total		Yield per acre
		lb.	oz.	lb.	oz.	lb.	oz.	lb.
Trained on trellis	Aug. 19	42	0	8	12	50	12	27,625
Not trained	" 29	37	8	6	0	43	8	23,680

(*f*) STRAW MULCH VS. NO TREATMENT

Method	First ripe	Ripe		Green		Total		Yield per acre
		lb.	oz.	lb.	oz.	lb.	oz.	lb.
Straw mulch	Aug. 19	42	6	8	6	50	12	27,625
No mulch	Aug. 10	37	8	6	0	43	8	23,680

The fruit resting on straw was of a superior quality to that on the ground.

SEED GROWING

Vegetable and flower seed production on the Island has become an industry of considerable importance. Since sweet pea seed growing has become one of the leading lines, the Station has concentrated on that crop for the year. Much information has been gathered concerning the industry, wholly pioneer work so far as Canada is concerned.

SWEET PEAS—SEED PRODUCTION

(a) Cost of production—

Cost of growing one acre ..... $ 335.30
Yield per acre ..... 748 lbs.
Cost per pound ..... 45 cents

(b) Acid vs. no Acid—

Variety used, Clara Curtis.
Fifty seeds under test in each case.

Soaked in sulphuric acid 25 minutes	36	germinated
" " 18 minutes	31	"
" " 10	36	"
Check	46	"

The acid is used to hasten germination. Seeds did germinate more quickly to the extent of 24 hours, but all advantage was lost at end of first week, while a considerable percentage was killed outright.

(c) Culture vs. no Culture—

Culture ..... 774 lbs., 12 oz. per acre
No culture ..... 606 "

(d) Lime vs. no Lime—

Limed ..... 810 lbs., 12 oz. per acre
Unlimed ..... 606 "

Lime applied at the rate of one ton to the acre.

(e) Distance apart in Row—

Plants set 4 inches apart yielded 829 lbs. per acre.
" 8 " 701 "
" 12 " 606 "

Every advantage found by the closer planting.

(f) Sticking vs. no Sticking—

Sticking ..... 889 lbs. per acre
No sticking ..... 606 "

Sticks were obtained in the bush and placed in row every 8 inches. The vines were trained on the sticks. A larger yield and a finer sample of peas were produced by sticking, while the extra cost of procuring sticks was not determined.

(g) Hilling vs. no Hilling—

Hilling	606 lbs. per acre
No hilling	810 "

It has been noticed that hilling injuriously affects garden peas. That this applies to sweet pea seed growing is evident from the experiment.

(h) Harvesting—

Plot 1.—Hand picked, yielded 44 pounds.

Plot 2.—Reaping and threshing, yielded 48 pounds.

Plot one took forty hours to harvest, while plot two took 10 hours. Hand-picking is a very expensive method of gathering seed, but the only one possible in a wet season.

The effect of water was very clearly demonstrated on sweet pea seed production during the summer.

An old cedar drain ran across the plots. Though no water was apparent, the peas directly over kept on flowering until late season, but practically no seed was produced. Water in early season may be of great value to the peas, but ruinous in midsummer and late season. Excess nitrogen also influences

Sweet Pea Seed Production. The peas in flower are directly over an old cedar drain. Peas are mature on either side.

peas in the same way as water, causing them to continue flowering. Sweet pea seed production is an industry quite distinct from that of the florist. In the one case seeds are wanted, while in the other flowers. The earlier the peas can be planted and matured the greater the promise from the standpoint of seed.

ORNAMENTALS

Much attention has been given the ornamentals at the Station. The mild climate has permitted us to grow many plants which would not be thought of in many other parts of Canada. Several continents have been drawn on in getting the collection together, until to-day it is fairly complete, very large and quite unusual.

CONIFERS—TEST OF VARIETIES

In this test many conifers have shown that they are not hardy, and have passed out, but the fittest have survived. The following have proven hardy at the stations:—

Hardy Conifers

Abies Apollonis
" *brachyphylla*
" *firma*
" *nobilis glauca*
" *Nordmanniana*
" *cephalonica*
" *pectinata*
" *Veitchii*
" *cilicica*
Cedrus Deodara.....
" *Libani*
Cryptomeria elegans
" *japonica*
" *bandai-sugi*
" *yoshino-sugi*
" *yenko-sugi*
" *kusari-sugi*
" *juidai-sugi*
" *sekka-sugi*
Cunninghamia sinensis
Cupressus Lawsoniana Albrichii
" " *argentea*
" " *Allumi*
" " *albo-spica*
" " *elegantissima*
" " *glabra*
" " *gracilis*
" " *Hollandi*
" " *Fraseri*
" " *lycopodiodes*
" " *mimina glauca*
" " *monumentalis*
" " *Rosenthali*
Cupressus Lawsoniana schongariensis
" " *strictacoerula*
" " " *viridis*
" " *silver queen*
" " *tamariscifolia*
" " *versicolor*
" " *Westermanni*
Juniperis rigida
Picea sitchensis
" *pungens*
" *pungens Kosteriana glauca*
" *excelsa*
Pinus koraiensis
" *Torreyana*
" *Sabiniana*
" *Coulteri*
" *Jeffreyi*
" *Parryana*
" *radiata*
" *Massoniana*
" *densiflora*
" *densiflora tanyosho*
" *Ayacahuite*
" *contorta*
" *Banksiana*
" *austriaca*
" *Douglasii*
Taxus baccata imperilis
Thuya pyramidalis
Tsuga canadensis

ROSES

The rose is at its best on Vancouver island. Despite lack of cultivation and a genial soil, the rose produces masses of flower, and continues to bloom well on in the season.

Very many roses are grown at the Station and notes on their behaviour recorded. An attempt was made this year to secure lists from the local growers of their best roses, and to check these against results obtained here.

Six of the best roses of the various classes are here given.

ROSES RECOMMENDED BY LOCAL GROWERS

W. J. Savory, Victoria, B.C.

Tea	*H.T.*	*Climbers*
Lamarque	La France	Caroline Testout
Marechal Niel	Mad. Ravory	Gloire de Dijon
Maman Cochet	Sunburst	Triplitz
Reve d'or	F. K. Druschki	Perle des Jardins
Rainbow	Gen. MacArthur	Hugh Dickson
Souv. de Guillot	Caroline Testout	

B. C. Nurseries, Ltd.

Tea	*H.T.*	*H.P.*
Etoile de Lyon	Sunburst	F. K. Druschki
Lady Hillingdon	Dean Hole	Gen. Jacqueminot
Mme Francesca Kruger	Joseph Hill	Gen. Ahrends
Maman Cochet (white)	Lady Ahstown	Geo. Dickson
Molly Sharman Crawford	Caroline Testout	Paul Neyron
Papa Gontier	Duchess of Wellington	Mrs. John Laing

Climbers	*Any others*
American Pillar	Los Angeles
Cl. American Beauty	Mad. Ed. Herriot
Cl. Caroline Testout	Lyon
Crimson Rambler	Reve d'Or
Dorothy Perkins	Corzd F. Meyer
Tausendschön	Juliet

Recommended by Gardener at Butchart's Gardens

Tea	*H.T.*	*H.P.*
Lady Plymouth	Gen. MacArthur	American Beauty
Alexander Hill Gray	Mme. Abel Chatenay	Snow Queen
Mrs. George Shawyer	Sunburst	Magna Charta
Mrs. Campbell Hall	Lady Ashtown	Clio
Mme Lombard	Caroline Testout	Hugh Dickson
Papa Gontier	Capt. F. Bald	George Ahrends

Climbers	*Miscellaneous*
American Pillar	Mme. E. Herriot
Dr. Van Fleet	Amoena
Tausendschon	Miss Lolita Armour
Cant's Blush	Sir T. Lipton
Paul's Scarlet	Arthur R. Goodwin
Minnehaha	New Century

Experimental Station, Sidney, BC.

Tea	*H.T.*
White Maman Cochet	Kaiserin Augusta Victoria
Marcehal Niel	Killarney
Souv. de Pierre Notting	Sunburst
Gloire de Dijon	Geo. Dickson
Souv. de Catherine Guillot	La France
Reve d'Or	Mme. Jules Grolex

H.P.	*Climbing*
Hugh Dickson	Excelsa
Mrs. John Laing	Crimson Rambler
Frau Karl Druschki	American Pillar
Ulrich Brunner	Paul's Scarlet
Gen. Jacqueminot	Tausendschon
Prince Camille de Rohan	Dr. Van Fleet
	Dorothy Perkins

It will be noticed that the roses are not all placed under the same class by different growers. The classification is very hazy and subject to much confusion. The blood of many roses appears in some of our newer sorts at present, carrying with it the characteristics of the classes, blending all in the newer rose, but the placing of same in its proper class is not at all easy.

PROPAGATION OF ROSES

Everybody knows that some roses may be propagated by cuttings with comparative ease, while others strike very poorly, if at all. A systematic attempt to determine what may be expected from the various roses and classes of same was begun in 1921. One hundred per cent of the cuttings struck in many cases, while one hundred per cent of failures were recorded in others.

PROPAGATION OF ROSES

Name of Rose	Class	Number of cuttings made	When made	Number struck
Alberic Barbier	Wich	12	June 29	9
Alister Stella Gray	N.H.	12	" 29	9
American Pillar	W.H.	12	" 29	..
Baby Rambler	M.H.	12	" 29	12
Baltimore Belle	Set	12	" 29	3
Beauty of Glazenwood	T	12	" 29	10
Birdie Blye	Wich	12	" 29	3
Bridesmaid	Tea	12	" 29	4
Carmine Pillar	Tea	12	" 29	10
Cecile Brunner	M.H.	12	" 29	11
Christine Wright	W.H.	12	" 29	..
Chromatella	Cl. T.	12	" 29	3
Claire Carnot	Cl. T.	12	" 29	10
Clotilde Soupert	M.H.	12	" 29	5
Crimson Rambler	Poly	12	" 29	12
Dawson	M.H.	12	" 29	8
Devoniensis	Tea	12	" 29	11

PROPOGATION OF ROSES—*Concluded*

Name of Rose	Class	Number of cuttings made	When made	Number struck
Dorothy Perkins	Wich.	12	" 29....	12
Empress of China	C.	12	" 29....	12
Excelsa	Wich.	12	" 29....	12
Fanny Stolwerck	Cl. T.	12	" 29....	4
Fortune's Double Yellow	Cl. T.	12	" 29....	10
Gainsborough	T.H.	12	" 29....	4
Gold of Ophir	N.	12	" 29....	7
Hiawatha	W.H.	12	" 29....	11
James Sprunt	Cl. T.	12	" 29....	12
Killarney	H.T.	12	" 29....	3
Lady Godiva	Wich.	12	" 29....	12
Lady Gay	Wich.	12	" 29....	11
Lily Ito	Poly.	12	" 29....	12
La France	Cl. H.T.	12	" 29....	1
Madam Caroline Kuster	Cl. H.T.	12	" 29....	11
Madam Wagram	H.T.	12	" 29....	4
Marechal Niel	Cl. T.	12	" 29....	11
Meteor	N.H.	12	" 29....	2
Minnehaha	W.H.	12	" 29....	12
Mrs. F. W. Flight	P.	12	" 29....	11
Mary Washington	Mult.	12	" 29....	6
Marie Guillot	Tea	12	" 29....	4
Northern Light	W.H.	12	" 29....	12
Papa Gontier	Tea	12	" 29....	9
Philadelphia Crim. Ram	Poly.	12	" 29....	12
Pillar O'Gold	N.H.	12	" 29....	5
Pink Rover	W.H.	12	" 29....	12
Prairie Queen	Set. H.	12	" 29....	8
Pride of Washington	Set.	12	" 30....	3
Reve d'Or	N.	12	" 29....	..
Reine Marie Henrietta	T.H.	12	" 29....	..
Reine Olga de Wurtemburg	T.H.	12	" 29....	11
Royal Cluster	Ramb.	12	" 29....	12
Russel Cottage	Set.	12	" 29....	12
Souvenir de Wooton	T.H.	12	" 29....	2
Trier	M.H.	12	" 29....	11
Washington	Ben.	12	" 29....	10
White Dorothy Perkins	W.H.	12	" 29....	11
William Allan Richardson	N.H.	12	" 29....	..
White Maman Cochet	Tea	12	" 29....	6
Zelia Pradel	Tea	12	" 29....	10

When arranged in classes they appear as follows:—

Class	Number of varieties	Percentage struck
Wichuriana	6	82
Rambler	1	100
Polyantha	3	100
China	1	100
Perpetual	1	91
Bengal	1	88
Multiflora-Hybrid	5	73
Wichuriana-Hybrid	7	69
Tea	8	66
Climbing Tea	6	69
Setigera-Hybrid	1	66
Multiflora	1	50
Climbing Hybrid Tea	2	50
Setigera	3	50
Tea-Hybrid	6	33
Noisette	2	29
Noisette-Hybrid	4	33

It will be noticed that Wichuriana, Rambler, Polyantha, China and Perpetual groups are propagated with ease, while the Teas and Tea-Hybrids register many failures.

BULB CULTURE

The work with bulbs is being continued. Whether we can compete with the European grower in price is doubtful, but as to the quality of the bulbs produced there is no question. Bulbs grown at Sidney have been sent to each Experimental Farm and Station in Canada with the request that they be grown beside those coming from Europe, to compare same in regard to size and intensity of bloom, length of stem, time of flowering, etc. Report on this work will be found in subsequent reports. We recommend:—

Tulips.—Desirable varieties for outdoor planting.—The Darwins are of course, the best of all tulips. They are later than some other classes, but they are so large, so desirable, so excellent as cut bloom, and have such wonderful colouring that we can afford to wait for them. Plant; Clara Butt, Dream, Edmee, Faust, Krelage, Painted Lady, The Sultan, Queen Mary, King George V, Yellow Perfection, William Pitt, Suzon, Ouida, Pride of Haarlem, Margaret, Loveliness, La Tulipe Noire, Isis, Glow, Geefs, Farncombe Sanders, Beauty, Antony Roozen, Baronne de la Tonnaye. There are many other excellent sorts, but the foregoing are among the best that have been tested at the Experimental Station.

Season List of Narcissus Varieties

Large Trumpet Narcissi

First Early.—Golden Spur, Henry Irving, Princeps, Minimus, Tortuosus.
Second Early.—Hersfieldii, Maximus, Victoria, King Alfred.
Midseason.—Emperor, Empress, McCann.
Late Season.—Glory of Leiden, Van Waveren's Giant, Madame de Graaff, Madame Plemp.
Very late Season.—Grandee, Grandis.

Medium Crowned Narcissi

Second Early.—Beatrice, Amabilis.
Mid Season.—Sir Watkin, White Lady, Cynosure, Duchess of Westminster, C. J. Backhouse, Grand Duchess, Frank Miles, Evangeline.
Late Season.—Barri Conspicuus, Barbara Holmes, Flora Wilson.

Small Crowned Narcissi

Late Season.—Glory, Grandiflora.
Very late Season.—Pheasant Eye, King Edward VII, Ornatus, Poetarum.

Paper White or Poetaz Narcissi

Late Season.—Alsace, Ideal, Klondyke, Triumph, Elvira.

Cluster or Polyanthus Narcissi

Mid Season.—Gloriosa, Grand Monarque, Lord Canning, Her Majesty.
The five seasonal periods above quoted cover a period of eight weeks, April and May.

HYACINTH

Single Dark Reds.—Garibaldi, La Victoire, Roi de Belges.
Single Rose.—Gigantea, Jacques, Moreno, Beauty.
Single Dark Blue.—Electra, Enchantress, Grand Lilas, Grand Maitre, Lord Derby.
Single White.—La Grandesse British Queen, Albertine, L'Innocence.
Single Yellow.—Buff Beauty, City of Haarlem, King of the Yellows, Yellow Hammer, Ball of Gold.
Single Violet.—Lord Balfour.

ANNUALS

The planting of annuals was extensive, and the showing very fine during the season of 1922. One hundred and fifty (150) varieties were under test. Among these we mention several as being quite outstanding:—

Ten Week Stocks
Verbena
Phlox
Dimorphotheca
Aster
Salpiglossis
Zinnia
Cosmos
Snapdragon
Statice

The statice was grown for the first time, and though not well known was greatly admired.

MISCELLANEOUS

Nut Growing

Filberts.—The project was undertaken to determine the best varieties for the district among existing sorts, and to create other varieties of superior merit through hybridization. Already much has been learned concerning existing varieties, while the hybrids are yet in the seedling stage. The Nottingham and Fertile de Coutard are most promising so far from standpoint of yield and quality.

Filberts (Corylus)—Variety Test

Name of Variety	When set	No. of trees	Years in bearing	Average yield per tree for three years except as noted	Quality of fruit	Season	Remarks
				lb. oz.			
Avellana	1918	1	.....	2 nuts			
Calyculata	1918	1	.....	Nil			
Colurna	1918	1	.....	"			
Common	1918	1	.....	"			
Barcelona Filb	1916	1	.....	"			
California Purple	1916	1	.....	"			
du Chilly	1916	2	1 year	0 10	.....	Sept. 21	
English Filbert	1916	2	.....	Nil			
Kentish Cob	1916	2	1 year	0 10			
Merveille de Bollwiller	1915	6	.....	8 11	.....	2-3 wk. Sept	Largest tree, poor yielder.
Nottingham	1915	6	.....	12 7	.....	"	
Red Hazel	1916	2	1 year	3 2	Ex.	.....	Promising.
Spanish Purple	1916	1	.....	Nil			
Macrocarpa	1915	5	.....	0 7			
Macrocarpa davidiana	1918	1	.....	Nil			
Macrocarpa a feuille pourpre	1915	2	2 year	4 7	Good		
Macrocarpa a feuille lacinae	1916	1	.....	Nil			
Macrocarpa d'Angleterre	1915	1	.....	Nil			
Macrocarpa de Provence	1915	2	.....	Nil			
Macrocarpa Emperor	1915	1	1 year	0 10			
Macrocarpa du Bearn	1916	1	1 year	0 6			
Macrocarpa Gosford	1916	2	.....	Nil			
Macrocarpa Pellicule rouge	1916	1	.....	Nil			
Macrocarpa Prolific	1915	1	.....	2 5	.....	2-3wk. Sept.	
Macrocarpa Fertile de Coutard	1915	7	1 year	22 5	.....	"	1 of best yielding nuts.

ALMONDS

The test of the almond as an orchard crop was begun in 1915. Only one variety, a hard shell, *Amagdalus communis*, has fruited so far. The quality was very good, but the trees seem subject to mildew under our moist conditions. The future for the almond on the Island would seem to be very uncertain. See Bulletin 49, also for pecans and hickories.

CHESTNUTS

Many varieties of chestnuts are under test. Growth has been satisfactory. They are beginning to bear, but have not reached a stage where a satisfactory report is possible.

WALNUTS

The walnuts at the Station continue to make progress, but have not yet reached the productive stage. The walnut develops slowly, and does not stand transplanting well. Seedlings, when very young, transplant without serious check. Many grafted varieties and seedlings are under test.

Digging vs. Blowing Holes in the Planting of Walnuts

In 1917 many young walnut trees were set on soil quite heavy underlaid with subsoil approaching a hardpan. To determine the effect of using powder in digging these holes (thus shattering the subsoil) was the object of the experiment. Six varieties of walnuts were used in the experiment, part being blown and part dug, of each variety.

Walnuts Spade Digging vs. Blowing

Name of Variety	How dug	Height when planted	Growth 1917	Growth 1918	Growth 1919	Growth 1920	Growth 1921	Growth 1922	Average growth 6 year
		in.	in.	in.	in.	in.	in.	in.	in.
Juglans Chaberte	Blown	36	1	7	2	18	28	40	17½
	Spade	34	1	20	4½	29	30	50	22½
Juglans de Terreford	Blown	20	½	4	20	28	30	34	19½
	Spade	20	½	2	1	7	28	36	12½
Franquette	Blown	36	½	4	1	1	24	38	11½
	Spade	36	½	11	1	5	34	40	15½
Mayette	Blown	18	½	6	1	2	40	30	13½
	Spade	21	½	9½	1	5	40	36	15½
Parisienne	Blown	28	½	18	2	29	48	48	24½
	Spade	28	1½	4	4	27	40	40	19½
Regia	Blown	18	½	14	15	27	30	48	22½
	Spade	22	1½	1½	8	26	24	40	17

To the surprise of everybody it was found that the walnuts made poorer growth where the holes were blown. How to account for the fact is a problem demanding much study, but it is possible that shattering the subsoil may interfere with the proper rise of soil moisture. If this proposition is correct, time may overcome the difficulty. At any rate the subsequent behaviour of the trees will be watched with interest.

CAMPHOR

The usefulness of this plant to the district as a source of commercial camphor has been under test since 1915. The plants have been found to be frost tender and suffer the killing back of all new growth each winter. There is no hope for camphor on this island, unless hardier strains can be secured.

TEA

Camellia theifera as a source of commercial tea has been under test since 1915. The plant is perfectly hardy and thrives with little care. Some effort has been made to cure a few of the leaves, but since the several devices used in the drying are not available at the Station, the work cannot be regarded as a success. Further efforts will be made this coming spring. There can be no doubt as to the feasibility of using this plant as a source of tea, but as a commercial proposition it could not succeed with the present price of labour. Tea is possible at its market price only because of the poorly paid Oriental labour; about one-tenth of that paid at the Experimental Station.

LOQUAT

The Loquat was obtained from California in 1915, with the hope that it might be a valuable addition to the orchard crops of the district. Two plants were found to be quite hardy but have not borne fruit to date.

ELAEAGNUS

Varieties of Elaeagnus were first planted at the Station in 1915. Of these *Elaeagnus longipes* has been found useful as a small fruit, for fruit juice, for jelly, etc. *E. Pungens* and *E. umbellata*, other species of *Elaeagnus*, have not proved their worth, and promise little for the future.

POMEGRANATES

The Pomegranate was first tried in 1915 and succeeding years. The winter-killing was so severe that the project was abandoned on the ground that the plant was too tender for the district. The project under slightly different lines of procedure remains for the future.

CASCARA

The Cascara project was first considered in 1914, and has received more or less attention since. To ascertain the value as a commercial source of cascara, as well as the type of tree suited to bark production, were the objects sought. The trees have been pruned to straight pole and branched types, though the best method of securing the bark without the destruction of the tree has not yet been ascertained. The Indians have gathered and used the bark as medicine for a long time, but without regard for the tree. A few growers may find in cascara a means of livelihood entirely undeveloped to date.

BROUSSONETIA

The project was begun in 1915 and was intended to show the usefulness or otherwise of this plant as a source of paper-making material. Certainly the plant has little chance of competing with spruce, firs and hemlocks on this island; yet it is hardy and a rapid grower, and could be used for the purpose intended should the need arise.

RHUS

The test of Rhus varieties was begun in the early days of the Station, to ascertain the degree of usefulness as a source of wood and varnish. The varieties have been secured from Japan. The plants are poisonous.

LAVENDER

The plants were obtained from France in 1915 and have been cared for since, to determine their usefulness on this island as a source of lavender oil. The plant thrives and will no doubt become very popular.

PERSIMMON

Persimmon from Japan and from the United States have received care at the Station. A few fruits have been produced. The future of this tree on the island is very uncertain. It will probably be found too tender for the district.

OLIVES

The olive as a food plant has been under trial for years. The trees have made fair growth, continue their struggle for existence and have produced a

few fruits. The olive blossoms in late June, and the fruit requires 12 months to develop. Since twelve degrees of frost will destroy the partly grown fruit, which must go through the winter in order to develop during the following summer; and since only one winter in five is mild enough to permit the development of the crop, there is little likelihood of commercial olive growing being undertaken in British Columbia. The tree has some value as an ornamental, being evergreen.

HOLLY

The commercial value of holly has been considered since 1914. The trees here are making fair growth and production from the standpoint of berries has been satisfactory. There is a ready sale for holly in the holiday season. We expect this industry to be greatly developed in the future.

CEREALS

The cereal work at the Station has not occupied a large place heretofore, but during the autumn of 1921 a range consisting of several acres was allocated to the Cereal Division. On this range a definite rotation will be followed, viz twenty-five per cent to fall sown cereals; twenty-five per cent to spring sown cereals; twenty-five per cent to roots and twenty-five per cent to summer fallow. This rotation will help to keep the varieties separate and free from weeds. It is intended to use the root area in conjunction with that of the Forage Crop Division, in so far as root work is concerned.

Fall sown cereals consistently yield better than those sown in the spring. The mildness of the climate on the Saanich peninsula permits of great expansion in fall sowing, since many of the spring cereals are hardy enough to survive the winter on southern Vancouver island. Many wheats are hardy. So far as wheat is concerned the fall sowing of spring wheat has advanced beyond the experimental stage, for many farmers have adopted the method. Several barleys appear hardy and work with these is being continued. More work is being given to the oats in this connection than in any other line. Many so-called winter oats have been obtained from various sources. These have been sown besides standard Canadian oats, together with volunteer oats gathered by the Station. The results with these sown in 1921 were not promising, but many factors enter into the problem, however, we are satisfied that, at this writing, some of these have been solved and we look to the future with some confidence. No doubt some results will be available for the 1923 report.

FALL SOWN BARLEY

Four varieties of barley, obtained from the Dominion Cerealist, were sown September 21, 1921, in duplicate plots, one-eightieth of an acre each. The only difference in the two plots of each variety was that the first was sown at the rate of two bushels per acre, and the second 2½ bushels per acre, hence eight plots are reported on.

BARLEY FALL SOWN—TEST OF VARIETIES

Name of Variety	Amount sown per acre	Average length of straw	Average length of head	Date cut	Actual yield of grain per acre		Remarks
	bush.	in.	in.		bush.	lb.	
Manchurian, Ottawa 50	2	32	2¼	July 3	15	42	Greatly injured by birds.
Manchurian, Ottawa 50	2½	32	2¼	" 3	7	24	" "
Albert, Ottawa 54	2	28	1¾	" 3	6	32	" "
Albert, Ottawa 54	2½	28	1¾	" 3	3	32	" "
O.A.C. 21	2	36	3	" 3	26	32	" "
O.A.C. 21	2½	36	3	" 3	11	16	" "
Duckbill, Ottawa 57	2	34	2¼	" 8	23	16	" "
Duckbill, Ottawa 57	2½	34	2¼	" 8	14	24	" "

Game birds were numerous and destructive. All plots of barley, from the experimental standpoint, were destroyed.

WHEAT—FALL SOWN

Nine varieties of wheat were sown in uniform duplicate test plots, one-eightieth of an acre each on Sept. 21, 1921. The soil, as with the barley, was a heavy clay, somewhat subject to winter washing. One plot of each variety was sown at the rate of 1½ bushels to the acre, and the other 2 bushels as noted.

WHEAT, FALL SOWN—TEST OF VARIETIES

Name of Variety	Amount sown per acre	Average length of straw	Date cut	Actual yield grain per acre	
	bush.	in.		bush.	lb.
Red Rock	1½	40	July 17	38	40
Red Rock	2	40	" 17	10	24
Velvet	1½	37	" 21	28	0
Velvet	2	37	" 21	21	20
Bluestem Marquis	1½	32	" 21	19	20
Bluestem Marquis	2	32	" 21	13	44
V.I.S. No. 1	1½	42	" 24	26	40
V.I.S. No. 1	2	42	" 24	20	40
Kitchener	1½	32	" 21	19	28
Kitchener	2	32	" 21	17	44
V.I.S. No. 14	1½	40	" 21	20	40
V.I.S. No. 14	2	40	" 21	24	20
Golden Sun	1½	38	Aug. 1		
Golden Sun	2	38	" 1		
V.I.S. 131	1½	36	" 1	30	56
V.I.S. 131	2	36	" 1	33	36
Purple Marquis	1½	38	July 21	24	24
Purple Marquis	2	38	" 21	29	36

Red Rock is a promising bearded wheat, a mutant or possibly a natural hybrid introduced by Professor Sprague, of Michigan, U.S.A. V.I.S. Velvet is a selection from a cross between Burbank Super and a plant found at Dean Bros. at Keating. Marquis Bluestem is a cross made in 1916. Kitchener is a well known standard wheat, while the others are introductions of the Experimental Station, Sidney.

FALL SOWN OATS

Four varieties of oats were sown Nov. 12, 1921. This sowing was too late by two months, but since the oats could not be obtained earlier they were put in at that time. The plots were sown at the rate of two and one half bushels to the acre. Though the seed germinated and made some showing above ground, the four varieties, viz, Alaska, Joanette, O.A.C. 72 and Banner Ottawa 49 were uniformly dead in the spring. If sown earlier the chances of success would have been much greater as we have subsequently learned.

FALL SOWN PEAS

New Zealand peas at the rate of two (2) bushels and two and a half bushels per acre were sown September 24 and October 30. All were dead in the spring as the winter was especially trying. No doubt better results would follow fall sowing in some seasons.

FALL SOWN WHEAT, OATS AND VETCH

Four plots of W.O.V. mixture, such as we use and recommend for ensilage, were sown September 21, 1921. The soil was a heavy clay and on this the mixture was sown at the rate of 3½, 4, 2 and 2½ bushels per acre.

WHEAT, OATS AND VETCH MIXTURE—FALL SOWN

Wheat, oats and vetch mixture	Rate of seeding per acre	When cut	Yield green feed per acre		Remarks	
	bush.		tons	lb.	tons	lb.
Plot 1	3½	June 20	8	800	2	400 dry hay
Plot 2	4	" 20	10	800	3	0 "
Plot 3	2	" 20	7	800	2	160 "
Plot 4	2½	" 20	7	200	2	40 "

The percentage of hay is somewhat less than one-third of the green feed, viz., 26·2, 28·3, 28·1 and 28·4 per cent. This crop, though grown among the autumn sown cereals, scarcely belongs in the division. For further information concerning the crop, see project 6, Field Husbandry Division.

BARLEY—SPRING SOWN

Eight varieties of barley were tested in 1922. The range would not permit of all of these being grown in duplicate plots, though many were. The plots measured one-eightieth of an acre. The seed was sown April 17 at the rate of two bushels to the acre.

SPRING SOWN BARLEY—TEST OF VARIETIES

Name of Variety	Days maturing	Average length of straw	Average yield green per acre		Remarks
		in.	bush.	lb.	
Hulless	87	30	29	16	Smutty.
Beardless	85	34	..	..	Very smutty, destroyed.
6-rowed	89	27	..	..	Very smutty, destroyed.
Duckbill 007	122	28	14	8	Straw short, very thin.
Chinese, Ottawa 60	122	26	15	0	Very short straw.
Himalayan, Ottawa 59	115	24	18	16	
Albert, Ottawa 54	115	24	13	16	
O.A.C. 21	86	22	24	20	

All of the spring sown barleys were very short in straw, so short in some cases that they were gathered with difficulty. One plot of Hulless, the Beardless and "6-Rowed" were obtained locally. They were so smutty and mixed that they were destroyed outright, while records were not kept. The variety Hulless was the best yielder for the year, although all were low enough. The Himalayan is a hulless variety, and not especially early under our conditions. O.A.C. 21 is still outstanding and does well with us as elsewhere.

OATS, SPRING SOWN

Eleven varieties of oats were under test, many in duplicate plots of one-eightieth of an acre each. The seed was sown on April 17, at rate of 2 bushels per acre, on rather heavy clay soil. The following results were obtained:—

OATS, SPRING SOWN—TEST OF VARIETIES

Name of Variety	Days maturing	Length of straw	Yield of green per acre		Remarks
		in.	bush.	lb.	
Garton Abundance	122	36	52	0	Very clean.
Garton	122	32	44	24	Slightly patchy.
Victor	122	33½	46	21	
Longfellow, Ottawa 478	88	24	25	30	
Liberty, Ottawa 480	115	36	11	26	Germination poor, large heads.
Columbia, Ottawa 78	122	32	36	32	
Banner, Ottawa 49	122	34	44	20	Good heads and straw.
Victory	122	28	46	6	Patchy, small heads.
Early Ripe White, 213	96	34	28	8	
Oat, Ottawa 713	99	26	23	18	
Conqueror	122	31½	20	5	Patchy, short straw.

Garton Abundance was the best yielder and is popular with many people at the coast. Victory and Banner are well established sorts, and consistently yield well.

WHEAT, SPRING SOWN

Four varieties of wheat were sown in duplicate test plots one-eightieth of an acre in size, April 17. The soil was rather heavy, in keeping with all the soil throughout the range. The plots were sown at the rate of two (2) bushels to the acre and cut August 17.

SPRING SOWN WHEAT—TEST OF VARIETIES

Name of Variety	Days maturing	Average length of straw	Yield per acre		Remarks
		in.	bush.	lb.	
Bluestem	122	39	19	36	Mixed, considerable smut.
Marquis	122	36	18	37	Smutty.
Red Fife, Ottawa 17	122	35	16	40	Fair. Smut slight.
Huron, Ottawa 3	122	30	12	0	Patchy, straw short.
Marquis, Ottawa 15	122	25	16	0	Poor. Small head.

The so-called hard wheats are never at their best on the coast. The most of these are soft, probably due to the moisture laden air, and fit only for feed. Several of the soft wheats when fall sown here yield better than wheats on the prairie. Yields of from 35 to 40 bushels to the acre are expected and obtained.

FORAGE CROPS

Owing to exceptionally unfavourable weather conditions Forage Crops, at this Station, were almost a total failure.

ROOTS

Varieties of swedes, mangels, field carrots and sugar beets were sown in duplicate test plots. Germination was good but by midsummer, due to lack of rainfall, all plots were so seriously checked that no reliable records could be taken.

ENSILAGE CROPS

Seven varieties or strains of Sunflowers were sown May 11, in duplicate test plots and harvested September 28. Although affected by drought fair yields were obtained which are as follows:—

SUNFLOWERS—TEST OF VARIETIES

Variety	Average height		Source of Seed	Yield per acre	
	ft.	in.		tons	lb.
Mammoth Russian	6	0	Dakota Imp. Seed Company	21	1,987
Early Ottawa	4	6	C. E. Farm	10	1,673
Mammoth Russian	5	6	K. McDonald & Son	16	1,738
Mixed Mennonite	4	0	Rosthern District	10	1,886
Prolific White	4	3	"	10	1,488
Manteca	4	2		10	1,993
Brooks Dwarf	3	6		6	616
Average				12	1,340

Mammoth Russian is a very late variety but where Sunflowers are being grown for ensilage this cannot be objected to in view of the fact that it is a comparatively heavy yielder.

INDIAN CORN

Six varieties of Indian corn were sown in duplicate test plots. Although the soil and season were not favourable the germination was good. Crows and game birds totally destroyed the stand. The varieties were again planted after treating the seed with tar but in spite of this precaution much of the second seeding was also destroyed. Yields were however taken at harvest time from the remaining stand but these cannot be considered as representative of the varieties tested.

INDIAN CORN—TEST OF VARIETIES

Variety	Average height		Source of seed	Yield per acre	
	ft.	in.		tons	lb.
Red Cob	5	3	B. & K.	7	946
Improved Leaming	6	2	J. O. Duke	7	1,553
Wisconsin No. 7	5	2	J. O. Duke	6	1,025
North Western Dent	4	10	B. & K.	5	676
Minnesota No. 13	5	1	B. & K.	5	1,103
Palisade	5	3	V. I. S.	3	726
Average				6	5

Test plots of grasses, millets and sorghums were sown but no record of yields could be obtained owing to failure to withstand the dry summer.

ALFALFA

A field consisting of 1·04 acres was sown to Grimm alfalfa in 1917. Alfalfa is not popular in this district, consequently very little is grown. It has, however, at Sidney proved successful as instanced in the following yields taken from the 1917 seeding in 1921.

Three cuttings were taken as follows:—

First cut	yielded	1 ton 1,460 pounds
Second cut	"	1 ton 580 pounds
Third cut	"	0 1,550 pounds
Total		3 tons 1,540 pounds

This from 1·04 acres is equivalent to a yield of 3 tons 1,250 pounds per acre.

Third crop Alfalfa, Experimental Station, Sidney, B.C.

Alfalfa at this Station has been sown in rows at different distances apart. Yields from these seedings are as follows:—

Distance between rows	Dry hay yield per acre	
	tons	lb.
36 inches	2	489
30 "	1	1,807
18 "	1	69
12 "	0	1,972

Three cuttings were made from each seeding but the third cutting was light and made at time when it was impossible to cure. The preceeding table gives the yield from two cuttings, made June 14 and August 18.

The difference in yield is quite marked in favour of the seeding in rows 36 inches apart and where alfalfa is to be grown in rows we recommend this distance apart as it has with us given best yields and also permits of the most effective cultivation.

Several new lines of work have been started, tests of white clovers, fall planting of root seed and the seeding of grasses and clovers with versus without nurse crops at different seasons of the year.

EXPERIMENTS WITH FERTILIZERS

Some work has been undertaken during the past year with fertilizers, with the hope that the fertilizer needs of the district might be determined. The summer was exceedingly dry, so that results were of a very unsatisfactory nature. Check plots very often yielded heavier crops than those fertilized, which can be explained only from the fact that these fertilizers, though soluble in water, were not used by the plant during a summer like last year.

The fertilizer "Alunite" was used on the farm for the first time. Wizard manure and lime were also used in some quantity.

FERTILIZER EXPERIMENT WITH POTATOES

In this experiment three varieties of potatoes were used, viz: Early Ohio, Irish Cobbler, and Carman No. 3. Each variety was grown with a fertilizer mixed at the farm, applied at the rate of 1,000 pounds per acre, consisting of:—

	lb.
Nitrate of soda	300
Acid phosphate	1,200
Muriate of potash	300

The same variety of potatoes was then grown with nitrate of soda, acid phosphate and muriate of potash applied separately in the relative proportion in which the chemical appeared in the mixed fertilizer. The soil was the common red soil of the district, underlaid with clay, approaching a hardpan. Peas were sown broadcast and ploughed down as a fertilizer the previous autumn, thus supplying part of the nitrogen. The fertilizer was placed in the drill and potatoes planted on March 14 and 15. The experiment was quite comprehensive, extending over two acres or more.

FERTILIZER EXPERIMENT WITH POTATOES

Variety	Yield per acre mixed fertilizer	Yield per acre nitrate of soda alone	Yield per acre muriate of potash alone	Yield per acre superphosphate alone	Yield of check (no fertilizer)
	bush.	bush.	bush.	bush.	bush.
Early Ohio	169	142	124	105	168
Irish Cobbler	108	99	96	105	111
Carman No. 3	375	399	411	380	411

Carman No. 3 is a late maturing variety. Though all varieties were planted at the one time, Early Ohio and Irish Cobbler matured and tops died down in midsummer, while Carman No. 3 picked up after light rainfall in autumn and doubled their yield. Test was made of Carman No. 3 in midsummer at the time other varieties were mature. It was found that at that time yield was little greater than that of Irish Cobbler. It would not be safe to draw definite conclusions from the work at present, since results are not consistent.

"ALUNITE" AS FERTILIZER FOR POTATOES

"Alunite" is a fertilizer made from a rock consisting of potash, ground roasted and offered for sale by the San Juan Mining and Manufacturing Company of Victoria, B.C. This ground mineral substance was sold in some quantity during the past season to the farmers of the district.

The mine is located at Kvuquot Sound, 205 miles from Victoria up the west coast of Vancouver island. The quantity of rock has been variously estimated

from eight hundred thousand tons to eighty million tons, but a conservative estimate would be one million tons. The rock, in the natural state, is brought to Esquimalt by steamer, crushed, put through rollers and then put through a 60 mesh sieve. The crushed rock is then put through a roaster at a temperature of 600 degrees. After cooling the material is bagged and placed on the market.

Three varieties of potatoes were used in the experiment, planted March 22 with results as follows:—

MIXED FERTILIZER VS. ALUNITE IN POTATO GROWING

Variety	Yield per acre using mixed fertilizer	Yield per acre, using alunite	Yield per acre, check (no fertilizer)
	bush.	bush.	bush.
Carman No. 3	496	314	411
Irish Cobbler	93	75	111
Up-to-Date	344	344	..

On account of dry weather results are not consistent, and therefore not conclusive, but are submitted for what they may be worth.

A sample of the ground and roasted rock was sent to Ottawa for analysis. The analysis was made and submitted by Dr. Frank T. Shutt, Dominion Chemist, under lab'y No. 59077 as follows:—

Potash, total-soluble in dilute hydrochloric acid	·946
Soluble in water	·362

The sample as received was in the form of a dry pinkish mauve powder, quite finely ground; and was representative of the ground and roasted alunite. It would seem that this material contains nothing of fertilizing value except potash, and that in not large quantities.

AN EXPERIMENT TO ASCERTAIN THE EFFECT OF APPLYING NITRATE OF SODA AT DIFFERENT TIMES

It has long been a debatable subject as to when nitrate of soda should be applied. Should it be put on at seeding time or later to the growing crop?

The nitrate was used on potatoes during the summer of 1922 as follows:—

Plot 1.—All at planting time.

Plot 2.—Two-thirds at planting time, one-third when crop comes through.

Plot 3.—One-third at planting time, one-third when crop comes through and one-third two weeks later.

Plot 4.—No nitrate at planting time, two-thirds when crop comes through and one-third two weeks later.

Plot 5.—No fertilizer at all.

In addition to 330 pounds sodium nitrate, plots 1 to 4 inclusive received 350 pounds superphosphate and 150 pounds muriate of potash per acre.

NITRATE OF SODA APPLIED AT DIFFERENT TIMES TO THE POTATO CROP

Variety	Yields of Potatoes per Acre				
	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5
	bush.	bush.	bush.	bush.	bush.
Early Rose	220	214	204	160	233

The figures are quite consistent in favour of all nitrate being used at planting time, but the check plot spoils all calculations. We believe that no fertilizer was active or influenced the crop during 1922, and that the difference in yield was purely a matter of chance.

AN EXPERIMENT TO ASCERTAIN THE VALUE OF WIZARD MANURE AS A FERTILIZER

For some years there has been on the market a fertilizer known as Wizard Manure. This material we understand is dried manure from the stockyards of Chicago. When superphosphate is added to the manure it is known as phosphated manure, and differs only from the "Wizard" in that particular. These manures were used on potatoes during the past season, and on several other crops. Results were not very satisfactory. Application was made at the rate of 1,000 pounds per acre. Potatoes were planted in rows 30 inches apart and test made from 33 feet of same.

POTATOES—WIZARD MANURE FERTILIZER EXPERIMENT

Variety	Fertilizer	Marketable		Culls		Total		Yield per acre
		lb	oz.	lb.	oz.	lb.	oz.	lb.
Jersey Royal	Check	19	8	2	4	21	12	11,478
" "	Wizard manure	22	8	3	4	25	12	13,595
" "	Wizard phosphated manure	25	0	2	12	27	12	14,652
Irish Cobbler	Check	21	4	2	12	24	0	12,672
" "	Wizard manure	21	12	3	4	25	0	13,200
" "	Wizard phosphated manure	26	0	4	4	30	4	15,972

Powdered clam shell was offered during the past season by the Sidney Trading Company as a substitute for agricultural lime. This material arises as a by-product in the canning of clams. This when ground gives poultry shell of two sizes, while the finer parts are bagged and sold as fertilizer. It was found that this material could be delivered at the farm for much less money than agricultural lime. A sample was forwarded to the Dominion Chemist, Ottawa. It was found to contain:—

	p.c.
Moisture	1·03
Carbonate of lime	92·87
Insoluble mineral	1·20
Oxide of iron and Alumina	0·40
Carbonate of magnesia	1·85
Phosphate of Lime	0·44
Undetermined (Organic matter)	2·21
	100·00

MECHANICAL ANALYSIS

	p.c.
Passing 100 mesh sieve	10·17
" 80 "	18·09
" 60 "	27·49
" 20 "	76·53
" 10 "	99·67

From the Dominion Chemist's report of the material we quote as follows:—

"There can be no doubt as to the value of this product as an amendment for soils in need of lime; its percentage of carbonate of lime, 92·87 per cent, places it in the front rank with respect to composition. In regard to degree of fineness it might leave something to be desired, if an immediate response is the sole desideratum."

POULTRY

Poultry work at the Station, in keeping with the importance of the industry on Vancouver island, has received much attention. The work is not only comprehensive but exact. In order to meet, in some measure, the demands made upon the Station for definite information along poultry lines, much of the custom hatching and sale of eggs for incubation has been discontinued for a time.

White Wyandottes are kept exclusively. This has been the policy of the Station since its inception, not because the Experimental Farms System has regarded the Wyandotte as the best breed, but because the problems connected with the one breed are quite sufficient to engage the attention of any one investigator. White Leghorns, along with the Wyandottes, remain popular with the breeders. The advocates of both breeds are found everywhere on the island, and observation would confirm the report that the Leghorns outnumber the Wyandottes.

By means of trapnest, toe marking and wing bands, records of the chicks are accurately kept. By selection of the best layers in the flock, and breeding only from these high producers, consistent with size, form, etc., it is possible to build up flocks of still greater worth from the utility standpoint. This has been the line of procedure at the Farm from the beginning of the work, and has gained momentum with the years. That this policy has borne fruit may be judged from the fact that eggs and chicks, layers and cockerels from the Sidney Farm are sought by breeders from a considerable part of Canada.

INCUBATION—COMPARISON OF VARIOUS SYSTEMS OF INCUBATION

Since the advent of our poultry work record has been kept of the various systems of incubation and the results obtained. Year by year these results have been tabulated and presented to the public. For the incubation work for the season 1922, three incubators, viz: Queen, Buckeye and Jubilee were employed. The natural method of incubation by hens was also under test. Results obtained are here appended:—

TEST OF VARIOUS SYSTEMS OF INCUBATION

Incubator	Total eggs set	Number fertile	Per cent fertile	Number of chicks hatched	Per cent total eggs hatched	Per cent fertile eggs hatched	Number chicks alive July 1	Per cent chicks alive July 1	Total eggs required for one chick hatched	Total fertile eggs for one chick hatched	Total eggs required for one chick, July 1
Queen.....	240	191	79·58	125	52·08	65·44	64	51·2	1·92	1·52	1·95
Buckeye..	1,758	1,373	78·10	702	40·50	51·12	127	18·09	2·50	1·95	13·81
Jubilee....	1,800	1,197	66·50	885	49·6	73·93	408	46·10	2·03	1·24	2·14
Hens.....	88	63	71·59	41	46·59	65·07	32	78·04	2·14	1·53	2·75

It will be noticed that the Buckeye, which heretofore has given us every satisfaction, has not done so well as one might reasonably expect. We have reason to believe that the fans were not working so well as they might do. The sudden shutting off of the electric current also adversely affects results in a big machine such as the Buckeye. These defects have been remedied in so far as is possible for the coming season.

HATCHING RESULTS—HENS VS. PULLETS

The Experimental Station at Sidney has consistently obtained better results from the incubation standpoint from mature hens rather than pullets; 1922 was no exception to other years, for it took more than twice as many

eggs from pullets to obtain one live chick July 1 as from hens. This is shown in a table as follows:—

HATCHING RESULTS FROM HENS AND PULLETS

Ages	Total eggs	Number fertile	Per cent fertile	Number of chicks	Per cent total eggs hatched	Per cent total fertile eggs hatched	Number chicks alive July 1	Per cent chicks hatched alive, July 1	Total eggs required for one chick	Total fertile eggs for one chick hatched	Total eggs for one chick, July 1
Hens.....	3,408	2,475	72·62	1,623	47·62	65·57	594	36·59	2·09	1·52	5·72
Pullets....	478	349	73·01	130	27·19	37·25	37	28·46	3·67	2·68	12·91

Hatchability is considerably poorer with pullets than with hens, but not so outstandingly so as from the standpoint of livability. Chicks hatched from pullett eggs lack in vitality or something which causes them to drop out first in the great struggle for existence.

INCUBATION—MARCH, APRIL, MAY

Nearly all eggs are incubated during the three months, March, April, May. As to when they should be incubated from the standpoint of future layers, breeders or market birds, are distinct problems in themselves, and must be considered as such; but the present project considers incubation wholly from the standpoint of incubation, and tabulates results obtained month by month, others factors being equal.

INCUBATION RESULTS, MARCH, APRIL, MAY

Time hatched	Total eggs set	Number fertile	Percent fertile	Number of chicks	Per cent total eggs hatched	Number chicks alive July 1	Per cent fertile eggs hatched	Per cent chicks hatched alive July 1	Total eggs required fore one chick hatched	Total fertile eggs required for one chick hatched	Total eggs required for one chick, July 1
March.....	300	198	66·0	125	41·66	83	63·13	66·4	2·40	1·58	3·61
April.....	1,492	1,080	72·38	597	40·01	254	55·27	42·5	2·49	1·81	5·87
May.....	2,094	1,546	73·82	1,031	49·23	294	66·68	28·5	2·03	1·49	7·36

The number of eggs set in March was not large, viz., 300, as compared with 1,492 in April and 2,094 in May. Though the percentage of fertile eggs hatched in the different months does not vary greatly, yet as the season advanced the viability of the chicks seemed much lower. The converse of this is undoubtedly true in many parts of Canada, especially in those sections where layers and males are closely confined all winter, but Vancouver island permits of much range for poultry during all months in the year. No comparison of breeds from the incubation standpoint has been possible, since Wyandottes only have been kept.

BROODING

Chickens are brooded by various methods year by year, and yet there is no division of poultry husbandry where definite results are more difficult to obtain. There are so many factors which influence results that it is quite difficult to put one's finger on that which may be regarded as dominant. For instance young chicks under a certain system of breeding die in large numbers. This may be the fault of the breeding, the fault of the incubation, the fault of the brooding or one of many other factors. Conclusions as to the brooding of chicks usually are faulty. Simplex brooders, Reliable Blue Flame, Electric brooders and

hens have all been used at the Station, and with more or less success. All these methods have advantages and disadvantages. More recently the coal stove brooder has come to be especially well thought of. With this type of brooder, the whole colony house is turned into a brooder. Heat is plentiful, while the chicks are able to find just that degree of heat required in various parts of the house. In a brooder of this type air is circulating freely, and is consequently pure; chicks are not forced to pile up in the centre to keep warm, while the capacity of the brooder is many times greater than the oil burner brooders so common a few years ago. The coal-stove brooder will become more popular with succeeding years.

FEEDING

Amounts Used and Costs of Feeding Chicks

Records of the amount of feed fed to chicks have been carefully kept and results tabulated. Though the price of feed varies with the years, the following is a fair average for a number of years. The quantities consumed by young chicks are fairly constant, and from this the cost under any feed market may be calculated.

CHICK FEEDING AS PRACTISED AT THE EXPERIMENTAL STATION

RATIONS FOR, AND METHODS OF FEEDING CHICKS

The Rations

No. 1—1 pound rolled oats.
1 pound stale bread crumbs.

No. 2—2 pounds hardboiled eggs (chopped fine).
¼ pound rolled oats.
2 ounces bread crumbs.

No. 3—300 pounds cracked wheat.
200 pounds cracked corn or commercial chick feed.
100 pounds pinhead oatmeal.

No. 4—300 pounds bran, 100 pounds cornmeal.
200 pounds shorts, 100 pounds beef scrap.
200 pounds ground oats, 4 pounds fine salt.

METHOD OF FEEDING

The first day the chicks remain in the incubator. The second day they are transferred to the brooder, but are not fed until they are forty-eight hours old. Feed sparingly for the first week; overfeeding causes bowel troubles. On the third day ration No. 1 should be fed, moistened with a little *sour* milk, and on the fourth day supply the chicks with clean water with the chill taken off; also provide a newly-burned log of charcoal.

METHODS OF FEEDING

First Week	Rations and Time of Feeding			
Day	6 a.m.	10 a.m.	2 p.m.	6 p.m.
1				
2				
3	No. 1	No. 1	No. 1	No. 1.
4	No. 1	No. 2	No. 2	No. 1.
5	No. 1	No. 2	No. 2	No. 1.
6	No. 1	No. 2	No. 2	Nos. 1 and 3 equal parts.
7	No. 1	Nos. 2 and 4 equal parts.	Nos. 2 and 4 equal parts.	Nos. 1 and 3 equal parts.

Second and Third Weeks.—Feed coarse oatmeal or rolled oats in litter at 6 a.m. Put No. 4 ration in shallow troughs or tins, and place it before chickens from 10 to 3 p.m. daily. Do not leave the dry mash before the chicks after 3 p.m., or they will not be hungry at 6 p.m. when a good feed of No. 3 should be given. Supply charcoal in the form of a burnt cedar log. Fine ground bone, grit and sand should be kept before the chicks at all times. Give green food daily, such as chopped lettuce, chick weed or young alfalfa shoots. Weather permitting, let the chicks run outside the second week.

Fourth, fifth and sixth weeks.—Feed No. 3 at 6 a.m., No. 4 at 10 a.m. to 3 p.m., and No. 3 again at 6 p.m.

Seventh and Eighth Weeks.—Feed No. 3 at 6 a.m., No. 4 9 a.m. to 4 p.m., wheat at 6 p.m. At this period shell should be supplied in hoppers.

Ninth Week to Fifth Month.—Wheat at 6 a.m., No. 4 before them all the time, and wheat for the last feed in the evening.

COST OF FEEDING A FLOCK OF WHITE WYANDOTTE CHICKS

Number of chicks	Amount and kind of feed consumed	Cost of feed
		$ cts.
1st week—250	66 eggs at 2½c	1 65
	14 lb. oatmeal at 3½c	0 45½
	1 lb. charcoal at 5c	0 05
	½ gal. skim-milk at 2c	0 01
Total cost		2 16½
2nd week—247	11 lb. oatmeal at 3½c	0 35¾
	11 lb. chick food at 3¼c	0 35¾
	18 lb. dry mash at 2¼c	0 40½
	2 lb. fine bone at 2½c	0 05
	1 lb. charcoal at 5c	0 05
	2 gal. skim-milk at 2c	0 04
Total cost		1 26
3rd week—246	14 lb. oatmeal at 3½c	0 45½
	14 lb. chick feed at 3¼c	0 45½
	24 lb. dry mash at 2¼c	0 54
	2½ gal. skim-milk at 2c	0 05
	½ lb. charcoal at 5c	0 02½
	2 lb. fine bone at 2½c	0 05
	2 lb. grit at 1¼c	0 02½
Total cost		1 60
4th week—246	28 lb. chick food at 3¼c	0 91
	23 lb. dry mash at 2¼c	0 51¾
	6 lb. fine charcoal at 5c	0 30
	14 lb. fine bone at 2½c	0 35
	5 lb. fine grit at 1¼c	0 06¼
	4 gal. skim-milk at 2c	0 08
Total cost		2 22
5th week—245	30 lb. chick food at 3¼c	0 97½
	55 lb. dry mash at 2¼c	1 23¾
	2 lb. charcoal at 5c	0 10
	12 lb. fine bone at 2½c	0 30
	11 lb. fine grit at 1¼c	0 13¾
	5 gal. skim-milk at 2c	0 10
Total cost		2 85

COST OF FEEDING A FLOCK OF WHITE WYANDOTTE CHICKS—*Concluded*

Number of chicks	Amount and kind of feed consumed	Cost of feed
		$ cts.
6th week—244	35 lb. chick food at 3½c	1 13½
	105 lb. dry mash at 2½c	2 36½
	2 lb. charcoal at 1c	0 02
	8 lb. fine bone at 2½c	0 20
	6 lb. fine grit at 1½c	0 07½
	3½ gal. skim-milk at 2c	0 07
Total cost		3 86½
7th week—242	122 lb. dry mash at 2½c	2 74½
	31 lb. wheat at 2c	0 62
	18 lb. chick feed at 3½c	0 58½
	6 lb. bone at 2½c	0 15
	3 lb. grit at 1½c	0 03½
	5 lb. shell at 1½c	0 06½
	2 lb. charcoal at 5c	0 10
	3 gal. skim-milk at 2c	0 06
Total cost		4 86
8th week—242	125 lb. dry mash at 2½c	2 81½
	14 lb. chick feed at 3½c	0 45½
	53 lb. wheat at 2c	1 06
	3 lb. shell at 1½c	0 03½
	7 lb. bone at 2½c	0 17½
	1 lb. grit at 1½c	0 01½
	4 lb. charcoal at 5c	0 20
	4 gal. skim-milk at 2c	0 08
Total cost		4 83½

SUMMARY OF TOTAL COST FOR FIRST EIGHT WEEKS

66 eggs at 2½c	1 65
39 lb. oatmeal at 3½c	1 26½
150 lb. chick feed at 3½c	4 87½
482 lb. dry mash at 2½c	10 62
84 lb. wheat at 2c	1 68
18½ lb. charcoal at 5c. and 1c	0 84½
51 lb. fine bone at 2½c	1 27½
28 lb. grit at 1½c	0 35
8 lb. shell at 1½c	0 10
24½ gal. skim-milk at 2c	0 49
	23 15½

Number of chicks well developed at end of 8th week, 242.
Total cost of feed consumed, $23.15½.
Feed cost per bird to end of eighth week, 9·5c.

The feed consumed by those that did not live to be eight weeks old has been charged up against the 242 that were alive and vigorous at the end of the period.

The cost of feeding laying stock (Wyandottes) for the year 1922 has been determined with pens of chicks hatched in March, April and May. An average cost has been obtained from the amounts of feed used month by month, based on prices paid on Vancouver island at the time.

COST OF FEEDING LAYING STOCK (Wyandottes)

Month	Number of birds	Average lb. grains consumed per bird	Average cost of feed per bird
			cts.
October	125	6·2	19·6
November	147	6·1	15·2
December	151	6·3	16·3
January	150	7·0	19·7
February	129	7·6	20·4
March	140	8·7	25·9
April	138	8·3	24·6
May	133	7·7	21·7
June	126	7·6	22·4
July	125	7·8	21·2
August	122	7·5	20·6
September	118	7·1	17·8
Totals	.....	87·9	$2 45

The amounts of feed consumed and consequent cost are greater in winter than at other seasons, as would be expected. The price of grain brings about changes in cost which cannot be accounted for in any other way, while the amounts eaten by the birds will vary, depending upon production and general condition of the hens.

GAIN, FEED AND COST OF FATTENING IN CRATES

Crate fattening of cockerels and surplus stock has been and continues to be a settled policy of the Station. Satisfactory gains have been made in crates, and at prices permitting of profit. Definite figures are given for one lot of 24 birds for season of 1922 as follows:—

GAIN, FEED AND COST OF FATTENING IN CRATES

Number of birds	Total weight at start	Total weight at finish	Total gain	Average gain per bird	Pounds of feed consumed	Cost of feed	Pounds of feed for one pound gain	Cost of one pound gain	Pounds of grain used	Pounds of skim milk used	Pounds of grain for one pound gain	Pounds of skim-milk for one pound gain
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.		$		cts.				
24	90 12	117 14	27·2	1·2	329	3·44	12·1	13	108	221	3·9	8·1

NOTE.—The rations consisted of equal parts low grade flour and fine ground oats, mixed with some sour skim-milk.
Value of ground oats ..... $ 2.20 per 100 pounds
Value of flour ..... 2.15 "
Value of skim-milk ..... 0.50 "

Though crate feeding has been our practice, results obtained under another project during the past season would indicate that equally good results may be obtained by fattening in pens. The truth of this will be more accurately determined and reported on in subsequent reports.

EFFECT OF THREE WEEKS' CRATE FEEDING ON PULLETS FOR WINTER LAYERS

The effect of crate feeding on cockerels is well known. The effect on pullets was not known. With the hope that maturity might be hastened, and consequently the laying period, by crate feeding, this pr ject was undertaken.

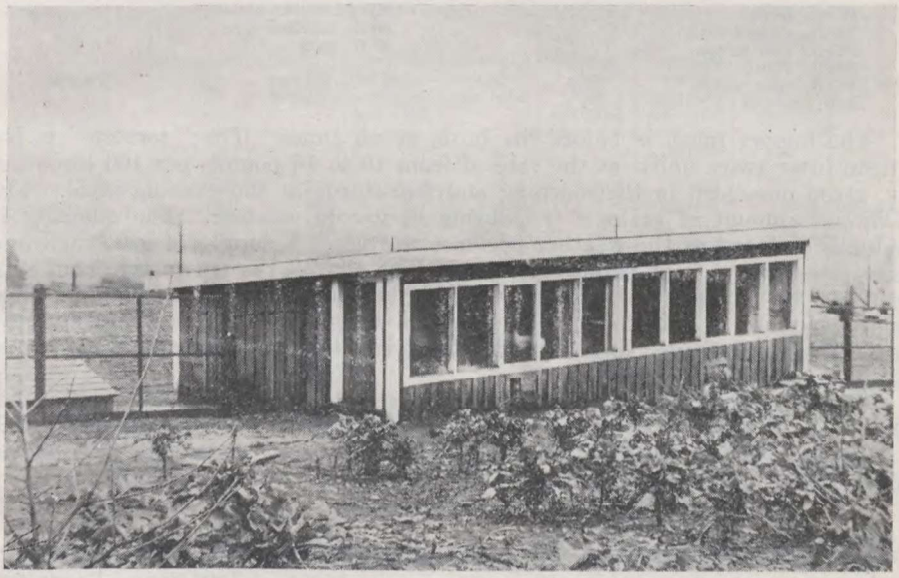
Method of feeding	Number of birds	Weight at start of preparation period	Weight at end of preparation period	Weight when first egg laid	Date first egg laid	Days from start of preparation to first egg laid	Winter record	Year's record	Loss or gain in weight	Average number of days from start of preparation to first egg laid
		lbs.	lbs.	lbs.					lbs.	
Dry mash	201	3·5	3·7	5·3	Jan. 12	94	28	184	Plus 2	
	202	3·4	3·7	4·9	Dec. 16	67	52	244	" 3	
	203	3·5	4·0	5·0	" 20	71	47	232	" 5	
	204	3·7	4·3	5·0	Nov. 14	35	45	162	" 6	
	205	3·4	4·1	4·8	" 23	44	56	248	" 4	
	208	4·0	4·4	5·0	Feb. 12	125	11	183	" 4	72·6
Total							239	1,253		
Average							39·5	208·8		
Crate fed	51	3·5	3·8	3·8	Nov. 28	49	36	217	Plus 3	
	52	3·4	3·8	4·2	Dec. 29	80	47	153	" 4	
	53	3·6	4·1	4·7	" 14	65	30	160	" 5	
	54	3·7	4·0	4·9	" 30	81	24	164	" 3	
	55	3·7	4·1	5·1	Jan. 11	93	25	135	" 4	
	56	4·0	4·7	5·4	Nov. 27	48	52	172	" 7	69·3
Total							214	1,001		
Average							35·6	166·8		

Nothing was gained by the crate feeding considering the year's work, but a decided dropping off in egg production. Contrary to our expectation the birds in the crates did not take on weight any more rapidly than those fed the dry mash; but the average number of days from start of preparation to first egg laid was less by three days when crate fed than those fed the dry mash.

HOUSING

HOUSING OF THE LAYERS

Two types of laying sheds are in use at the Sidney Station, viz., The Woods and the Shed Roof open-front house. The latter is much preferred on account of its simplicity and economy of construction. It is airy and provides for a maximum of sunlight.



A Poultry House we recommend at the Experimental Station, Sidney, B.C.

An improvement can be made in this house by changing the overhang. Instead of making it a combination of the roof, it might be, and should be in our estimation, set at an angle to the front wall, as shown in illustration of colony house. This is necessary in a climate like this, with much rain in winter, especially if the open front laying house is used. During the past six years the birds housed in the shed-roofed houses have been immune from colds and roup, not a single case being recorded.

The colony houses used are the A-shaped, the cotton and glass front and the open front shed roof type. The open front is much the best model, easy to construct and can be used for many purposes. It is built six feet wide by 8 feet deep; 6 feet 6 inches high in front and 4 feet 6 inches high at the back. These houses are excellent for the breeding pens; can be used on the range for the breeding stock, and during the winter the cockerels may be housed there. As brooder houses they are not excelled, when front is covered by a cotton screen.

The colony house is suitable for the town poultryman. If built 6 feet by 8 feet, ten hens may be comfortably housed there for the entire year. If some range is allowed, fifteen layers may be kept there.

EGG PRODUCTION

The production of eggs has always been regarded as a major operation at Sidney. Striking results have been obtained, indicating that the line of procedure has been in the right direction. It is true that Sidney methods might not be applicable to much of Canada, but in order that it may be examined a brief summary of work in producing eggs is submitted as follows:—

The pullets are brought in from the range two or three weeks before they are expected to lay. All birds lacking development or vigour, as well as those not conforming to type, are placed at once in fattening crates and prepared for market. The birds that are selected for egg production are put at once in the laying sheds, previously cleaned, limewashed and disinfected. The pullets are given from the start the following ration:—

Hopper Mash	Scratch Feed
400 lb. bran	100 lb. whole wheat
300 lb. ground oats	60 lb. cracked corn
200 lb. beef scraps	40 lb. oats
200 lb. shorts	
100 lb. corn meal	
6 lb. fine salt	

The hopper mash is before the birds at all times. The "scratch" is fed in deep litter twice daily, at the rate of from 10 to 16 pounds per 100 birds per day, given one-third in the morning and two-thirds at the evening meal. The maximum amount of grain is fed during very cold weather. The quantity is gradually reduced as the weather becomes warmer. A supply of grit, shell and charcoal is always kept before the birds. The charcoal is fed in the form of a burnt log, or as granulated charcoal fed in the proportion of one pound to one hundred pounds of mash. An abundance of green food is fed throughout the year. Thousand headed kale is used extensively, but mangels take the place of kale during frosty weather.

When skim-milk is available the birds are allowed all they will take. Meanwhile the beef scrap in the mash is reduced to 100 pounds in place of 200.

The following table gives the production from 50 April hatched Wyandotte pullets, fed and cared for as above:—

Egg Production of Fifty April hatched Wyandottes

Month	Number of birds	Eggs laid	Average number eggs laid per bird	Total pounds feed consumed	Pounds feed consumed per bird
November	50	608	12·1	587	11·7
December	50	1,100	22·0	554	11·0
January	50	1,049	20·9	660	13·2
February	50	1,026	20·5	597	11·9
March	50	1,151	23·0	747	14·9
April	50	1,081	21·6	534	10·6
May	50	1,014	20·2	574	11·4
June	50	875	17·5	525	10·5
July	50	934	18·6	615	12·3
August	50	872	17·4	618	12·3
September	50	743	14·8	554	11·0
October	50	521	10·4	576	11·5
Totals	.....	10,975	219·5	7,141	142·2

There was not a single death or case of sickness in the pen during the year. The original pen of 50 birds was still occupying the house at the end of the year. The average production was 219 eggs per bird. The highest producer laid 291 eggs. The best winter record was 107. Scratch food was fed in the morning as early as possible. The evening meal was given in time for the birds

to clean up the grain before going on the perches. The dropping boards were cleaned daily and as early in the morning as possible. Fine sand was used over the boards in small quantity daily. Once a week the entire house was sprayed with a mixture of equal parts of kerosene and creosote, with special attention given to the perches, dropping boards and nests. The litter was cleaned out as often as necessary, when damp, dusty or soiled.

EGGS—COST OF PRODUCTION, MARCH, APRIL AND MAY HATCHED PULLETS, 1911-22

The cost of egg production is a matter of considerable importance in view of the increasing competition in food prices. This has been determined for the year 1921-22 from layers hatched in March, April and May.

COST OF EGG PRODUCTION AND PROFIT OVER FEED, MARCH HATCHED PULLETS, 1921-22

Month	Number of birds	Total eggs for month	Pounds of grain consumed per bird	Cost of feed per bird	Average eggs laid per bird	Average value eggs laid per bird	Average profit over cost of feed	Remarks
				cts.		cts.	cts.	
October	45	299	6·5	18·8	6·6	26·6	7·8	
November	51	369	5·7	14·5	7·4	41·8	27·3	6 added.
December	51	488	6·1	16·2	9·5	45·4	29·2	
January	51	591	6·5	17·8	11·8	43·4	25·6	
February	44	462	6·7	18·1	10·7	32·8	14·7	7 culled.
March	40	706	9·2	28·2	17·6	38·7	10·5	4 culled.
April	40	812	8·4	23·7	20·3	48·0	24·3	
May	40	848	7·5	21·5	21·2	42·7	21·2	
June	38	636	7·9	23·4	16·7	34·9	11·5	2 culled
July	37	666	7·8	20·4	18·0	41·2	20·8	1 died.
August	36	612	7·6	23·6	17·0	71·6	48·0	1 culled
September	34	539	7·1	18·4	15·8	49·0	30·6	2 culled.
Totals	.....	7,028	87·0	$2·44	172·6	$5·16	$2·71	

NOTE.—All culling took place on the last day of the month. No bird was culled which was still laying.

COST OF EGG PRODUCTION AND PROFIT OVER FEED, APRIL HATCHED PULLETS

Month	Number of birds	Total eggs for month	Pounds of grain consumed per bird	Cost of feed per bird	Average eggs laid per bird	Average value eggs laid per bird	Average profit over cost of feed	Remarks
				cts.		cts.	cts.	
November	50	417	6·3	15·6	8·3	37·5	21·9	
December	50	558	6·4	16·3	11·1	53·0	36·7	
January	50	676	6·6	19·1	13·5	43·9	24·8	
February	41	674	7·6	20·7	16·4	46·6	25·9	2 died. 7 culled.
March	42	855	8·5	26·2	20·4	45·1	18·9	1 added.
April	42	831	8·4	24·2	19·8	46·0	21·8	
May	42	839	7·4	21·7	19·9	40·0	18·3	
June	42	794	7·3	21·7	18·9	39·4	17·7	
July	42	717	8·0	21·6	17·0	43·8	22·2	
August	42	760	7·4	20·0	18·1	46·0	26·0	
September	41	598	7·1	18·8	14·6	45·1	26·3	1 culled.
October	37	375	5·1	22·5	10·1	46·0	23·5	4 culled.
Total	.....	8,094	86·1	$2·48	188·1	$5·32	$2·84	

COST OF EGG PRODUCTION AND PROFIT OVER FEED, MAY HATCHED PULLETS, 1921–22

Month	Number of birds	Total eggs for month	Pounds of grain consumed per bird	Cost of feed per bird	Average eggs laid per bird	Average value eggs laid per bird	Average profit over cost of feed	Remarks
				cts.		cts.	loss cts.	
December	50	168	6·4	16·4	3·3	13·4	3·0	
							profits	
January	49	387	8 0	22·2	7·7	25·1	2·9	1 died.
February	44	482	8·3	22·3	10·9	35·1	12·8	5 culled.
March	58	1,081	8·3	23·4	18·3	41·1	17·7	14 added.
April	56	1,162	8·0	23·8	20·7	48·5	24·7	2 culled.
May	51	982	8·3	22·0	19·2	38·6	16·6	1 died, 4 culled.
June	46	885	7·7	22·2	19·2	40·0	17·8	5 culled.
July	46	806	7·7	20·7	17·5	40·1	19·4	
August	44	881	7·4	20·0	20·0	51·1	31·1	2 culled.
September	43	836	7·1	16·3	19·4	69·6	53·3	1 died.
October	43	707	7·0	18·5	16·4	74·7	56·2	
November	43	569	6·3	16·6	13·2	68·5	51·9	
Totals		8,946	90·5	$2·44	185·8	$5·45	$3·01	

SUMMARY OF YEARLY EGG PRODUCTION, COST OF FEED AND PROFIT PER BIRD OF MARCH, APRIL AND MAY HATCHED PULLETS

Month hatched	Average eggs per bird	Average cost of feed	Average value of eggs	Average profit per bird
		$ cts.	$ cts.	$ cts.
March	172·6	2 45	5 16	2 72
April	188·1	2 48	5 32	2 84
May	185·8	2 44	5 46	3 01

Though the average egg production was greater in April than in other months, the average profit per bird was greater with the May hatched than with the March or April hatched birds. Eggs vary from 25 cents to 70 cents per dozen. The bird that makes most profit is the bird that lays most eggs when the price is high. Similar results may not be obtained during a period of years.

FEED COST OF PRODUCING EGGS

The cost of producing one dozen eggs is known to few, and not easy to obtain. For a number of years this phase of our work has been given much attention:—

FEED COST OF PRODUCING EGGS, 1919

Month	Number of birds	Average production	Pounds grain and mash per dozen eggs	Cost of grain and mash per dozen eggs	Pounds of all feed per dozen eggs	Cost of all feed per dozen eggs	Remarks
				cts.		cts.	
November	57	3·5	18·48	72·00	23·04	73·00	
December	57	9·2	6·92	26·76	8·94	27·34	
January	56	15·5	5·10	21·00	.....	.....	
February	55	18·2	4·22	14·76	.....	.....	Birds on free range clover pasture January to October, inclusive.
March	55	21·6	4·17	14·62	.....	.....	
April	55	19·5	3·51	15·60	.....	.....	
May	55	15·6	4·27	13·00	.....	.....	
June	50	16·7	4·47	12·76	.....	.....	
July	50	16·7	5·06	19·44	.....	.....	
August	43	16·5	4·51	17·04	.....	.....	
September	41	16·5	4·93	18·60	.....	.....	
October	42	9·6	9·58	35·88	.....	.....	
Total		179·1	75·52	281·50	.....	.....	
Average	51·4	14·9	6·29	23·45	.....	.....	

FEED COST OF PRODUCING EGGS, 1920

Month	Number of birds	Average production	Pounds grain and mash per dozen eggs	Cost of grain and mash per dozen eggs	Pounds of all feed per dozen eggs	Cost all feed per dozen eggs	Remarks
				cts.		cts.	
November.....	50	0·4	8·16	31·08	8·16	31·44	
December.....	50	9·3	9·2	37·12	9·94	37·36	
January.....	50	15·1	7·17	28·56	8·42	29·52	
February.....	49	20·8	5·73	18·11	6·05	19·08	
March.....	49	22·6	5·74	25·80	7·19	26·28	
April.....	46	21·4	4·58	19·68	5·74	20·52	
May.....	40	19·8	5·04	21·87	6·86	22·78	
June.....	37	16·8	5·97	26·40	7·56	26·76	
July.....	37	19·5	4·64	21·96	5·71	22·80	
August.....	33	19·8	4·32	20·40	6·10	21·48	
September.....	31	18·7	4·37	19·67	8·57	21·56	
October.....	31	16·6	4·88	20·53	8·67	21·90	
Total.....	503	200·8	69·62	291·18	88·97	302·50	
Average...	41·6	16·7	5·80	24·26	7·41	25·20	

FEED COST OF PRODUCING EGGS, 1921

Month	Number of birds	Average production	Pounds grain and mash per dozen eggs	Cost of grain and mash per dozen eggs	Pounds of all feed per dozen eggs	Cost of all feed per dozen eggs	Remarks
				cts.		cts.	
November.....	50	12·1	6·36	26·40	11·52	28·28	
December.....	50	22·0	3·36	13·68	6·00	14·88	
January.....	50	20·9	4·08	15·12	7·65	17·52	
February.....	50	20·5	4·20	13·20	6·96	14·76	
March.....	50	23·0	4·20	13·44	7·68	15·00	
April.....	50	21·6	3·48	10·32	5·88	11·28	
May.....	50	20·2	3·84	11·52	6·72	13·20	
June.....	50	17·5[illegible]	3·84	11·16	7·20	13·56	
July.....	50	18·6	4·56	13·08	7·89	14·40	
August.....	50	17·4	4·80	14·16	8·49	15·60	
September.....	[illegible]0	14·8	5·04	12·24	8·93	13·08	
October.....	50	10·44	7·68	18·24	13·20	20·76	
Total.....	600	219·0	55·44	172·56	98·12	192·24	
Average...	50	18·25	4·62	14·38	8·17	16·02	

FEED COST OF PRODUCING EGGS, 1922

Month	Number of birds	Average production	Pounds grain and mash per dozen eggs	Cost of grain and mash per dozen eggs	Pounds of all feed per dozen eggs	Cost all feed per dozen eggs	Remarks
				cts.		cts.	
November.....	50	8·3	9·1	21·4	10·0	22·5	
December.....	50	11·1	6·8	16·6	7·1	17·2	
January.....	50	13·5	5·8	14·6	10·5	16·7	
February.....	42	16·4	5·5	13·9	8·6	15·1	
March.....	42	20·4	5·0	12·8	11·1	15·4	
April.....	42	19·8	5·2	13·5	8·2	15·2	
May.....	42	19·9	4·4	11·8	6·2	13·0	
June.....	42	18·9	4·6	12·2	7·2	13·9	
July.....	42	17·1	5·6	14·6	5·8	1·52	
August.....	42	18·1	4·9	13·5	5·4	14·0	
September.....	41	14·6	5·8	14·9	6·1	15·5	
October.....	37	10·1	10·0	25·7	12·9	26·6	
Total.....	492	188·2	72·7	185·5	99·1	200·3	
Average...	41	15·7	6·1	15·5	8·3	16·7	

SUMMARY PRODUCTION AND COSTS, 1919-1920-21-22

—	1919	1920	1921	1922
Average production	179·1	200·8	219	188·2
Pounds grain and mash to one dozen eggs	6·29	5·81	4·61	6·1
Cost of all feed per one dozen eggs	23·45 c.	25·20	16·02	16·7
Month of highest cost	Nov.	Dec.	Nov.	Oct.
Month of lowest cost	June	Feb.	April	May
Month of highest production	Mar.	Mar.	Mar.	Mar.
Month of lowest production	Nov.	Nov.	Oct.	Nov.

NOTE.—The production tables begin with November, so that the year overlaps. For instance in the 1922 table the months of November and December strictly belong to the year 1921. The production is obtained from the time the pen is placed in the laying house.

FEEDING

The breeding of layers has been continued as heretofore, except that more attention has been given the various side issues which converge, forming the real breeding problem. The breeder is not satisfied with high production if the eggs are small; if the layers are much below weight; if the hens are off type; if chicks arising from the high producing birds lack vitality or viability; yet one or more of these factors is often lost sight of, with the result that a weakness persists, is multiplied and eventually destroys the finished and would be perfected model. A mental picture of the ideal Wyandotte is constantly kept in the mind's eye, and though it is not possible at all times to measure up to the standard set, by culling all the way from the beginning of the bird's existence much may be done. When chicks come from the incubator some are cripples or deformed. These are killed at once (culling No. 1); when placed in brooder some do not thrive (culling No. 2); when they come to the laying sheds some have crooked breast bones, off in type, size, colour (culling No. 3); when they begin to lay some eggs are off colour, shape or size (culling No. 4); some do not lay in sufficient quantity (culling No. 5); some of these lay infertile eggs throughout the season, or chicks hatched lack vitality (culling No. 6). All of these problems have a direct bearing on the birds in the flock, but do not go far enough, for the breeder is confronted with many biological laws and theories which demand a hearing. How is production carried from the one generation to the next, through the male or female? What unit characters are dominant and what recessive? Only by study of individual males and females, generation after generation, may we hope to attain results. To pedigree hundreds of birds is no easy matter, yet it is done faithfully and consistently at the Sidney Experimental Station. For the breeding season of 1923 the following pens were made up:—

Cockerel G. 6 is mated to ten females as follows: These ten pullets and cockerel comprise pen 1:—

FEMALES COMPRISING PEN I.

—	Record		Dam's record		Remarks
	Winter	Year	Winter	Year	
E. 649	.....	268	...	...	200–225 egg hen.
E. 803	69	214	...	...	200–225 egg hen.
E. 895	..	237	55	225	
F. 53	45	241	77	243	
F. 78	46	155	94	270	
F. 102	71	274	..	...	Not known.
F. 112	52	263	..	...	200–225 egg hen.
F. 210	43	219	91	261	
F. 221	27	211	..	275	
F. 228	9	210	..	275	

Pen 2, in addition to the cockerel described, consists of ten females, as follows:—

FEMALES COMPRISING PEN II

Hen No.	Record		Dam's Record		
	Winter	Year	Winter	Year	
E. 856	54	205	61	204	
E. 861	98	287	.....	.....	From 200–225 egg stock.
E. 867	59	166	.....	.....	From 200–225 egg stock.
E. 923	48	187	42	217	
F. 23	60	123	78	227	
F. 34	80	264	70	254	
F. 86	79	269	92	280	
F. 90	18	118	69	244	
F. 114	22	211	.....	.....	From 200–225 egg stock.
F. 147	39	210	86	214	

In addition to cockerel G. 16, pen III contains ten females, whose numbers and past performance are indicated in following table:—

FEMALES COMPRISING PEN III

Hen No.	Record		Dam's Record		
	Year	Winter	Year	Winter	
E. 866	271	90	.....	.....	200–225 egg stock.
E. 898	255	87	.....	.....	200–225 egg stock.
E. 901	241	86	267	93	
E. 914	230	63	217	42	
E. 995	256	48	254	70	
F. 157	233	68	.....	.....	200–225 egg stock.
F. 165	143	84	.....	.....	200–225 egg stock.
F. 170	251	100	.....	.....	200–225 egg stock.
F. 187	205	80	.....	.....	200–225 egg stock.
F. 196	236	46	261	91	

Pen IV consists of ten females as follows, headed by cockerel G. 45 as described:—

FEMALES COMPRISING PEN IV

Hen No.	Record		Dam's Record		
	Winter	Year	Winter	Year	
D 400	69	229	91	261	
E 630	85	222	.....	.....	Parentage unknown.
E 638	85	288	85	277	
E 646	76	263	79	236	
E 863	86	246	.....	.....	200–225 egg stock.
E 868	77	234	.....	.....	200–225 egg stock.
F 82	22	132	94	300	
F 173	65	233	.....	.....	200–300 egg stock.
F 193	50	214	.....	.....	200–225 egg stock.
F 203	74	279	94	300	

Many breeding pens emphasizing some phase of our project work have been made up, but report on these is reserved for the next and following years.

Close attention to detail in the breeding work has borne fruit. Almost every year one or more birds of outstanding performance has been produced. Among these we would mention Lady Victoria, Saanich Belle and Lady Dotte, which we please to call the "Big Three".

RELATION BETWEEN WEIGHT OF LAYERS AT END OF YEAR AND PRODUCTION

The heaviest layer at the Station has seldom been the heaviest bird. In fact, fineness of bone and other characters looked for in high producing chicks, usually are associated with the lighter birds. In order to determine the relation between weight at end of laying year and production, the following experiment was conducted:—

RELATION BETWEEN WEIGHT AND PRODUCTION

Weight	1921		1922		Average production for two-year period
	Number of birds	Average production	Number of birds	Average production	
Under 4½ pounds	33	204·0	8	176·6	190·3
4½ pounds to 5 pounds	54	205·1	18	188·0	196·5
5 pounds to 5½ pounds	46	216·8	39	200·8	208·8
5½ pounds to 6 pounds	20	214·2	22	179·8	197·0
Over 6 pounds	15	209·7	7	211·7	210·7

The relation between weight and production is quite constant, the heavier the bird the better she laid. This is the finding so far as averages go, but does not follow when applied to individuals as pointed out. The work will be continued with larger numbers of layers in succeeding years.

EFFICIENCY AND ACCURACY OF VARIOUS TYPES OF TRAP NESTS

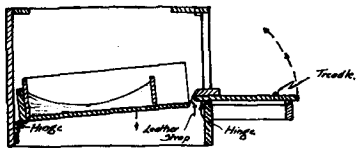
Several types of trap nests have been in constant use at Sidney for several years. From time to time a new nest is added for sake of comparison and in order to determine its worth. During 1922 five types of trap nests have been on trial. Report on these follows:—

Nest No. 1.—One thousand six hundred and two hens were trapped in this model. The total time taken was 4 hours 29 minutes and 40 seconds, or 10·1 seconds per bird. On only two occasions were there inaccuracies reported, when two eggs were found in the one nest. This was brought about as follows: When the pullets were first put in the laying shed, some of them had the habit of sitting on the treadle of the traps. Meanwhile another pullet would enter the nest, while the first was on the treadle, thus hindering the proper functioning of the trap. No. 2 bird laid and left the nest before No. 1 vacated the treadle. No. 3 bird then entered the nest and trapped herself when No. 1 left the treadle with the result that two eggs would be found in the one nest.

The nest found the greatest favour with the poultrymen. No resetting was required after removing the hen from the trap, consequently the time required to operate a battery (eight nests) was cut to a minimum.

Nest No. 2.—This is an old model, very simple to construct, but unsatisfactory as more than one bird can easily gain access to the nest. As many as three birds have been found in one nest at one time, thus destroying the efficiency. After a bird has been trapped a second will put her head through the hole in the slide and attempt to push her way through. While the door is thus being held up, the third and fourth hens gain entrance, by using a slide without a hole, some of the difficulties are overcome, but not fully. Seven hundred and eleven birds were trapped and timed, using this model. Time required 1 hour 25 minutes and 36 seconds, or 15·1 seconds per bird.

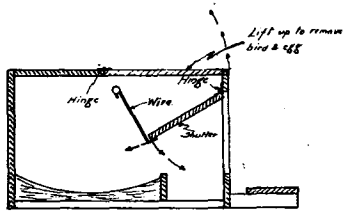
Nest No. 3.—This type is very reliable and accurate, the chief drawback being time required to operate. Many slides are thrown by hens attempting to enter and subsequently drawing back. The hens do not suffer from heat in



1.

Time taken to trap each Battery.

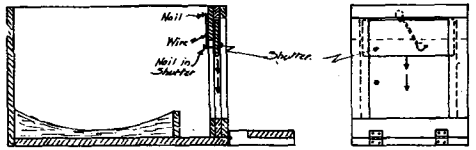
1 min. 21 sec.



2.

Time taken to trap each Battery.

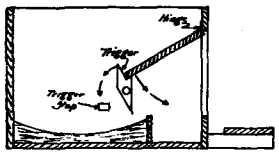
2 min. 1 sec.



3.

Time taken to trap each Battery.

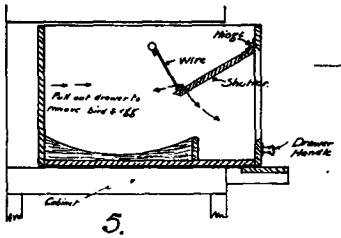
2 min. 8 secs.



4.

Time taken to trap each Battery

1 mm. 55 sec.



5.

Time taken to trap each Battery

2 mm. 0 sec.

TRAP NESTS.

TYPES IN USE AT THE

DOMINION EXPERIMENTAL STATION FOR

VANCOUVER ISLAND — SIDNEY, B.C.

N.B. Arrows denote direction of movement of working parts as hen enters nest.

A Battery consists of 8 (eight) nests

Time taken to trap includes recording of egg in addition to releasing bird & re-setting shutters.

summer when this nest is used as with some other models with closed fronts. One thousand seven hundred and forty birds were trapped through this type of nest, requiring 6 hours 31 minutes and 30 seconds, or 13·5 seconds per bird. More than one bird or one egg was never found in one of these traps at the one time.

Nest No. 4.—This is an accurate trap if the trigger is properly balanced. It requires a little more time to manipulate than nest No. 1. To trap one thousand nine hundred and ten birds through this model required 7 hours 35 minutes and 13 seconds, or 14·3 seconds per bird.

Nest No. 5.—This type of nest should be built by a mechanic, which makes it quite expensive. It has one advantage over the other types in that it is easy to clean. The remarks as to accuracy also apply to this model.

TRAP NEST EFFICIENCY TEST

Model No.	Number of birds trapped	Total time reqiured	Time per battery of eight nests	Time per bird
		h. m. s.	m. s.	seconds
1	1,602	4 29 40	1 21	10·1
2	711	2 59 14	2 1	15·1
3	1,740	6 31 30	2 8	13·5
4	1,910	7 31 36	1 55	14·3
5	635	2 38 35	2 0	15·0

N.B.—Each model consisted of a battery of eight nests.

CONFINEMENT VS. RANGE

Free range for poultry has long been recommended, and yet many breeders have secured excellent results in very small houses with practically no range at all. Under what system may best results be secured over a period of years is the object of the experiment begun in 1922.

POULTRY—CONFINEMENT VS. RANGE

Month	Pen	Number of eggs laid	Pounds of feed	Cost of feed	Pounds of feed to produce twelve eggs	Cost of feed to produce twelve eggs	Remarks
						cents	
December	Con.	33	66	1·65	24·0	60·0	10 birds. 44½ lbs.
	Range	28	60	1·50	25·6	64·0	10 birds. 45 lbs.
January	Con.	171	91	2·27	6·3	15·8	
	Range	173	87	2·17	6·0	14·9	
February	Con.	107	86	2·15	9·5	23·9	Av. pr., Dec., Jan.
	Range	183	76	1·90	4·9	12·4	Feb., 43·5 doz.
March	Con.	182	105	2·39	6·8	15·6	24·8 oz. doz.
	Range	203	88	2·25	5·2	13·2	23·5 oz. doz.
April	Con.	217	107	2·75	6·0	15·3	
	Range	189	91	2·33	5·7	14·8	
May	Con.	226	88	2·35	4·6	12·3	
	Range	192	84	2·24	5·3	14·0	
June	Con.	167	97	2·63	6·9	18·7	
	Range	134	67	1·73	6·0	15·3	
July	Con.	142	75	1·87	6·25	15·6	10 weighed 46·6 lbs.
	Range	137	73	1·82	6·3	15·8	10 weighed 49·0 lbs.
August	Con.	170	81	2·07	5·6	14·8	
	Range	141	85	2·23	7·0	18·9	
September	Con.	186	84	2·09	5·4	13·4	
	Range	162	76	1·87	5·6	13·8	
October	Con.	160	100	2·52	7·2	18·9	Average price eggs
	Range	112	87	2·18	9·3	23·4	for whole period, 33·4 cents doz.
Total	Con.	1,761	980	24·74	.....	.....	
	Range	1,654	874	22·22	.....	.....	

NOTE.—Ten birds in each pen.

—	—	Winter	Whole period
Total value of eggs	Con.	11·34	48·99
	Range	13·82	46·14
Profit over cost of feed	Con.	5·27	24·25
	Range	8·25	23·92
Average pounds feed per dozen eggs	Con.	9·3	6·6
	Range	6·9	6·3
Cost of feed to produce one dozen eggs	Con.	23·3	16·8
	Range	17·4	16·1
Average feed consumed per bird	Con.	24·3	98·0
	Range	22·3	87·4
Average cost of feed per bird	Con.	61 cts.	2·47
	Range	56 cts.	2·22
Average number eggs produced per bird	Con.	31·3	176·1
	Range	38·4	165·4
Average value eggs produced per bird	Con.	1·13	4·90
	Range	.....	.....
Average profit over cost of feed per bird	Con.	0·52	2·43
	Range	0·82	2·39

In order to secure further information concerning the incubation of eggs arising from the two pens, hatching and rearing results have been tabulated as follows:—

HATCHING AND REARING RESULTS—CONFINEMENT VS. RANGE

Pen	Number eggs set	Number infertile	Dead germ	Dead in shell	Hatched	Per cent hatched	Number cripples	Number alive July 1
Range	192	46	20	65	60	31·2	1	26
Confined	186	57	26	55	48	25·8	3	11

Two males were used for this mating. They were exchanged every morning. The male in the confined pen was transferred to the range pen and vice versa.

Six females from each pen have been wintered under the same conditions on free range. They will be mated to a cockerel and hatching records again kept. This is being done to determine the hatching qualities of the eggs of birds kept in confinement for a year, followed by three months free range, as compared with those continually on range. The tables are so complete that little remains to be said concerning the experiment. The confined pen laid more eggs than the pen on free range, but the cost of feeding the confined birds was slightly greater than the others. Hatching results were consistently better from hens on range, as would be expected.

COMMERCIAL FEEDS VS. HOME MIXED SIDNEY RATIONS

Many commercial poultry feeds are on the market, and much is claimed for each, not only by the manufacturer of the feed, but by some section of the poultry fraternity. There is no question but that these feeds have value for the purpose intended. Whether they are superior to the home mixed ration; whether hens may be fed and eggs produced at the same price, or less, per dozen, are the problems. Truth concerning these points is being sought.

During 1922 poultry feeds put on the market by the Brackman-Ker Milling Company were used at Sidney. During 1923 another commercial feed will be used and comparison made.

COMMERCIAL (BRACKMAN-KER) FEEDS VS. HOME MIXED SIDNEY RATION

Month	Feed	Number of eggs laid	Pounds of feed	Cost of feed	Pounds of feed to produce one dozen eggs	Feed cost of one dozen eggs	Remarks
December	Commercial	9	73	1·59	96	2·12	Weight 10 birds, 43½ pounds.
	Sidney	28	60	1·50	25·7	0·64	Weight 10 birds, 45 pounds.
						cents	
January	Commercial	194	74	1·61	4·5	9·9	
	Sidney	173	87	2·17	6·0	14·9	
February	Commercial	161	71	1·54	5·2	11·5	Average price Dec., Jan. and Feb. 43·5.
	Sidney	183	76	1·90	4·9	12·4	
March	Commercial	168	68	1·48	4·8	10·5	Eggs, 22·7 oz. doz.
	Sidney	203	88	2·25	5·2	13·2	Eggs, 23·5 oz. doz.
April	Commercial	207	75	1·67	4·3	9·6	
	Sidney	189	91	2·33	5·7	14·8	
May	Commercial	158	69	1·53	5·2	11·5	
	Sidney	192	84	2·24	5·3	14·0	
June	Commercial	152	67	1·54	5·2	12·0	
	Sidney	134	67	1·73	6·0	15·3	
July	Commercial	165	75	1·72	5·4	12·5	Weight of 10 birds, 46·8.
	Sidney	137	73	1·82	6·3	15·8	Weight of 10 birds, 49·0.
August	Commercial	182	75	1·72	5·0	11·4	
	Sidney	141	85	2·23	7·0	18·9	
September	Commercial	137	76	1·69	6·6	14·7	
	Sidney	162	76	1·87	5·6	13·8	
October	Commercial	67	72	1·57	13·1	28·9	Average price eggs whole period, 33·4 cents.
	Sidney	112	87	2·18	9·3	23·4	
Total	Commercial	1,600	795	17·66	.....	.....	
	Sidney	1,654	874	22·22	.....	.....	

SUMMARY OF PRODUCTION—COMMERCIAL VS. HOME MIXED RATIONS

—	—	Winter	Whole period
Total value of eggs	Commercial	13·04	44·53
	Sidney	13·82	46·14
Profit over cost of feed	Commercial	8·30	26·87
	Sidney	8·25	23·92
Average pounds of feed per dozen eggs	Commercial	7·1	5·9
	Sidney	6·9	6·3
Feed cost of one dozen eggs	Commercial	15·6	13·2
	Sidney	17·4	16·1
Pounds of feed consumed per bird	Commercial	21·8	79·5
	Sidney	22·3	77·4
Average cost of feed per bird	Commercial	47·4 cts.	$1·76
	Sidney	56·0	2·22
Average number of eggs produced per bird	Commercial	36·4	160·0
	Sidney	38·4	165·4
Average value of eggs produced per bird	Commercial	$1·01	$4·45
	Sidney	1·38	4·61
Average profit over cost of feed per bird	Commercial	54 cts.	$2·69
	Sidney	82	2·39

The outstanding phase of the work, as determined by results of one year only, is the fact that hens laid more eggs on the Sidney rations; that they ate more feed in doing it and that the cost was greater than on the commercial. The explanation may be found when we consider that concentrated protein substances are offered in many forms, some of which may be much cheaper than beef scrap. For some reason, not easily accounted for, the eggs coming from pen fed on the home mixed Sidney ration averaged larger throughout the year by nearly one ounce per dozen than those fed the commercial mixture.

APIARY

The work with bees has not been extensive, but satisfactory in so far as the small number of colonies would permit of. Bees on the Saanich peninsula are somewhat limited for pasture on account of the sea on one side and extensive forests of conifers on the other. Spring and autumn honey plants are not in sufficient quantity to maintain bees, saying nothing about surplus. Bees at this season must be fed. The only surplus to signify comes from clover, and during the ten days of honey flow from this plant, the gain is quite marked.

Many parts of the island are, we think, much superior to the Station Farm, from the standpoint of location. It is our intention to establish out apiaries in several sections as soon as possible to determine the truth of this, and to plot the island from the apiarist's standpoint.

HONEY PRODUCTION

The colonies are all run for extracted honey at the Experimental Station, Sidney. The mode of procedure, briefly stated, is as follows:—

Each colony when placed in winter quarters should contain a vigorous queen, sufficient bees to cover 8 frames, and about 35 pounds sealed stores. A ten frame Langstroth hive with bottom board, frames, bees and stores should weigh from 65 to 70 pounds on going into winter quarters. Any colony that has not provided itself with sufficient stores is fed enough sugar syrup to bring the total weight of colony up to 70 pounds. The syrup is made from two (2) parts granulated sugar to one part boiling water by measure, and fed in Millar rapid feeder when cool. After feeding is complete, each colony is packed in a Kootenay case, and left on stand out of doors.

The colonies are examined as soon as weather will permit the following spring. Those that are regarded as being too weak to build up in time for the honey flow, are united to stronger colonies. Those requiring to be fed are supplied a syrup of one (1) part sugar to two (2) parts water, given a little at a time each day until spring flowers begin to yield nectar.

As the season advances the colonies are examined once a week. At such times queen cells are cut out, and brood chamber enlarged as found necessary, by placing an extra hive body directly over the old one. Supers are also placed in position as found necessary, remembering meanwhile that the queen must have abundant space to lay and to store honey at all times.

As soon as the first super is two-thirds full another should be given, placing it immediately over the brood chamber, while the partly-filled super is put on top.

After the flow is over, and honey capped for the most part, the supers are removed and the crop extracted. When removing the crop great care must be exercised to prevent robbing. Every bit of comb and honey should be cleaned up and placed in extracting house at once, for some old robbers are always looking around.

The average production per colony for the last seven (7) years has been 55 pounds. The greatest yield was 109 pounds in 1919, and the lowest, viz., 27·3 pounds, in 1917. The average production for 1922 was 72·9 pounds.

WINTERING COMPARISON

Very few bees are wintered in the cellar on Vancouver island. It has been very well demonstrated that outdoor wintering on the whole is more satisfactory than wintering indoors. Several methods of outdoor protection have been devised. Among these we mention the Kootenay case. This case has been in use in this province for several years, and is well thought of. The double walled hive is manufactured by a local concern but has not come into general use. The advantage of these systems is not only to provide special protection during the winter, but to permit of brood rearing in early spring and autumn, when without such protection the normal functions of the hive would be suspended.

Number of Colony	Kind of winter protection given	Size of hive	Condition before wintering					Conditions after wintering					Surplus for season	Remarks
			Number of combs covered	Eggs	Larvae	Sealed brood	Date of last autumn exam.	Date of first spring exam.	Eggs	Larvae	Sealed brood	Number of combs covered by bees		
													lb.	
1.....	Spring protection top.	8-frame..	6½	Yes	Yes	Yes	Oct. 25...	Mar. 31..	Yes	Yes	Yes	6	50½	Conditions good.
2.....	Kootenay case...	10-frame..	7½	Yes	Yes	Yes	Oct. 25...	Mar. 31..	Yes	Yes	Yes	8	107	Strongest colony in yard.
3.....	Double walled hive.	10-frame..	8	Yes	Yes	Yes	Oct. 25...	Mar. 31..	No	No	No	4	80	Con. mildew, too much moisture.
4.....	Spring protection top.	8-frame..	6	Yes	No	No	Oct. 25...	Mar. 31..	Yes	Yes	Yes	3	Dead	Injury from mice.
5.....	Kootenay case...	10-frame..	8	Yes	Yes	Yes	Oct. 25...	Mar. 31..	Yes	Yes	Yes	5	71	Injury from mice. Mildew in packing between hive and case. Con. fair.

The Kootenay case gave the largest yield, while the two Kootenays gave an average larger than any other. The double walled hive is a close second. The important point is the fact that during the long spring, when nights are cold, bees must be kept warm, or spring dwindling will result.

BEES AS POLLINATORS IN THE ORCHARD

In the spring of 1922 an Anjou pear tree was completely covered with a cheesecloth bag, and tied securely around the trunk. The tree was bagged before it flowered, and kept in that condition until the petals fell. No fruit was produced on the tree, while another Anjou beside it, of same age, and cared for in precisely the same way, bore a fair crop. It would seem that the Anjou pear is dependent upon bees or some type of insect for the pollination of the flowers.

BUILDING UP COLONIES FROM BEES PURCHASED BY THE POUND FROM THE SOUTH

It is evident to everybody that brood rearing in the Southern States is possible much earlier in the season than on Vancouver island. Though the journey was a long one it was thought possible to buy bees by the pound in Alabama in early spring and to have a supply of workers ready for the honey flow in the proper season. Consequently bees were purchased in 2-pound packages, with a tested Italian queen, in April. They arrived in good condition and were introduced without difficulty.

PACKAGE BEES FROM ALABAMA

Nucleus No.	Date started	Number of frames covered by bees			Surplus honey produced	Value of honey	Value sugar fed plus cost of bees	Difference between total cost and production	Number of frames covered by bees on last autumn exam.	Value of colony at end of season	Profit or loss for the season
		June 10	July 1	Aug. 1	lb.	$ cts.	$ cts.	$ cts. minus		$ cts.	$ cts. profit
6.....	April 18	7	10	8	5½	1 37	7 30	5 93	8	10 00	4 07
7.....	April 18	6	10	14	41	10 25	7 30	plus 2 95	8	10 00	profit 12 95

The method employed was as follows: A ten-framed hive was fitted with frames of drawn combs, two of which contained some sealed stores. The cage containing the queen was then taken from the package and placed between two frames in the centre of the hive. The bees were then poured out on a sheet spread in front of the hive. After all were inside, the entrance was contracted to a one bee way. After forty-eight hours each nucleus was examined. The bees had liberated their queen. The cages were removed. A little sugar syrup was fed each evening for three weeks. Great precaution must be taken to prevent robbing.

Nucleus No. 7 made $2.95 worth more honey than the bees had cost. With a value of $10 placed on the colony at the end of the season, the profit of $12.95 on the package is a fair gain. In the other case the surplus honey sold for $5.93 less than the price of the bees, but by putting a valuation on the colony a profit of $4.07 was shown.

ADDING PACKAGE BEES TO COLONIES THAT HAD WINTERED BADLY

A two-pound package of bees was added to a colony that had wintered badly, to determine the effect on the colony, especially as to whether surplus

workers would mean proportionate honey gathering and the building up of a strong colony:—

WEAK COLONY PLUS TWO-POUND PACKAGE

—	Number of combs covered by bees before adding two pounds	Number of frames covered June 1	Pounds of honey produced	Value of honey produced	Value less cost of bees	Number of combs covered Aug. 1
				$ cts.	$ cts.	
Check colony.....	6	7½	50½	12 62	12 62	17
Colony plus 2 lb. bees.....	5	9	80	20 00	16 00	18

Method of introduction.—After removing the queen, the package of bees was placed inside the hive, room being made for it by removing four frames. After the bees were all liberated, the package was taken out and the four frames were replaced.

Results obtained so far would indicate that package bees so added increased surplus honey to an amount of greater value than that of the bees, and that the colony had been greatly strengthened.

STRONG COLONY PLUS TWO-POUND PACKAGE

The effect of package bees added to a strong colony was also on trial; results follow:—

STRONG COLONY PLUS TWO-POUND PACKAGE

—	Number of combs covered by bees before addition	Number of frames covered June 1	Pounds of honey produced	Value of honey produced	Value of honey less cost of bees	Number of combs covered Aug. 1
				$ cts.	$ cts.	
Check colony.....	8	10	107	26 75	26 75	20
Colony plus 2 pounds bees..	8	10	77	19 25	15 25	20

NOTE.—The bees were poured on a sheet in front of the hive. The newcomers ran in as a swarm would. Fighting, though noticeable, continued only for a short time.

The check colony produced more honey than did that with bees added. If bees are in sufficient numbers to perform the normal functions of the hive, it would seem that nothing is gained by additional bees being added, especially at a time when honey plants are not too numerous in the field.

The apiary is a line of work which fits in well with the general plan of things at this Station. We look for much expansion in this department during the coming summer.

GENERAL NOTES

EXTENSION AND PUBLICITY

Much attention has been given to exhibition work during the year. A tent 20 feet by 30 feet was fully equipped and transported by motor truck as far north as Courtenay. The exhibit consisted of fruit and vegetables, grains and grasses, models of buildings, seeds, etc. The exhibit was quite complete in itself and attracted much attention. The tent and exhibit were staged at Courtenay, Hilliers, Parksville, Ladysmith and Duncan. Perhaps this was the first attempt at transporting so comprehensive an exhibit over the Malahat.

In Victoria during the fall fair a seventy-foot exhibit was set up. This consisted of five tables, viz.: (1) Poultry, (2) Fruit, (3) Vegetables, (4) Seed, (5) Cereals and forage crops. The same was exhibited at Saanichton. Saanich Belle, the 307-egg hen, was the centre of attraction; the 307 eggs she had laid, and the food of various sorts that it took to produce them were all on display.

EXTENSION WORK

Another feature of our work was the Field Day held in the park at the Farm. All the people were invited and many of them came. The programme consisted of exhibits, speeches, demonstrations, music (instrumental and vocal); lunch served on the lawn, ice cream and coffee. The spirit of the day was excellent. We look for some extension of the idea in the future.

PICNICS AND EXCURSIONS

Our park and grounds remain popular with picnic parties, excursionists and visitors. It is difficult to get accurate figures as to numbers, but during 1922 several thousands visited the Farm for some purpose. The people are invited and made welcome, while all receive as much attention from the staff as time and numbers will permit of.

PRESS

The press has been kept in touch with our work. The press in return has extended to us every courtesy. Special mention should be made of the visit of the Hon. Mr. Motherwell, Minister of Agriculture, and party, to the Farm during the summer. Much interest was shown by the minister in the various types of work conducted by the Station.

The demand made by the farming community on the Station for information and for personal visits is increasing to such an extent that the staff can scarcely keep pace with it. All this is very gratifying to the superintendent. We look to the future with confidence, knowing that expansion in all lines of work is looked for, demanded by the public, and assured by the Department of Agriculture.

BUILDINGS

A house for the foreman was constructed and completed in 1922. The model is pleasing, and the lay-out good.

A combined implement shed and root-house was built in 1922. The building stands on a concrete foundation, which foundation really forms the root house. The building answers the purpose for which it was intended well. When graded to the sill, as it will be, the building will be most useful.