PROVINCE OF BRITISH COLUMBIA

Department of Agriculture

FIFTY-SECOND

ANNUAL REPORT

1957

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in right of the Province of British Columbia.
1958

To His Honour FRANK MACKENZIE ROSS, C.M.G., M.C., LL.D.,
Lieutenant-Governor of the Province of British Columbia.

MAY IT PLEASE YOUR HONOUR:

I have the honour to submit for your consideration the Annual Report of the Department of Agriculture for the year 1957.

NEWTON P. STEACY,
Minister of Agriculture.

Department of Agriculture,
Victoria, B.C., January 23rd, 1958.

BRITISH COLUMBIA DEPARTMENT OF AGRICULTURE

DEPARTMENTAL STAFF, 1957

Minister of Agriculture:
Honourable NEWTON P. STEACY.

Minister's Secretary:
Miss M. JEWELL.

Deputy Minister:
WM. MACGILLIVRAY.

Administrative:

N. L. CAMSUSA, Administrative Assistant, Victoria, B.C.
J. S. WELLS, Accountant, Victoria, B.C.
T. T. VAULKHARD, Clerk, Accounts Branch, Victoria, B.C.
J. A. MCDIARMID, Clerk, Publications Branch, Victoria, B.C.

Markets and Statistics:

M. M. GILCHRIST, B.S.A., Markets Commissioner, Victoria, B.C.
G. H. STEWART, Statistician, Victoria, B.C.
J. B. MOEN, Economist, Victoria, B.C.

Horticulture:

R. P. MURRAY, B.S.A., Provincial Horticulturist, Victoria, B.C.
G. E. W. CLARKE, B.S.A., Supervising Horticulturist, Abbotsford, B.C.
J. A. SMITH, B.S.A., Supervising Horticulturist, Kelowna, B.C.
D. A. ALLAN, B.S.A., District Horticulturist, Oliver, B.C.
W. T. BAVERSTOCK, District Horticulturist, Vernon, B.C.
I. C. CARNE, B.S.A., District Horticulturist, Abbotsford, B.C.
A. E. LITTLER, B.S.A., District Horticulturist, Victoria, B.C.
W. F. MORTON, B.S.A., District Horticulturist, Kelowna, B.C.
J. E. SWALES, B.S.A., District Horticulturist, Creston, B.C.
G. R. THORPE, B.S.A., District Horticulturist, New Westminster, B.C.
M. P. D. TRUMPOUR, B.S.A., District Horticulturist, Penticton, B.C.
A. W. WATT, B.S.A., District Horticulturist, West Summerland, B.C.
R. M. WILSON, B.S.A., District Horticulturist, Salmon Arm, B.C.
A. C. CARTER, B.S.A., District Horticulturist, Penticton, B.C.
M. G. OSWELL, B.S.A., Assistant District Horticulturist, Vernon, B.C.
J. L. WEBSTER, B.S.A., Horticulturist (Seed Production), 635 Burrard Street, Vancouver 1, B.C.
W. D. CHRISTIE, B.S.A., Horticulturist (Greenhouse and Nursery Crops), Abbotsford, B.C.
E. M. KING, B.S.A., M.S.A., Horticulturist (Vegetables), Kelowna, B.C.

Apiary:

J. CORNER, Provincial Apiarist, Court-house, Vernon, B.C.
V. E. THORGEIRSON, Apiary Inspector, R.R. 6, New Westminster, B.C.

Plant Pathology:

W. R. FOSTER, M.Sc., Plant Pathologist, Victoria, B.C.
J. A. MOISEY, M.Sc., Assistant Plant Pathologist, 501 West Twelfth Avenue, Vancouver 9, B.C.

Entomology:

C. L. NEILSON, M.Sc., Provincial Entomologist, Vernon, B.C.

Live Stock:

A. KIDD, D.V.M., V.S., D.V.P.H., Assistant to the Live Stock Commissioner and Chief Veterinary Inspector, Victoria, B.C.
J. C. BANKIER, B.V.Sc., Veterinary Inspector and Animal Pathologist, Vancouver, B.C.
E. V. LANGFORD, D.V.M., V.S., D.V.P.H., Veterinary Inspector and Assistant Animal Pathologist, Vancouver, B.C.
F. C. CLARK, M.S.A., Live Stock Inspector, New Westminster, B.C.

Live Stock—Continued

T. MOORE, Recorder of Animal Brands, Victoria, B.C.
T. J. BATTEN, Brand Inspector, Nicola, B.C.
A. J. DUCK, Brand Inspector, Kamloops, B.C.
R. M. BAKER, Brand Inspector, Williams Lake, B.C.
P. G. LAWRENCE, Beef Grading Inspector, Vancouver, B.C.
S. MUNRO, Deputy Brand Inspector, Clinton, B.C.
J. J. CARNEY, D.V.M., V.S., Veterinary Inspector, Nelson, B.C.
I. D. C. CLARK, D.V.M., V.S., Veterinary Inspector, Penticton, B.C.
R. L. LANCASTER, D.V.M., V.S., Veterinary Inspector, Nelson, B.C.
W. R. LEGROW, D.V.M., V.S., M.S., Ph.D., Veterinary Inspector, Vancouver, B.C.
C. F. MORRIS, D.V.M., V.S., Veterinary Inspector, New Westminster, B.C.
J. MUSTARD, D.V.M., V.S., Veterinary Inspector, Vancouver, B.C.
W. C. NEWBY, D.V.M., V.S., Veterinary Inspector, Nanaimo, B.C.
K. H. THOMPSON, D.V.M., V.S., Veterinary Inspector, Kamloops, B.C.
J. A. MACE, Superintendent, Dairy Herd Improvement Associations, Victoria, B.C.
H. JOHNSON, Inspector, Dairy Herd Improvement Associations, Agassiz, B.C.
J. R. HANNAM, Inspector, Dairy Herd Improvement Associations, Chilliwack, B.C.
Miss JOYCE FLOOD, Laboratory Technician, Vancouver, B.C.
R. J. WEIR, Clerk, Live Stock Branch, Victoria, B.C.
W. H. BURR, Dairy Farm Inspector, New Westminster, B.C.
W. A. CLEAVER, Dairy Farm Inspector, New Westminster, B.C.
K. G. FLETCHER, Dairy Farm Inspector, Abbotsford, B.C.
A. L. KIRKBY, Dairy Farm Inspector, Nanaimo, B.C.
B. R. STEWART, Dairy Farm Inspector, Chilliwack, B.C.

Dairy:

F. C. WASSON, M.S.A., Dairy Commissioner, Victoria, B.C.
R. N. HITCHMAN, B.S.A., Dairy Inspector, Prince George, B.C.
N. H. INGLEDEW, M.S.A., Dairy Inspector, Nelson, B.C.
G. D. JOHNSON, Dairy Inspector, Kelowna, B.C.
G. PATCHETT, Dairy Inspector, Victoria, B.C.
P. REGEHR, B.S.A., Dairy Inspector, Victoria, B.C.
C. RIVE, B.S.A., Dairy Inspector, Vancouver, B.C.
K. G. SAVAGE, M.S.A., Dairy Inspector, Vancouver, B.C.

Poultry:

W. H. POPE, Poultry Commissioner, Victoria, B.C.
H. C. GASPERDONE, B.S.A., Poultry Inspector, New Westminster, B.C.
N. J. SUPEENE, B.S.A., Poultry Inspector, Abbotsford, B.C.
C. W. WOOD, B.S.A., Poultry Inspector, Kelowna, B.C.
D. M. HAMILTON, B.S.A., P.Ag., Poultry Inspector, Nanaimo, B.C.
R. C. BENTLEY, Resident Supervisor, Random Sample Poultry Test Station, Abbotsford, B.C.

Field Crops:

N. F. PUTNAM, M.Sc., Field Crops Commissioner, Victoria, B.C.
C. H. NELSON, B.S.A., Assistant Field Crops Commissioner, Victoria, B.C.
E. C. HUGHES, B.S.A., Assistant in Field Crops, New Westminster, B.C.
J. H. NEUFELD, B.S.A., Soil Analyst, Victoria, B.C.

Farmers' Institutes:

L. W. JOHNSON, Superintendent of Farmers' Institutes, Victoria, B.C.

Women's Institutes:

Mrs. STELLA E. GUMMOW, Superintendent of Women's Institutes, Victoria, B.C.

Soil Survey:

C. C. KELLEY, B.S.A., Soil Surveyor, Kelowna, B.C.
P. N. SPROUT, B.S.A., Assistant Soil Surveyor, Kelowna, B.C.
W. D. HOLLAND, B.Sc., Assistant Soil Surveyor, Kelowna, B.C.
C. H. BROWNLEE, B.S.A., Assistant Soil Surveyor, Kelowna, B.C.
A. L. VAN RYSWYK, M.Sc., Assistant Soil Surveyor, Kelowna, B.C.
A. B. DAWSON, B.A., B.S.A., Assistant Soil Surveyor, Kelowna, B.C.
E. F. MAAS, M.Sc., Assistant Soil Surveyor, Kelowna, B.C.
J. BAKER, Ph.D., Assistant Soil Surveyor, Kelowna, B.C.

Agricultural Development and Extension:

G. L. LANDON, B.S.A., Director, Victoria, B.C.
J. S. ALLIN, B.S.A., Supervising Agriculturist, Victoria, B.C.
G. L. LUYAT, B.S.A., Supervising Agriculturist, Kamloops, B.C.
S. G. PRESTON, M.S.A., Supervising Agriculturist, Prince George, B.C.
A. J. ALLAN, B.S.A., District Agriculturist, Nelson, B.C.
J. W. AWMACK, B.S.A., District Agriculturist, Cranbrook, B.C.
R. C. BAILEY, B.S.A., District Agriculturist, Vernon, B.C.
R. W. BROWN, B.Sc., District Agriculturist, Fort St. John, B.C.
G. L. CALVER, B.A.Sc., Extension Agricultural Engineer, Victoria, B.C.
J. F. CARMICHAEL, M.Sc., District Agriculturist, Grand Forks, B.C.
G. CRUICKSHANK, B.S.A., District Agriculturist, Chilliwack, B.C.
A. E. DONALD, B.S.A., District Agriculturist, Prince George, B.C.
P. E. EWERT, B.S.A., District Agriculturist, Mission, B.C.
R. C. FRY, B.S.A., Assistant District Agriculturist, Duncan, B.C.
J. D. HAZLETTE, B.S.A., District Agriculturist, Duncan, B.C.
K. R. JAMESON, B.S.A., District Agriculturist, Smithers, B.C.
J. E. HALL, B.Sc., District Agriculturist, Dawson Creek, B.C.
Miss E. L. R. LIDSTER, B.S.A., Supervisor, 4-H Clubs, Victoria, B.C.
K. E. MAY, B.S.A., Assistant Extension Agricultural Engineer, Victoria, B.C.
G. A. MUIRHEAD, B.S.A., District Agriculturist, Cloverdale, B.C.
J. A. PELTER, B.S.A., District Agriculturist, Vanderhoof, B.C.
S. B. PETERSON, B.S.A., District Agriculturist, Courtenay, B.C.
J. E. PIERCY, B.S.A., Assistant District Agriculturist, Kamloops, B.C.
J. C. RYDER, B.S.A., District Agriculturist, Salmon Arm, B.C.
A. R. TARVES, B.S.A., District Agriculturist, Quesnel, B.C.
A. M. JOHNSON, B.S.A., District Agriculturist, Williams Lake, B.C.
R. L. WILKINSON, B.S.A., District Agriculturist, Kamloops, B.C.
J. V. ZACHARIAS, B.S.A., District Agriculturist, Abbotsford, B.C.
H. BARBER, Accountant, Federal-Provincial Farm Labour Service, 501 West Twelfth Avenue, Vancouver 9, B.C.
W. G. REED, Mechanical Superintendent, Land Clearing Division, 501 West Twelfth Avenue, Vancouver 9, B.C.

Land Settlement Board:

Chairman: WM. MACGILLIVRAY, Deputy Minister of Agriculture, Victoria, B.C.
Director: G. L. LANDON, Director, Agricultural Development and Extension, Victoria, B.C.
Director: L. W. JOHNSON, Superintendent, Farmers' Institutes.
Secretary: Miss C. STEPHENSON, Victoria, B.C.
Inspector: I. SPIELMANS, Nelson, B.C.

Dyking Commissioner:

J. L. MACDONALD, New Westminster, B.C.
W. R. MEIGHEN, Deputy Dyking Commissioner, New Westminster, B.C.

Southern Okanagan Lands Project:

F. O. MCDONALD, Project Manager, Oliver, B.C.

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Report of the Department of Agriculture

REPORT OF THE DEPUTY MINISTER OF AGRICULTURE

The Honourable Newton P. Steacy,
Minister of Agriculture, Victoria, B.C.

SIR,—I have the honour to present herewith the Fifty-second Annual Report of the Department of Agriculture for the year ended December 31st, 1957.

The report is in lesser detail than those of previous years and has been designed to present briefly but comprehensively an outline of the work of each branch and division during the period reviewed. There are on file in the Department, and providing valuable continuing records, very full reports from administrative personnel and members of the field staffs.

Early estimates indicate total farm income will not be much changed from 1956. This reflects a comparative degree of stability in a very important segment of the Provincial economy at a time when other industries have been adversely affected.

This Departmental report indicates the position during the year in relation to production and marketing of the wide range of agricultural commodities produced in the Province.

Weather conditions during the year were free from extremes of drought or killing frosts. Average temperatures were somewhat lower.

Tree-fruit yields were substantially higher, with a trend to large sizes in apples, which further added to selling problems in a year when heavy production elsewhere in Canada and in the United States resulted in very keen competition—sometimes at very low prices—for the markets available.

There was some increase in small-fruit tonnage in the Lower Mainland, though that phase of our agriculture is still suffering seriously from the frost damage of 1955. Good yields of strawberries and of loganberries were harvested on Vancouver Island. The low strawberry prices which resulted from heavy production and carry-over of stocks in California were offset to some extent by the Federal action in increasing duties. Returns were, however, barely high enough to provide a margin over cost of production.

Heavy hay-crops in many parts of the Province were secured with great difficulty as a result of poor haying weather. Much of the crop was harvested when too mature.

Root-crops, including potatoes, yielded well. Federal action on potato tariffs was welcomed by producers, though generally considered to be less effective than warranted by the adverse influence of heavy imports at low prices.

Peace River farmers experienced very heavy losses when weather delayed seeding and again hampered harvesting of cereal and seed crops.

Egg production was higher, but prices were substantially lower than in 1956. Production of poultry-meat was also high and showed little price change from the preceding year.

Milk production was fractionally higher, with a larger percentage sold on the more remunerative fluid market. Butter output dropped to a new post-war low.

Beef cattle from the Cariboo and other range areas reached market in less desirable condition than usual. This was a further adverse influence on the price of grass cattle, particularly those at heavier weights. Later, as the American export market opened, there was a very satisfactory outlet for both feeder and stocker cattle, over 17,000 crossing the border at firmer prices. The lack of interest by Coast retailers in grass fat cattle has caused a reassessment of management practices which may alter completely hitherto accepted methods of beef production on extensive lines.

Reviewing briefly the activities of the Soil Survey Branch, work was completed in the Columbia River basin and some progress made in a new assignment in the Fraser Valley, the latter in relation to assessing farm lands on a productivity basis. The Federal group working with our staff could not finish the limited work still necessary to complete the survey of the Peace River and McBride areas owing to unfavourable weather conditions. A start was made, however, on a soil survey of the Interior Plateau, commencing at the International Boundary south of Princeton and which will extend in successive years to the Chilcotin.

Substantial progress was again made in the forage-crop improvement programme, with special emphasis on the use of good pastures, quality silage, and high-protein hays to reduce costs of milk and beef production. Tillage demonstrations were continued in co-operation with the Agricultural Engineering Division. The wet season seriously reduced effective spraying for weed-control, however.

Satisfactory progress was made by the Horticultural Branch in demonstration work, in variety selection, particularly in strawberries, in greenhouse and nursery management practices and in tomato production, also in the control of pests and diseases, the latter in conjunction with pathologists and entomologists. Further advances were made in the development of satisfactory onion-harvesting equipment. Some work was done on vegetable production and storage.

The Federal Department of Agriculture accepted the Vancouver Island, Pemberton-Sechelt, McBride, and West Kootenay Provincial brucellosis-control areas as Federal brucellosis-control areas. It is anticipated Vancouver Island will be a brucellosis certified area in the near future. Our own staffs have continued the brucellosis-eradication programme effectively, and with the gazetting of the Fraser Valley area the last step has been taken leading to complete eradication in the foreseeable future. While there has been a disappointing lack of interest in calfhood vaccination in the Lower Mainland, range-cattle areas have shown an increased interest. United States Department of Agriculture revised regulations may induce some of the beef areas that have practised vaccination for some time to ask for a test and slaughter programme.

Dairy-farm inspections were completed in all Milk Board production areas, including that newly established for Kamloops-North Okanagan, as well as in Central British Columbia, the Peace River, and in the East and West Kootenays.

Mastitis in dairy cattle was a continuing source of grave economic loss, but there are indications that better management practices are reducing incidence.

The Dairy Branch has maintained a constant vigilance to ensure that distributing and processing plants provide high-quality products to consumers.

Dairy herd improvement associations have been increased, reflecting a continuing interest in this policy. The Dairy Sire Evaluation Policy is also gaining wide support, being participated in by the British Columbia Artificial Insemination Association and the Chilliwack Artificial Insemination Club. Arrangements were made for supervising the freezing of bull semen at Milner, and reports on dairy-sire analyses have been released.

Satisfactory progress is reported on beef-cattle performance testing. Meetings were held in relation to beef, lamb, and wool grading.

Studies to obtain more detailed information on cost of milk, poultry, and small-fruit production were undertaken by the University of British Columbia, and progress reports are expected shortly. The first and the last of these studies will continue into 1958.

A conference of all extension personnel and other Departmental officials was held in April. Speakers from the United States provided information and discussions on group leadership. Four extension workers attended a workshop at Washington State College which dealt largely with communications. Arrangements have been made that these officials will convey to other extension personnel the information obtained which can be adapted advantageously to our conditions here. It has become evident that

fewer men must keep more farmers informed and that new methods of communication must be used for that purpose.

4-H Clubs continue to be a most important though time-consuming part of extension. Additional temporary assistance during the summer was provided in most areas to relieve the burden on district men.

In the Peace River, emphasis was maintained on reducing grain acreages and stressing forage-crops and live-stock production. This policy, determined some years ago, is showing good results. The basic objective is still sound, though changing conditions and the advent of the Pacific Great Eastern Railway may require a reassessment of policy to determine the advisability of a stepped-up live-stock feeding programme.

The cost of clearing land by Departmental and contractor equipment reached an all-time high of $425,000.

The construction and opening of the Random Sample Testing Station at Abbotsford was of particular significance to the poultry industry.

Farmers' and Women's Institutes and agricultural societies had an active year. L. W. Johnson, Superintendent of Farmers' Institutes, was appointed a director of the Land Settlement Board. The survey and subdivision of Doukhobor lands was completed, and these were offered for sale to Doukhobors in the first instance. Sufficient time has not elapsed to determine the extent to which applications will be made for the various properties.

The staffs of the Dyking Commission and of the Southern Okanagan Lands Project had full schedules of employment and the usual variety of problems throughout the season.

I regret extremely to record the death in office on April 3rd of the Honourable W. R. T. Chetwynd, Minister of Agriculture, who assumed the portfolio in September, 1956. Through his kindness, consideration, and innate courtesy he had gained the warm affection of his entire staff.

The Honourable W. A. C. Bennett, Premier, succeeded the late Mr. Chetwynd as Minister, holding office until your own appointment on September 13th.

I also regret to report the death of Dr. W. R. Gunn, who had retired from the position of Live Stock Commissioner and Chief Veterinary Officer in 1956.

George H. Stewart, Statistician, retired on superannuation after serving the Department for forty-three years.

LEGISLATION

New legislation dealing with agriculture as passed at the First Session of the Twenty-fifth Parliament of British Columbia consisted of an Act to amend the " Contagious Diseases (Animals) Act," an Act to amend the " Distress Area Assistance Act," and an Act to amend the " Soldiers' Land Act " and the " Feed-grain Assistance Act ".

STAFF CHANGES

Appointments

J. C. Arrand, Assistant Entomologist, March 1st, 1957.
J. W. McIntosh, Milk Board Inspector, April 1st, 1957.
J. E. Hall, District Agriculturist, May 27th 1957.
E. F. Maas, Assistant Soil Surveyor, June 17th, 1957.
D. M. Hamilton, Poultry Inspector, September 1st, 1957.
Dr. J. Baker, Assistant Soil Surveyor, September 11th, 1957.
R. C. Bentley, Supervisor, Poultry Testing Station, October 24th, 1957.

Superannuation

W. G. Reed, March 31st, 1957.
G. H. Stewart, December 31st, 1957.

PUBLICATIONS

The following is a list of new publications printed in 1957:—

Holly Culture in British Columbia ..... H.C. 79
Handbook of British Columbia Women's Institutes.
Package Bees in British Columbia ..... A.C. 12
Women's Work in Fair Exhibits ..... C. 43

W. MacGILLIVRAY,
Deputy Minister of Agriculture.

REPORT OF MARKETS AND STATISTICS BRANCH

M. M. Gilchrist, B.S.A., Markets Commissioner

SYNOPSIS

The general stability that has characterized the agricultural economy during recent years in British Columbia continued throughout 1957. As in previous years, there were declines in some lines, which were offset to a degree by upswings in others, leaving the over-all balance little changed from the preceding five-year average.

Preliminary estimates place the farm cash income for the year at $108,000,000, well within the range established in recent years. Similarly, the farm prices index (1935–39=100) for the year recorded only minor fluctuations, ranging between 259.5 and 271.1. To the extent that this indicates returns to farmers, it may be taken as a reflection of the general economic situation, which was maintained at levels above those recorded in the preceding year, when the index averaged 256.7.

Those factors exerting adverse influences on agriculture in this Province, including relatively high operating costs and sharp competition from neighbouring production areas, continued to loom large in the economic sphere and displayed every indication of remaining so in the foreseeable future.

FEED-GRAIN MOVEMENTS

Imports of feed-grains under provisions of the Federal Freight Assistance Policy during the 1956/57 crop-year recorded a decrease of some 11,000 tons, or about 5 per cent, from the total of 213,500 tons shipped in the preceding year. This represents a new low in shipments during the post-war period.

Since this policy was first introduced as a war-time measure, the Federal Treasury has expended a total of over $26,500,000 in freight assistance on shipments totalling close to 4,000,000 tons of feed-grains from Prairie points into this Province. The average rate of assistance now stands at just over $7 per ton for the entire period the policy has been in effect.

The policy underwent a major change this year, in which assistance was altered to $5.50 per ton less than the car-lot short line rail freight tariff from Edmonton or the point of origin in Alberta, whichever is the lowest, to destinations in British Columbia.

The rate from Edmonton now stands at $13.40 per ton, which means that assistance on shipments from that point amounts to $7.90.

FEEDS

Freight-subsidy adjustments were reflected in lowered feed prices during the year, as the supply position remained buoyant. No. 5 feed wheat declined from a high of $65 per ton at Vancouver in the first quarter to $56 by late autumn. Oats declined $10 and barley $8 per ton in the same period.

Prepared feeds registered similar price reductions, laying mash dropping $8 and dairy mash $4 per ton during the year.

In grains, acreage and production of spring wheat were down 17 and 12 per cent respectively, while barley also showed a decline in both categories. An increase in yield per acre in oats was sufficient to more than offset a slight reduction in acreage. Harvesting of both wheat and oats was seriously hampered in the Peace River District by unfavourable weather.

FRUIT

All major tree and small fruits, with the exception of prunes, recorded sharp production gains from the winter-damaged 1956 totals. These increases parially offset the lower prices generally realized in most markets during the year.

Movement of the apple-crop was somewhat hampered by heavy surplus production in competing areas, but in spite of this and the consequent decrease in prices, total marketings held up well. Of particular significance was the movement this year of over 1,200,000 " handi-pak " containers of McIntosh apples. Consumer acceptance of this economical pack has been most encouraging to British Columbia shippers thus far.

Once again the cell-pack was used extensively for export shipments, including all consignments to the United Kingdom.

Returns from this year's strawberry-crop were cut by the sharp reduction in prices quoted for imported stocks. Action by the Federal Government in imposing additional tariff protection pegged the price of berries for processing at 13½ cents per pound.

Raspberry-growers fared slightly better, when prices for processing berries remained steady at 13 cents per pound.

VEGETABLES

Declines in production and prices featured the commercial vegetable picture in 1957. Among the major items, only lettuce registered increases in both respects. Beans, cucumbers, onions, and turnips brought generally higher returns, but production was slightly below the preceding year's figures. In spite of these conditions, the movement to market was one of the more successful of recent years. This was particularly true of tomatoes. Interior shipment of field tomatoes moved well, with some 3,000 tons sold on the fresh market and over 11,000 tons to canneries, where No. 1's brought $37 per ton, up $1 from 1956.

While production of canning-peas was down slightly, the 1957 pack was of superior quality and found ready acceptance at prices close to 1956 levels.

Table potatoes moved steadily during the year, but at considerably lower prices, due primarily to depressed prices of imported stocks. This year's early crop, one of the best on record, opened at $72 per ton at Vancouver, but dropped sharply to $60 and later to $52 at the end of the deal. Late-crop potatoes opened at $55, dipped to $48 in October, and recovered to $56–$62 by December.

Carrots enjoyed a firm market throughout, with first-grade long varieties priced at $100 per ton. A relatively higher proportion of these were pre-packaged this year, to fill a firm and growing demand. Over 300 tons were exported to Prairie markets.

LIVE STOCK

Slight declines in marketing of British Columbia cattle and hogs for slaughter were recorded during the year as compared to 1956 totals, while a moderate increase occurred in shipments of sheep and lambs. A huge increase in exports of cattle and calves, live and dressed, to United States markets, coupled with a decrease in cattle population, accounted for the bulk of the drop in domestic marketings. Exports of feeder cattle to the United States during the August–November period totalled 17,407 head, as compared to only 201 head in the same period in 1956. This upswing in

exports tended to firm prices, bringing the average up slightly over 1956 levels for the comparable period.

Hog prices were sharply up from the preceding year, averaging $5 higher by the year-end. Hog numbers declined during the year.

Sheep and lambs retained a steady market tone throughout the year, moderately above 1956 averages.

POULTRY AND EGGS

Sharply lowered prices featured the egg market throughout 1957, when supplies outstripped demand, resulting from a sharp increase in pullet numbers early in the year. The weighted average price for the year was 20 per cent below the 1956 average of 42.7 cents. Marketings through grading-stations for the year were up 32 per cent. Some poultry-meats also underwent reductions in price, reflecting heavier movement of all types to market. Receipts at registered stations showed an increase of over 16 per cent above the 17,000,000 pounds recorded in 1956.

By contrast, the broilers and turkeys maintained price levels little changed from the preceding year, the former in spite of an increase in numbers produced. Turkeys for the Christmas trade averaged 33 cents to the producer at Vancouver, up 3 cents from the 1956 average.

DAIRY PRODUCTS

Despite a slight drop in dairy-cattle numbers for the second successive year, favourable pasture and feed conditions produced a moderate increase in milk production during 1957. Preliminary estimates place this gain at close to 10,000,000 pounds over the 1956 total of 748,000,000 pounds.

Two-thirds of this production entered the lucrative fluid trade, the bulk of the remainder being diverted to concentrated milk, ice-cream, and butter manufacture. Ice-cream production continued its steady annual increase, but butter output was below 3,000,000 pounds for the second successive year. This latter figure represents less than 15 per cent of the Province's butter requirements.

MISCELLANEOUS

The wool-clip for 1957 showed a moderate decrease from 350,000 to 328,000 pounds, resulting from a decline of 10 per cent in the number of shearings.

Production of hops was down 20 percent, reflecting a somewhat lower yield per acre from the 1956 figure.

Early estimates point to a slight rise in honey production for the year. This was a direct result of generally favourable weather and an increase in the number of producing colonies to 1,400 from the 1956 total of 1,200.

LEGISLATION

Following the decision on agricultural marketing legislation handed down by the Supreme Court of Canada early in the year and the passing of new legislation by the House of Commons, it became evident that certain changes in the " Natural Products Marketing (British Columbia) Act " were necessary. The three commodity marketing boards currently operating in this Province prepared and recommended amendments to the 1958 session of the Legislature, with a request that these be submitted.

Early in the year the report of the economic study conducted by the University of British Columbia on the vegetable industry of the Interior was released. With assistance from the Branch, this study confirmed earlier concepts of conditions in this industry, and the required corrective measures. By mid-year, most of the latter had been achieved.

REPORT OF HORTICULTURAL BRANCH

R. P. MURRAY, B.S.A., PROVINCIAL HORTICULTURIST

GENERAL CONDITIONS

The winter of 1956/57 was about normal in so far as temperatures and precipitation were concerned. Fruit-trees, small fruits, and nursery stock went into the winter well matured and came through in good condition.

The spring, though not unusually early, was on the whole quite dry. May was much warmner than usual, enabling growers to get ahead with seeding and planting. All crops got away to a good start, and with few exceptions were not set back by the cool showery weather that followed. September was unseasonably hot and dry. The balance of the season was generally favourable for harvesting apples and vegetable-crops. An estimated 10,000 boxes of apples were lost in the Creston district from an early frost.

Some 275 acres of fruits and vegetables suffered from hail damage in the Okanagan Valley, the areas affected being Oyama, Lavington, and Salmon Arm.

The apple-crop was the largest since 1950. The fruit ran two to three sizes larger than usual, and late estimates have placed the crop at 6,667,000 boxes for the Okanagan and Kootenays. McIntosh were of particularly good quality, well coloured and firm, as were Winesaps and Rome Beauty, but Delicious were rather badly sun-scalded by the September heat. Newtown produced a crop of good size and quality.

The following table sets out the fruit production for the years 1956 and 1957:—

British Columbia Production by Kinds of Fruit

Crop		1956 Production	Estimated 1957 Production
Apples	boxes	4,130,859	6,783,360
Crab-apples	,,	97,791	102,800
Pears	,,	638,526	778,200
Plums	crates	73,253	70,000
Prunes	,,	719,350	646,700
Cherries	,,	145,958	250,279
Peaches	,,	750,092	1,356,000
Apricots	,,	211,207	901,565
Cantaloupes	,,	2,583	563
Strawberries	,,	136,456	326,520
Raspberries	,,	291,230	736,625
Loganberries	,,	15,474	70,475
Blackberries	,,	4,176	39,000
Black Currants	,,	3,252	3,700
Red Currants	,,	2,901	3,350
Gooseberries	,,	3,642	4,050
Blueberries	,,	60,553	60,080
Cranberries	lb.	19,225	35,000
Grapes	,,	459,528	1,954,000
Filberts	,,	100,000	100,000

Because of tree-fruit losses due to low-temperature injury, a heavy replacement programme is facing the fruit-growers. It is of some interest to note the trends toward fewer varieties. To-day the swing is toward apples, with more attention being paid to hardy frameworks, hardy and clonal root-stocks. Red strains of Delicious, Spartan, and McIntosh are the three popular varieties at present.

Where plums or prunes are removed, there is very little replacement being made. Rather than replant with these, growers are more inclined to plant apples or sweet

cherries. The favoured cherry varieties are Lambert, Sam, and, to some extent, Star; Bing, because of splitting and tenderness, is no longer popular, while Van is being planted largely for pollination.

Pear plantings are about holding their own, with only Bartlett and Anjou being planted.

Peaches and apricots are being planted in the warmer parts of the Okanagan, with little change in variety. The industry is still looking for an apricot with the hardiness and productivity of a Moorpark and the canning quality of a Blenheim.

Of the small fruits, British Sovereign still leads in strawberries, with no variey in sight to replace it, although several are under observation. Northwest plantings have shown some increase, largely due to the scarcity of British Sovereign plants for the planting season of 1956. Some interest is being shown toward Agassiz, Siletz, and Puget Beauty, but these varieties have not been grown long enough under our conditions to be properly evaluated.

With the introduction of the raspberry Creston, growers in the Fraser Valley are showing considerable interest. The Horticultural Branch was responsible for its introduction. However, Washington, Willamette, and Newburgh are still the leading varieties.

The vegetable industry in the Interior shows an increased acreage for the first time since 1952—5,055 acres this season as compared to 4,696 in 1956. Five commodities were increased this year—namely, early and late potatoes, asparagus, tomatoes, and turnips—while lettuce, carrots, beets, parsnips, peppers, cucumbers, green beans, bulb onions, and silverskins showed a decrease. On the Lower Mainland and Vancouver Island, vegetable acreage showed an over-all increase of 125 acres over last year, with a total of 23,446 acres. The vegetable acreage is given in the following table:—

British Columbia Vegetable Production and Acreages, 1956, and Estimated for 1957

Crop	1956		Estimated, 1957	
	Production (Lb.)	Acreages	Production (Lb.)	Acreages
Asparagus	618,500	471.0	765,226	503.6
Beans (green)	12,147,211	1,721.0	10,310,397	1,876.0
Beans (dried)	74,000	30.0	25,680	30.0
Beets	5,093,351	345.5	4,530,119	372.2
Broccoli	839,361	150.0	900,000	175.0
Brussels sprouts	167,743	25.0	70,000	10.0
Cabbage	8,542,652	544.5	9,454,180	533.1
Carrots	15,607,156	789.7	15,236,400	729.0
Cauliflower	3,722,140	462.0	4,352,330	362.0
Celery	3,175,870	479.0	3,699,750	425.1
Corn	20,962,357	3,126.0	19,843,550	3,335.1
Cucumbers (field)	4,572,194	424.7	4,961,354	361.6
Cucumbers (hothouse)	921,105	----------	1,009,550	----------
Lettuce (field)	6,906,690	648.0	9,714,150	570.0
Lettuce (hothouse)	90,000	----------	60,000	----------
Mushrooms	1,502,019	----------	1,283,875	----------
Onions	8,984,300	468.7	7,411,459	392.6
Parsnips	807,812	77.0	652,500	79.5
Peas (green)	21,655,556	6,846.0	18,709,664	6,092.0
Peas (dried)	8,476,240	7,025.0	8,065,006	6,120.0
Potatoes	120,626,837	8,680.5	167,222,585	9,729.0
Rhubarb	1,060,773	105.0	1,113,668	105.0
Spinach	1,386,379	117.0	1,075,155	113.0
Squash, pumpkin, marrow	2,851,750	203.5	2,770,141	207.3
Tomatoes (field)	32,056,198	1,958.5	33,550,330	1,943.7
Tomatoes (hothouse)	2,780,360	----------	2,520,904	----------
Turnips	5,594,510	440.0	7,758,550	479.2
Zucca melon	799,411	89.0	500,000	47.0
Other vegetables	2,613,501	1,436.0	4,553,155	1,279.7
Totals	294,635,976	36,662.6	342,119,678	35,870.7

Canning-peas were down some 650 acres, but potatoes showed an increase of 600 acres and canning-corn 200 acres. Other crops remained at about the same level.

The first major change in packing-house and fruit-handling methods since the introduction of mechanical graders was the introduction this year of bulk bins for handling apples. This change followed the visit to New Zealand last winter of a party made up of growers, packing-house personnel, and a representative from the Federal and Provincial Departments of Agriculture. Mr. W. F. Morton represented the British Columbia Department of Agriculture and has submitted a comprehensive report on bulk handling in that country.

Although bins were used to a limited extent this year, those growers who have used them are quite enthusiastic, and it is expected greater use will be made next season. The bin method seems to be easier on the fruit, permits faster handling in the orchards and packing-houses, and requires less storage space for loose fruit than do bushel boxes. Two sizes of bins have been recommended—25- and 50-bushel capacity, with the smaller bin more generally used.

Anticipating the demand for tree-fruit nursery stock, nurserymen this year grew the largest crop on record. There will be some 480,000 1-year-old trees available, of which 382,000 are apples. It is expected that quite a large number of trees, particularly those on clonal stock, will be exported to the United States.

The following table shows the number and kind of apple root-stocks being used in British Columbia nurseries:—

Root-stock	Number of Trees
E.M. II	145,404
E.M. IV	12,091
E.M. VII	64,115
E.M. IX	26,465
E.M. XVI	1,503
E.M. XXV	116
M.M. 104	103
M.M. 106	253
M.M. 109	167
Seedling	131,448
M.M. 111	212
Total	381,877

Although the nurserymen supplying tree-fruit stocks have taken steps to fill all local needs, the growers of ornamental stocks have not; consequently, a lot of stock that could be grown in British Columbia is being imported.

With the many new homes being built, park developments, new schools, etc., there appears to be an excellent opportunity for a much greater production of ornamental stocks by British Columbia nurserymen.

The area devoted to greenhouse crops in 1957 is about equal to that of 1955, when the last survey was made, namely 4,803,642 square feet. At present there is a trend away from tomatoes and cucumbers to the higher-priced flower-crops, especially chrysanthemums, some growers producing this crop on the twelve-month basis.

It is of some satisfaction to report the over-all improvement in the quality of the greenhouse crops produced on the Lower Mainland and Vancouver Island because of demonstration work carried out by this Branch. This work has consisted mainly in the setting-up of fertilizer levels, soil-sterilizing methods, disease and insect control. This has called for a great many soil analyses, quite often on short notice. This part of the work has been very capably done by J. H. Neufeld, soil analyst.

The vegetable-seed situation showed little change from last year. There was a slight increase this year due to the larger acreage of seed-peas, and a slight increase in beet, onion, turnip, and broad beans.

Flower-seed acreage was lower this year, due partly to one large grower on Vancouver Island going out of business.

Since most of the flower-seed acreage is confined to quite small units, mechanization is out of the question and most of the work is by hand-labour, making for a labour cost that cannot compete with the large seed-farms of the United States.

The following table is set forth to show the trend in production during the past two years. (NOTE.—Final compilation of 1957 yields not completed until February.)

Vegetable Seed

Kind	1956 (Lb.)	1957[1] (Lb.)
Asparagus	125	200
Beans (broad)	4,500	20,000
Beans	59,721	65,000
Beets	3,283	6,300
Cabbage	----------	12
Carrots	6,929	11,724
Cauliflower	----------	----------
Corn	32,590	30,000
Cucumber	----------	500
Leek	----------	800
Lettuce	14,163	500
Onion	13,234	15,680
Onion sets and multipliers	180,000	65,000
Parsley	----------	7
Parsnip	----------	755
Peas	3,861,286	4,073,600
Pepper	25	----------
Pumpkin	435	----------
Radish	9,109	----------
Spinach	----------	----------
Tomato	238	100
Turnip (swede)	55	8,800
Vegetable marrow	239	250
Totals	4,185,932	4,299,228

[1] *Estimated, November, 1957.*

A holly-crop of between 45 and 50 tons was shipped this year, most of it being produced on Vancouver Island. While the general quality was good, there is a decided lack of a uniform type of holly at this time. However, growers are aware of this situation, and new plantings are being set out to strains or varieties of the better types.

Blueberry production was about the same as last season, amounting to some 60,000 crates. The crop was harvested under favourable weather conditions, and the general quality was very good. At present it is felt there are too many varieties being grown. Until very recently no one knew what varieties were best suited to Brtish Columbia conditions; consequently, a great many were set out to find the most desirable. Individual preferences, regardless of climatic suitability and market demands, have had a part in making up the number of varieties now being grown.

Filberts are still showing the effects of the 1955 freeze, especially in the better-cared-for plantings. Neglected and dried-out plantings have come through in fair shape. The

crop totalled 100,000 pounds, about equal to last year's crop. The Barcelona and Du Chilly varieties show the most injury, while Nooksack and the pollinator Alpha produced most of the crop.

The only commercial tobacco acreage is grown in the Sumas area. Usually this amounts to some 80 or 90 acres, but this year only 48 acres were grown. Yields are estimated at 1,150 pounds per acre. The crop is shipped to Eastern Canada for processing.

The Kelowna area produces practically all the commercial grapes in this Province. This year's crop is estimated at 1,573,000 pounds or four times last year's production. About 60 per cent of the crop was shipped to wineries and the balance sold as fresh grapes.

DEMONSTRATION

Cherries

Additional work was undertaken for the control of brown-rot of cherries, a serious disease in the Kootenay area. A 2-acre block of sweet cherries at Boswell was used, and recommendations as set out in the Spray Calendar followed, while at Renata two new materials, Cyprex and Thioneb, were tested for effectiveness and phytotoxicity. These materials are apparently quite effective and safe to use under Kootenay conditions. It is expected this work will be carried out on an extended basis in 1958.

Botrytis-control on Strawberries

(Reported by I. C. Carne, District Horticulturist, Abbotsford)

Three plots of one-half acre each were divided into three equal parts. There were two plots of British Sovereign and one plot of Northwest. Each plot was sprayed three times, starting at pre-bloom stage and repeated at ten-day intervals, using Captan 50 per cent at 3 pounds per 100 gallons and Thiram 4 pounds per 100 gallons. Detailed recordings of yield are only available for one plot and are given below:—

British Sovereign Variety

Material	Yield (Lb. per Acre)
Thiram	7,165
Captan	5,750
No spray	5,262

Observations on the other two plots would indicate there was little difference between spray treatments, but there was almost twice as much fruit produced on the sprayed plots as compared to the non-sprayed plot. On one plot there was no marketable fruit on the unsprayed portion for the last few pickings.

This season was generally considered to be a season with only light losses from fruit-rot. Results in all three demonstrations indicate that considerable losses can be prevented by following the above spray schedule.

Much of the losses from the Botrytis organism occur as a " blossom blast," which quite often passes unnoticed, and the grower calculates his loss only from the decayed fruit he sees in the planting. This demonstration shows the need for a preventive programme, regardless of weather conditions, from the pre-bloom stage until harvest-time.

A joint demonstration on mould and Botrytis control was undertaken by W. D. Christie and A. E. Littler in greenhouses on Lulu Island and Vancouver Island. Tix sulphur generators were set up about 30 feet apart. The generators were of the canister type, in which a tablespoonful of flowers of sulphur was placed each night. A 100-watt light-bulb supplied the heat to vaporize the sulphur.

Results have been very encouraging. In the areas where the generators were used, the crop was free of both Botrytis and leaf-mould and no injury to the plants.

Greenhouse chrysanthemum spray trials at Haney and Victoria were carried out jointly by A. E. Littler and W. D. Christie. Since the effectiveness and phytotoxicity of some of the newer insecticides and fungicides are unknown, these demonstrations were set up to find out these properties and at the same time to find out if they could be used on a definite pre-determined time schedule to control all the common insect and fungous trouble.

Four 50-foot beds were planted out, and in order to include as many varieties as possible only a few rows of each could be used; in all, some sixteen varieties were used. Materials used were Aramite wettable powder, Dieldrin emulsion, and Karathane wettable powder on one-half the plants and Kelthane emulsion, Diazinon, and Karathane wettable powder on the other. All materials were used at the rate of 2 tablespoons per 6 gallons of water, except Karathane, which was used at 1 tablespoon per 5 gallons of water.

Sprays were applied on August 29th, September 17th, October 2nd, October 23rd, and November 20th.

No leaf or flower damage was noted from either of the spray treatments. Control of both insect pests and diseases was very satisfactory. Some aphids were noted at the time of the last application, November 20th, but since it had been almost a month between sprays, it would indicate this is too long an interval. The aphids were not plentiful enough to be serious.

A recently introduced material for nematode-control called " Nemagon," reported to be an efficient nematicide with low phytotoxic properties, was tried out on three plots of growing strawberries, using Nemagon granular at 70 pounds per acre, Nemagon 170 emulsifiable concentrate at 1 gallon per acre in 9 gallons of water, and Nemagon 10 per cent at 120 pounds per acre.

These materials were applied July 30th. From samples taken September 6th and October 22nd a very considerable reduction of the Pratylenchus species was noted. However, before any definite conclusions can be arrived at, further samplings in the spring of 1958 will be necessary and also the effect on the strawberry plants determined. Nematode determinations were made through the courtesy of J. Bosher, plant pathologist, Saanichton.

Since mulches for strawberries, such as shavings and straw, are expensive, subject to wind-drift in exposed areas and to matting, surface mulches in the Fraser Valley have not been too practical. As an alternative, an oat cover-crop drilled in on the windward side of each row is being tried with considerable success. The oats are seeded in August and make sufficient growth, stand well above the strawberry plants, and not only help to break the wind, but also hold the snow. These trials have been under way for two winters.

In 1954 five varieties of grapes were obtained from the Experimental Station, Geneva, New York, and set out at Kelowna, in an effort to find a variety or varieties of better quality than those presently grown and hardy under Okanagan conditions. All varieties have survived, and from present indications two—namely, Himrod, a pale-green seedless vinifera type, and Alden, a dark blue berry having seeds—show considerable promise. The other varieties set out in 1954, either because of flavour, berry size, or lateness of maturity, will likely be discarded after another year's trial.

In 1957 six plants of Interlaken Seedless on its own roots as well as on two known root-stocks have been set out, and plants of Kendaia will be set out in 1958.

Of the eight ½-acre strawberry-plots set out in 1955, only five remain. However, these are serving a very useful purpose as test-plots for fungicides, insecticides, and weedicides.

The plot on Vancouver Island was partly infested by a new weevil in 1956 (*Sciopithes obscurus*), and before a satisfactory control was found had done considerable

damage to about one-third of the plot. The crop this year was about 4 tons per acre, which can be considered a satisfactory yield under the circumstances.

Of the three plots in the Fraser Valley, the Mirus plot, at Abbotsford, planted to Northwest, has been very well looked after, following closely the programme set out by the Department. The yield this year was almost 7 tons per acre. The Giesbrecht plot at Langley—British Sovereign—has not done well. Some crown damage from cold winds that removed the mulch could be partly responsible. The yield was not quite 3 tons per acre. The Jacobs plot at Mission has from the outset been poor, and this year did not exceed 2 tons per acre. However, it has served a very useful purpose.

This site was chosen to try to find the reason why strawberries would not thrive now in what had been some years ago a successful strawberry-growing area. Apparently a high population of root-knot nematode (*Pratylenchus* species) has been responsible. Further investigations will be carried out to try to determine if there may be other limiting factors besides nematodes.

The original plan for the Creston plot has been changed slightly to try to find out the value of the narrow matted row both from a winter protection standpoint and yield. The plot arrangement with yields is shown in the following table:—

Row No.	Treatment	Average Yield per Row (Lb.)
1, 2	Matted row only	390
3, 4	Matted row, mulched	352
5	Matted row, mulched, topped	338
6, 7	Hill system, mulched, topped	265
8, 9	Hill system, topped	266
10, 11	Hill system only	256

The work of trying to improve the vigour and yields of the British Sovereign variety of strawberry continues. The Horticultural Branch, in co-operation with the University, is attempting to establish by selection from producing fields high-yielding desirable-type plants that have been exposed to the diseases responsible for the decline in this variety. Plants from desirable-type clones are being grown at the University and also at the Agricultural Centre at Abbotsford.

In co-operation with Plant Pathology Section of Science Service and the Experimental Farm at Agassiz, virus-free plants of British Sovereign are being developed. The plants, after being released as virus-free by the pathologists, are grown for one season at Agassiz. This stock is then turned over to the Horticultural Branch for increase, under isolation. This certified stock will be released to selected commercial growers who have the ability and facilities to properly grow and care for it. To avoid contamination, disease-free stock will have to be supplied each year to these growers. Some progress is being made, and it is expected some 25,000 disease-free plants will be available for propagation this coming season.

Tomatoes and Onions

The tomato demonstration plot at Kelowna has been in operation since 1952, has now served the purpose as originally set out, and will be discontinued.

This 3-acre plot has been outstanding in demonstrating to vegetable-growers the use of cover-crops in a rotation, coupled with adequate fertilizer applications.

It is significant to note that in six short years these 3 acres have been restored from an exhausted waste to a rich and highly productive piece of land by nothing more than good farming methods.

The following production record for tomatoes and onions are of considerable interest:—

Tomato Production

Crop	Tons per Acre					
	1952	1953	1954[1]	1955[1]	1956	1957
Harvested	5.22	8.43	5.87	8.86	12.93	15.44
Unharvested	1.50	6.00	7.20	12.00	7.40	6.19
Totals	6.72	14.43	13.07	20.86	20.33	21.63

[1] 1954 and 1955 were very poor tomato seasons. Weather was cool and wet and growing season shorter than usual.

Onion Production

Crop	Tons per Acre			
	1954	1955	1956	1957
Harvested from cover-cropped land	22.8	20.91	23.27	22.03
Harvested from adjacent land in continuous crop	15.3	12.82	15.0	11.68

In co-operation with the Agricultural Engineering Division, further work has been done in an attempt to develop a low-cost efficient onion-digger suitable for the generally small acreages found in the Okanagan Valley. Good progress is being made, and from the experience gained over the last two years, it is hoped that a satisfactory machine will be developed that will properly dig and windrow onions.

An eight-roll onion-topper with a capacity of 80 to 100 pounds per minute was also extensively tested this season. It is a small machine and suited to local conditions.

No apparent bruising or tearing was noted, but samples have been placed in storage for later observation to determine these points.

Asparagus

The asparagus acreage in the Province is gradually on the increase. In 1950 there were 290.75 acres, as compared to 503.6 acres in 1957. The greatest increase has been in the Okanagan, where it has risen from 186 acres in 1950 to 435.6 in 1957.

Since no fertilizer trials prior to 1953 had been made with this crop, W. T. Baverstock set up plots in 1953 on irrigated and non-irrigated lands to try to find out what fertilizer and in what amounts were needed to sustain yield.

The following tables give a summary of the results for the five years the trials have been under way:—

Irrigated

Plot	Material	Rate (Pounds per Acre)	Yield in Pounds per Acre					5-year Average Yield
			1953	1954	1955	1956	1957	
1	33–0–0	500	3,225	4,570	4,165	4,485	5,375	4,364
2	33–0–0	1,000	3,455	4,370	4,225	4,725	5,235	4,402
3	16–20–0	500	2,450	4,200	4,045	4,625	5,300	4,125
4	16–20–0	1,000	3,755	4,525	4,470	5,010	5,455	4,643
5	6–10–10	700	3,780	4,080	4,150	5,065	5,590	4,533
6	6–10–10	1,200	3,480	4,425	4,455	5,225	5,675	4,652
7	Check	------	3,010	3,375	3,920	4,530	5,215	4,010

Non-irrigated

Plot	Material	Rate (Pounds per Acre)	Yield in Pounds per Acre					5-year Average Yield
			1953	1954	1955	1956	1957	
1	33–0–0	500	4,095	4,770	4,560	5,070	4,710	4,641
2	33–0–0	1,000	3,660	3,795	4,185	3,720	3,675	3,807
3	16–20–0	500	3,615	3,880	4,275	4,050	3,405	3,845
4	16–20–0	1,000	3,475	3,630	4,080	3,720	3,270	3,635
5	6–10–10	700	3,600	4,095	4,425	3,630	3,450	3,840
6	6–10–10	1,200	3,240	3,540	4,230	3,765	3,210	3,597
7	Check	.....	3,615	3,795	4,380	3,945	3,555	3,858

In addition to the above trials, plots on a new planting at Salmon Arm were set out under the direction of R. M. Wilson. This planting under trial was set out in 1954, and this was the first season any cutting was done.

Plot No.	Fertilizer	Total Yield
		Lb.
1	80 lb. 33–0–0	144
2	80 lb. 33–0–0 plus 150 lb. 0–19–0	185
3	80 lb. 33–0–0 plus 50 lb. 0–0–60	206
4	Check	160
5	80 lb. 33–0–0 plus 150 lb. of 0–19–0 plus 50 lb. 0–0–60	234

TREE-FRUITS

The tree-fruit fertilizer plots set up in 1928 and 1934 are, as far as can be learned, the oldest trial plots in the Pacific Northwest. The fertilizer treatments and yields for the past six crops are tabulated below.

Fertilizer Trials

Butler Orchard, Lower Bench, East Kelowna, Set Up 1928.—Object: To determine the optimum amount of nitgrogen required for bearing apple-trees.

Procedure: The fertilizer is applied in the fall as follows:—

Plot No.	Materials	Average Yield in Loose Boxes per Tree						Average
		1952	1953	1954	1955	1956	1957	
1	4 lb. ammonium nitrate	19.6	22.8	28.5	18.6	21.25	24.0	22.46
2	2 lb. ammonium nitrate	21.0	21.2	29.4	17.8	22.25	30.0	23.61
3	6 lb. ammonium nitrate	18.6	17.4	20.6	18.0	14.5	21.2	18.38
4	8 lb. ammonium nitrate	13.8	17.4	16.0	18.2	13.4	21.6	16.73
5	5 lb. ammonium nitrate (old check-plot)	15.0	24.3	18.7	24.3	19.3	33.3	22.48

It is rather significant that Plot No. 2, receiving only 2 pounds of fertilizer since 1948, continues to produce crops as large as any of the plots receiving more fertilizer. It would appear that nitrogen is not the limiting factor in production on these plots.

Block No. 2, Butler Orchard, Lower Bench, East Kelowna.—Object: To determine the effect of each of the major elements on tree growth, yield, and fruit quality for the McIntosh variety of apple.

Procedure: Fertilizer is applied in the fall as follows:—

Plot No.	Materials	Average Yield in Loose Boxes per Tree					Average
		1953	1954	1955	1956	1957	
1	4 lb. ammonium sulphate	19.3	21.8	18.3	22.67	28.25	22.06
2	5 lb. 16–20–0	26.3	24.2	25.2	25.6	32.8	26.82
3	5 lb. 16–20–0, 3 lb. sulphate of potash	23.2	27.6	15.2	27.2	28.2	24.28
4	5 lb. sulphate of ammonia	24.3	18.7	24.3	19.3	33.3	23.98

Observations: The test was commenced in 1934. Plot No. 4 prior to 1946 served as a check, receiving no fertilizer. Since 1946, sulphate of ammonia has been applied.

Yield figures again favour Plots Nos. 2 and 3—that is, the N.P. and N.P.K. plots.

In addition, plots were set up in 1956 for pears in the Kelowna district and for apples at Creston, but this work has not been going along enough to be in any way informative.

Weed-control

Chemical weed-control in horticultural crops is being given considerable study. The work with onions, carrots, and beans is proceeding satisfactorily, and safe recommendations can now be made. During the past season seven materials were tried, of which liquid Cyanamid at 10 gallons per acre applied as a pre-emergence spray gave excellent control with no reduction in yield, while vegadex at 3 pounds per acre gave fair control and no damage. The other five materials either did not control the weeds or controlled weeds and seriously reduced the crop at the same time.

With perennial crops such as tree-fruits and cane-fruits, the problem becomes more difficult because of the residual effects of the chemicals being used. Although there are chemicals that will control such weeds as quack-grass, Russian knapweed, hoary cress, and other deep-rooted weeds, the residual effects render them unsafe, according to the information now available. This work is being continued, but since it may be two or three years before the full effect of the chemical on the growing crop may show, progress is naturally slow.

A co-operative weed-control project will be carried out in the Okanagan with the Horticultural Branch and the Public Works Department participating. A survey of the noxious weeds along the highways between Vernon and Summerland has been made, and control plans drawn up. Such a programme should eliminate claims arising from crop losses and at the same time obtain better weed-control.

Deer Repellents

Following the quite successful results obtained with seal-oil as a deer repellent in the Kootenays by J. E. Swales, further trials with this material were carried out by M. P. D. Trumpour at Penticton and Okanagan Falls. During February, burlap strips, 6 by 2 inches, were dipped in seal-oil and suspended by a wire from the branches of young trees.

Up to the end of August, although deer tracks were plentiful, the damage to treated trees was almost negligible compared to damage on adjacent untreated trees. Since a great many materials have been tried without much success, the seal-oil repellent is not only inexpensive and easy to use, but apparently gives protection over quite a long period. In some cases the same material used in Salmon Arm was not effective.

Budding-schools

Because of the number of hardy apple stocks being planted that will have to be top-worked in the near future to the wanted varieties, it was felt advisable to instruct

the growers now on how to properly do this work themselves. Seventeen schools were held, with an attendance of 150.

Orchard field tours were carried out at Osoyoos, Keremeos, Penticton, Kelowna, Vernon, and Salmon Arm. The growers attending expressed their satisfaction with this form of extension, and the B.C.F.G.A. executive has requested that orchard tours be placed on an annual basis.

The tours were arranged by J. A. Smith, assisted by the District Horticulturist and a representative of each local district visited. The District Horiculturist was responsible for the programme in his district. In addition to the local officials, W. R. Foster, Provincial Plant Pathologist, and C. F. Brownlee, specialist in drainage and irrigation, of the Provincial Soil Survey Branch, took an active part in the discussions.

SURVEYS AND INSPECTIONS

Because of the heavy losses to small fruits in the Fraser Valley following the 1955 freeze, the small-fruit survey that would have been normally made in 1956 was made in that area in 1957 when a more accurate record of plantings could be obtained. As will be seen from the comparisons of acreages in the following table, all crops show a loss (except cranberries, where there is a decided increase) due to frost damage. Although planting stock is available for all berry-crops, growers are reluctant to fully replant until the marketing situation clears.

1957 Small-fruit Survey, Fraser Valley

Kind of Small Fruit	1954 Acreages	1957 Acreages
Raspberries	1,942.21	1,747.90
Strawberries	1,971.82	1,544.18
Blueberries	584.00	552.93
Cranberries	25.50	98.00
Loganberries (including boysenberries)	153.33	40.38
Blackberries	40.21	29.17
Rhubarb	96.75	65.74
Asparagus	19.00	19.00
Nuts	449.77	281.49
Grapes	46.49	10.00
Holly	63.00	36.45

All nurseries were inspected during the season by W. D. Christie. Where tree-fruit stocks were being produced, they were inspected for trueness to name and any wrongly named were labelled and pointed out to the manager.

Nursery Inspection Report, 1957

Trees	Number Inspected	Number Passed	Number Condemned
Apples and crab-apples	391,655	384,227	7,428
Pears	28,529	23,376	5,153
Plums and prunes	3,319	3,286	33
Cherries	27,287	26,777	510
Peaches	30,224	27,735	2,489
Apricots	4,930	4,752	178
Miscellaneous	----	----	----

Percentage of trees condemned, 3.87 (1956, 5.80).
Number of nursery licences issued in 1957, 193 (1956, 187).
Number of inspections made in 1957, 25 (1956, 16).

Fire-blight inspection was undertaken as usual in all districts except Kelowna. This was not a serious problem, and only a very small percentage of the total trees examined were condemned.

Total acreage inspected, 1,302.10; passed, 1,301.98.

A total of thirteen pruning-schools were held during the season, with an attendance of 303.

The usual biennial bulb survey was carried out this season, and the following table shows a slight acreage decline from the 1955 survey:—

British Columbia Bulb Survey, 1957, with Estimated Values of Marketable Production

Kind of Bulb	1955 Total Acreage	1957 Total Acreage	Approximate Quantity	Estimated Values of Marketable Production
Narcissus	278.33	308.12	18,487,200	$124,788.60
Tulips	86.47	66.82	6,682,000	41,762.50
Gladioli	78.57	44.04	4,404,000	26,424.00
Iris (bulbous)	19.25	13.66	2,049,000	18,441.00
Iris (others)	8.08	0.27	2,000	270.00
Hyacinths	4.92	5.21	208,000	5,210.00
Lilies	5.60	2.09	52,300	2,090.00
Dahlias	28.00	17.31	69,250	17,310.00
Peonies	11.28	6.75	40,475	6,750.00
Other bulbs[1]	2.23	3.52	702,500	3,520.00
Totals	522.73	467.79	.....	$246,566.10

[1] Would include such bulbs as crocus, chinodoxa, grape hyacinths, etc.

BULLETINS, NEWS-LETTERS, CROP REPORTS, MEETINGS

Two bulletins were revised and reissued during the year, one on " Holly Growing " and one on " Bulb Growing." At present under revision are horticultural bulletins on raspberries, strawberries, currants, gooseberries, and rhubarb.

As usual the Horticultural Newsletter covering crop conditions for the Province was issued bi-monthly from May through September, all the horticultural offices co-operating. The Newsletter is compiled and mailed from the Kelowna office under the direction of the Supervising Horticulturist.

The annual growers' meetings were held in the Okanagan during February. Twenty meetings with a total attendance of 1,142 growers were reported, with two members of the Horticultural Branch staff participating. J. A. Smith spoke on " Hardy Stocks " and " Winter Injury Protection," while M. G. Oswell talked on " Insect and Disease Control."

Through the co-operation of the British Columbia Fruit Growers' Association, B.C. Tree Fruits Limited, and Canadian Broadcasting Corporation, members of the staff have been able to get timely information on such problems as spraying, irrigation, crop maturity, and picking dates to the growers. Broadcasts are made over the three Okanagan stations and the regular farm broadcasts of the C.B.C.

The Royal Commission investigating the tree-fruit industry has called on several members of the staff for information pertinent to the inquiry. Your Horticulturist made a submission dealing with the history and development of the tree-fruit industry of the Province, with special reference to marketing and the developments that led up to the present system of marketing.

A. C. Carter, Assistant District Horticulturist at Penticton, is serving as secretary to the Commission.

Your Horticulturist wishes to acknowledge with sincere appreciation the co-operation of the Horticultural Branch staff and members of other branches of the Department, the Canada Department of Agriculture, the University of British Columbia, and the various growers' organizations throughout the Province.

REPORT OF PLANT PATHOLOGY BRANCH

W. R. FOSTER, M.SC.

Most of the important plant diseases were checked by the dry weather during the spring and fall. There was no major outbreak of any plant disease in any crop. A few diseases, like late blight of potatoes, were favoured by the wet weather of the summer, but control measures taken by most growers to combat the disease prevented severe losses.

DISEASES

FIELD CROPS

Bacterial Ring-rot of Potatoes.—British Columbia continues to be virtually free of bacterial ring-rot of potatoes. Ring-rot has been found in trace amounts on three farms in the Fraser Valley. We appear to have less ring-rot than any other potato-producing area on the North American Continent.

Dwarf Bunt of Winter Wheat.—The first economic outbreak of dwarf bunt of winter wheat in the Kootenays occurred on one farm in the Creston area. Dwarf bunt has been present in the Northern Okanagan for many years. It can be prevented either by growing a resistant variety or by treatment with hexachlorobenzene.

Late Blight of Potatoes.—Two press releases were issued at the Coast (June 27th and July 16th) warning growers that weather conditions were favourable for an attack of late blight. Nearly all growers who sprayed or dusted obtained a practical control. A few small growers on Vancouver Island (north from Duncan) who did not spray or dust had severe losses.

Leaf-roll of Potatoes.—Potato-growers in the Northern Okanagan have been producing potatoes with primary leaf-roll net necrosis in the Netted Gem variety. These growers do not appear to be equipped or prepared to spray to prevent the spread of leaf-roll virus by aphids. Some growers are turning to the variety Pontiac, which produces higher yields, is free from primary leaf-roll net necrosis, and commands nearly as high a price per ton as Netted Gem.

Rust of Wheat.—Stem, leaf, and stripe rust of wheat were widely distributed in the Creston area and caused severe damage. Losses from these rust diseases can be reduced by the use of resistant varieties.

ORNAMENTALS

Root-rot of Lawson's Cypress.—Root-rots caused by *Phytophthora lateralis* and *cinnamomi* are causing considerable damage to nursery plants. The Lawson's cypress group is the most severely affected. Information on how to recognize the root-rots and how to combat them was distributed to the nursery industry.

SMALL FRUITS

Certified Strawberry Plants.—A Certified Strawberry Scheme was outlined for the first time. Plant propagators will receive planting stock in 1958 which should be free of virous diseases. In 1955 British Sovereign plants of selected foundation stock were subjected to a heat treatment by the Canada Plant Pathology Laboratory, Vancouver. Propagation of these virous-free plants was made by the Canada Experimental Farm, Agassiz, in 1956, and on farms at Choate and Seabird Island in 1957 under the supervision of the Provincial Horticultural Branch. The Approved Strawberry Scheme will be continued until there is a sufficient number of certified plants available to supply the demand.

Low-temperature Injury of Strawberries.—Low-temperature injury continues to be one of the major hazards of growing strawberries. The damage is greater in areas exposed to wind. Drilling in an oat cover-crop on the windward side of the row reduced low temperature and wind damage.

TREE-FRUITS

Apple-scab.—Apple-scab threatened in the early season, but the average loss to the mature crop was slight. In the Kootenays, Dichlone appeared to give slightly better control than lime-sulphur. The new fungicide Cyprex (5223) is the most effective fungicide ever tested, but it can cause russeting.

Brown-rot.—In the Kootenays and Arrow Lakes district, brown-rot continues to be a problem. The recommended spray programme gave much better control of the disease on the fruit but did not afford sufficient protection in the blossoming stage. An extra application of spray in the early bloom stage is recommended for next year.

Fire-blight.—Fire-blight caused moderate to severe damage in a few orchards at Osoyoos and Naramata. It was found for the first time in several Keremeos bench orchards.

Little-cherry.—Little-cherry symptoms were more severe in 1957 in the Creston Valley than in the previous year.

Physiological Disorders.—The most common deficiency observed in the Okanagan orchards was zinc. Orchards deficient in boron, magnesium, manganese, and iron were also observed. The use of iron chelate sprays, particularly Sequestrine 330, appear to show promise in overcoming iron deficiency, the most difficult to control.

VEGETABLES

Bean-rust.—Effective bean-rust control was obtained with Zineb, Ziram, and a new fungicide, Cyprex (5223).

Club-root.—Club-root disease of cabbage and cauliflower is widely distributed at the Coast and caused severe damage in many fields.

REPORT OF ENTOMOLOGY BRANCH

C. L. NEILSON, M.S., AND J. C. ARRAND, M.SC.

The year 1957 had no major insect outbreak on agricultural crops, and most of our normal pests continued to be present in varying degrees throughout the Province.

Highlights in entomology in British Columbia during the year were as follows:—

(1) Inauguration, and completion with apparent success, of a joint programme by the Federal and Provincial Departments of Agriculture to eradicate Oriental fruit-moth in the Okanagan Valley.

(2) Inauguration by the Federal and Provincial Departments of Agriculture Entomology Branches of a large-scale research-demonstration experiment to control warble-flies with the systemic Dow Chemical Company formulation Trolene.

(3) A large-scale outbreak of tick paralysis in cattle in the Merritt district, with at least forty animals being killed.

(4) Continuation of a mosquito-control programme in the Fraser Valley by the joint efforts of several cities and municipalities.

(5) Grasshopper infestations continued generally at a low ebb, with slight increases in the Okanagan Valley.

FIELD-CROP AND VEGETABLE INSECTS

Grasshopper infestations continued to be low, with the Nicola and Princeton control zones being the only areas needing control measures. Red-backed cutworms were numerous in the Okanagan-Mainline districts and infestations of the bertha armyworm occurred at Grand Forks on potatoes. Wireworms continued to cause some damage to potatoes in the Fraser Valley on non-treated acreages. A survey in the Peace River District in June indicated only scattered light damage to grain-fields. Aphid populations on cole-crops were severe during the late summer in the Fraser Valley. Tuber flea-beetle and carrot rust-fly damage was greatly reduced this year. Onion-maggot infestations were very high in Vancouver along the Marine Drive vegetable acreages. Turnips in Central British Columbia were severely damaged by root-maggots. Wheat-midge caused 50 per cent damage to a field of Garnet wheat at Quesnel. *Liocoris* species were present in economic numbers in most alfalfa-seed fields in the Peace River area. Pea leaf-weevil damaged seeding peas in the Fraser Valley, and most of the commercial peas were treated for pea aphid. Garden slugs were again numerous, but spinach leaf-miner damage was reduced from 1956 in the North Okanagan. The bean lycænid occurred for the first time and damaged beans in the Kelowna area. Numerous miscellaneous inquiries were made to this and other entomological offices.

ORCHARD INSECTS

The eradication programme for Oriental fruit-moth was completed with apparent success, but further check will be continued during 1958. This involved cannery fumigation, orchard removal, orchard soil fumigation, orchard spraying, spray residue analysis, fruit estimate and compensation for loss to growers concerned, and revision of import regulations of host fruits.

The following pests were present in the degree noted:—

(*a*) The same level as in 1956: Rosy apple-aphid, peach twig-borer, peach tree-borer, California pear-slug, lygus, woolly aphid, pear leaf-worm, buffalo tree-hopper, black cherry-aphid, clover-mite, European red-mite, two-spotted mite, yellow spider-mite, oyster-shell scale, and mealy plum-aphid.

(*b*) Less than in 1956: Cicadas, pear-leaf blister-mite, apple rust-mite, cutworms.

(*c*) More than in 1956: Codling-moth, eye-spotted bud-moth, fruit-tree leaf-roller, Pulvinaria scale, cherry fruit-worm, grasshoppers, apple sawfly (Vancouver Island).

SMALL-FRUIT INSECTS

The season was marked by (*a*) discovery of cyclamen mite in Northwest strawberries at Creston, (*b*) damage to fruit stems and fruit of strawberries in the Fraser Valley by an unidentified lepidopterous larvæ, and (*c*) continued increase in numbers of the weevils *Sciopithes obscurus* and *Nemocestes* species on Southern Vancouver Island.

In addition to the above, the strawberry aphid was abundant in Coastal British Columbia, and both the strawberry root-weevil and the black vine-weevil continued to cause damage throughout the Province in untreated plantings. Damage from raspberry cane-maggot to both loganberries and raspberries in Coastal areas was unusually high. Bramble leaf-hoppers were numerous and caused some damage, and the leaf-hopper *Macropsis fuscula* also increased in numbers. Mite populations were low. Raspberry root-borer, currant aphid, currant fruit-fly, and oblique-banded leaf-roller were present, but similar in infestations to 1956. Control measures were necessary for raspberry fruit-worm in the Wyndell area. Spittle-bugs were more numerous in the Creston and Coastal areas than in 1956.

FLOWERS AND SHRUBS

Inquiries concerning the various pests of flowers and shrubs were normal. There were no serious outbreaks or no new pests reported.

LIVE-STOCK PESTS

The worst outbreak on record in British Columbia of tick paralysis occurred during April. The centre of the outbreak was in the Nicola Lake area, but other cases were reported from Mamit Lake, Valleyview, Heffley, Stump Lake, and Ewings Landing. At least forty cattle are known to have died as a result of the paralysis. Spinose ear-tick was again present in cattle near Adams Lake. Cattle lice were common, as were warble-grubs. A large-scale joint research-demonstration project was instigated in the Canoe Creek and Kamloops areas on warble-fly control, using the systemic insecticide Trolene.

EXTENSION AND PUBLICATIONS

Publications were as follows:—

(1) Handbook of the Main Economic Insects of B.C., Tree Fruit Insects.
(2) Insect Pest Control for the Home Garden.
(3) Fruit-tree Leaf Roller.
(4) The Eye-spotted Bud Moth.
(5) Carpet Beetles.
(6) Carpenter Ant and Clothes Moth.
(7) Forage Crop Insects in B.C.—article for B.C. Agronomy Report.

Illustrated lectures were given at fifteen centres, two television releases were made, radio and press releases prepared, and tree-fruit field-days attended in the Okanagan.

REPORT OF APIARY BRANCH

J. Corner, Provincial Apiarist, Vernon

With few exceptions, honeybees are the most important pollinators of agricultural crops. Until a few years ago, crops were pollinated almost entirely by various kinds of wild bees existing in the area before honeybees were introduced. Now, however, wild bees are becoming scarce in most agricultural areas, and honeybees introduced and maintained for honey production have, to a large extent, replaced them as pollinators of agricultural crops.

Weather conditions throughout the Province were similar in each district. The cold backward spring resulted in a slow build-up of colonies. Summerlike weather during the month of May resulted in rapid blooming of many nectar-secreting plants. Generally, colonies were not strong enough to take advantage of the bloom and therefore did not benefit as much as they might have. Unseasonably cold weather prevailed during June and most of July. Poor nectar secretion resulted and reduced honey production from an estimated 2,000,000 to 1,500,000 pounds.

Beekeepers were disappointed with their final crop returns. Producers on Vancouver Island were most unfortunate, where the estimated crop was 50 per cent of normal. However, in the Peace River and the Similkameen areas, honey production was above average.

MARKETING

Generally, honey-marketing conditions are satisfactory. Better than average crops of honey in most Provinces have created a small surplus of domestic honey. The Canadian Beekeepers Council has requested a temporary embargo be placed on importation

of honey from the United States. Imports of honey are checked at points of entry. Most of the honey produced in this Province is packed and sold by small producers. Others sell their entire crop at the apiary or through roadside stands. Most of the honey produced in the Peace River District is handled by the Alberta Co-operative or the packing plant of Bee Cee Honey in New Westminster. A few tons of section honey and chunk honey are produced.

The Retail Inspection Unit of the Canada Department of Agriculture has been doing some excellent work in enforcing our Honey Grading Regulations.

DISEASE-CONTROL AND INSPECTION

The inspection staff during 1957 consisted of V. E. Thorgeirson, J. Stann, G. V. Wilkinson, H. Boone, J. Drinkwater, and J. McInnis.

Seventy-four live colonies infected with American foul-brood and valued at $1,480 were burned, in accordance with the "Apiaries Act."

Inspectors in five districts are carrying out supervised treatment of eighty-three diseased colonies in selected apiaries. Results have been most encouraging.

Twenty-seven samples of brood comb and smears were received for analysis. These were examined microscopically, and all but four showed infection—twenty American foul-brood (*Bacillus larvæ*), two Nosema (Apis), and one European foul-brood (*Bacillus Alvei, Bacillus Pluton*).

Eleven queens were mailed to Ottawa for study. Nine were suffering from what is believed to be a pathological condition which prevented their eggs from developing into larvæ. Sampling of worker bees is being carried out throughout the summer as a precautionary measure against Acarine disease.

Insecticide poisoning was no problem during 1957.

POLLINATION

The pollination of agricultural crops by honeybees is at last being fully appreciated by growers and agricultural officials alike.

In British Columbia the following crops are now being provided with an organized pollinating service employing the beekeeper and his honeybees:—

(1) Orchard crops.
(2) Legumes:
  (*a*) Alsike clover.
  (*b*) Red clover.
  (*c*) Alfalfa.
(3) Small fruits.
(4) Cucumbers (greenhouse).
(5) Tomatoes (greenhouse).
(6) Bitter melons.
(7) Holly-trees.
(8) Cranberries (low bush).
(9) Nut-trees.

At least two commercial beekeepers are offering pollination services on an organized basis.

Greenhouse pollination is developing very rapidly on Vancouver Island, and we look for further expansion.

Over-wintered colonies generally do a more satisfactory job of pollination. Ninety-nine per cent of the colonies kept are over-wintered; consequently, nearly all the colonies used for pollination are over-wintered colonies.

The average charge per colony has increased from $4.36 to $5.66. A total of 626 colonies were actually employed specifically for pollination services, 284 of these in the Okanagan.

BULLETINS AND PUBLICATIONS

The demand for publications dealing with beekeeping has been extremely heavy. As a result, many of our publications are at present in short supply. Mimeographed circulars were most helpful, and additional supplies have been reprinted. Guelph Agricultural College and the Brandon Experimental Station have been most generous in providing quantities of their excellent publications.

Three issues of Bee Wise were published and distributed—a very useful adjunct in our beekeeping extension programme.

A new bulletin of Package Bees in British Columbia is now ready for distribution.

EXTENSION

Short courses on beekeeping were held in Summerland and Oliver.

Another continuous-flow extracting unit has been installed in the honey-house of G. Reed, Glenmore.

A booth was set up at the Armstrong Interior Exhibition in co-operation with Horticulture, Agricultural Extension, and Entomology. Hundreds of interested people viewed our exhibits and received advice on agricultural problems.

4-H Honeybee Clubs in Vernon and Penticton are still active. L. Fuhr is the leader of the Vernon club and L. Hansen the leader of the Penticton club. There is every indication that another club will be organized in Armstrong this coming season.

MEETINGS

Members of the Apiary Branch attended and demonstrated apiary techniques at twenty-three field-days and forty-two meetings. Our staff also judged honey shows at the Pacific National Exhibition, Interior Provincial Exhibition, as well as seven other small fairs throughout the Province.

I attended the Provincial Apiarists' meeting at Edmonton, Canadian Beekeepers' Council meeting, Department of Agriculture Extension Conference at the University of British Columbia, and annual meeting of British Columbia Honey Producers' Association.

Correspondence consisted of 860 letters in and 1,019 out. Fourteen tape recordings on beekeeping were made for rebroadcast on CKWX, CKOV, and Chilliwack radio station. Two appearances were made on television CBUT.

REPORT OF LIVE STOCK BRANCH

A. Kidd, V.S., D.V.M., D.V.P.H., Assistant Live Stock Commissioner and Assistant Chief Veterinary Inspector

This submission includes reports on the Live Stock and Veterinary Division, the Animal Pathology Division, the Dairy Herd Improvement Services, and the Brands Division.

LIVE STOCK AND VETERINARY DIVISION

(Dr. A. Kidd)

In view of the fact that most of our duties are of a regulatory nature, this section will be submitted showing the activities carried out under the various Acts that we are actively enforcing, the various policies that we administer, and the miscellaneous duties that we fulfil.

Acts

"Animals Act"

There are nine gazetted bull-control areas and fifteen gazetted bull districts within the Province.

"Beef Grading Act"

This Act applies in the Cities of New Westminster, North Vancouver, and Vancouver, the Municipalities of Burnaby and West Vancouver, and the District of North Vancouver.

The Beef Grading Inspector reports 938 inspections were made to retail outlets in the Greater Vancouver area. A number of infractions were discovered, all of which have been corrected, with the exception of one still under investigation.

"Contagious Diseases (Animals) Act, 1956"

By Order in Council No. 870, approved April 10th, 1957, regulations under the "Contagious Diseases (Animals) Act, 1956," came into force. The Act and the regulations have been combined in booklet form.

Great progress has been made during the year in the programme of brucellosis eradication. Complete eradication of this cattle disease, which is infective for humans, is now a definite goal in the foreseeable future.

Problems with reference to a few diseases are outlined.

1. *Specific Diseases.*—Caseous Lymphadenitis: There has been no indication of the presence of this disease in our sheep flocks since 1954. As a result, when the new regulations under the "Contagious Diseases (Animals) Act, 1956," came into effect, all flocks that were under quarantine previous to that time because of suspected caseous lymphadenitis were not reissued with quarantines. We, therefore, have no flocks under quarantine for this disease.

Equine Encephalomyelitis: Four isolated cases of this infection were clinically diagnosed in Kelowna, Penticton, and Oliver districts. The horses affected at Kelowna and Penticton were destroyed as a result of progressive paralysis. The horse at Oliver recovered, and blood samples were taken from this horse and forwarded to Ottawa for laboratory diagnosis. The report on the samples taken proved negative, although the animal exhibited typical symptoms of the disease as judged by several veterinarians. All four premises were placed under temporary quarantine.

Foot-rot in Sheep: Routine inspections of range flocks by our Veterinary Inspectors before grazing permits are issued allowing sheep on Crown land helps greatly to keep this condition under control.

Tick Paralysis in Cattle: There were several deaths in cattle during April in the Nicola area due to the tick *Dermacentor andersoni.* On one ranch 300 cattle were affected, and fourteen died from progressive paralysis and pneumonia. Most of the cattle affected were young stock. The prognosis is good if the ticks are removed from the cattle within twelve to twenty-four hours. All recovered where the ticks were scraped off the cattle and a spray containing benzine hexachloride was used.

Tuberculosis of Cattle: The Health of Animals Division of the Canada Department of Agriculture has the responsibility with reference to this disease throughout the entire Province, and all testing comes under its supervision. During November three of our Veterinary Inspectors were loaned to the Health of Animals Division in order to assist with the testing of cattle for export to the United States. This was an emergency in which we were glad to play a small part for the benefit of the beef industry. Some idea of the scope of this emergency can be understood in the revelation that between August and November 17,407 head of range stock were tested for export to United States feed-lots, whereas last year, during the same period, just 201 head were tested.

This unexpected rise of brisk exporting of range cattle proved an unforeseen boon to the beef-ranchers of this Province. For the entire year 23,103 range cattle and 799 dairy cattle were shipped to the United States from British Columbia for purposes other than immediate slaughter.

Vibriosis: This disease of cattle continues to be quite widespread throughout the Province. Because of artificial insemination, this disease should present no great problem to the dairy industry. It does, however, pose as a challenge to the beef industry, and our Veterinary Inspectors have been working to help check this disease in the South Okanagan and East Kootenay Districts. Both Inspectors have carried out some tampon testing and have helped and advised the cattle-owners where possible.

In the East Kootenay the cattle-owners at Fort Steele have carried on the programme of last year, using pasture breeding, and are apparently not encountering problems, whereas the cattle-owners in the Grasmere district have largely reverted to range breeding as pastures are not available. From contacts and judging from the complete absence of complaints, it would appear that breeding has gone much more smoothly this year in the Grasmere district than in the past three years.

2. *Non-specific Diseases.*—Iodine Deficiency: Diagnosed as cause of death in three calves at Allen Grove.

Nutritional Abortion: Reported by Inspectors as cause of abortions in 6 cows at Bankier, 14 abortions in sheep at Grand Forks, and 500 stillborn lambs from 375 ewes in one flock in the Kettle Valley. In the latter case, a ration containing beef pellets fed to a flock of 440 ewes was diagnosed as the cause of abortions in the 375 ewes. It was felt that the pellets contained stilbestrol.

Malnutrition: Reported by almost all of our Veterinary Inspectors. Deficiencies of vitamins and minerals together with straight deficiency of food continue to cause losses during the winter and spring. Some ranchers continue to attempt to winter more cattle than they have feed for, with resulting deaths, particularly in the spring at calving time.

3. *Brucellosis Eradication in Cattle.*—The eradication of this disease from our cattle continues, and much progress has been made during the year. Under the 1954 regulations pursuant to the " Contagious Diseases (Animals) Act," twenty-one disease-free areas had been established. On May 10th of this year these twenty-one disease-free areas were replaced through Order in Council by ten brucellosis-control areas—namely, West Kootenay, Nicola, Cherryville, Cariboo, Gulf Islands, Vancouver Island, Pemberton-Sechelt, McBride, South Okanagan, and East Kootenay. On May 10th the Kamloops-North Okanagan Brucellosis-control Area was approved and the Fraser Valley Brucellosis-control Area later on October 3rd. By Order in Council on December 11th the Gulf Islands Brucellosis-control Area was absorbed into the Vancouver Island Brucellosis-control Area. All the cattle-raising parts of the Province are now under active brucellosis-eradication measures, except for the Central British Columbia-Peace River Districts.

The work of final eradication in the Vancouver Island Brucellosis-control Area was greatly accelerated by the assistance of one veterinarian, temporarily employed, and by two veterinary students.

Application was made by this Department to the Canada Department of Agriculture to take over four of our brucellosis-control areas. Under Regulation 156 of the " Animal Contagious Diseases Act," by Order in Council dated November 19th, the Federal Government took over our West Kootenay, Vancouver Island, Pemberton-Sechelt, and McBride Brucellosis-control Areas as Federal brucellosis-control areas. No doubt, in the coming year, all of these brucellosis-control areas will reach the status of certified areas, which will allow free movement of cattle from within those areas to export under permit. Indications are that the United States will soon institute much stricter import

requirements with reference to brucellosis as nine States are now certified brucellosis-free. This will result in more of our areas demanding Canada Department of Agriculture status in order that the export market will remain open for their cattle.

The Fraser Valley Brucellosis-control Area is lagging behind very much. However, the programme there has been outlined and, with the co-operation of the cattle-owners, great strides toward eradication will be made during the next year. An increase in the number of staff members over what is contemplated now will be required in order for this Department to uphold its end.

Through the joint efforts of the Live Stock Branch and the Dairy Branch Inspectors and our Animal Pathology Laboratory, samples from all approved raw-milk and approved fluid-milk dairy-farms were taken on Vancouver Island for the milk ring test. A total of 381 samples were tested as part of the brucellosis-eradication programme. Some follow-up sampling was required in order to check on suspicious reactions.

Considerable time is required in each Departmental office for the issuance of live-stock transportation permits for cattle being transported into the prescribed area or into a brucellosis-control area. Live-stock transportation permits for slaughter take considerable time, too, and the follow-up work required on the matter of actual slaughter involves much effort by both the office and field staffs.

Two successful prosecutions were carried out on the matter of cattle entering brucellosis-control areas without the necessary live-stock transportation permit. In the Vancouver Island Brucellosis-control Area, a cattle-owner was successfully prosecuted for refusing to admit an Inspector.

A Veterinary Inspector has been present at all annual beef-cattle auction sales in order to test cattle for brucellosis, where required, and to issue live-stock transportation permits where necessary. These cattle sales include bull sales, fat-stock sales, and feeder sales.

Veterinary Inspectors vaccinated a total of 2,785 calves on 382 premises.

Veterinary Inspectors blood-tested 6,187 cattle on 525 premises. Brucellosis agglutination blood-test results showed 6,070 head were negative, 31 head over 30 months were positive, and 86 head over 30 months of age were suspicious.

Calfhood Vaccinations in Brucellosis-control Areas

Area No. and Area	1956/57
1. West Kootenay	99
2. Nicola	4,719
3. Cherryville	------
4. Cariboo	8,130
5. Gulf Islands	54
6. Vancouver Island	1,360
7. Pemberton-Sechelt	59
8. McBride	108
9. South Okanagan	2,271
10. East Kootenay	1,732
11. Kamloops-North Okanagan	7,519
Total	26,051

Includes calves vaccinated for year July 1st, 1956, to June 30th, 1957.

Calfhood Vaccination under Joint Policy of Federal-Provincial Brucellosis-control

Period	Brucellosis-control Area Vaccinations	Total Vaccinations
July 15th, 1950, to June 30th, 1951	8,798	18,929
July 1st, 1951, to June 30th, 1952	11,324	24,178
July 1st, 1952, to June 30th, 1953	14,820	29,605
July 1st, 1953, to June 30th, 1954	19,321	34,152
July 1st, 1954, to June 30th, 1955	22,977	36,815
July 1st, 1955, to June 30th, 1956	20,487	36,412
July 1st, 1956, to June 30th, 1957	26,051	39,230
Totals	123,778	219,321

Total calves vaccinated under the Provincial policy during the period from July 31st, 1941, to July 14th, 1950, was 83,730 head.

" Fur-farm Act "

For the licence-year of 1957, a total of 607 fur-farm licences were issued and the amount of $6,530 collected. Inspectors made a total of 227 fur-farm visits.

The Victoria office issued 227 fur-farm transportation permits to cover export and import of fur-bearing animals. A total of 60 permits to vaccinate for distemper were issued to cover inoculations of 26,927 mink.

During the year five fur-farms were quarantined because of distemper and nine distemper quarantines were lifted. At the year-end six distemper quarantines remain within the Province.

" Horse-breeders' Registration and Lien Act "

Stallion enrolments for the year 1957, compared with 1955 and 1956, were as follows:—

1955: A, 4; B, 1; C, 1; D, 2; E, 19; F. 14; total 41.
1956: A, 2; B, 1; C, 1; D, 2; E, 27; F, 6; total 39.
1957: A, 1; B, 1; C, 0; D, 1; E, 23; F, 2; total 28.

" Meat Inspection Act "

Provincial meat inspection services commenced on August 1st in the new plant of Seed & Pitts Packers, located in Pitt Meadows Municipality. This, along with Clappison Packers at Haney, brings to two as the number of abattoirs under Departmental supervision. Both plants also come under the meat grading service of the Federal Marketing Service as carried out by the Livestock and Livestock Products Division.

Some revision is required in the enforcement of our " Meat Inspection Act." In particular, consideration should be given to the appointment of a Departmental Inspector to continuously check abattoirs under our supervision for plant sanitation and plant operations. As more abattoirs will likely come under our supervision, it is necessary that our service at least be equal to the meat inspection service as carried out by the Canada Department of Agriculture.

" Milk Industry Act," 1956

A tremendous amount of work has been carried out under this Act in the inspection of all dairy-farms that are selling raw milk as approved raw-milk dairy-farms and shipping milk as approved fluid-milk dairy-farms. The job of dairy-farm inspections has been well done by our Inspectors. The recommendations of the Report of the British Columbia Royal Commission on Milk, 1954/55, have all been carried out as per Part I of the resulting " Milk Industry Act " and regulations. The period of construction and

reconstruction requirements of dairy-farm premises has pretty well been taken care of, and our Inspectors now are concentrating more on improving sanitation and milk production methods.

During February three new Dairy-farm Inspectors were hired on a full-time temporary basis. We now have nine Dairy-farm Inspectors, of which five are on establishment and four on a temporary full-time basis. The work of these nine men cannot be too highly commended. They have carried out dairy-farm inspections in all parts of the Province under the supervision of the various Veterinary Inspectors. The Appendix will show a startling number of dairy-farm inspections for the year, most of which were carried out by Dairy-farm Inspectors.

One producer-vendor on Vancouver Island was issued a prohibition notice but continued to sell raw milk. He was subsequently charged under section 5 of the "Milk Industry Act" and was assessed a fine of $10 and costs after pleading guilty to the charge.

The co-operation received from the dairy-farmers themselves and the dairy plants continues to be very gratifying. Excellent integration also continues with the Dairy Branch and its Inspectors and the Milk Board and its Inspectors.

Mastitis Examinations by Veterinary Inspectors

Number of premises	205
Number of cows examined	3,189
Number of clinical cases	919
Number to treat	317
Number to eliminate	102

Appendix No. 1 contains the totals of dairy-farm inspections carried out, by districts, by Veterinary Inspectors and Dairy-farm Inspectors under the "Milk Industry Act," 1956.

"Sheep Protection Act"

Compensation paid from Dog Tax Fund for the years 1955, 1956, and 1957:—

Year	Sheep		Poultry	
	Number	Compensation	Number	Compensation
1955	103	$1,850.00	208	$871.26
1956	141	3,531.50	462	1,180.50
1957	121	2,303.50	543	595.00

POLICIES

Dairy-cattle Placement Policy

During the eight-year period 1950 through 1957, a total of 657 head of dairy cattle have been selected and placed from the Fraser Valley. A total of 619 head of females were shipped, including 380 Holsteins, 124 Guernseys, 78 Jerseys, and 37 Ayrshires. During this period, 38 registered bulls were shipped, including 18 Holsteins, 13 Guernseys, 4 Ayrshires, and 3 Jerseys.

Considerable publicity was given this programme in the Okanagan in the September issues of the Cream Collector, published by S.O.D.I.C.A., Vernon, under the banner head-line "Coast Heifers Pay Off," regarding a particularly outstanding group of 11 grade Holstein heifers selected and shipped under this policy in July, 1951, to E. W. Stewart & Sons, of Salmon Arm. These heifers are all under Mr. Stewart's excellent care and management; 9 of these heifers as 2-year-olds produced an average of 11,719 pounds of milk, 449 pounds of butter-fat, with an average test of 3.83 per cent. The twenty-five records so far completed on D.H.I.A. by these nine cows average 12,441

pounds of milk and 449 pounds of butter-fat. Eight of these cows have produced more than 400 pounds of butter-fat in one lactation, 5 of them have produced more than 500 pounds of butter-fat in one lactation, and 1 more than 600 pounds of butter-fat.

Live-stock Improvement Policy

This policy assists farmers in areas where freight charges might dissuade the producers from bringing in such animals to secure top-quality boars and rams.

During the year 2 Yorkshire boars were purchased for $220 and 3 Hampshire rams for $135; freight charges amounted to $47.03. This makes a total of $262.78 in freight charges since the inception of the policy in 1955. All animals were shipped into the Peace River District.

Pure-bred Sires for Farmers' Institutes Policy

Sire purchases for the year 1957 were as follows (1956 figures in parentheses): 12 (8) pure-bred sires were purchased during the year at a cost of $4,395 ($2,375), including 1 Hampshire ram at $60, 10 Herefords, and 1 Shorthorn. Transportation charges paid by the Department amounted to $381.80 ($280.32). The institutes receiving these sires were as follows: Grasmere-Roosville, Westbridge, Graham Island East Coast, Bella Coola, and Cranbrook. Total payments received from farmers under this policy during the year amounted to $3,402.62 ($3,145.67). Final payments were received on 8 bulls, including 1 Galloway, 6 Herefords, and 1 Aberdeen Angus.

Veterinary Service District Policy

This policy, governing the establishment of veterinary service districts, was approved on July 26th by the Honourable the Minister of Agriculture. Its purpose is to provide veterinary services in those areas of British Columbia where the scattered nature of farm settlements and (or) the long distances between stock farms or ranches have discouraged qualified veterinarians from establishing residence and practice, and where present and immediate potential live-stock population warrants such action. Two veterinary service districts have been established by signed agreement and both veterinarians are receiving the maximum grant according to the policy. Dr. N. Jaksitz, resident at Dawson Creek, is providing veterinary service in the Peace River Veterinary Service District, and Dr. P. L. Builder, resident at Prince George, is providing veterinary service in the Prince George Veterinary Service District.

Miscellaneous

There are many other sundry duties carried out by all Inspecors, and it would be of value to list all here as a record of total work accomplished. However, the annual reports of each Inspector, along with the monthly reports of this Branch, give such detail and, as a result, only the highlights are included in this report.

Parentage Tests

It is of interest that two Holstein bulls were bled for parentage tests by two of our Veterinary Inspectors. The bloods were forwarded to the Ontario Veterinary College for analysis.

Short Course

Four Veterinary Inspectors attended the Veterinary Short Course at Washington State College at Pullman held for three days during April. It is hoped that this policy will be perpetuated so that four other staff veterinarians will attend.

Live Stock Inspector

The extent of other live-stock improvement programmes is quite diversified.

Three series of 35-mm. slides and a flannel board with lecture material was completed on " Dairy Farm Management " and presented at ten meetings in various parts of the Province.

For many years, selection of our Provincial 4-H Dairy Calf Club delegates to the Royal Winter Fair in Toronto has been made in late August, using facilities provided at and during the Pacific National Exhibition. This year, at the request of the Supervisor of 4-H Clubs, the Live Stock Inspector organized competitions for the above selection to take place July 9th at the University of British Columbia.

The Live Stock Inspector is secretary of the committee appointed for the evaluation of dairy sires in service in Fraser Valley artificial-insemination units. He has also been appointed to act as Departmental representative on the Sire Selection Committee and has been designated to maintain a check on frozen semen stocks at the British Columbia Artificial Insemination Centre at Milner, as required by the Joint Dairy Breeds Committee, Brantford, Ont.

ANIMAL PATHOLOGY LABORATORY

(Dr. J. C. Bankier)

Introduction

Disease problems continue to impose quite a burden on our live-stock and poultry industries, and to many farmers the economic loss therefrom is serious. Progress in animal- and poultry-disease research continues to add to the complexity of pathological problems. This in turn places greater responsibility on those engaged in laboratory diagnostic work.

The public demand for service from our laboratory has increased during the year. Departmental policy respecting the eradication of brucellosis from cattle and the need for special diagnostic procedures in the laboratory to elucidate the complex nature of respiratory diseases in poultry have added greatly to the work.

Splendid co-operation has been received from the Ontario Veterinary College, Guelph; Connaught Medical Research Laboratories, Toronto; Animal Diseases Research Institute, Hull; and the Federal Animal Pathology Laboratory on the University of British Columbia campus in respect to certain diagnostic procedures for which we do not have facilities, all of which is gratefully acknowledged.

Laboratory Services

The total number of specimens received for diagnosis increased 38.5 per cent (25,867 to 35,823) over the previous year. Of the total specimens received this year, 15,535 were cattle blood samples submitted for serological tests for brucellosis, of which 2,878 were submitted by veterinary practitioners and 12,657 by Veterinary Inspectors. The majority of samples for the milk ring tests for brucellosis were submitted in conjunction with the brucellosis-eradication programme on Vancouver Island. Of 924 samples tested, 788 were negative, 73 were suspicious, and 63 positive.

In poultry the pullorum testing of turkeys was performed in order to comply with the requirements of the United States respecting sale of hatching-eggs thereto from certain British Columbia flocks.

Serological Tests for Pullorum Disease

	Positive	Suspicious	Negative	Total
Turkeys	7	7	8,104	8,118
Chickens	21	4	22	47

A survey is in progress to determine the incidence of P.P.L.O. infection in chicken and turkey breeding flocks.

Hæmagglutination-inhibition Tests for P.P.L.O. Infection

	Number of Flocks	Number of Samples	Number of Flocks Positive	Number of Flocks Negative
Chickens	147	7,648	137	10
Turkeys	16	673	5	11

Appendix No. 2 contains a list of miscellaneous specimens examined in the laboratory.

DAIRY HERD IMPROVEMENT SERVICES

(J. A. Mace)

Operation

There are twenty-four routes operating in fifteen dairy herd improvement associations, with a total of 14,765 cows on test in 535 herds. A new route commenced operation on December 1st in the Okanagan District, which has contributed partially to the increase. The average size of herds on test has increased from 27.1 to 27.9.

Continuing difficulties have persisted in keeping supervisors and in securing sufficient suitable men to carry out continuous testing on all routes. As a result, it was necessary to give four short courses to keep our staff up to requirements.

Production details for 1957 are not compiled, but the 1956 production report discloses that there were 11,918 milking periods completed which averaged 9.498 pounds of milk and 394 pounds of fat with a 4.15-per-cent test. This is an increase of 640 completed milking periods (5.6 per cent) over the previous year. Fat production dropped 1 pound, largely due to the number of new herds on test.

Appendix No. 3 shows breed averages for 1956.

Calf-tagging

Three thousand two hundred and fifty ear-tags were issued to supervisors to identify heifer calves during the year, an increase of 400. It is now compulsory to tag all eligible heifer calves.

Departmental Subsidy

Grants to twenty-three D.H.I.A. routes amounted to $48,990, an increase of $5,640. This is caused by the increase in subsidy granted to dairy herd improvement associations.

R.O.P.-D.H.I.A. Combined Service

Thirty-six herds are now using this service. They have 468 pure-bred cows in mixed grade and pure-bred herds, compiling R.O.P. records with the testing and reporting being done by D.H.I. supervisors. One or two R.O.P. check tests are generally made each year. This service is operating very smoothly to the mutual benefit of all concerned.

Appendix No. 4 contains the list of dairy herd improvement associations.

Field Work

The Superintendent and two Inspectors carried out the total field work, as follows:—

Supervisor contacts	125
D.H.I. officials' contacts	45
Member visits	181
Certificates of production brought up to date	175
Other calls	74
Meetings	45
Talks	13
Herds check-tested	175

Office Routine

I.B.M. punch-cards continued to be prepared throughout the year. Guernseys and Holsteins have now been completed and Jerseys nearly so. Two sire lists have been prepared this year through these cards. Troubles are gradually being ironed out, and it is hoped that this operation will be completed and operating smoothly in another year. A tremendous amount of checking has been necessary in these sire lists before they were distributed.

As noted, a further increase of 640 completed periods took place. This means that part-time help will continue to be necessary as long as this trend continues.

Both Inspectors have been brought into the office periodically to help out with the work and to thoroughly familiarize them with procedure.

Dairy Sire Lists

The Twenty-fourth List of Guernsey Sires and the Twenty-fourth List of Holstein Sires were prepared and issued.

Artificial Insemination Clubs

Reports have been prepared showing the performance of sires used in the units in addition to the regular sire lists. Files were set up with the intention of issuing monthly reports on these sires; however, it will be impossible to carry on with this part of the work until extra help is made available. The committee set up to make recommendations regarding the selection and evaluation of A.I. sires continued to meet, but owing to some lack of co-operation has not been effective as hoped. The Milner Unit has started the proposed plan on a limited basis, and it is hoped that both units will see their way clear to carry out this programme.

Publications

H.I.C. No. 79—Twenty-fourth List of Guernsey Sires.

H.I.C. No. 79A—Twenty-fourth List of Holstein Sires.

H.I.C. No. 80—Eighteenth List of Lifetime Production Records (1,448 cows over 1 ton of fat, an increase of 69 over last year).

Miscellaneous

A study was made with reference to the effect which the month of freshening had on the level of a cow's production for a milking period. It was found that cows freshening in July, August, and September were lowest, on the average, and the cause primarily attributed to underfeeding due to poorer pasture. Recommendations were widely circularized advocating increased grain feeding during the months of poor pasture in order to maintain production.

BRANDS DIVISION

(Thomas Moore)

Shipments and Inspections

Inspections of cattle in British Columbia were 100,201 head, compared to 101,739 head in 1956. This shows a decrease of 1,538 head. Cattle shipped from the Interior of British Columbia to the United States in 1957 were 20,849, compared to 1,470 in 1956, an increase of 19,379 head. Inspections of cattle from the Cariboo were 28,148 head, an increase of 4,463 head; from Kamloops-Nicola, 35,450 head, a decrease of 2,585 head. Shipments of hides were 19,162, a decrease of 311. Horses inspected in 1957 were 5,565 head, a decrease of 716 head. Shipments of cattle to the Prairies were 12,664 head in 1957, a decrease of 9,946 head. A complete table of annual inspections of cattle, horses, and hides is attached (*see* Appendix No. 5).

It will be noted that exports of cattle to the United States increased this year. Shipments to the Prairies remained about the same.

Inspection Service

Brand inspection was carried out by the Royal Canadian Mounted Police at sixty-nine shipping points and by Brand Inspectors and Deputy Brand Inspectors at seventeen shipping points.

Flood Check-point

The Flood check-point was taken over by the Department of Highways, absorbing the staff which had been under Royal Canadian Mounted Police jurisdiction. The Department of Highways staff have been appointed as Deputy Brand Inspectors and are giving the same fine co-operation as previously given.

The following figures shown are for the years 1956 and 1957 in the checking of all live stock, hides, and dressed beef through the check-point:—

	1956	1957
Number of cattle	8,483	7,111
Number of horses	1,305	1,293
Number of hides	3,986	2,556
Dressed beef (quarters)	276	280
Number of trucks checked	1,273	1,122

"Stock-brands Act"

A number of proposed amendments have been prepared to the Act and regulations. These are mainly required to meet the various changes that are taking place in the methods of moving stock from place to place.

The 1956 brand-book, showing all brands in good standing, was published and distributed. The annual supplement, No. 1, to the brand-book, showing all brands issued in 1957, will be available in early 1958.

There were 227 applications for new brands, 900 applications for brand renewals sent out from this office, 886 brands renewed, 73 brands transferred, and 37 brands reissued.

Licences Issued, 1957

Stock-dealers	133
Slaughter-house operators	73
Hide-dealers	62
Beef-pedlars	13
Horse-slaughterers	15
Horse-meat dealers (animal-food)	9

Horse-meat dealers (human consumption)	1
Permit to transport horses for working purposes	65
Permit to transport stallions for breeding purposes	1

There were six prosecutions and convictions under the "Stock-brands Act," of which four were for failure to secure brand inspection and two for carrier accepting cattle without the required brand inspection certificate.

There were two convictions under the Criminal Code of Canada—one for theft of cattle and one for theft of a horse.

Miscellaneous

Two meetings were held with the Brand Commissioners. Their assistance and co-operation is very much appreciated.

Lectures were given to the Royal Canadian Mounted Police on the "Stock-brands Act." The co-operation of this force is also greatly appreciated in the enforcement of the Act.

A number of meetings and annual cattle sales were attended.

Appendix No. 5 contains cattle and hide shipments and inspections for 1957.

REPORT OF DAIRY BRANCH

F. C. Wasson, M.S.A., Dairy Commissioner

Milk production in 1957 will about equal the 747,866,000 pounds produced in 1956. Production decreased during the first half of the year but increased considerably during a very favourable fall. Creamery butter make is the lowest since 1951, being just over 2,800,000 pounds. Cheddar cheese production shows an increase of 17 per cent, but the total is less than 1,000,000 pounds. Ice-cream production increased slightly, totalling approximately 4,000,000 gallons. The output of evaporated milk and milk powder shows an increase.

UTILIZATION OF MILK IN PERCENTAGE OF TOTAL MILK PRODUCTION (1956 STATISTICS)

	Canada (Per Cent)	British Columbia (Per Cent)
Creamery butter	41.01	8.92
Cheese (factory)	5.98	1.35
Concentrated milk and ice-cream	8.72	25.30
Fluid sales of milk and cream	32.30	54.87
Dairy butter	2.51	1.97
Used on farms	9.48	7.59
	100.00	100.00

VALUE OF DAIRY PRODUCTION

Statistics for 1956 give the farm value of milk production as $30,964,000 and the value of dairy products at factories or milk plants as $43,001,000. These values will be much the same for 1957, with a slight increase in the value of fluid milk, due, chiefly, to greater consumption in keeping with the growth of population.

DAIRY PLANTS

Ninety-seven processing and manufacturing plants operated in the Province during the year. Of these, twelve made butter, two made Cheddar cheese, one made blue-vein

cheese, one made farm cheese, and thirty-five made ice-cream (only five being strictly ice-cream plants). Over 300 counter freezers were reported in operation; two plants made powdered milk; one made evaporated milk; and five dairies in outlying areas were granted permits to make reconstituted milk.

CREAMERIES

Thirty years ago there were thirty creameries making butter in the Province; to-day there are only twelve. Creamery butter production is the lowest it has been for the last thirty-five years (with the exception of 1951). This is due chiefly to a greater demand for fluid milk and evaporated milk. The Fraser Valley Milk Producers' Association creamery at Sardis and the Shuswap-Okanagan creamery at Salmon Arm make the largest percentage of butter produced in the Province.

Car-lot price of butter in Vancouver rose to 62¼ cents in September and remained at that figure for the balance of the year. Jobbing price was quoted at 68 cents, and price to consumer ranged from 69 to 73 cents per pound.

CHEESE-FACTORIES

Two Cheddar cheese factories—one at Armstrong and one at Salmon Arm—have been in operation during the year, making less than 1,000,000 pounds of cheese. A few thousand pounds of Danish blue-vein cheese were made in the Egeskov Cheese Factory at Creston. The operators of this factory are now preparing to make Cheddar cheese in addition to the blue-vein type. A factory near Nanaimo made some farm cheese. Cottage cheese production, the greater volume being made in the Lower Fraser Valley, increases annually and will amount to well over 4,000,000 pounds this year.

ICE-CREAM

The thirty-five ice-cream plants produced (in round figures) 4,000,000 gallons, roughly an increase of 1 per cent over the 1956 production. The *per capita* consumption of ice-cream is on the increase, amounting to approximately 22 pints.

IMPORTS AND EXPORTS

Dairy products imported in 1956 were valued at $18,560,261. Butter imports amounted to 21,545,492 pounds, valued at $12,891,382; cheese, 7,594,006 pounds, valued at $3,420,046; condensed milk, 4,088 cases, valued at $47,123; evaporated milk, 145,989 cases, valued at $978,387; powdered milk, 6,074,281 pounds, valued at $1,223,323. Exports, chiefly evaporated milk, were valued at $1,346,272.

SHORT COURSE IN DAIRYING

The annual short course in dairying, which comprised two courses—one for pasteurizer operators and one giving instruction in the operation of the Babcock test, was held at the University of British Columbia, October 21st to November 8th. Eighteen students attended the pasteurizer operators' course and eleven took instruction in the operation of the Babcock test.

DAIRY LICENCES AND CERTIFICATES

The following licences and certificates of proficiency were issued during 1957: Creamery or dairy licences, 98; milk-testers' licences, 114; milk-graders' licences, 69; cream-graders' licences, 24; special tank-milk graders' licences, 20; certificates of proficiency, 4; making a total of 329. For list of licensed dairy plants, *see* Appendix No. 1.

MILK BOARD

The British Columbia Milk Board has been functioning in the Lower Fraser Valley and Vancouver Island areas since October, 1946. Control of retail prices was discontinued in October, 1953. Formula pricing and equalization of returns to the producer were introduced in September, 1956. The Kamloops-Okanagan area of production was defined by Order in Council No. 1628 on July 8th, 1957.

MARGARINE LICENCES

Four firms were issued licences to manufacture margarine and eighteen licences were issued to wholesalers. During the years 1954, 1955, and 1956 the production and imports of margarine have totalled between 17,000,000 and 18,000,000 pounds annually, with production figures ranging between 9,000,000 and 10,000,000 pounds each year. Production and imports during 1957 have increased around 10 per cent and will total close to 20,000,000 pounds.

INSPECTION AND INSTRUCTION SERVICES

The seven Dairy Inspectors, located at Victoria (two), Vancouver (two), Kelowna (one), Nelson (one), and Prince George (one), have laboured consistently and conscientiously to encourage and assist the development of the dairy industry in the Province. They report an improvement in the quality of the milk produced and in the maintenance of the processing plants in their respective areas.

SUMMARY OF PLANT INSPECTIONS, TESTS MADE, AND MEETINGS ATTENDED

Dairy-plant inspections	640
Farm visits	490
Samples collected for ring test	400
Butter-fat check tests	3,885
Cream grades checked	635
Resazurin, sediment, and temperature check tests	2,195
Whiteside tests	1,795
Lactometer and cryoscope tests	875
Reports and test-cards sent to milk and cream producers	708
Milk-cans condemned	256
Examinations for milk-testers' and milk-graders' licences	40
Meetings attended	150

SUMMARY

The dairy industry continues to expand in keeping with the increase in population. More milk is being used on the fluid market, in evaporated milk, ice-cream, and in cottage cheese. Cheddar cheese production is low and remains much the same from year to year. The creamery butter make is the lowest in thirty-five years, with the exception of 1951.

APPRECIATION

Appreciation is tendered to all those who have contributed to the expansion of this very worth-while industry in the Province, and especially to the members of this Branch who, by their honest endeavours and application, have assisted in the development of the dairy industry throughout the year.

REPORT OF POULTRY BRANCH

W. H. POPE, P.AG., POULTRY COMMISSIONER

During 1957 the trend toward specialization and increased efficiency of production by poultry-producers has been accelerated by the sharply reduced income per unit. The number of poultry maintained elsewhere than on farms has decreased from 900,000 in 1921 to 300,000 in 1956. In this same period, British Columbia's poultry population has increased from 1,900,000 to 4,200,000. Turkeys show the greatest increase in this thirty-year span, rising from 12,200 to 353,500. Fourteen thousand eight hundred farms in British Columbia reported hens and chickens in the 1956 census and 803 reported turkeys.

COMMERCIAL EGG PRODUCTION

Commercial egg production in British Columbia in the eleven-month period January to December showed a 31-per-cent increase over 1956 compared to a national increase of 11 per cent. Domestic supplies have been sufficient during most of the year to meet the Provincial demand. During certain periods accrued surplus required the use of British Columbia markets traditionally serviced by Alberta. (For comparative monthly egg production and producer prices *see* Appendices Nos. 6 and 7.)

POULTRY-MEAT PRODUCTION

Broiler production is becoming more stable as production units become larger in size and fewer in number. Prices have been generally favourable for the efficient producer. Minimum efficiency targets are 20,000 birds per man, feed conversion of 3:1, and 3.5 pounds live weight average at 9 weeks.

Fowl is rapidly becoming a salvage product from egg production. Prices have been low in spite of the announced support price. Eighty to eighty-five per cent of all birds on commercial egg-farms are Leghorns. Higher processing margins in British Columbia are partially responsible for the low returns to the producer. (For monthly poultry production and producer prices *see* Appendices Nos. 8 and 9.)

While the Provincial total has remained reasonably constant, the number of individual turkey-producers has been decreasing steadily. Units are becoming larger and fewer. Prices for the Christmas marketing season are expected to remain at about the 1956 level. (For monthly production and producer prices *see* Appendices Nos. 8 and 9.)

EGGS

Support Programmes.—Present support levels are sufficiently high to encourage commercial egg production in those areas in which there is low-price feed-grain. While the announced programme of cash advances on farm-stored grain is expected to reduce farmer-to-farmer movement, it is improbable that this programme will cause a downward trend in Prairie egg production levels. The Agricultural Prices Support Board took delivery of offerings, and at the peak of the storage season had a record holding of approximately 500,000 cases in shell and melange.

FOWL

The announced intention of supporting fowl prices as of July 1st resulted in delays in marketing hen flocks and contributed to the surplus of Grade B eggs now in storage in the form of melange. Approximately 250,000 pounds of fowl were offered to the Board in British Columbia out of a total of 4,380,000 pounds marketed to November 23rd. This programme did substantially reduce the supply of fowl from foreign points. Imports of fowl into Canada to November 23rd, 1957, are 3,000,000 pounds, as compared with 7,880,000 pounds for the same period in 1956.

TURKEYS

Turkeys were placed under price support for the first time in Canada on July 17th. Just prior to the implementation of support and import controls, the Canadian produce trade imported 3,200,000 pounds of turkey from the United States in the face of an indicated record Canadian crop and substantial storage holdings.

MANUFACTURED POULTRY-FEEDS

During the first eight months of 1957, British Columbia's poultry industry utilized over 180,000 tons of manufactured poultry-feeds at a cost of approximately $14,000,000.

FLOCK APPROVAL

A total of 286,446 poultry in 164 flocks were tested for Pullorum disease. There were 131 reactors in thirteen separate flocks on first test and another 87 on retest for a total of 218 or 0.76 per cent reaction. Three flocks were rejected because of over 5 per cent reaction. One breeding flock which accounted for 123 of the reactors (over half) was retested five times before a zero reaction was obtained (Appendix No. 10).

A total of 22,736 turkeys in thirty-two flocks were tested. There were no reactors to the R.W.B. field test. In two of the seven flocks in which blood samples were drawn, sent to the Pathology Laboratory and subjected to the rapid serum agglutination test, seven reactors were detected. Bacteriological examination of these reactors failed to reveal the presence of Salmonella pullorum.

POULTRY APPROVAL

Appendices Nos. 10 and 11 present a summary of poultry approval. A total of 161 poultry flocks were approved as breeding flocks. This is a decrease of seventy flocks from the previous year.

From Appendix No. 11 it may be noted that half of the birds approved were Leghorns. This is in keeping with the widespread use of the Leghorn breed for commercial egg production. The majority of the birds from the other breeds approved were for the production of broiler chicks.

TURKEY APPROVAL

Appendices Nos. 12 and 13 present a summary of turkey-flock approval. A total of 22,736 turkeys were approved. This is a decrease of 905 from the preceding year. For the current breeding season (1956/57), 14,993 turkeys were approved. This is a decrease of 3,343 from the previous year.

POULTRY-FARM ECONOMIC STUDY

In co-operation with the Department of Agricultural Economics, University of British Columbia, a study of twenty commercial poultry-farms in the Fraser Valley was commenced in July, and is expected to be completed by September, 1958. Plans are being laid for the establishment of regional studies conducted by staff members in subsequent years.

RANDOM SAMPLE POULTRY TEST

The necessary buildings have been completed at Abbotsford to house the British Columbia Random Sample Poultry Test. The design of the buildings is such that they may be adapted for a wide variety of purposes if at any future date changes are made in the design of the testing technique. It is anticipated that the first unit of test birds will be housed on April 1st, 1958. Tests will be conducted on twenty entries of laying stock, ten entries of turkeys, and twenty entries of broilers. The following Advisory Committee

was appointed to assist the Poultry Commissioner with the administration of the testing programme: H. Gasperdone, British Columbia Department of Agriculture, secretary; Dr. A. F. Hicks, Jr., University of British Columbia, Chairman of Genetics Sub-committee; A. J. Darbey, representing Canada Department of Agriculture; J. J. Andrews, representing British Columbia R.O.P. Breeders' Association; G. R. Wilson, Ottawa, Canada Department of Agriculture, ex officio; Professor Jacob Biely, University of British Columbia, Chairman of Nutrition Sub-committee; Dr. J. C. Bankier, British Columbia Department of Agriculture, Chairman of Disease Sub-committee; J. M. Pearce, representing British Columbia Baby Chick Co-operative Association; and Elgin Wolfe, representing British Columbia Turkey Association.

SECOND BRITISH COLUMBIA SUMMER POULTRY CONFERENCE

The Second Summer Poultry Conference was held in the Westbrook Building, University of British Columbia, July 24th to 26th. Speakers from California, Utah, Ontario, Alberta, and British Columbia discussed various phases of the poultry industry with 148 producers, hatching operators, Provincial and Federal staff members, and feed company representatives.

ADMINISTRATION OF REGULATIONS

The District Poultry Products Inspector, Canada Department of Agriculture, submits the following report on the activities of his staff in this Province:—

"(British Columbia) Poultry Products Division and Consolidated Retail Inspection Unit, Staff Activities during 1957

Registration of egg-grading stations	64
Registration of poultry processing, grading, and evisceration stations and producer-graders	83
Registered egg-grading station check inspections and producer-vendors	535
Registered poultry-station check inspections and producer-vendors	318
Retail-store check inspection—	
Eggs—	
Con. Retail Inptn. Unit	2,311
Poultry Product Division	824
Poultry—	
Con. Retail Inptn. Unit	768
Poultry Product Division	173
Egg inspections	106
Poultry inspections	26
Grade A 1 producer checks	31
Live poultry crate checks	51
Frozen-egg inspections	176
Total pounds of eggs broken	587,264
Samples drilled	582
Samples analysed	208
Registration of frozen-egg plants	4
Inspection of imported eggs and poultry—	
Eggs	*Nil*
Poultry lb.	1,514,756
Inspection of exported eggs and poultry—	
Eggs cases	1,303
Poultry lb.	323

" Sixty hatcheries were registered for the production of baby chicks and eighteen for the production of turkey poults during the year. In addtion, two of the hatcheries listed as chicken-producers also produced turkey poults. This is a reduction in both chicken and turkey hatcheries of some 25 per cent compared to the year 1956.

" Some 220 inspections were made during the year, and additional visits were paid in some cases in connection with chick complaints, advertising, etc., although these visits are not listed as inspections.

"About twenty hatcheries operated for eleven or twelve months in the year, and, of course, a very few hatcheries account for perhaps 70 per cent of the total production, with the balance producing a very small number of chicks per hatchery."

GENERAL

On the basis of returns to the producer in 1956, it is likely that the poultry-farm cash income for 1957 will exceed $30,000,000, or approximately 25 per cent of the total agricultural income of the Province. Of the 24,750 farms reporting in the 1956 census, 15,600 reported that poultry production was the basis for all or part of their livelihood. Recurring cycles of prices at or below production costs threaten the welfare of this large group of British Columbia residents. The rapidity with which the poultry population of the Province can be expanded makes it vulnerable to the problems accompanying over-production. Price supports, while of some assistance on a national level, have not been of material assistance to British Columbia poultry-producers. While there appears to be no single solution to the problems besetting the industry, there is definitely need of well-supported studies of:—

(1) Production methods (this study should include commercial egg, broiler, and turkey production):
(2) Consumer preference:
(3) Production levels and producer price forecasts:
(4) Processing and distribution methods and costs:
(5) Financing methods and costs.

The Inspectors of the Poultry Branch made in excess of 2,000 field calls during the first eleven months of 1957. It can be seen by referring to the above paragraph of this report that this represents a small percentage of the farms maintaining poultry as a part of their farming operations.

REPORT OF FIELD CROPS BRANCH

NORMAN F. PUTNAM, M.SC., FIELD CROPS COMMISSIONER
C. H. NELSON, B.S.A., ASSISTANT FIELD CROPS COMMISSIONER

CROP PRODUCTION

CEREALS

Grain production in the Peace River area looked very favourable earlier this year with ample moisture to provide good growth. However, continued rain and early fall snow and frosts seriously hampered the harvesting operations so that only a little over half the grain could be threshed and the quality was much reduced. Nearly all the barley and most of the oats were harvested, but most of the wheat and flax acreage remains under the snow and will have to wait until next spring to be salvaged. The wheat acreage in the area was reduced again this year with a slight increase in coarse grains and forage-crop seeds, particularly creeping red fescue. In the other major grain areas, notably the North Okanagan and Creston districts, crops were about normal, with good harvesting weather prevailing. Poor weather prevailed throughout the Central Interior, hindering harvesting operations in that district. The oat-crop in the Fraser Valley was very good, with excellent yield and quality.

Hay and Pasture

In contrast to the poor 1956 season, this past summer has produced above average forage-crops in all areas of the Province. Pastures came on well, and timely summer rains, particularly in the coastal areas, maintained production levels above normal throughout the season. The long open fall in the Southern Interior and at the Coast also helped to prolong the grazing season. Hay and grass silage crops were also above average. However, wet weather in June and July hampered haying operations and a good deal of the hay put up suffered in quality. The lowered quality resulted either from being rained on in curing or the crop left too late and matured waiting for improved weather before cutting. There was continued interest in preserving grass forage as silage, and again this year inclement weather during the haying season demonstrated the need for a much wider use of grass silage as a method of storing the winter forage needs when hay-making is precarious.

Production of Registered and Certified Seed

Production of registered and certified seed of cereal and forage crops is of specialized interest in some areas of the Province, with the Peace River being the major area involved. The following table lists the acreage and estimated production of varieties inspected by the Plant Products Division, Canada Department of Agriculture:—

Variety	Acres	Estimated Production (Bu.)
Barley—		
Gateway	14.0	490
Olli	84.5	4,200
Warrior	2.5	46
Oats—		
Abegweit	75.0	6,075
Eagle	407.6	41,360
Garry	30.0	3,600
Larain	11.0	350
Rodney	15.0	1,575
Victory	6.0	320
Wheat—		
Ridit	1.5	50
Saunders	24.25	580
Selkirk	577.0	24,800
Flax—		
Marine	42.5	730
Raja	31.0	320
Redwing	61.0	500
Alfalfa—		
Grimm	255.0	--------
Ladak	35.0	--------
Rhizoma	654.0	--------
Vernal	34.0	--------
Duraturf creeping red fescue	100.0	--------
Olds creeping red fescue	20.0	--------
Creeping red fescue	838.0	--------
Merion Kentucky blue-grass	434.0	--------
Summit crested wheat-grass	10.0	--------
Lasalle red clover	20.0	--------
Climax timothy	134.0	--------
Brome-grass	26.0	--------
Meadow fescue	110.0	--------

Commercial Forage-crop Seed

The Peace River District continues as the major forage-seed producing area in the Province, and the acreage in forage seeds is increasing as the acreage in wheat has declined. Grass-seed crops were above average this year, with a good harvest, particularly creeping red fescue. Legumes, on the other hand, and notably alsike and single-cut red clover, gave indications of good crops, but poor weather interfered with harvest so that only a small portion of the crop has been salvaged. Double-cut red clover production in the Fraser Valley, on the other hand, is above early estimates and is only slightly below the long-term average.

Estimated yields of forage-crop seeds are as follows:—

	Production (Final), 1956 (Lb.)	Estimated Production, 1957 (Lb.)
Alfalfa	95,000	80,000
Red clover (single)	351,500	400,000
Red clover (double)	78,560	274,000
Alsike clover	550,000	500,000
Sweet clover	300,000	275,000
Timothy	38,000	90,000
Timothy-alsike	65,000	30,000
Brome	160,000	120,000
Blue-grass	11,000	60,000
Crested wheat	----------	2,000
Creeping red fescue	800,000	1,000,000
Meadow fescue	50,000	25,000
Reed canary-grass	----------	4,000
Orchard-grass	----------	5,000
Russian wild rye	3,000	2,500
Red-top	21,500	15,000
Intermediate wheat-grass	3,300	----------
Vetch, spring	8,500	----------
Sainfoin	100	----------

Seed Improvement

Foundation-stock seeds produced by the Agronomy Department of the University of British Columbia and distributed to growers through this Branch include Eagle oats, 2,650 pounds; Victory oats, 3,300 pounds; Dawson's Golden Chaff wheat, 650 pounds; Ridit wheat, 60 pounds; Vantage barley, 2,050 pounds; Storm rye, 240 pounds.

Potatoes

Commercial potato acreage is up slightly this year, with approximately 10,000 acres planted.

Acreage in seed-potatoes increased slightly in 1957. The following list of varieties and inspected acreage is supplied through the Federal seed-potato inspection service:—

Variety	Acreage	Variety	Acreage
Canus	1.50	Pontiac	49.75
Columbia Russet	5.67	Red Warba	0.25
Early Epicure	32.50	Sebago	2.75
Early Rose	9.25	Warba	107.35
Gold Coin	37.00	Waseca	5.10
Green Mountain	29.80	Wee McGregor	1.00
Katahdin	12.00	White Rose	134.05
Kennebec	94.65		
Keswick	3.00	Total	2,106.12
Netted Gem	1,580.50		

The main areas of production are also given, with approximate acres inspected in 1957 (1956 acreages in parentheses): Vancouver Island, 166 (179); Lower Mainland, 694 (845); Pemberton, 214 (215); Okanagan, 249 (241); Cariboo, 116 (116); Central British Columbia, 75 (67); Boundary District, 461 (245); East and West Kootenays, 131 (119).

Oceanside Test-plots

Seed-potato samples were assembled by this Branch, treated and planted in test-plots at Oceanside, Calif., on November 30th. Fifty samples of 200 seed-pieces each were sent in by growers. Disease readings will be taken in February.

Field Peas

Acreage in field peas remained about the same as in 1956, but average yield per acre was down, particularly in the Creston area.

Crop Improvement Association

This year twenty-seven tests were distributed through the British Columbia Crop Improvement Association, which seeded 290 acres, principally to recommended forage mixtures. In addition, we distributed the following forage-crop seeds to the members at cost: Summit crested wheat-grass, 543 pounds; Manchar brome-grass, 200 pounds; Vernal alfalfa, 50 pounds.

Demonstrations and Trials

Demonstration trial-plots, including fertilizers, herbicides, and forage-crops, were put down in co-operation with District Agriculturists in most areas of the Province. In addition, Mr. Crockard carried on potato quality study trials this year to study the effects of fertilizer level on quality of potatoes on various soil types.

The tillage trials and strip-cropping demonstrations were continued in co-operation with the Agricultural Engineering Division, with the final year's operation being completed in the Duncan area this year. Most of our plots and demonstrations are continued over several years to assess results more accurately.

Forage-crop Programme

During the past season we launched a stepped-up campaign to improve forage-crops. We distributed ninety-two display-cases to dealers and stores throughout the Province, and the display was changed four times during the season, each featuring a phase of forage production. In addition, we sent out 150 easel-type posters to seed houses, stores, etc., on four different occasions featuring timely advertising. We also sent out approximately 15,000 letters in the spring to encourage farmers to improve forage-crop production, and during the season distributed fliers and circulars on aspects of forage production.

Soil and Forage Analyses

The Soil Analyst reports as follows:—

"Early this spring the laboratory work was seriously interrupted by a fire which destroyed the Old Parliament Buildings, in which the laboratory facilities were housed. Temporary facilities were immediately set up in Building No. 3 and soil analysing was resumed at a much reduced scale. In spite of this setback, 155 forage samples were analysed for crude protein and moisture, and 1,700 soil samples were tested for major nutrient elements and pH. In addition, fifteen forage samples were tested for ash and sixty-five greenhouse soils were tested for total salts."

Agricultural Lime

Due to a long open fall, tonnage of agricultural lime used for soil-amendment purposes was up this year. For the eleven-month period in 1957, 28,632.25 tons were distributed under the Federal-Provincial Lime Subsidy Policy.

The following is a five-year summary of movement of agricultural lime and subvention paid:—

Fiscal Year	Total Number of Applications Approved	Total Amount of Subsidy Recommended	Total Tonnage Used
1952/53	2,243	69,974.18	38,917.55
1953/54	1,590	52,458.01	28,239.24
1954/55	1,450	48,503.42	24,702.45
1955/56	1,130	44,070.96	22,712.92
1956/57	1,052	52,784.88	21,528.45

Fertilizer and Agricultural Poisons Board

Two meetings of the Fertilizer and Agricultural Poisons Board were held with the trade to approve the mixes for the year. The first meeting was the regular annual meeting, at which the following mixes were recommended: 0–15–15, 2–15–15, 4–10–10, 6–8–6 (organic), 6–30–15, 8–10–5, 10–20–10, and 10–30–10. The second meeting was called to meet with G. W. Michael and C. Stevenson, of the Plant Products Division at Ottawa, to discuss with members of the Fertilizer Board and the trade the recently revised Fertilizer Bill and proposed regulations thereunder.

National Soil Fertility Committee

A National Soil Fertility Committee was formed this year under the chairmanship of Dr. P. O. Ripley, Central Experimental Farm, Ottawa. Your Commissioner was appointed to the Committee and attended the inaugural meeting on June 19th, 20th, and 21st at the University of British Columbia in Vancouver.

Weed-control

During the past season two Weed Inspectors were appointed in the Peace River District and one for a short period in the Pemberton District.

The Department of Highways continued roadside spraying of weeds. In some instances they could not get spraying done on schedule due to a wet summer. Excellent results on roadside spraying was reported in the Peace River District and Pemberton Valley, where the Weed Inspectors supervised the operations.

Chemical weed-control is now becoming an accepted practice by most farmers in assisting the fight against weeds. In this connection we put out several demonstration trials in the Fraser Valley and Okanagan this past year to demonstrate the use of chemicals for weed-control in crops. We also continue to screen and test new herbicides as they become available.

The National Weed Committee (Western Section) and the Western Canadian Weed Control Conference held their meetings in Victoria this year on November 25th, 26th, and 27th.

GRAIN SCREENINGS

In the period January 1st to November 30th, ten permits for removal of screenings were issued. During the same period sixty-seven feeders' permits were issued. The use of screenings for devitalization remains fairly steady. (*See* Appendix No. 16.)

Appendix No. 17 gives in summary the movement of screenings from British Columbia elevators for the period January 1st to November 30th.

REPORT OF FARMERS' INSTITUTES

L. W. JOHNSON, SUPERINTENDENT

During the year 1957 two new institutes were incorporated (Alces in the Peace River District on February 13th and Woodcock-Cedarvale in the Skeena District on October 7th) and two institutes were restored (Dome Creek and Forest Grove), bringing the total number of institutes in the Province to 190. However, of this total some forty-two institutes are on the inactive list.

Annual returns filed during the year from 136 institutes again showed a decrease in membership but with a marked increase in their operations. Assets continue to increase, while purchase of commodities for members was again well over $1,000,000.

DISTRICT INSTITUTES

All ten district institutes held annual meetings during the year. The places and dates of same were as follows:—

District	Place	Date
"A"	Nanaimo	September 21
"B"	Palling	June 12
"C"	Fort Fraser	June 13 and 14
"D"	Kamloops	October 29
"E"	New Westminster	January 25
"F"	Nelson	October 26
"G"	Grindrod	October 24
"H"	Kersley	June 19
"I"	Cranbrook	May 31
"J"	Rolla	June 17

ADVISORY BOARD OF FARMERS' INSTITUTES

The Board met at the call of the Minister of Agriculture on November 19th, 20th, 21st, and 22nd, 1956, at which time some forty-three resolutions were considered, with eight being selected for presentation to the Select Standing Committee on Agriculture during the 1957 session of the Legislature.

In addition to the consideration of resolutions, the Board held discussions with the Minister, Deputy Minister, and Branch heads regarding agricultural policy and the future of agriculture in the Province.

On February 28th a committee of three members from the Board met with the Select Standing Committee on Agriculture, and some eight resolutions dealing with the following were presented: Assessment of Farm Lands, Milk Prices, Rural Electrification, Insurance for Farm Tractors, Surface Rights, Land-clearing, Location of Logging-roads, and Prices to Producers.

Following this meeting the Select Standing Committee submitted their report to the Legislative Assembly:—

Mr. Speaker:

Your Select Standing Committee on Agriculture begs leave to report as follows:—

Your Committee met representatives from the Advisory Board of Farmers' Institutes and heard the presentation of a list of resolutions as submitted by it. Careful consideration was given to these resolutions and—

(1) Recommends that, due to the steady encroachment of urban dwellings and industry into the better farm lands of this Province, the Government make a further study into the scale of values for assessment of farm lands on the basis of productivity or rental value of the land rather than on the basis of real-estate value with the view in mind that farm lands be preserved for farming purposes:

(2) Due to the fact that the " Milk Act " is now before the Court and that the Federation of Agriculture has retained an economist to study the whole question of milk prices, this Resolution be tabled until the Court's decision has been reached:

(3) Your Committee recommends that the Provincial Government be urged to make it possible for the British Columbia Power Commission to undertake such power projects as will enable them to provide adequate rural electrification throughout the Province at reasonable cost to the consumer:

(4) This Committee is of the opinion that adequate low-rate insurance is already available for all farm tractors in British Columbia through regular licensed insurance companies:

(5) Your Committee feels that the matters as stated in this Resolution are not entirely factual and, therefore, recommends that it be tabled:

(6) Your Committee recommends that the Provincial Government pursue further the possibility of clearing the land for agricultural purposes to induce more settlement of our agricultural areas:

(7) Your Committee recommends that the Department of Forests and the Department of Mines be asked to give consideration to the location of private logging and mining roads so that these roads may, where practical, be located to the best advantage for future development of the area:

(8) Due to the steady deterioration of conditions in the field of Agriculture, this Committee commends the Provincial Government for its action in contesting the increase in freight rates, the economic inquiry into the Interior vegetable industry, and the Royal Commission examination of the tree-fruit industry. The beneficial findings of the Royal Commission on the dairy industry were noted and it was recommended that these actions be continued and broadened with further representations to the Federal Government in those fields that are primarily under Federal jurisdiction.

Respectfully submitted.

L. H. SHANTZ, *Chairman.*

EXHIBITIONS AND FALL FAIRS

During the year one Class A exhibition, five Class B exhibitions, and sixty recognized fall fairs were held, being an increase of one Class B exhibition (North and South Saanich Agricultural Association, Saanichton) and a decrease of four fall fairs.

POUND DISTRICTS

Ten new pound districts were constituted in unorganized territory of the Province during the year, namely: Sproat Lake, January 25th; Red Bluff, January 25th; South Malaspina, June 25th; Beaverdell, July 17th; Cedar Creek, September 23rd; Salloomt Valley, September 23rd; Tabor Lake, October 7th; Barlow Creek, November 6th; Midway, December 13th; and Salmo-Nelway, December 13th.

The boundaries of five pound districts were extended—Giscome, Upper Stoddart Creek, Cranberry (South Wellington), Balmoral-Carlin-Notch Hill, and Hart—and pound-keepers for twenty pound districts were appointed.

GRASSHOPPER-CONTROL AREAS

Advances for the purpose of carrying out control measures were made to the following Grasshopper-control Committees in the amounts shown: Nicola, $20,000; Oliver-Osoyoos, $1,000; Princeton, $1,000; South Riske Creek, $2,000; Thompson Valleys, $4,000; and Westbank, $150—a total of $28,150.

However, due to light infestations again this year a considerable amount of these advances will be returned as unexpended.

MISCELLANEOUS

During the year, fence-viewers were appointed for the Chilliwack Electoral District, Comox Electoral District, and Esquimalt Electoral District.

Also during the year, 112 licences for the sale of drugs and poisonous substances used exclusively in agriculture were issued.

REPORT OF WOMEN'S INSTITUTES

STELLA E. GUMMOW, SUPERINTENDENT

Three new institutes were organized during the year, two in the North Okanagan and Salmon Arm District (Monte Lake and Lower Nicola Valley) and Bessborough in the Peace River. Several institutes have combined: Perow has joined Topley and Doe River has joined Shearer Dale. North-east Burnaby has disbanded and Burns Lake has been struck off the rolls. This makes our total of active institutes 238, with a membership of 5,212. Annual reports received from 225 institutes for 1956 show total receipts as $135,413.19 and total expenditures as $108,445.51. Grant cheques of $10 each were sent to each of these institutes.

ASSOCIATED COUNTRY WOMEN OF THE WORLD

The Associated Country Women of the World meeting at Colombo, July 2nd to 13th, was attended by Mrs. A. A. Shaw, Mrs. J. H. Blackey, Miss Ethel Bruce, and your Superintendent from this Province. This all-Canadian tour of twenty-five arranged by your Superintendent took delegates to New Zealand, Australia, Ceylon, Lebanon, Syria, Jordan, Rome, Geneva, Paris, and London.

NATIONAL CONVENTION

The first national convention of the Federated Women's Institute of Canada was held at Ottawa the last week of October, with twenty-three attending from British Columbia, including your Superintendent. At this meeting Mrs. Roylance, Provincial president of British Columbia, was elected first vice-president of the Federated and Mrs. J. O. Decker to the executive committee.

A highlight of the meeting was the presentation of the Tweedsmuir silver cups, and British Columbia was honoured in having Summerland win the cup for the handicraft competition, the contents of a bride's hope chest, and Summerland also came second for their village history and won honourable mention for their painting.

The Tweedsmuir Competition entries for this Province were judged from this office, with Miss Bertha Rogers judging the handicrafts, John Kyle the paintings, and Willard Ireland the histories. The winners were:—

Bride's hope chest—first, Summerland; second, Penticton.
Village history—first, Summerland; second, Houston.
Painting—first, Crawford Bay; second, Summerland; honourable mention, North Pine.

PROVINCIAL BOARD

The Provincial Board met at the office of the Superintendent on October 17th, 18th, and 19th. Plans for the Centennial Cook Book were finalized at this meeting, and plans made for the Provincial Convention to be held at the University of British Columbia on May 29th, 30th, and 31st. A one-day Leadership Course will be held prior to the Convention on May 28th.

A ward in the new solarium is to be furnished by the Women's Institutes, and Mrs. Doe reported that $1,286.15 was already on hand for this purpose, with the objective $2,709.

INDIAN AFFAIRS

Mrs. J. O. Decker, of Pemberton, vice-president of the British Columbia Women's Institutes, was chosen as a member of the Advisory Committee on Indian Affairs.

Authentic Indian designs have been distributed during the year, prepared by Miss Betty Newton. Eighteen of these were sent out in a regular series and have been in good demand.

Many institutes are doing nice work in bringing the Indian women into their local group, and in one instance the president of the Women's Institute is an Indian woman.

PACIFIC NATIONAL EXHIBITION

Mrs. R. Doe, secretary, was in charge of the W.I. booth at the Pacific National Exhibition, and twenty-three Women's Institutes entered, with Summerland winning the Challenge Cup, Kaslo coming second, and Point Grey third. The demonstration booth was manned by different members from adjoining institutes, and demonstrations of ceramics, painting for pleasure, quilting, etc., were daily attractions.

DISTRICT MEETINGS

District meetings were held in all sixteen districts, as follows: North Vancouver Island at Sayward, Hopeline at Chilliwack, Douglas at Aldergrove, North Fraser at Gibsons Landing, North Thompson at Barriere, South Okanagan and Similkameen at Oyama, North Okanagan and Salmon Arm at Armstrong, Kettle River at Greenwood, West Kootenay at South Slocan, Arrow Lakes at Fauquier, East Kootenay at Cranbrook, Cariboo at Kersley, Peace River at Kilkerran, Bulkley-Tweedsmuir at Quick, Central Interior at Fort Fraser, and South Vancouver Island at Victoria.

SPECIAL MEETINGS

Meetings of the Federation of Agriculture at Victoria, the Home Arts Committee of the Pacific National Exhibition, and the Community Activities Centennial Committee were attended. Group meetings at Parksville, Saltspring, and Colwood were held, and other meetings were at Gabriola Island, Brentwood, South Saanich, Esquimalt, North-east Burnaby, Lazo, Cobble Hill, and Craigflower. A Leadership Workshop was held at Brentwood, Lake Hill, and Colwood, which was attended by institutes in the area.

BULLETINS

The Handbook has been revised and reprinted, and 2,000 copies printed. Circular No. 45, Women's Work in Fair Exhibits, was rewritten, and 2,000 copies printed for use of judges and those planning to put on fall fairs and flower shows.

BORDER PICNICS

Border picnics with women of the United States were held again this year at the Peace Arch, Port Angeles, Osoyoos, and Balfour in the Kootenay.

CO-OPERATION APPRECIATED

The co-operation and assistance of the members of the Department of Agriculture has been of great value in making this Women's Institute programme a success, and is much appreciated.

REPORT OF SOIL SURVEY BRANCH

C. C. Kelley, B.S.A., Soil Surveyor

Six soil surveys were undertaken in 1957. The main field work consisted of progress with a detailed soil survey of the Lower Fraser Valley and completion of a reconnaissance survey of the Kettle River valley. A broad reconnaissance was made of the Fraser River basin. Detailed surveys of small acreages were made in the Ellison Irrigation District, the Department of Agriculture property at Abbotsford, and the Tranquille Sanatorium farm.

A technical assistant was engaged at extension work in the Okanagan and Similkameen Valleys. The report " Soil Survey of the Upper Kootenay and Elk River Valleys " was published. Progress was made with the manuscript " Soil Survey of the Columbia River Valley." Three Reclamation Committee meetings were held. Physical and chemical analyses of newly classified soils were undertaken.

SOIL SURVEY OF DELTA MUNICIPALITY

This was continuation of work undertaken at the request of the Assessment Commissioner. The present survey was confined to parts of Delta Municipality that were not classified in 1954. In 1957, 11,235 acres were classified on a scale of 400 feet to 1 inch. This acreage is divided into 4,275 acres of lowland and 6,960 acres of the East Delta and Point Roberts uplands.

On the East Delta upland the main soil type is derived from gravelly marine beach deposits, underlaid by impervious till. This soil type and adjacent soils are being subdivided. Subdivision is not systematic, and there is much evidence of suburban sprawl. The same conditions occur on the Point Roberts upland, but development is slower, owing to lack of public utilities.

The surviving agriculture in the upland consists of small cow pastures; chicken, duck, and turkey farming on a small scale; small-scale fur-farming; small-fruit growing; and mushroom culture. These operations can persist for a time during urbanization.

The survey was undertaken to rate the productivity of different soils for use in equalization of rural land assessment. Such information is required even in areas having a trend toward subdivision, inasmuch as parts of such areas remain as agricultural land. A soil map and report, and a productivity index for each soil type, will be supplied to the Assessment Commissioner.

SOIL SURVEY OF THE KETTLE RIVER VALLEY

The soil- and land-class survey of the Kettle River valley began in September, 1954, and was completed in October, 1957. During the past field season about 23,000 acres were classified in valley-bottoms to the east and north of Grand Forks. The total classified area amounts to about 160,000 acres.

In late August two weeks were devoted to international soil correlation. One week was spent on each side of the border in the vicinity of the Kettle River valley. The correlation party was made up from the United States Soil Survey, the Federal Soil Survey, and personnel from the Soil Survey Branch. The purpose was to obtain uniformity of classification on both sides of the border and deal with unsolved problems of classification.

The main agriculture of the area consists of ranching. Wheat, coarse grains, and alfalfa are produced by dry farming on the plateau around Bridesville. Hay, alfalfa, and some grain are grown in the valley-bottoms where irrigation is available, or advantage can be taken of subsoil moisture on low river-bottoms. Specialized crops, chiefly potatoes, are grown in the vicinity of Midway and Grand Forks.

A Reclamation Committee meeting was held in October, the purpose being to assign irrigation-water requirements to the classified soils and estimate the total water requirement for the mapped area. This information is required for the Engineering Board, Columbia River Basin. The report was issued in January, 1958, as Brief 35 of the Reclamation Committee.

THE RELATION OF AGRICULTURE TO FRASER RIVER CONTROL

To supply information to the Fraser River Board, as to the effect on agriculture of water storage and power development, sections of the watershed not previously seen were visited. It was found that if the agriculture interest is given due consideration in

the planning of storage and power developments, great benefit to agriculture would accrue from Fraser River control.

Participation of the agriculture interest is made necessary by the summer-dry climate of the Fraser basin. Power and irrigation water are both necessary for maximum agricultural production. Potentially arable land in the vicinity of power projects should be classified and water assigned to it and held in reserve until the land is irrigated. This approach would take care of a gap of perhaps fifty years or more that lies between the need of power and a more distant need of a more extensive agriculture.

Flood-control would benefit the Lower Fraser Valley, where upkeep and improvement of an extensive system of dykes is expensive and danger of flood disaster exists. In the Interior the benefits of river-control and power development would be water more easily available for irrigation by pumping and gravity flow.

SOIL CONSERVATION

The testing of farm soil samples sent to the office by farmers and district officials was continued in 1957. A total of 250 samples of soil were examined for alkali. About 14 per cent contained harmful quantities of black alkali, and 16 per cent had concentrations of white alkali too great for normal plant growth. Eight samples of water intended for irrigation were tested, and half of them were found to be too alkaline for the purpose.

One hundred farm visits were made in the area between Keremeos and Salmon Arm in connection with land-drainage problems. Investigations were completed and plans prepared for 7,690 feet of drainage-works, all of which was installed by December 1st. A further 9,050 feet of drains are in the final planning stage, and should be under construction by the end of the year. Preliminary investigations were carried out on four additional schemes to be completed in 1958. The demand for advisory assistance on land drainage continues to increase.

Miscellaneous duties included advisory assistance in regard to irrigation problems, soil-erosion control, investigations of soil materials for construction, preparation and presentation of papers at the annual conference of the British Columbia Association of Agronomists and the British Columbia Irrigation Association, participation in the Okanagan Orchard Field Tour and the Agricultural Extension Short Course. Proposed amendments to the " Soil Conservation Act " were submitted.

REPORT OF SOIL-SURVEY ACTIVITIES, CANADA DEPARTMENT OF AGRICULTURE

The following is a report received from H. J. Hortie, Pedologist, Experimental Farms Service:—

" Soil Survey of the Tête Jaune, McBride, and Giscome Areas

" Field work in the Tête Jaune, McBride, and Giscome areas was completed in 1956. In 1957 the classified soils were inspected by Dr. A. Leahey, Chief Pedologist, and the survey was approved for publication. On request of the Forest Service, a detailed soil survey of the Aleza Lake Forestry Station was started and abandoned for the year, owing to the wet season.

" Soil Survey of the Peace River District

" Soil-survey work in the Peace River District will be published in two separate reports. In 1957 the soil types along the British Columbia-Alberta Boundary were correlated with those of Alberta. Further checking of the soil classification in areas formerly examined by pack-horse was made possible by recent expansion of road and railway

construction. However, this work was restricted by the wet season, and some areas still require examination.

" SOIL SURVEY OF THE PRINCETON SHEET

" On the Princeton Sheet the requirements consist of a detailed reconnaissance soil survey of lands suitable for cultivated agriculture and irrigation in the Tulameen and Similkameen River valleys. The plateau region will receive a less detailed survey of the soil and land resources. The detailed reconnaissance survey was completed in 1957 with classification of about 3,000 acres. Most of this area lies between Princeton and Hedley. Eleven soil types were differentiated.

" In addition, a preliminary investigation of the plateau region was undertaken. Information required from this area will consist of data of use for forestry, range management, wildlife management, assessment, and inventory of the soil resources."

REPORT OF AGRICULTURAL DEVELOPMENT AND EXTENSION BRANCH

G. L. LANDON, B.S.A., P.AG., DIRECTOR

EXTENSION ACTIVITIES

Once again extension activities were linked with planned programmes in each district designed to emphasize the problems of production and marketing in each community. Organized groups of farmers worked with the District Agriculturists and others interested in rural community improvement.

J. S. Allin, Supervising Agriculturist at Victoria, has given special attention to programme planning and visited several districts during the year to work with local District Agriculturists on their programmes.

The response has been gratifying in many districts and has resulted in definite improvement in production and marketing of agricultural products in some districts.

Special mention must be made of extension short courses attended by staff members during the year.

The first was the biennial conference at Washington State College of the Extension staff, Experimental Station staff, and the State College staff held at Pullman, Wash., January 14th to 18th.

The British Columbia Department of Agriculture was represented by J. S. Allin, George Muirhead, R. C. Bailey, and J. A. Pelter. The theme of this conference was how extension was meeting to-day's challenge.

Outstanding speakers included Dr. Paul Miller, Director of Extension for Michigan State; Drs. Joe Beal and George Bohlen, of Iowa State College; and E. L. Peterson, Assistant Secretary of Agriculture for the United States Department of Agriculture.

The second was the Extension Conference held at the University of British Columbia, April 8th to 12th. This was attended by the entire staff of District Agriculturists, Horticulturists, Poultry, Field Crops, and other specialists. In fact, this was the first conference held for many years where all staff members engaged in extension activities were called together.

The Director of the Agricultural Development and Extension Branch was chairman of the sessions, and special speakers were Dr. Ernest Nesius, of Kentucky, who is the Associate Director of Extension, and who spoke on the farm and home approach to extension, and Charles W. Smith, Assistant Director of Extension for Oregon, who spoke on techniques and methods in extension, philosophy of extension, etc.

The programme included lectures and workshops on audio-visual aids, farm appraisal, farm family situations, etc.

Reports from all those attending the conference indicated it was the best ever held by the Department of Agriculture.

Following the conference in April, J. S. Allin and George Muirhead, of the Extension staff, and John A. Smith and Ian Carne, of the Horticultural staff, attended the sessions on communications held at Washington State College, June 17th to 21st.

The material presented had been developed by the National Project in Agricultural Communications at Michigan State College.

The four staff members who attended the sessions at Pullman presented the material to the Minister and headquarters staff in Victoria in October. It will be presented to all staff members early in 1958.

Regional meetings were held during the year at Prince George, Victoria, and the Fraser Valley, which were attended by the Extension staff and specialists on poultry, field crops, vegetable production, economics, etc. Representatives of the feed, fertilizer, and agricultural supply firms also attended some of these meetings, which proved most valuable as an extension tool.

The 4-H Club programme continued to create great interest in every community where clubs are organized. It is one of the most valuable assets in extension.

Temporary help was provided during the summer months in the Fraser Valley, Vancouver Island, and North Okanagan districts for the 4-H Club programmes. The employment of students from the University of British Columbia on this programme is very worth while and will be absolutely necessary for 1958.

CENTRAL BRITISH COLUMBIA, NORTH CARIBOO, AND PEACE RIVER

(S. G. Preston, M.S.A., P.Ag., Supervising Agriculturist)

General

Weather conditions and low prices for most farm products combined to make 1957 generally an unsatisfactory year for farmers, particularly in the Peace River. The picture as concerns dairy, poultry, and hog producers, however, was much brighter. Cool spring weather in Central British Columbia and an early dry spell in the Peace retarded spring growth of crops. Exceptionally high precipitation during the summer months prohibited storing of forage except as silage. Throughout Central British Columbia most threshing was finally completed, but in the Peace close to 50 per cent of the grain-crops are still in the fields. Fescue, brome, and timothy were harvested satisfactorily, but no alsike or red clover were threshed in the Peace and only very small lots in Central Briitsh Columbia.

Beef prices for calves and cows were fair to good, but poor for steers and heifers. The British Columbia Beef Growers' Association and our Extension Department are making an effort to show the stockmen that changing economics and marketing conditions have eliminated the place for grass-finished cattle, and as an alternative they will have to market stock as calves or grain-finished cattle, or both.

Dairying continues the most remunerative farm enterprise in all areas despite the fact that there has been no significant increase in milk prices. However, improved quality of stock and larger dairy herds have improved the returns to the dairyman.

Egg production continues profitable to those producers who are operating on a reasonably large scale. This business has shown a healthy annual increase for a number of years, and during the past year has extended as well to the Peace.

Hog-raising received a setback of over 30 per cent in the Peace, a good part generally being due to barren sows. This business, too, is sound, and promotion along this line is recommended.

Extension Methods

During the Extension Conference held at the University of British Columbia in April, District Agriculturists from the north discussed and recommended allotting certain specialists to Central British Columbia and the Peace to co-operate with the District Agriculturists. The proposal met with the approval of the Minister and branches concerned, and as a consequence the following fieldmen were designated as part-time area specialists: E. M. King, horticulture (vegetables); C. H. Nelson, field crops; C. W. Wood, poultry; and G. A. Luyat, live stock (beef and sheep).

These men made several trips to the area during the season and attended the regional meeting at Prince George in November.

Fort St. John weather records show a total of over 20 inches of rain from May 1st to October 31st. For the Dawson Creek area the amount was lower, but still exceptionally high with more than 16 inches precipitation. On October 1st 41 inches of snow was recorded at Grande Prairie, 38.5 at Dawson Creek, and 28.4 at Fort St. John. This snow melted, but the amount of moisture added to the already saturated soil made it almost impossible to continue harvesting operations. Precipitation in Central British Columbia for the same period varied from 12 to 15 inches, but with the bulk earlier in the year. However, harvesting operations were retarded by wet ground.

Field Crops

Cereal-crops in general were late in all areas due to backward or dry conditions in the spring, and then followed by exceptionally heavy rainfall, which retarded maturity. Coarse grains were harvested in September in all areas where the ground was solid enough to carry machinery. Wheat in the Peace River was later, so that rain and snow the first part of October practically cut out further operations.

Much of the hay cut earlier in the season was lost or of poor quality. In Central British Columbia a considerable amount was put up as silage and some in the Peace, where considerable interest is being shown.

Harvesting and threshing were carried out with difficulty in the Peace in 1956, but a spell of fine weather in November allowed most of the operations to be completed, even to threshing clover seed. This year, however, some 50 per cent of the wheat is still out and all the flax, alsike, and red clover for seed. Some of this may be salvaged in the spring, but the heavy snow and rain in the fall lodged much of it.

Yields in the Peace were reasonably good and compare favourably with 1956 where farmers managed to save their crops. Yields in the Prince George area were equal to 1956, with the acreage up. Vanderhoof showed a 25-per-cent increase in cereal yields over the previous year. Records will show little difference for the Bulkley as most of the cereal-crops were cut for hay. Last year, however, was a near crop failure with very little hay or grain. This year's growth was heavy, but so were losses at haying-time.

C. H. Nelson, Assistant Field Crops Commissioner, recommends an active campaign to induce farmers to adopt silage-making as a part of the regular farm programme rather than an emergency measure. The regional meeting of the District Agriculturists approved this recommendation, and steps are being taken to work out the programme.

Live Stock

Beef

Low prices for grass-finished cattle continues as an important factor in poor returns to beef-producers. During the year the British Columbia Beef Growers' Association has attempted to show the producers that the day for grass-finished cattle is gone and that the

market demands grain-fed cattle. The producers are faced with increasing the basic herd and selling calves. They may wish to go into grain finishing or into a feeder operation, but 2-year grass-finished stock are no longer profitable to produce. This was certainly borne out at sales at Williams Lake, Quesnel, and Fort St. John.

G. A. Luyat, Extension live-stock fieldman, spent some time this fall in Central British Columbia and the Peace and concurs with the recommendations of British Columbia Beef Growers' Association. Mr. Luyat's findings were as follows:—

(1) There is no longer a place for grass-finished cattle.

(2) The Peace River offers opportunity for grain-finishing cattle.

(3) It is more economical to move cattle to feeding areas such as the Peace rather than move feed to the stock (even with a freight subsidy on feed).

(4) A system of credit must be established to enable stockmen or farmers interested in feeding cattle to purchase stock and carry them until ready for market.

Mr. Luyat's recommendations were accepted at the regional meeting in November, and it was agreed that the problem would be discussed with stockmen and live-stock associations with a view to promoting the over-all programme.

Dairy

The dairy industry in all districts has shown healthy increases. The following are 1956 production figures and close estimates for 1957:—

	1956 (Lb.)	1957 (Lb.)
Bulkley Valley and Terrace	3,031,000	3,458,000
Vanderhoof[1]	861,577	1,000,000
Prince George and McBride[1]	3,541,084	4,201,000
Quesnel[2]	1,699,811	1,732,000
Dawson Creek	3,240,000	3,533,925
Fort St. John	1,022,000	1,560,000

[1] An estimated 500,000 pounds shipped to Northern Dairies, Prince George, credited to Vanderhoof.
[2] Includes cream shipments estimated as whole milk.

District Agriculturists in all areas have done considerable work to promote increased production, improved buildings and handling of milk, a better class of dairy stock, and economic-size units. Mr. Jameson was particularly pleased with improvements in premises in the Bulkley, and considerable credit is due him for initiation and guidance in construction or reconditioning the buildings. We find dairymen in all districts have considerable confidence and regard for Dairy Inspector R. N. Hitchman and Dairy Barn Inspector Bruce Stewart. These men have contributed in no small way during the past year toward improved health of stock, handling of milk, interest in feeding methods, and many other factors concerned with dairy production.

Sheep

No greatly improved interest in sheep is observed, although some promotional work along this line is being done. It is felt that farm flocks of sheep up to 100 ewes could be well incorporated in many cases. Full-time operators could handle 250 ewes or more.

Hogs

Hog production in the Peace suffered a considerable setback in 1957. This is partly attributed to the large number of barren sows. General quality of stock is not too high. The following are 1956 and 1957 production figures (both North and South Peace):—

1956—	
Rail shipments	16,786
Truck shipments	4,959
Local trade (estimated)	10,000
Custom slaughtering (estimated)	4,000
Total	35,745
1957—	
Rail and truck shipments (estimated)	9,970
Local trade and custom slaughtering (estimated)	10,500
Total	20,470

Since the Peace is well adapted to hog production, this reduction is viewed with concern. The problem will be studied at the earliest possible opportunity and recommendations made on promotion of this business.

Poultry

We are pleased to report satisfactory extension of poultry-raising in all areas. This chiefly refers to egg production, but there are a few small broiler and fryer operations. Mr. Hall reports two farms have set up 3,000-bird laying flocks in the South Peace. These are the first of any size to operate in the Peace.

C. W. Wood, poultry fieldman for the area, has the following to report, which forms the basis of our poultry programme:—

(1) Since imports of eggs to Central British Columbia and the Peace far outweigh production, then poultry-raising may be safely recommended.
(2) The cold winters should not be considered in any way a hindrance to egg production.
(3) The Provincial Department of Agriculture's 40- by 40-foot laying-house plan is sound and will accommodate 700 to 800 laying birds of the light breeds.
(4) The minimum unit for a full-time poultry operation should be 3,000 laying birds.
(5) With the abundance of feed in the Peace and ordinarily moderately dry climate, turkey-raising can operate at a profit.
(6) A large potential market for eggs and poultry-meats exists at Prince Rupert and Kitimat. This market should be investigated and plans made to take advantage of it.

Honey

Honey production is still confined to the Peace River, with most of production being in the South Peace. There were 2,980 colonies, with an average yield of 140 pounds and a total yield of approximately 417,200 pounds. The average price was 14½ cents a pound (down 1½ cents from 1956).

To date, beekeepers have regularly had to make arrangements with farmers to set up on their fields. The legume-seed growers are beginning to realize their value and are beginning to make approaches toward having the bees on their places.

Horticulture

With the exception of the Terrace district, fruit production is confined largely to the home garden. Even in and around Terrace there is little interest at the present time and

there will be no change from 1956. Maurice King examined strawberry and raspberry stands along the Skeena and in the Bulkley. He found evidence of considerable mosaic in raspberries and much poor or unadapted stock of both strawberries and raspberries.

There is only a small increase in production of vegetables and seed-potatoes. There were three growers of seed-potatoes in the McBride area this year with a total of 29.25 acres. In the Bulkley and Skeena there was 47 acres and in the Cariboo 115 acres, making a total of 191.25 acres, the increase being chiefly the added three growers at McBride.

Following trips through the area and conferring with District Agriculturists and Experimental Station Superintendents, Mr. King makes the following recommendations:—

(1) (*a*) Production of Swede turnips in British Columbia amounts to 850 tons.
(*b*) Consumption amounts to 6,500 tons.
(*c*) Central British Columbia is admirably adapted to producing good yields of high-quality turnips.
(*d*) A programme should be immediately initiated to get turnip-growing under way.

(2) Vegetable storage on track and long season sale of vegetables must become an accomplished fact for any vegetable business in the area.

(3) In view of the incidence of disease and poor varieties of strawberries and raspberries raised in the Skeena District, a few growers should be encouraged to raise recommended varieties of healthy stock which will be inspected and available for sale in the area.

Land-clearing

Private contractors, under the "Farmers' Land-clearing Assistance Act," again operated in the Peace River, Terrace, Bulkley, Vanderhoof, Prince George, and North Cariboo. A wet summer curtailed work to some extent and no doubt added to the cost of the clearing and breaking. However, farmers were well satisfied and average costs are not out of line.

In the Peace, assistance was provided in both districts for drawing up contracts and directing dugout construction. For the North Peace, F. Mertens did an excellent job as Weed Inspector and in taking care of the land-clearing contracts. For the South Peace, Chris Dyble, a fourth-year agricultural engineering student, took care of the dugout planning and contracts for both water-supply and land-clearing.

In the Prince George, McBride, and North Cariboo Districts, experienced land-clearing contractors L. Grinde, F. Greer, J. E. Long, and C. Nowatzek require a minimum of supervision, and their dependability at all times is a great benefit to the agricultural representatives concerned.

William Morris again operated at Smithers, but a new contractor took over at Terrace. For the first year of clearing under the "Farmers' Land-clearing Assistance Act" in the Peace, several contractors were after work and in some cases they were not too efficient. This year the clearing was confined to two very capable contractors—M. Ramey in the South Peace and Hirtz Bros. Construction for the North Peace. The latter, using an Allis-Chalmers HD 16, showed that the larger machine with equipment to fit is more economical than smaller tractors.

Some clearing was again carried out in the Vanderhoof district, with L. French as contractor, using a D 8 tractor.

Land-clearing under the "Farmers' Land-clearing Assistance Act" has become an established programme in Central British Columbia and the Peace and meets with complete approval of the farmers. It is the feeling of farmers and officials concerned that the policy is providing an essential service and should in no way be reduced. The following is a summary of land-clearing operations:—

District	Clearing	Breaking	Dugouts
North Peace—	Acres	Acres	
" Farmers' Land-clearing Assistance Act "	2,529	782	1
Private	1,000	------	---
South Peace	643	501	12
Prince George (estimated)—" Farmers' Land-clearing Assistance Act "	950	600	1
McBride	150	------	---
North Cariboo	235	59	---
Vanderhoof (estimated)	350	200	---
Bulkley (estimated)	200	------	---
Terrace (estimated)	100	------	---
Totals	6,420	2,142	14

4-H Clubs

The following is a list of 4-H Clubs active in Central British Columbia and the Peace in 1957:—

Name	Number of Clubs	Membership	Kind
North Peace River	4	60	Grain and Garden.
South Peace	5	77	3 Community. 1 Garden. 1 Sewing.
Prince George	6	59	1 Community. 4 Homecraft. 1 Garden.
Vanderhoof	7	87	2 Sheep. 2 Beef. 2 Homecraft. 1 Garden.
Quesnel	1	15	Community.
Bulkley	1	19	Community.
Totals	24	317	

The 4-H Club programme in the Peace River, Prince George, and Vanderhoof was well handled with sponsoring organizations and leaders doing a good job. Community clubs are the answer to 4-H work in many areas. It is recommended that the 4-H programme for each year be planned on a regional basis between District Agriculturists, the Director of Extension, and 4-H Club supervisors.

Farmers' and Women's Institutes

Farmers' Institute conventions were held this year at Palling, Fort Fraser, Peace River, and the Cariboo, with L. W. Johnson, Superintendent, and Dr. A. Kidd, Chief Veterinary Inspector, in attendance.

Women's Institute conventions were split, with the Cariboo holding its in June, while the Bulkley, Tweedsmuir, Prince George, and Peace River conventions were held after Mrs. Gummow's return from Ceylon. It is obvious that Women's Institute work covers only a small part of the needs of rural women. The regional meeting of District Agriculturists in November gave this problem some attention and would like to recommend that a home economics service be added to our Extension Department.

Fall Fairs

It is difficult for the larger fairs to keep a reasonable balance between agriculture, industry, and the horse show. Present directors of the two larger fairs at Dawson Creek and Prince George are determined that this balance will be retained, and they are to be commended for the past few years' performance.

Conferences and Short Courses

An excellent and enlightening short course for Extension workers was conducted at the University of British Columbia in April with instructors from Kentucky (Professor Nesius) and Oregon (Professor Smith) attending.

Regional meetings of District Agriculturists were held at Prince George in May and November with area specialists in attendance.

The Co-ordinating Committee on Agriculture for the Peace River met at a summer field-trip at Beaverlodge in August and the Central British Columbia groups at a regular meeting at Prince George in November. At the latter, plans were made for printing of the recommendations as well as settling local problems of research and extension.

While the picture for farming in Central British Columbia and the Peace was far from bright during the past year, yet prospects for the coming year are fair. Dairying and poultry both offer good opportunities to those engaged in these enterprises.

The recommendations of the area specialists and District Agriculturists should form the basis of extension for 1958 with a view to improving conditions in other fields:—

(1) Promote silage production in a positive manner.
(2) Study and encourage grain feeding of beef cattle and means of financing feeder operations.
(3) Encourage extension of poultry-raising in all areas, as well as turkeys in the Peace.
(4) Promote turnip-raising in Central British Columbia and possibly the Peace.

VANCOUVER ISLAND AND LOWER FRASER VALLEY REGION

(J. S. Allin, B.S.A., P.Ag.)

Agricultural Conditions

Good weather during the latter part of the growing season provided excellent harvesting conditions. In general, good production was maintained throughout the year. The curing of hay-crops was difficult because of inclement weather. Hay imported from the State of Washington was of good quality and at low prices. Forage-crops yielded well, pastures maintained their productivity throughout the year, and, as a result, dairy production was above normal.

In practically all forms of farm production, however, there was a noticeable narrowing of the cost-price margin. Interest in sheep production was maintained, with a greater number of small farm flocks being established, although the total number of sheep remained approximately the same. Conditions prevailing over poultry production resulted in discouraging returns for the producer.

Extension Activities

By far the greatest amount of time and effort was spent by the District Agriculturists on various phases of grassland production. Grassland clubs were continued as an effective means of communication. Circular letters and displays were arranged for and other extension activities were undertaken to promote the adoption of sound forage-crop production practices. Demonstration trials were arranged in practically all districts with the co-operation of the Field Crops Branch, forage meetings were addressed, field-days were conducted, radio addresses given, and forage seed distributed.

Valuable assistance of a temporary nature in the field of 4-H and land-clearing permitted District Agriculturists in some districts to devote more time to production problems, planning procedures, and other organized extension activities. In certain cases, however, the pressure of duties connected with the land-clearing programme was sufficient to limit the time which the District Agriculturist was able to devote to the development of a comprehensive extension programme.

Short courses for producers and agricultural dealers were arranged and presented. Various means of publicity were used to supply information regarding many problems, including forage production, weed-control, and live-stock production.

Agricultural planning committees continued to review the farm situation in their respective districts and to present recommendations and plans of action in an attempt to overcome a few of the major production problems. Assistance was given to District Agriculturists in the North Okanagan with their programme-planning procedures connected with agricultural planning committees.

Four Extension officials representing this Department attended a Communications Workshop at Pullman, Wash. This course was of outstanding value in that it provided Extension workers with the basic background required in understanding how extension methods must be related to the psychological process of human behaviour. The following quotation from the special report on the Communications Workshop illustrates the course content and the importance of the subject-matter to officials engaged in extension activities, representing 65 per cent of the Departmental staff:—

"The 'Workshop' proved the value with proper use of extension techniques over and above the basic principles and methods of extension. Every extension worker should realize the basic factors involved in the learning process, i.e., types of learning, laws of learning, human motivation with emphasis on basic drives, blocks or frustrations, and adjustments. All of these principles can be applied at both the individual and group levels. In my opinion, arrangements should be made whereby the parts of the subject-matter which are most applicable to our needs and conditions in British Columbia should be presented to the greatest possible number of our Departmental extension workers."

The extension conference held in April and attended by two-thirds of the Department officials was of outstanding value. As a result of exposures to and participation in basic courses of this nature and of the workshop referred to above, officials of the Department performing extension duties are becoming more conscious of the methods, tools, and techniques which can be used to great advantage in improving the conduct of extension work.

As an indication of the time which District Agriculturists have spent performing their duties and of the type of activities undertaken, it is worth while noting that the six district offices made a total of 3,580 farm visits and had 3,639 office visits, attended 297 meetings, 62 field-days, distributed 5,240 bulletins, prepared 65 press releases, and participated in 52 radio broadcasts. In addition, other extension means have been employed, such as television presentations and interviews for television, radio, and newspapers.

LIVE-STOCK PRODUCTION IN BRITISH COLUMBIA

(G. A. Luyat, P.Ag., Supervising Agriculturist)

What Age to Sell Cattle

A climax in the economics of the beef industry of British Columbia was reached this year when 2-year-old steers off the ranges could not find markets at remunerative prices. This situation, which has been slowly building up over the past twenty years, was finally brought to a head by grain surpluses in the Prairie Provinces, coupled with consumer preference for the grain-finished beef and lighter cuts, and further aggravated by the steady deterioration of much of our range lands which appear incapable of producing brandable beef. Irrigated or high-producing pastures to complement the ranges have not been generally accepted by the industry as a means of maintaining production and finish. The high cost of concentrates on this side of the Rockies opposed to the comparatively low cost on the other side is rapidly forcing the industry into the production of feeder cattle, calves, or yearlings. This will require a few changes in management.

Selling yearlings:—

(1) A calf-crop of between 75 and 85 per cent (cows exposed to bulls).
(2) Calves must have type and inherited ability to make fast gains.
(3) Calves must be fed supplements to average an over-winter gain of 1.5 pounds per day.
(4) Heifer calves should be sold at weaning.

Selling calves:—

(1) A calf-crop of 85 per cent or better (cows exposed to bulls).
(2) Calves to have type and heavy weaning weight, 450 pounds or better.
(3) Uniformity of weight and age is highly desirable.
(4) Earlier calving a necessity for heavy weaning weights.

Indications of the trend in converting to selling at a younger age were apparent during the year when one ranch sent its total output of short 2-year-olds in February to Alberta to be finished on consignment and this fall sold outright its entire crop of yearling steers to Montana and Ontario at a price of $17 per hundredweight f.o.b. the ranch. Other ranches in the same area quickly followed suit. Many other operations are considering a similar change-over in 1958. Already a number of meetings have been attended to discuss in conference the controversial aspects of what age to sell cattle.

Feeder Sales

The following eleven association sales marketing commercial cattle mainly of a feeder type were held in the Province: Fort St. John (1), Quesnel (2), Williams Lake (4), Kamloops (2), and Okanagan Falls (2).

This indicates an increase of three over last year and the trend to sales of cattle as feeders. Despite the lack of competition from outside caused by the collapse of the Peace River Bridge, the Fort St. John sale marketed most of its offering at good prices to local grain-growers for finishing.

Cattle-finishing

An attempt was made to co-ordinate the lack of a market for grass-finished cattle in the Cariboo with the largely unsaleable abundance of both grain and forage in the Peace River area. For the past thirty years, Cariboo cattlemen have felt that, should the Pacific Great Eastern Railway be extended to reach the Peace River, an unfailing supply of cheap grain would be available for the finishing of their range cattle. It has been conceded generally, however, that it is more economical to move cattle to the feed rather than the feed to the cattle for finishing purposes, and the situation under review is no exception. A small advantage may be gained on a farmer-to-farmer sale of grain but not enough to offset the costs of transportation, particularly to those ranches located away from the railway. Commercial feed-lots set up on the track in the Cariboo may succeed but the odds are not favourable. When Federal freight subsidies on feed-grains, coupled with a rising cattle market for a number of years to 1951, did not encourage cattle-feeding in other parts of the Province, it is extremely unlikely under normal trading practices that the completion of the Pacific Great Eastern Railway to the Peace River will reduce sufficiently the high cost of grain to the Cariboo. It is extremely likely, however, that the Peace River will develop into a feeding area of adequate grain-supplies to which young cattle may be moved.

An examination of the situation indicates the following advantages:—

(1) A market for Cariboo cattle can result from developing feed-lots in the Peace River.
(2) All the essential ingredients of feeding and finishing are produced there in abundance.
(3) Grain is available at the source before being subject to handling charges.

(4) These roughages, vital in lowering costs of finishing cattle, are in generous supply and now wasted. Silage, creeping red fescue aftermath, and the gleaning stubble—none of these nor other low-grade roughages, such as the by-product from forage-seed crops, can be transported economically, but are invaluable when used at the source of supply.

(5) Cattle finished in the Peace River have the option of two outlets—Vancouver or Edmonton. The latter is sometimes favourably affected by United States or eastern competition.

(6) Despite possible higher grain prices in the future for markets other than cattle-feeding, there will always be a residue of low grades and frozen grain for that particular purpose.

(7) As the length of time in the feed-lot is determined by the class of cattle and the degree of finish desired, the longer winters of the area have no bearing on the enterprise.

(8) Cattle-feeding would provide a stability to Peace River agriculture which it does not now enjoy.

(9) Winter employment is provided on a grain-farm.

Disadvantages:—

(1) Many grain-producers are not livestock-minded.

(2) The financing of purchases of cattle presents a difficult problem.

(3) An adequate water-supply could be a serious problem in winters with low temperatures where dugouts are not properly constructed.

The matter of transforming the grain-growers into winter feed-lot operators will be a slow process and will require considerable extension work by the Department. So little interest in cattle-finishing is shown by the grainmen at the present time that the cattle-producers in the western region of the Peace still talk in terms of marketing grass-finished cattle in the Edmonton market as an outlet for their cattle. Silage-making, using the first crop of alfalfa in late June, is lagging. This crop was not even recovered, but abandoned in the fields this year as a complete loss due to weather conditions. Many fields of green oats damaged by frost could have been salvaged by the same process. Aftermath fields of creeping red fescue, which is ideal for late fall grazing, are burned off each spring.

It would seem that perhaps the financing of cattle purchases by feeders could be aided by organizing feeder associations on a similar basis to that in the Province of Alberta. Cattle-feeding by the small operator could not be undertaken without some form of assistance because of his inability to sell his crops of grain and forage seeds at remunerative prices.

With the recent development of land there are approximately 100,852 tons of wheat, oats, and barley produced, of which it would be safe to estimate that only one-half would be marketable material. The remainder could support, under normal economic conditions, an annual feed-lot industry of between 40,000 and 50,000 head of cattle. Under present conditions of surplus the region could temporarily support a much larger operation. Ten thousand six hundred and forty cattle are marketed annually, but very few of these are dry lot fed prior to disposal.

A cattle-feeding project was started at Williams Lake by the Cariboo Cattlemen's Association in late 1956 wherein the unsaleable ends of cattle drives would be finished in yards established there for the purpose to handle up to 500 head. By the conclusion of the feeding period in the spring of this year the venture had proved disappointing financially chiefly because of high-priced grain, labour, and hay. The cost per head over the feeding period averaged 70 cents per day. Refuse screenings, costing $12 f.o.b. Williams Lake, were used as the basic ingredient of the ration up to a month or so before slaughter. Three private feed-lots using refuse screenings were started in the vicinity of Kamloops with some degree of success. Two were started up in the Fort Langley area,

and again here the basic ingredient is refuse screenings because of their cheapness. Without this by-product it would be impossible for a feeder here to compete with the Prairie feed-lots, where off-Board grain is available in quantities. A few ranchers have used the screenings for maintenance purposes in wintering the breeding herd with marked success as a partial hay replacer. In every case the herd has emerged into spring in a much improved physical condition and with better performance.

Performance Testing of Beef Cattle

Two Hereford herds completed one year's performance test by the end of April on calves from birth to the end of the feeding period of 347 days' duration approximately. A total of 33 pure-bred Hereford calves, made up of 8 bulls, 13 heifers, and 11 steers, completed the test, marking a small beginning of performance testing of beef cattle in British Columbia. The entry for 1957 is comprised of seven herds made up of 5 of the Hereford breed, 1 Angus, and 1 Shorthorn, and represents the Southern Interior and Fraser Valley. Records on the 1957 weaning data by this date have not yet all been received from the district offices, and the number of calves involved cannot be given.

The test has only proceeded far enough along with data to serve as index for the culling of perhaps the lower end of the brood cows and to cast a suspicious eye on the border-line individuals. It will still be difficult to evaluate untested herd sires through the progeny, especially where only one is used, until more data are collected on the brood cows and each individual indexed for production. J. D. Baird, Production Services, Ottawa, in charge of this programme, subjected the data and information at hand from one year's operation to a statistical analysis in order to evaluate some of the techniques used in processing the data. Some quite enlightening deductions have been arrived at for the moment, at least until further records are analysed. One of significance to performance testing of commercial herds is that unless calves are subjected to a higher plane of feeding during the feeding period to give expression to their heritable growth factor, the order and rank at the end of this period are the same as those at weaning. This information was revealed by pure-bred heifer calves in Western Canada in last year's test; heifers are not usually pushed while bulls are, and the bulls gave a much different story. In commercial testing the spring weighing of yearlings could therefore, under this assumption, be delayed until the fall following the summer's grass. Much of the difference between fast- and slow-gaining calves is due largely to appetite and capacity for feed.

The following table, quoted from the work done by J. D. Baird, is made up from the results obtained from six Hereford herds with sufficient calves reared under conditions suitable to permit effective comparison within the herds:—

Average Daily Gains from Birth to Weaning

	Number of Herds	Number of Calves	A.D.G. on Top Third of Calves	A.D.G. on Bottom Third of Calves	A.D.G. on All Calves	Differences in A.D.G. in Top and Bottom Third
			Lb.	Lb.	Lb.	Lb.
Males	6	94	2.17	1.54	1.85	0.63
Females	----	97	2.05	1.44	1.69	0.61

The variation in rate of gain between the average of the top third and the average of the bottom third is the most valuable difference for the breeder to exploit. At prices prevailing last fall when these calves were weaned, this would have meant $22.80 per calf difference in value to a commercial breeder. It will be noted that the difference in average daily gain to weaning between heifers and bulls was not too wide.

This next table indicates the gains made in the feeding period following weaning of the six same herds. It will be noted that the difference in A.D.G. in this period between the bulls and the heifers is quite wide, indicating a lower level of feeding to the heifers.

Average Daily Gains Made during the 169-day Feeding Period

	Number of Herds	Number of Calves	A.D.G. on Top Third of Calves	A.D.G. on All Calves	A.D.G. on Bottom Third of Calves	Differences in A.D.G. in Top and Bottom Third
			Lb.	Lb.	Lb.	Lb.
Males	4[1]	66	2.41	2.07	1.72	0.69
Females	6	83	1.59	1.37	1.13	0.46

[1] The number of herds was reduced because some of the male calves were not group-fed.

The number of commercial herds on performance testing remains at three because of no quick and practical method of identification of cows in matching up newly born calves. Yellow pendulant tabs with black numbers, when properly located and inserted in the ear, offer about 90 per cent efficiency. However, if all females in the herd are tattooed with the same number, the testing can be pursued 100 per cent by man-handling those with lost numbers. S. Bledsoe, of Ellensburg, Wash., at the annual meeting of the British Columbia Beef Cattle Growers' Association, gave a very effective talk on a streamlined system of testing he has used on his operation of some 300 cows. The system used in British Columbia has been simplified considerably over the past year in not using correction factors or adjustments as to age of dam or age of calf or sex, but rather to treat each category separately as a group and computing the daily rate of gain from birth to the end of test of all within the group for a rating. The objective is simplicity with effectiveness.

Feeding Trials

At the range Experimental Station in Kamloops the lodgepole pine needle project was continued for its effect on pregnancy during the over-winter period of cows. Some cows reached a daily intake of 20 pounds of pine needles without supplementation from other feeds with no apparent ill effects. No abortions were produced in any of the cows on the project.

Forty-eight 2-year-old steers were used to find the efficiency of maintenance rations using hay, silage, and grain in combinations and simply with hay and silage. This test is being repeated this winter. These 48 steers, after the winter test, were used for a study of zero or mechanical grazing. The steers made an average daily gain of 2 pounds and graded 25 Red Brand, 18 Blue, and 5 Commercial. From the evidence apparent in the group, it was concluded that poorer breeding and conformation were responsible largely for the lower grades and not the feed. Molasses was fed to half the group during the grass-fed period with no significant difference in the grade but some in the weight. The Riverland Irrigated Farms at Lillooet practised zero grazing on 50 yearlings during the 1957 growing season with a daily supplementation of ground-up recleaned screenings. These cattle were sold in August and were given top grade on the rail.

Production Sales

Two successful production sales of breeding stock were held during the fall of this year—namely, the Earlscourt Farms at Lytton and Elwood Herefords at Armstrong. The Earlscourt sale averaged $526 on 45 head, with the top price of $2,500 for a bull, Court Marquis 37K, sold to McKim Brothers. Thirteen head from this sale went for export to the United States. At the Elwood sale the bulls sold well, with a number going for export.

Sheep Production

The sheep population is holding its own in most areas of the Interior and is building up somewhat in the Fraser Valley. From a survey made in the latter area it appeared that the sheep industry could be greatly expanded without much overhead, except perhaps for fencing. Since the advent of more rigorous milk production regulations, there are many instances where buildings are not suitable for milk production but yet ideal for sheep-housing against adverse weather conditions. The writer observed that earlier lambing could be practised to get in on the early market, but in order to achieve this with good grades more creep feeding should be done. The economics of early lambing dictate that this should be done. Many of the producers in the Fraser Valley seemed to be in doubt about a market if the local butcher did not absorb them, but this feeling existed only because the lambs were not developing with any uniformity of finish in sufficient numbers to attract the outside trade. This condition could be improved with creep feeding.

On October 26th, 1957, 73 head of cross-bred Suffolk-Rambouillet ewe lambs selected from the band of Hayward & Sons, Kamloops, were moved to Vanderhoof and Fort Fraser for breeding purposes. These were selected for growth, vigour, and type from 1,200 lambs. It was impossible to purchase more mature yet young ewes in any quantity. It was felt by all connected with the shipment that ewe lambs offered many advantages over those of an older age—namely, in better selection, more years of usefulness, less trucking costs per head, and smaller purchase price. In getting them acclimatized to the long feeding period with the heavy snowfall of Central British Columbia, ewe lambs offered a much better prospect, especially for those breeders handling sheep for the first time. As these lambs will go into small flocks where considerable and individual attention can be given them, the operators are planning to expose them to rams later this fall with the hope of getting a few lambs out of them the first year.

An excellent group of 8 Suffolk-Hampshire cross-bred lambs of pure breeding on both sides, bred by W. Charleton, of Duck Range, were included in the shipment. Mr. Charleton has been cross-breeding his flock of pure-bred Hampshire ewes on contract for the rams to an American buyer and had these ewe lambs of remarkable quality as surplus stock. This group will form the nucleus of a grand flock for one breeder in the area.

This movement of breeding sheep was made possible through the co-operation of H. Milne, C.N.R. Colonization and Agriculture, and A. E. Donald, District Agriculturist, both of Prince George, and the writer.

Orchard grazing and irrigated pastures in the Kamloops and Okanagan areas where undertaken has given only partial satisfaction, mainly because the operators have not adjusted their management properly to the venture. One operation, the Western Farms Limited, of Penticton, has surmounted the problems as they occurred and appears to be successful. They are creep-feeding the lambs up to market weight.

General

The writer had an opportunity to look over the whitetail deer depredations on aftermath in the Elko and Grasmere country in early October. This survey was made in the evening after dark. Judging from the countless numbers on these pastures, the futility of the hunter's gun against such an invasion was exposed. Passing through during the daylight hours one would never suspect such a situation existed, as the average hunter is required to use every skill to get his limit for the season. The problem can only be approached nutritionally and biologically for a solution and not by hunters' firearms or an extended season.

Three co-ordinating meetings were attended during the year—Prince George, East Kootenay, and Kamloops. At the Prince George meeting, held in November, the specialists working over the area were asked for their reports and recommended approaches to the problems of production and markets. By this procedure the meeting drew out the programmes most suitable to put the areas to their best agricultural use. At Kamloops, at the early January meeting, the trade, comprised of the seed, feed, and fertilizer industry, sat down with the agricultural services to make out the recommendations for Zone 3. In that way the sales end would not be working at cross-purposes with the agricultural services, when perhaps a recommendation may be made for an improved variety, the seed of which might not be available to the trade channels.

Many requests for information on ranch property in British Columbia were handed on by headquarters to this office for reply. The majority of these came from the United States, where the impression seems to prevail that this is a new ranching country just now being developed, whereas ranching followed in the wake of the gold-rush in 1858.

4-H CLUB DIVISION

(J. C. Ryder, B.S.A., P.Ag., Acting Supervisor)

Following is a table indicating the 4-H Clubs enrolment of 1957 as compared with that of 1956:—

Project	Enrolment			
	Clubs		Members	
	1956	1957	1956	1957
Beef	23	26	278	345
Community	6	14	62	159
Dairy Calf	47	39	515	468
Garden	15	15	192	188
Goat	1	1	8	25
Grain	6	2	81	20
Homecraft	23	23	286	315
Honeybee	1	2	18	29
Potato	1	2	9	26
Poultry	15	9	167	124
Rural Electrification	1	2	6	21
Sheep	7	14	91	166
Swine	6	5	56	42
Tractor	1	1	8	14
Yearling Dairy	30	15	214	177
Totals	183	170	1,991	2,119

Provincial Elimination Competitions

Provincial eliminations were held at the University of British Columbia on July 8th, 9th, and 10th. The sixty-one candidates were billeted at the Youth Training Camp. In selecting the fourteen national 4-H Club delebates, judging ability, project knowledge, general knowledge and character, and achievement record were considered. The following delegates were selected:—

Beef (twelve members competing): Kathleen Nichol, Monte Creek, and Arthur Harfman, Bridesville.

Dairy (sixteen members competing): Joseph Taylor, Saanichton, and Norman Anderson, Deroche.

Garden (eight members competing): Janet Spraggs, Armstrong, and Anne Chapman, Courtenay.

Homecraft (four members competing): Brenda Harrison and Sylvia Feigel, Armstrong.

Poultry (six members competing): Mary Andrews, Chilliwack, and David Nordstrom, Armstrong.
Sheep (three members competing): Robert Jones and Keith Hill, Westwold.
*Swine (five members competing): Joan McKechnie, Armstrong, and Carl Dorflinger, Aldergrove.

National 4-H Club Week

A full quota of fourteen club members represented this Province at National 4-H Club Week, which was held in Toronto on November 16th to 20th and in Ottawa on November 21st.

This was the second year in which no competitions were held during National 4-H Club Week. A well-rounded programme of educational tours and entertainment comprised the programme. Delegates participated in the programme as chairmen of various functions and a number participated in a model meeting and a dress review. Tours were made to the Royal Winter Fair, Ontario Museum, Ontario Legislature, Casa Loma, Maple Leaf Gardens, Niagara Falls, General Motors, Rideau Hall, and the House of Commons and Senate at Ottawa. The calibre of the delegates and the excellent programme were a tribute to both the 4-H Club movement and to the Canadian Council on 4-H Clubs.

Canadian National Exhibition Scholarship

The Canadian National Exhibition in Toronto offered a scholarship of $600 to be awarded to a boy or girl from each Province. British Columbia selected Miss Joanna Ross, of Courtenay, from the four candidates who applied. Miss Ross enrolled in the University of British Columbia in September.

T. Eaton Agricultural Scholarship

This was the seventh year in which the T. Eaton Company awarded the scholarship which provides for all college fees, lodging, and board for a four-year agricultural course at any college in Canada selected by the winner. This year the winning candidate was Harold Garth Coffin, of Cherry Hill, P.E.I.

One application was received from British Columbia. This applicant was declared ineligible, however, due to the fact that he enrolled in the University in September.

Eaton Watches

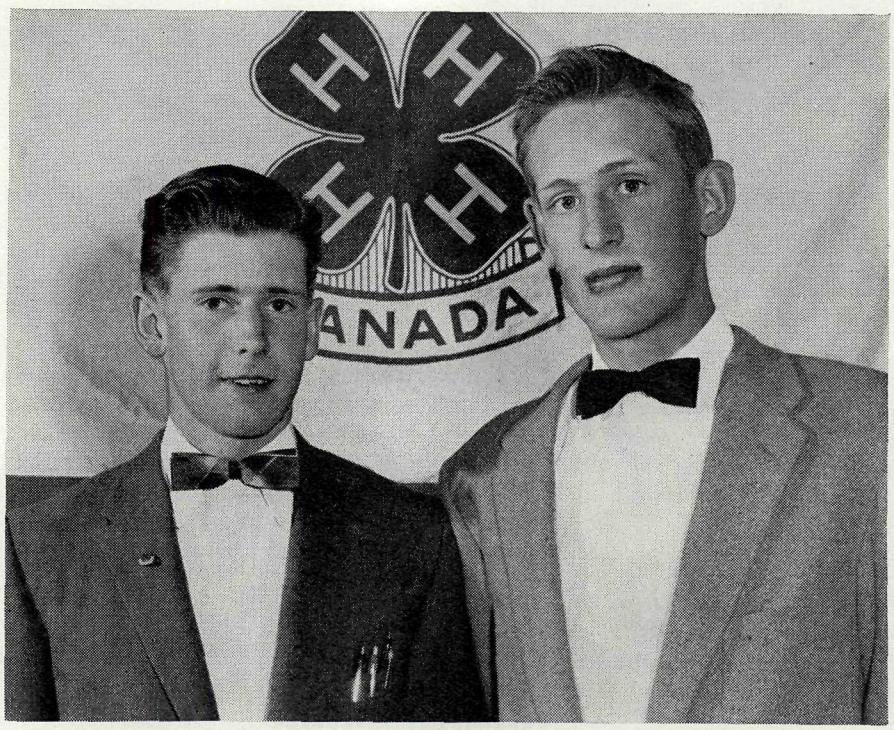
The T. Eaton Company again awarded gold watches to the highest-scoring individuals in each project in the Provincial elimination competition in British Columbia. The 1957 winners were as follows: Beef—Kathleen Nichol, Monte Creek; Dairy—Joseph Taylor, Saanichton; Garden—Janet Spraggs, Armstrong; Goat—John Howe, Saanichton; Grain—Larry Wynn, Armstrong; Homecraft—Brenda Harrison, Armstrong; Potato—Philip Wright, Salmon Arm; Poultry—Mary Andrews, Chilliwack; Sheep—Robert Jones, Westwold; Swine—Joan McKechnie, Armstrong.

Provincial Advisory Council of 4-H Club Leaders

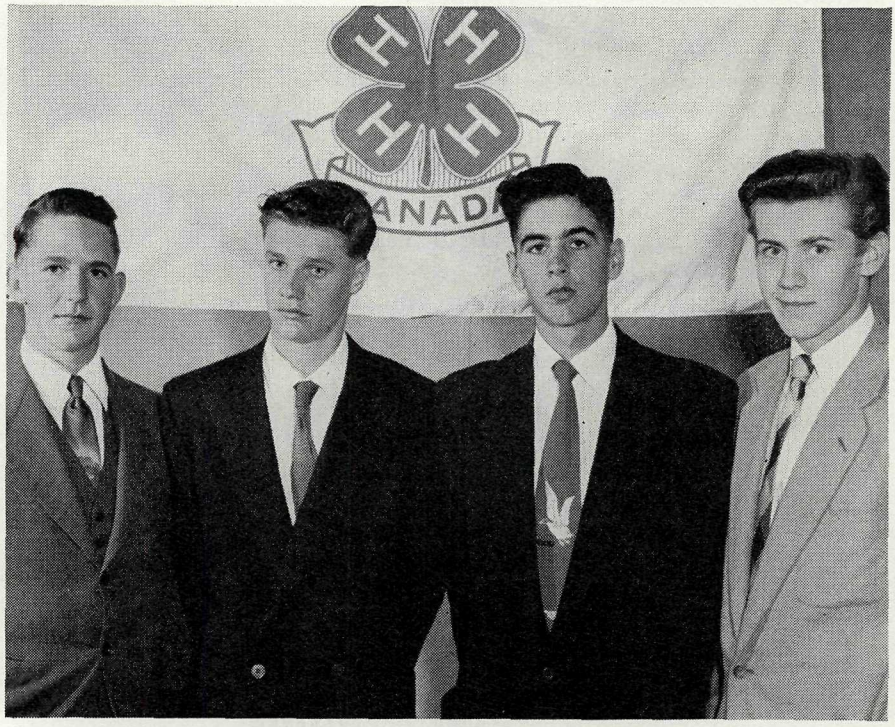
This council met in Victoria on January 9th and 10th, 1957. Delegates attending were as follows: Sam Hetrick, Montney; Charles Parker, Prince George; Lloyd Hammond, Nanaimo; Mrs. Ada Attridge, Mission; Harold Becker, Westwold; and Mrs. Gladys Caldwell, Salmon Arm. The Kootenay representative was not present. District Agriculturists R. L. Wilkinson, Kamloops, and John Zacharias, Abbotsford, also were present.

* The following candidates were grouped together and the individuals with the two highest scores were selected as delegates: Swine, five candidates; Potato, one candidate; Grain, four candidates; Goat, two candidates.

NATIONAL 4-H CLUB WEEK DELEGATES, 1957



Joseph Taylor, 18, Saanichton, and Norman Anderson, 19, R.R. 1, Deroche.



Arthur Harfman, 17, Bridesville; Keith Hill, 17, Westwold; Robert Jones, 16, Westwold; and Carl Dorflinger, 20, Aldergrove.

NATIONAL 4-H CLUB WEEK DELEGATES, 1957

Anne Chapman, 17, Courtenay; Sylvia Feigel, 16, Armstrong; Brenda Harrison, 16, Armstrong; and Joan McKechnie, 17, Armstrong.

Mary Andrews, 18, Chilliwack; Janet Spraggs, 17, Armstrong; Kathleen Nichol, 17, Monte Creek; and David Nordstrom, 16, Armstrong.

The council discussed various phases of 4-H Club work in the Province and recommended certain changes in policy and procedure.

The University of British Columbia

The 4-H and F.F.C. Alumni, formed in 1956, was continued in 1957. President was John Pankratz. Miss Echo Lidster was named as honorary president.

4-H Club Awards

The policy of awarding trips to outstanding club members was continued during 1957. It is felt that club members spending a week or two in other areas of the Province or in the State of Washington will increase their knowledge of the diversity of agriculture substantially. Experiences gained in travelling and in meeting contemporaries and older people from other areas cannot be other than helpful in developing outlook and character.

The following award trips were made during 1957:—

Fairview, Alta.—Five club members from the Peace River area attended the 4-H Club Week Camp at Fairview during the period July 22nd to 26th: Francis Marshall and Edward Knapp, Doe River; Harold Bell and Margaret Rankin, Montney; and Ronnie Waldie of Dawson Creek.

Pullman, Wash.—Four Fraser Valley 4-H Club members attended the Washington State 4-H Camp at Pullman on July 10th to 15th: Nedra Donatelli, Silverdale; Colleen Smith, Chilliwack; Kenneth Pfister, Matsqui; and Tom Wilson, Surrey.

Christmas Fat Stock Show and Sale

This annual show and sale, held in Kamloops, is the final achievement programme for over 200 Beef Club and Lamb Club members in the Southern Interior. For the second consecutive year, Patsy Abel, of Westwold, showed the grand champion calf. Her sister, Beverley, exhibited the grand champion lamb. The top calf sold for 85 cents per pound and the lamb for 80 cents per pound.

4-H Club Convention

An exceedingly well-organized 4-H Club conference was held in Armstrong on April 27th, 1957. This event was arranged by the Armstrong Junior 4-H Council (Carole Smith, president) and was attended by 4-H delegates from the Fraser Valley and Southern Interior areas.

EXTENSION AGRICULTURAL ENGINEERING DIVISION

(G. L. Calver, B.A.Sc., P.Eng.)

Once again this Division has concentrated on the group approach in the hope of supplying the greatest possible service to the largest number of farmers in the Province. Although this is followed out in principle, in practise it is necessary to carry out a fairly large number of individual visits in order that the actual problems involved may be determined and an assessment made of the suitability of present practices.

Farm Machinery

A limited number of farm visits were made in relation to farm machinery, the emphasis being placed on silage-harvesting equipment and labour-saving equipment around farm buildings. Information obtained on some of these visits and through the investigation required in solving some of these problems has been used in presentations to two farm groups and to the members of the British Columbia Agronomists' Association at its annual meeting. In view of the large amount of equipment required in present-day

farming operations, programmes in machinery maintenance have been requested in certain areas. These requests have been answered by two-day short courses on equipment maintenance at which practical as well as theoretical information is given. Actual maintenance work is done by the persons attending the course, using machinery which they bring. Courses of this type were given at Courtenay, Mission, and Armstrong. Attendance was good at each of these meetings. Other general work in farm machinery dealt with assistance to two tractor-driving competitions, supervision of tillage and seeding at the Departmental property in Abbotsford, and general observation of the tillage trials at Duncan on which the mechanical work was completed last year.

Progress has been followed and discussions entered into regarding bulk handling equipment for apples. Mr. May assisted with the presentation of a television programme on "Spring Preparation of Motors and Farm Machinery."

Projects

Two basic projects were carried out in farm machinery. The first was continuing work on onion-harvesting machinery. A new lifter was planned and constructed but must undergo some modification for successful operation. The generosity of the Bruner Manufacturing Company made it possible to demonstrate a topping-machine which could be used in the harvesting operations. This work is being carried out in conjunction with the Horticultural Branch and a farmer in the Kelowna area, in order that labour costs in harvesting this crop may be reduced to the point where onions will once more be an economic crop. The second project dealt with farm safety. Demonstrations were carried out by K. E. May, Assistant Extension Agricultural Engineer, and Tom Windt, temporary assistant. These demonstrations were given at six fairs in the Fraser Valley, and although they dealt primarily with farm-machinery safety, they did include some demonstrations of fire-fighting equipment. Audience appeal was given high priority, and the crowds viewing the demonstrations indicated relative success.

Farm Structures

Although work in farm structures has been limited largely to the distribution of plans, it has been possible to draw up a detailed plan and instruction sheet for the construction of a bunker silo and to supply added detail on various structures in answer to forty-three letters of inquiry. Individual farm visits have been made in eight cases, and advisory assistance has been given to the Poultry Branch in its building planning. After reviewing preliminary plans for track-side potato and other vegetable storage buildings as submitted by the Wynndel Co-operative and the Grand Forks Co-operative, suggestions were offered on the alterations necessary and further planning required to make these structures as useful as possible. In order that this type of review could provide the greatest possible service to the farm groups carrying out such construction programmes, the Department approved a trip to Oregon and Washington to observe the most recent potato storage buildings and handling practices being used in those areas. The information gathered should prove of assistance in advising on future structures.

Group presentations included a talk on storage of forage-crops to the Agronomists' Association and a radio broadcast dealing with paving materials for barnyards. A summary of the farm structure plans which have been distributed is given below. The dairy plans are a new addition this year, and a pre-production run indicates that hog housing and poultry housing plans will be available in 1958.

Plans Distributed

Agricultural Engineering	883
Midwest plans	82
Canadian Farm Plan Service plans—	
Beef	96
Sheep	133
Fruit and vegetable storage	70
Dairy	1,857
Total for 1957	3,121

Soil and Water

Many of the problems on soil and water can only be answered through farm visits, forty-seven of which were made, and over fifty special queries answered by letter. A breakdown of this work follows under more specific headings.

Drainage

Detailed drainage plans were drawn up for four farms, with a preliminary contour plan being completed for another farm and a ditch survey and plan completed for three other men. Land affected amounts to slightly in excess of 800 acres. Assistance was also given with a television programme on farm drainage.

Irrigation

Individual planning assistance has been offered to eight farmers. A set of detailed plans and a report were prepared on the construction of a storage dam to impound irrigation-water prepared for a group of four ranchers in the Cariboo. The irrigation demonstration work being carried out on the farm of J. Andros, Vanderhoof, B.C., was continued under the supervision of J. A. Pelter, District Agriculturist. His preliminary reports indicate that irrigation has some merit in the area as a means to increase crop production. Each proposed installation will require careful economic analysis to determine practical value. Some phases of this programme will be continued during 1958 in co-operation with the Experimental Farm Service of the Canada Department of Agriculture.

Soil Conservation

The majority of the work in soil conservation has dealt with preliminary investigations of stream erosion and flooding problems brought to our attention in the hope that some assistance may be obtained under the provisions of the "Soil Conservation Act." Detailed reports have been presented on problems occurring on the Koksilah, Kettle, and Otter Rivers. Brief reports have been presented on problems on Sutherland Creek and the Nicola River, and some preliminary investigation has been carried out on Bessette Creek, portions of the North Thompson River, and the Eagle River. As a member of the committee to study a flooding problem on the Vedder River, meetings have been attended and a review made of all information presented to date.

A summary of conservation work carried out by the Division in the past has been drawn up and submitted to the Deputy Minister. Advisory assistance has been presented to two farmers on field erosion problems. Control of field erosion would appear to be a farm expense on which there is no apparent early return; hence the promotion of a programme for the preservation of this type of resource presents a difficult problem.

A talk on irrigation extension summarizing extension work being carried out by the Department was presented to the British Columbia Irrigation Conference. Information on irrigation in British Columbia and the design of irrigation systems has been given to

members of the British Columbia Power Commission and the British Columbia Department of Trade and Industry.

General

Meetings and short courses attended included the American Society of Agricultural Engineers' Pacific Northwest Section Meeting, a short course on extension meetings related to the costs of farm production, and a meeting of the Agricultural Engineering Sub-committee to the Lower Mainland Technical Agricultural Advisory Committee. Included also are talks to agricultural engineering students on two occasions on engineering subjects.

One of the tools being used to carry out our programme and provide meeting material is the development of a library of coloured slides depicting the proper uses and combinations of various equipment, machines, and structures in the farm business.

Domestic Water

Assistance in dugout construction under the Farmers' Domestic Water Assistance was supervised by this Division, with the field work carried out by C. L. Dyble, temporary assistant. A total of thirteen dugouts were constructed, at a cost to the farmers of $5,722.75. Four dugouts were inspected and discounts authorized following the installation of a suitable filter and well and the recommended fencing of the dugout. It is interesting to note that the cost of construction of these dugouts has not exceeded 25 cents per cubic yard of storage capacity developed. This programme has proven of benefit to the farmers utilizing the assistance offered and is vital to the live-stock industry in the Peace River area of the Province.

Land-clearing

The field operations of the Land-clearing Division, and especially of the one Government outfit still in operation, have been supervised largely by W. G. Reed, Mechanical Superintendent. Setting-up of contracts and a review of constractors' work from time to time, especially in the case of any complaint, have been the responsibility of this Division. Temporary field assistants included T. Windt, C. L. Dyble, and F. Mertens. As noted, one Government outfit, consisting of three Caterpillar D 7's, has carried out clearing in the North Thompson River area. The operations were of exceptional quality and have received high commendation from farmers for whom the outfit worked. The remainder of the clearing throughout the Province has been carried out by thirty-nine contractors, operating approximately forty-nine machines. Not all of these machines were operating full time. It was necessary to cancel the agreements of two contractors whose work did not meet our standards. In addition, one or two contractors carried out only a very limited number of jobs. The programme carried out under the terms of the " Farmers' Land-clearing Assistance Act " deals primarily with brush and tree removal but has included land-breaking or primary tillage, minor drainage jobs, and some well-drilling.

The estimated total value of all clearing done at the end of 1957 is $420,000, an increase of $164,000 from 1956. Much of this increase was in the Fraser Valley, where over $130,000 worth of work was done, compared to $22,000 last year. Approximately 6,000 acres of new land was brought into production as a result of the 1957 operations.

Summary of Land-clearing for 1957

District	Number of Contracts	Acreage Cleared	Average Cost per Acre	Arrangements
Vancouver Island and Gulf Islands	71	.....	$93.00	Contractor.
Fraser Valley—				
Langley, Matsqui, Sumas, and Chilliwack	206	920	112.50	Contractor.
Mission and North Shore	22	103	98.36	Contractor.
West Kootenay (Creston)	10	148½	35.30	Contractor.
Boundary and South Okanagan	30	257	.....	Contractor.
Kamloops and Similkameen	62	.....	.....	Government equipment.
Quesnel	22	235½	41.50	Contractor.
Prince George	.....	.....	35.44	Contractor.
Peace River North—Cutting and piling	.....	2,592	11.50	Contractor.
Peace River South—				
Clearing	43	2,357	7.47	Contractor.
Breaking	.....	.....	11.71	Contractor.

FEDERAL-PROVINCIAL FARM LABOUR SERVICE FOR BRITISH COLUMBIA

The Federal-Provincial Farm Labour Service completed operations for 1957 under comparatively easy conditions in so far as labour-supply was concerned. For the first time in several years a surplus of farm labour occurred throughout the Province and took off the pressure for seasonal help in harvesting the small-fruit and tree-fruit crops.

In my report for 1956 I stated " the farm-labour situation is becoming progressively worse in British Columbia." The situation has been reversed for 1957 owing to increased immigration and available labour-supply from other industries.

The programme was again supervised by G. L. Landon and B. G. White.

National Employment servicers handled the programme in Victoria, Vancouver, New Westminster, Mission, Chilliwack, Kamloops, Princeton, Vernon, Kelowna, and Penticton.

Farm placement officers provided service at Sidney, Abbotsford, Merritt, Salmon Arm, Oyama, Winfield, Rutland, West Summerland, Keremeos, Oliver, Osoyoos, and Creston.

CO-OPERATIVE EFFORT

Excellent co-operation was received again this season from the British Columbia Fruit Growers' Association, British Columbia Cannery Association, Saanich Fruit Growers' Association, growers' organizations in the Fraser Valley, School Boards, Department of Education, Boards of Trade, etc. Representatives of all organizations attended most of the meetings held in the Fraser Valley and the Okanagan Valley during the season.

STUDENT LABOUR

Excellent results were secured again in recruiting student labour for harvesting the small-fruit crop on Vancouver Island.

Fortunately, the labour-supply was adequate this year to harvest the Okanagan tree-fruit crop without using high-school and grade-school pupils during September and October.

PUBLICITY CAMPAIGN

The programme of publicity undertaken in 1956 was continued in 1957 with the issuance of two news-letters to newspapers, radio and television stations, Boards of Trade, etc. These were in addition to the usual paid advertising.

MEXICAN LABOUR

As a result of requests from several growers' organizations in the Province to import Mexican labour, a survey was made in April and May and a report prepared on the

conditions under which Mexican labour was available to United States farmers. The Farm Labour Committee decided that the general outlook did not warrant any action to secure help from that source.

In view of the adequate farm-labour supply which subsequently developed in the Province, it was fortunate that no labour was imported from Mexico or other countries.

GENERAL

B. G. White has included placements in his report and details of the programme so they will not be repeated in this report.

PRODUCTION AND MARKETING SURVEY

A very comprehensive survey was undertaken during July and August by Denis Stubbs, vocational agriculture instructor at Armstrong High School, in co-operation with R. C. Bailey, District Agriculturist at Vernon, and the Armstrong Advisory Council.

The survey included eggs, cream and milk, butter, cheese and cottage cheese, fryers and broilers, roasting chickens and capons, fowl, turkeys, honey, grain, meat, veal, and bacon.

The survey was supervised by Dr. W. Anderson, Department of Agricultural Economics, University of British Columbia, and consisted of detailed studies with retailers in Armstrong, Vernon, Kelowna, Penticton, etc., and Boards of Trade, fruit growers' organizations, co-operative marketing organizations, etc.

Some very interesting preliminary information was secured with reference to production and marketing of agricultural products in the Okanagan.

REFRESHER JUDGING COURSES

Dr. J. C. Berry, Faculty of Agriculture, University of British Columbia, conducted one-day dairy-cattle judging courses for the District Agriculturists. These were held at the University of British Columbia, Armstrong, Prince George, and Giscome and proved most satisfactory.

Similar courses in 1958 will include beef cattle, sheep, and hogs.

CANADIAN AGRICULTURAL EXTENSION COUNCIL

The Director of Agricultural Development and Extension attended the annual meeting of the Canadian Council on 4-H Clubs held at Amherst, N.S., in March and was elected director for British Columbia for 1957.

PACIFIC NATIONAL EXHIBITION

Continued improvements were made in the Department of Agriculture exhibits in the British Columbia Building at the Pacific National Exhibition, and further changes are contemplated for the Centennial Year, 1958.

LAND SETTLEMENT BOARD

A considerable amount of time was spent on Land Settlement Board matters, with particular reference to Doukhobor lands and easements for gas pipe-lines, etc.

The surveys of the Doukhobor lands were practically completed, and maps and detailed plans made available for prospective purchasers. Arrangements were completed for handling the sale of these lands at Nelson and Grand Forks with the Government Agents.

GOODWILL TOUR BY ONTARIO FARMERS

Approximately 115 Ontario farmers and their wives visited the Province during July on a tour arranged by the Department of Agriculture, and Canadian National Railways, Toronto.

They visited the Okanagan Valley, Fraser Valley, and Vancouver Island and were greatly impressed with the Province.

REPORT OF SOUTHERN OKANAGAN LANDS PROJECT

F. O. McDonald, Project Manager

MAIN CANAL

The following is an outline of the work accomplished or under construction from the intake on Okanagan River proceeding southward to the border.

Intake.—The control-gates in the Okanagan flood-control channel worked perfectly all season.

McIntyre Creek, Station 8020 to Station 8250 (Concrete Inverted Siphon).—Extensive work is being carried out here by the Land-clearing Division to prevent freshet damage to the canal and Highway No. 97.

Black-top, Station 10000.—An experiment using asphalt concrete in 200 feet of canal-bottom stood up for two winters.

No. 1 Flume, Station 11010 to Station 11370.—This flume was restored to grade where it had subsided and so permitted a larger flow with more freeboard.

Mud Lake Spillway, Station 17465.—This important spillway, completely deteriorated in the lower wooden section, was renewed in concrete.

Inland Natural Gas Crossings, Stations 5200, 18000, and 37320.—All these crossings were put in under Departmental specifications.

Inland Natural Gas Company was given permission to use the Project bridge to carry its line to the Village of Oliver.

Ritchie Farms Ltd., Station 31500 to Station 34000.—This 60-acre tract of Indian land was abandoned this season, tomatoes having been produced for the two previous years.

Indian Land, Station 35779 to Station 37287.—This 12 acres, planted to alfalfa, is now receiving water from the system, paying the regular water tolls.

Indian Reserve Fencing, Station 11370 to Station 35779.—This fence, 10 miles in length on both sides of the main canal where it traverses Indian Reserve No. 1, was completed to the satisfaction of the Department in early April.

Siphon Repairs, Station 37941.—A new blow-off at Okanagan River was installed.

Hester Spillway, Station 58995.—Additional covers were installed, which brings the covered section to 40 per cent of the total length.

Testalinda Creek, Station 66700. — The overpass was repaired after suffering ice damage.

Flume No. 17, Station 70881.—Replacement of 240 feet of zinc lining by 12-gauge steel was accomplished.

Mud and Shale Slides, Station 77789 to Station 79527.—Mud and shale slides which were endangering the flume were removed.

Ditch-bottom Replacement, Station 92938 (Richter Pass Road) and Station 101000.—Concrete reinforced bottom was put in place for a distance of 240 feet, and at Station 121700 a small section of 2-foot concrete flume was replaced.

GENERAL

Ditch Failure, Station 92938 to Station 102000.—It was necessary to unwater the ditch on two occasions to prevent seepage from the ditch.

Pitching.—Approximately 50,000 pounds of 145-degree asphalt was used, together with 1,500 pounds of 7½-ounce jute reinforcement and 15 barrels of foundation seal, to water-proof the canal. Flumes were painted, using, in all, 5 barrels of Blackamoor paint.

Timberwork.—The programme for 1956/57 was completed by March 21st, 1957. Timber for the 1957/58 programme was floated into place by October 15th.

Weed Growth.—This was not too great a problem this year because of low water temperatures and use of copper sulphate.

Mud from Shuttleworth Creek.—A very fine silt is carried annually with the freshet into Vaseux Lake and is carried in suspension to the border, having the effect of silting up the canal, thus encouraging weed growth and also wearing out sprinkler-heads unduly fast.

Growers' Cisterns.—Refilling of cisterns was accomplished during the latter part of February. Routine filling was completed on October 18th.

LATERALS

There being 42 miles of various-sized laterals, some of the problems are discussed here.

" D " Lateral. — No. 1 flume on this lateral was raised 8 inches at the southern extremity and the siphon discharge raised to suit, thus permitting an extra 30 to 50 acres to be supplied with irrigation-water if and when required. The necessary repairs to the 28-inch wood-stave siphon have been completed.

No. 1 Pump Line, Station 42000.—Replacement of this 14-inch line is indicated.

No. 3 Pump No. P3A Lateral.—An 18-inch culvert was installed where this lateral crosses Fairview Road to accommodate a road-widening programme.

No. 8 Pump.—A new impeller was installed during the year to increase pressure.

" O " Lateral, Station 71200.—This lateral was replaced in its entirety as it had rusted.

" QB " Lateral, Station 94000.—Three hundred feet of this lateral was replaced due to dry-rot in the wood staves.

No. 7 Line, Station 96000. — Changes were made in the location of the pumps, resulting in satisfactory volume and pressure throughout the season.

Leaks.—The following laterals developed serious leaks during the season, necessitating shut-down and repairs: " F," " R," " XA," and " Y."

Additional Acreage.—The irrigable acreage was increased by two lots comprising 12.17 acres.

Topsoil.—A total of 5,626 cubic yards of topsoil was supplied to the School Board for covering the school-grounds in Osoyoos and Oliver. Areas on the upper side-hills where soil is stock-piled were used for this large project.

Okanagan-Boundary Boy Scouts.—The Minister of Agriculture officially opened a new area in the Park Rill, Victoria Creek district, which will be for the use of Cubs, Scouts, Guides, and other regulated organizations as a recreational area for the South Okanagan. This area is being maintained for cattle-grazing and will not be fenced.

Collens Lake Drain.—Plans approved by the Water Rights Branch were the basis for this project, which maintained a constant level in Collens Lake, thus protecting the adjacent orchards. Operation during the season was satisfactory.

Irrigation Districts Administered by Project.—The following districts were operated under Order in Council No. 971, approved April 26th, 1957: Osoyoos Irrigation District, East Osoyoos Irrigation District, and Black Sage Irrigation District. Apart from a flash flood on the Osoyoos Irrigation District in June, which loaded the system with sand, no serious operational difficulties were encountered.

River-levels.—The unusually low water in Okanagan River necessitated the lowering of the intakes on Black Sage Irrigation District and Southern Okanagan Lands Project (V.L.A. Project).

SUNDRY

Peanut Lake.—During the irrigation season this lake, within the Village of Osoyoos, started to fill, and the elevation finally caused seepage to occur in basements and also orchard property adjacent to the village. The pipe-line running from the lake to Osoyoos Lake was examined and found plugged. The obstruction was removed but did not entirely relieve the trouble. It is obvious that a larger line will have to be installed.

Val Haynes Ranch Buildings.—Due to the relocation of the river-channel, a well was installed for domestic service.

Arrears of Irrigation Charges.—The year was marked by the adoption of a different policy for collection of arrears of water rates. Amendments to the " Soldiers' Land Act " passed by the Legislature (Bill No. 11, 1955; Bill No. 26, 1956; and Bill No. 34, 1957) were invoked, and all arrears of water rates to 1955 and earlier were placed against taxes, thus relieving the Project of collecting such arrears. The imposition of interest on over-due tax account will also hasten collection.

Reclamation Committee Report. — This Committee, consisting of Departmental heads under the chairmanship of the Provincial Horticulturist, made a study of Project lands, water duty, etc. Their findings, which are important, include:—

(1) A 150-day irrigation season instead of a 120-day season.
(2) Duty of water recommended varies from 2½ to 7 acre-feet for the season, compared with the present 4 and 6 acre-feet for two general soil types and locations.
(3) No fifth-class land is recommended for sale.

1957 Crop.—An excellent crop was produced as to size and grade. The growing season started off with a warm May, with growing conditions good throughout, producing fruit of large, high quality. With reasonable prices, growers should enjoy a good year financially. The large crop has taxed the capacity of the packing-houses to handle.

Weather.—A total of 9.41 inches of rain fell in 1957, the heaviest rainfall occurring in the months of May, August, and October. Snow fell in the months of January, February, March, and December, totalling 21.2 inches, of which 12.5 inches fell in January.

Maximum temperature recorded on July 13th, 1957: 93° F.

Minimum temperature recorded on February 21st, 1957: —5° F.

Average maximum temperature for the period 1941 to 1957 was 102° F. and average minimum was —3° F.

Unusually dry, warm weather occurred in the month of September, with only a trace of rain, with a mean maximum temperature for the month of 72° F. and a mean minimum of 52° F. The weather during the remainder of the year was normal.

COLLECTIONS FOR 1957, JANUARY TO DECEMBER, INCLUSIVE

Lands—	
Principal	$4,145.11
Interest	775.27
Lease rentals	1,358.69
Sundry realizations	2,609.72
Water rates—	
Oliver domestic	17,623.46
Irrigation	57,567.11
Total	$84,079.36

DOMESTIC WATER

The winter 1956/57 presented the Project with more than the usual number of frozen lines to residences in the village. Approximately twenty-five pipes had to be thawed during a prolonged cold snap in late January and early February. The lines which were too near the surface have now been deepened to 4½ feet of cover.

Two filler stations are now available for growers' convenience. Applications for two more have been made—one near the Forestry Building and the other at East Oliver.

An 8-inch pipe-line was run from the village domestic-water storage tanks on the hillside above Oliver to the main canal to take care of overflow water.

Eight hundred and fifty feet of 6-inch wood-stave pipe, 300-foot head, were renewed on Second Avenue East.

Arrangements have been made for replacement of the old chlorinator, which was beginning to give trouble.

During this season of unusually low water, with a consequent lowering of the water-table, it became necessary to admit the river water directly into the system. Even this failed as the intake was left above water-level when the river flow dropped to 300 cubic feet per second. A permanent solution was sought, and after consulting with the Okanagan flood-control authorities, it was agreed to install a large, deep sump or reservoir alongside the domestic pump-house, place a suitable dyke around it, and a wire mesh fence around the entire area. Accordingly, a sump measuring 260 by 75 feet was excavated to water-bearing strata and connected to the pumps. Measured capacity is 3,000 gallons per minute. The present maximum demands of the village and surrounding area is 1,000 gallons per minute in midsummer.

The domestic-water system is in reasonably good condition, and with a planned replacement programme should give many years of satisfactory service. The domestic water is tested weekly by the Health Branch of the Department of Health and Welfare.

LAND SETTLEMENT BOARD

The Land Settlement Board was formed in the year 1917 under the provisions of the "Land Settlement and Development Act," superseding the Agricultural Credit Commission. It was empowered to advance money by way of loans secured by mortgage; to purchase, develop, and colonize lands considered suitable for settlement; and to declare settlement areas, having for its main purpose the promotion of increased agricultural production.

Settlement areas were established in Central British Columbia—namely, in the Bulkley Valley, Nechako Valley, Francois Lake district, and the Upper Fraser River valley.

Development areas were established at Merville on Vancouver Island, Lister, Fernie, and Kelowna.

The Board has under its jurisdiction the administration of the former Doukhobor lands, which were acquired by the Government under authority of the "Doukhobor Lands Acquisition Act" of 1939. These lands are largely occupied by Doukhobors on a rental basis. In accordance with the recommendations of the Honourable Mr. Justice Arthur E. Lord, Commissioner, under the "Doukhobor Lands Allotment Inquiry Act," a survey and subdivision of these lands has been carried out. A valuation of said lands has also been made. They are now being offered for sale to Doukhobors.

The Board also holds over 5,200 acres scattered throughout various parts of the Province, representing properties on which it held mortgages and to which it obtained title through tax-sale proceedings.

The Board's balance-sheets will appear in the Public Accounts of the Province as in the past. The following is a brief summary of the Board's activities and collections for 1957:—

During the year the sales made by the Board amounted to $13,960.40. Thirty-five purchasers completed payment and received title deeds, and two borrowers paid up in full and received release of mortgage.

Collections were as follows:—

Loans	$8,401.50
Land sales	22,837.96
Dyking loan refunds, etc.	7,789.84
Foreclosed properties and areas — stumpage, rentals, etc.	9,918.68
	$48,947.98

The above figures include collections from the sale and rental of Doukhobor lands in the amount of $9,780.77.

REPORT OF DYKING AND DRAINAGE

J. L. MacDonald, B.Sc., P.Eng., Inspector of Dykes and Dyking Commissioner

GENERAL

The weather has been very favourable to the dyking districts in the Province this year. Temperatures warmed in April, causing the run-off to start early. Weather conditions continued helpful during the entire season, permitting an orderly run-off for all the major rivers. The Fraser reached its peak on May 25th, with the gauge at Mission reading 20.14.

The customary inspection of dykes was made well before freshet time, and repairs were made in several sections.

This fall the weather has been favourable. There has been no continuous rainfall over a period of several days. Breaks between rains have permitted water to be removed by means of flood-boxes and pumps, without the usual flooding of low areas during the season of flash storms. This year the saving in time and money usually spent in combating flood conditions during the spring freshet and the fall and winter storms has allowed more work to be done to improve internal drainage and reinforce dykes.

DRAINAGE

Farmers in all districts recognize increasingly the importance of drainage, or rather the absolute necessity of improved drainage. It has become so evident that ditches not constructed to the required design have proven inadequate, costly to maintain, and of little use in any drainage scheme that, for the most part, farmers now are willing to give enough land that proper-sized ditches can be constructed to provide the needed drainage and increase the productivity and value of their farms. With this co-operation, programmes are being initiated in all districts, first, to improve the main arterial waterways leading to the pumps and flood-boxes, and to increase the storage in these ditches to accommodate flash-storm waters. Next, all lateral ditches emptying into the main waterways are being improved and brought to standard. New laterals and cross-ditches are being dug where necessary to complete a scheme. This work is being done as the finances of the various districts permit.

In Sumas, joint co-operation between the Department of Highways, the municipality, and the dyking district resulted in considerable ditching in the south-west part of the

district, providing better drainage than previously. The reconditioning of the main waterway in the section of the dyking district east of the Vedder Canal, MacGillivray Creek, and of branch sloughs has been in progress for several months. It is intended to improve this drainage stream from the pumps to the easterly boundary of the district. In Matsqui the entire 6-mile length of one main slough was brushed and all logs removed from the stream-bed. Some 10 miles of ditches were improved by means of dragline excavation. In the South Dewdney District approximately 2 miles of ditches were dug to prevent seepage waters from spreading over the low lands. In Coquitlam the back diversion ditch which keeps flash-storm waters from coming into the district was cleaned and enlarged from the Minnekhada Ranch to the Lougheed Highway. The Maple Ridge Dyking District, located for the most part in the Municipality of Pitt Meadows, has been carrying out a drainage improvement scheme for two years. The major and most urgent item of this scheme is the cleaning, deepening, and widening of the main drainage-way called Katzie Slough. This item of the work has been delayed pending arrangements for financing the purchase of necessary equipment. The tax levy has been raised $1 per acre for this purpose, and it is hoped the work will proceed soon after the new year.

Many other items of drainage improvement works are being carried out and have been completed in many other districts this year. All districts have a backlog of essential drainage-works but can only undertake them when funds are available.

DYKES

A determined effort was made this year to check tree growth, principally cottonwood, on the slopes and berms of the dykes. The cottonwood appears to resist the yearly application of chemical spray that controls the other varieties—alder, blackberries, etc. In the district of East and West Nicomen Island, some 10 miles of inside dyke was slashed, and the new shoots from these slashings heavily sprayed as they appeared. By continuing these methods, it is hoped to keep the dykes free of brush.

Before this year's freshet a serious condition existed at the Dewdney pump-house, located at the mouth of the slough, which drains the districts of Dewdney and South Dewdney and which might have resulted in flooding of farm lands, railroad, and highway. As the finances of the district did not permit correction at the local level, assistance was given by the Provincial Government under authority of the Flood Relief Act. A possible disaster was averted and should prevent further danger at that point.

Flood-box culverts through the West Nicomen dykes were extended approximately 100 feet to lessen seepage. In previous years these culverts frequently had to be blocked by heavy fill when the Fraser was up, destroying their use for drainage when the river subsided.

RIVER-BANK PROTECTION

Extensive rockwork was done on the Matsqui shore in the vicinity of the Mission Bridge by the Canadian Pacific Railway and the Department of Highways. The work done the previous year in the way of brush mats and rock on the bottom of the stream and rocking of the foreshore was continued 250 feet farther down-stream by the further placing of brush matting and rocking bottom and slopes with approximately 40,000 tons of quarried rock. This work was done without cost to the dyking district.

The Matsqui Dyking District expended $10,000 in rocking a section 2 miles east of the Mission Bridge; $5,000 of this amount was a grant from the Provincial Government. A further $15,000 was expended in the same section, the cost being shared equally by the Matsqui Dyking District, the Provincial Government, and the Government of Canada. The East Nicomen Dyking District rocked 350 lineal feet with its own funds. The Municipalities of Kent and Chilliwack did considerable river-bank protecton work, the costs being shared by the Provincial and Federal Governments.

" DYKES MAINTENANCE ACT "

Conforming to the terms of the " Dykes Maintenance Act," frequent consultations and inspections were made with dyking authorities and municipalities that administer their own dyking and drainage districts. Due to the industrialization of many of the districts in the Lower Fraser Valley, the number of meetings with these authorities and inspections is increasing. On instructions from the Minister, inspection trips have been made during the year to the Pemberton Meadows, Okanagan, and Kootenay areas.

APPENDICES

APPENDIX No. 1

Dairy-farm Inspections under "Milk Industry Act"

District	Number of Dairy-farm Inspections	Number of Dairy-farms Issued Prohibition Notices		Number of Approved Dairy-farms	
		Raw	Fluid[1]	Raw	Fluid
East Kootenay	147	1	12	4	53
Central British Columbia and Peace River	262	2	18	5	139
Fraser Valley	8,032	0	335	0	2,546
North Okanagan	512	2	48	6	149
Southern Interior	281	1	40	4	81
West Kootenay	136	0	6	22	42
Vancouver Island	931	2	21	31	342
North Bend	3	0	0	1	0
Pemberton-Sechelt	18	0	1	3	3
Totals	10,322[2]	8	481	76	3,355

[1] "Fluid" refers to milk shipped for pasteurization before sold for human consumption.

[2] These inspections include 452 inspections of raw-milk dairy-farms, 9,326 inspections of fluid-milk dairy-farms, 8 prohibition notices to raw-milk dairy-farms, 55 prohibition notices to vendors selling raw milk illegally, and 481 prohibition notices to fluid-milk dairy-farms.

APPENDIX No. 2

Miscellaneous Specimens Examined in Laboratory

Diseases Due to—	Chickens	Turkeys	Cattle	Horses	Sheep	Swine	Fur-bearers	Miscellaneous	Remarks	Total
Bacteria										
Actinomycosis	—	—	2	—	—	1	—	—	—	3
Bacteremia	4	4	—	1	—	—	1 mink	2 budgerigars	—	12
Botulism	—	—	—	—	—	—	4 mink	—	—	4
Broncho-pneumonia	—	—	—	—	—	—	—	1 dog	—	1
Coryza	2	—	—	—	—	—	—	—	—	2
Cl. septicum	—	—	1	—	—	—	—	—	—	1
Cl. welchii	—	—	1	—	—	—	—	—	—	1
Corynebacteria	—	—	4	—	—	—	—	3 budgerigars, 1 flamingo, 1 elk	—	9
Enteritis	50	50	—	—	—	3	1 mink, 4 chinchillas	1 budgerigar, 1 finch	Necrotic form in swine	110
E. coli	—	—	1	—	—	—	—	—	—	1
Enterotoxæmia	—	—	—	—	2	—	—	—	—	2
Erysipelas	—	14	—	—	—	2	—	—	—	16
Fowl cholera	—	1	—	—	—	—	—	—	—	1
Mastitis milk samples	—	—	—	—	—	—	—	361	66 pos., 8 susp., 287 neg.	361
Metritis	—	—	—	—	—	—	2 chinchillas	—	—	2
Navel ill	—	—	—	1	—	—	—	—	—	1
Pasteurellosis	—	3	1	—	—	—	2 mink, 1 chinchilla	—	Pseudo-tuberculosis in chinchilla	7
Pericarditis	1	—	—	—	—	—	—	—	—	1
Peritonitis	18	7	—	—	—	—	—	—	—	25
Pneumonia	8	6	—	—	—	1	19 mink, 1 nutria, 4 chinchillas	1 pheasant, 1 dog	—	41
Pullorum	64	5	—	—	—	—	—	—	Chickens, 55 pos., 9 neg.; turkeys, 5 neg.	69
Pyelonephritis	—	—	1	—	—	—	1 mink	—	—	2
Salmonellosis	2	2	1	—	—	—	1 mink	2 pigeons	*S. anatum*—mink; *S. typhimurium* — pigeon, chicken, cattle; *S. barielly* — pigeon, turkey; *S. thompson*—turkey	8
Sinusitis	—	8	—	—	—	—	—	—	—	8
Staphylococcus	1	4	—	—	—	—	1 nutria, 1 chinchilla	3 budgerigars, 10 dogs, 2 cats	—	22
Tetanus	—	—	—	—	1	—	—	—	—	1
Toxæmia	—	—	—	—	—	—	9 mink	—	—	9
Tuberculosis	2	—	—	—	—	—	—	—	—	2
Virus										
Chronic respiratory disease	85	10	—	—	—	—	—	—	—	95
Distemper	—	—	—	—	—	—	31 mink	2 dogs	—	33
Encephalomyelitis	111	—	—	2	—	—	—	—	Horses negative	113
Feline enteritis	—	—	—	—	—	—	—	1 cat	—	1

Fowl diphtheria	9	—	—	—	—	—	—	—	—	9
Infectious bronchitis	46	—	—	—	—	—	—	—	—	46
Laryngo-tracheitis	5	—	—	—	—	—	—	—	—	5
Leucosis—										
Neural	19	—	—	—	—	—	—	—	—	
Ocular	8	—	—	—	—	—	—	—	—	106
Osteopetrosis	8	—	—	—	—	—	—	—	—	
Visceral	71	—	—	—	—	—	—	—	—	
Newcastle disease	53	2	—	—	—	—	—	—	—	55
Virus hepatitis	—	—	—	—	—	—	—	2 ducks	—	2
Protozoa										
Coccidiosis	—	—	1	—	—	—	—	1 dog	—	2
Coccidiosis—										
Intestinal	48	30	—	—	—	—	—	3 peacocks	—	155
Cæcal	40	34	—	—	—	—	—	—	—	
Entero-hepatitis	34	41	—	—	—	—	—	1 peahen	—	76
Giardiosis	—	—	—	—	—	—	6 chinchillas	—	—	6
Hexamitiasis	—	20	—	—	—	—	—	1 pigeon	—	21
Trichomoniasis	7	36	—	—	—	—	—	—	—	43
Helminthes										
Cæcal worms	1	4	—	—	—	—	—	—	—	5
Capillaria	13	—	—	—	—	—	—	—	—	13
Gizzard worms	—	—	—	—	—	—	—	4 geese	—	4
Lung worms	—	—	4	—	1	—	—	3 goats	—	8
Round worms	14	—	2	—	2	2	—	1 goat	—	21
Tapeworms	1	—	—	—	—	—	—	—	—	1
Fungi										
Aspergillosis	—	—	—	—	—	—	—	2 pigeons	—	2
Mycosis	4	—	—	—	—	—	—	—	—	4
Non-specific fungous infection	—	—	—	—	—	—	1 chinchilla	2 dogs	—	3
Nutrition										
Anæmia	—	—	—	—	—	1	8 mink	1 dog	—	10
Rickets	5	—	—	—	—	—	—	—	—	5
Vitamin A deficiency	1	—	—	—	—	—	—	—	—	1
Vitamin B deficiency	—	—	—	—	—	—	15 mink	—	—	15
Yellow fat	—	—	—	—	—	—	10 mink	—	—	10
Metabolic Disorders										
Blue comb	68	13	—	—	—	—	—	—	—	81
Fatty degeneration of liver	—	—	—	—	—	—	17 mink, 1 chinchilla	—	—	18
Metabolic disturbance	—	—	1	—	—	—	6 mink	—	—	7
Nephritis	123	—	—	—	—	—	4 mink, 1 chinchilla	1 cat	—	129
Obesity	—	—	—	—	—	—	2 mink	—	—	2

APPENDIX No. 2—*Continued*

MISCELLANEOUS SPECIMENS EXAMINED IN LABORATORY—*Continued*

Diseases Due to—	Chickens	Turkeys	Cattle	Horses	Sheep	Swine	Fur-bearers	Miscellaneous	Remarks	Total
Miscellaneous										
Abscess	1	—	1	—	—	1	—	—	—	3
Adeno-carcinoma	—	—	—	—	—	—	1 rabbit	—	—	1
Arthritis	1	—	1	—	—	—	—	—	—	2
Ascites	1	1	—	—	—	—	—	—	—	2
Bronchial cast	—	—	1	—	—	—	—	—	—	1
Cannibalism	2	—	—	—	—	—	—	—	—	2
Congenital heart defect	—	1	—	—	—	—	—	—	—	1
Conjunctivitis	—	2	—	—	—	—	—	—	—	2
Cystic calculi	—	—	—	—	—	—	11 mink	—	—	11
Cystic ovaries	1	—	—	—	—	—	—	—	—	1
Dermatitis	—	—	—	—	—	—	—	1 canary	—	1
Digestive derangement	102	70	—	—	—	1	17 chinchillas, 3 rabbits	1 peacock, 1 budgerigar, 13 pheasants	—	208
Dropsy	—	—	—	—	—	—	1 mink	—	—	1
Eggbound	—	—	—	—	—	—	—	1 budgerigar	—	1
Emaciation	2	—	—	—	—	—	—	—	—	2
Emphysema	1	1	—	—	—	—	—	—	—	2
Encephalomalacia	9	—	—	—	—	—	—	—	—	9
Feeding and management	65	16	—	—	—	—	1 mink	—	—	82
Fibrillary muscle rupture	—	—	—	—	—	1	—	—	—	1
Fibrosis of tongue	—	—	—	—	—	1	—	—	—	1
Fistula of crop	1	—	—	—	—	—	—	—	—	1
Gastric ulcers	—	—	—	—	—	—	1 nutria	—	—	1
Gastro-enteritis	—	—	—	—	—	—	—	1 dog	—	1
Gizzard erosion	29	—	—	—	—	—	—	1 pheasant	—	30
Gout	—	—	—	—	—	—	—	2 budgerigars	—	2
Growth	1	—	—	—	—	—	—	1 dog	—	2
Hæmoglobin determination and white-blood count	—	—	2	1	—	—	—	—	—	3
Hæmangioma	1	—	—	—	—	—	—	—	—	1
Hæmatoma	1	—	—	—	—	—	—	—	—	1
Hæmorrhagic disease	50	—	—	—	—	—	—	—	—	50
Hatchability problem	—	—	—	—	—	—	—	196 eggs	—	196
Histiocytoma	—	—	—	—	1	—	—	—	—	1
Hydrocephalus	—	—	—	—	—	—	2 mink	—	—	2
Impaction	—	—	—	—	—	—	1 rabbit, 1 chinchilla	1 goose	—	3
Indigestion	—	—	—	—	—	1	—	1 dog	—	2
Injury	4	1	—	—	—	—	3 mink	3 budgerigars, 1 flamingo, 1 African crowned crane	—	13
Internal hæmorrhage	3	4	—	—	—	—	5 mink	1 pheasant, 1 cat	—	14
Internal laying	2	—	—	—	—	—	—	—	—	2
Leukemia	—	—	—	—	—	—	10 mink	1 dog	—	11
Calocculsion of teeth	—	—	—	—	—	—	1 chinchilla	—	—	1
Negative findings	47	—	39	10	1	7	6 mink, 4 rabbits, 1 weasel, 4 chinchillas	5 eggs, 1 goat, 1 hawk, 1 butter, 16 dogs, 1 budgerigar, 3 cats, 10 horned toads, 20 turtles	—	177

Neuro-fibroma	—	—	—	—	—	—	—	1 Canada goose	—	1
Non-patent oviduct	3	—	—	—	—	—	—	—	—	3
Œdema of ears	—	—	—	—	—	2	—	—	—	2
Œdema of wattles	1	—	—	—	—	—	—	—	—	1
Œsophageal obstruction	—	—	—	—	—	—	2 mink	—	—	2
Omphalitis	—	20	—	—	—	—	—	—	—	20
Papilloma	—	—	1	—	—	—	—	—	—	1
Poisoning	1	—	—	—	—	—	—	—	Nicotine sulphate	1
Pulmonary œdema	—	—	1	—	—	—	—	—	—	1
Ragwort poisoning	—	—	3	—	—	—	—	—	—	3
Rupture of oviduct	6	—	—	—	—	—	—	—	—	6
Semen samples	—	—	5	—	—	—	—	—	—	5
Sheath injury	—	—	1	—	—	—	—	—	—	1
Shell-fish poisoning	—	—	—	—	—	—	—	1 cat	—	1
Soft-shell disease	—	—	—	—	—	—	—	4 turtles	—	4
Strangulation of bowl	1	—	—	—	—	—	—	—	—	1
Starve-outs	—	23	—	—	—	—	—	—	—	23
Suffocation	—	—	—	—	—	—	—	4 ducks	—	4
Torticollis	1	—	—	—	—	—	—	—	—	1
Tumpur	5	1	—	—	—	—	—	1 dog	—	7
Unsuitable for examination	11	1	1	—	—	—	—	10 tenagers, 1 feed	—	24
Vent gleet	1	—	—	—	—	—	—	—	—	1
Yolkers	51	30	—	—	—	—	—	—	—	81
Entomological										
Lice	1	—	—	—	—	—	—	—	—	1
Myiasis	—	—	—	—	—	—	—	1 dog	—	1
Red mites	—	—	—	—	—	—	—	3 canaries	—	3
Trombiculidæ mite	—	—	—	—	—	—	—	1 cat	—	1
Tænia crabii	—	—	—	—	—	—	—	1 moose	—	1
Totals	1,332	465	76	15	8	24	229	729	—	2,878

APPENDIX No. 3

Breed Averages for 1956

Breed	Percentage of Total D.H.I. Records	Milk, Lb.	Fat	
			Per Cent	Lb.
Ayrshire	4.2	8,465	4.11	348
Guernsey	17.4	8,139	4.77	388
Holstein	48.6	10,987	3.69	405
Jersey	19.3	7,508	5.10	383
Unclassified (cross-breds, etc.)	10.5	8,931	4.33	387

APPENDIX No. 4

Dairy Herd Improvement Associations

Association	Secretary	Supervisor
Chilliwack—		
Route 1	H. C. Clark, 236 Corbould St., Chilliwack	G. De Lair, c/o Goods Service, 455 Trans-Canada Highway East, R.R. 2, Chilliwack.
Route 2	Ditto	F. Wiffen, 295 Maple Ave., Sardis.
Route 3	,,	N. Daykin, 179 McNaught Road, R.R. 1, Chilliwack.
Route 4	,,	S. A. Blabey, 816 McElwee Road, R.R. 1, Rosedale.
Comox Valley	W. W. MacLeod, Box 714, Courtenay	H. de Blieck, Box 991, Courtenay.
Cowichan	W. R. Barker, P.O. Box 1017, Duncan	Robin Lister, Box 1642, Duncan.
Delta—		
Route 1	Wm. Robertson, Trunk Road, R.R. 3, Ladner	L. Craig MacNair, 6138 Trunk Road, R.R. 3, Ladner.
Route 2	Ditto	G. H. Bailey, 1326 Beach Grove Road, Box 6, R.R. 2, Ladner.
Dewdney-Deroche—		
Route 1	T. S. Moore, R.R. 3, Mission City	A. H. Maddocks, Grace Street, Box 141, Matsqui.
Route 2	Ditto	R. N. Marriott, General Delivery, Agassiz.
Langley (Route 1)	H. L. Davis, Box 103, Milner	J. Bell, P.O. Box 128, Langley.
Matsqui (Route 1)	C. A. Sward, R.R. 1, Matsqui	V. A. Gill, R.R. 1, Matsqui.
Matsqui (Route 2)	C. A. Sward	S. P. Harvey, Mount Lehman.
Langley (Route 2)	H. L. Davis	
Salmon Arm-North Okanagan—		
Route 1	P. Hibbert, R.R. 2, Armstrong	A. Colly, Box 271, Salmon Arm.
Route 2	Ditto	Henry Loewen, R.R. 1, Armstrong.
Route 3	,,	J. W. Stephenson, General Delivery, Kelowna.
Pitt Meadows-Maple Ridge and Richmond (Route 2)	G. Park, Pitt Meadows	R. Macgregor, 652 West Eighteenth Ave., Vancouver.
Richmond (Route 1)	Stephen May, 159 No. 6 Road, R.R. 2, Vancouver	D. S. Heelas, 1657 West Fifty-ninth Ave., Vancouver 14.
Sumas—		
Route 1	Jack L. De Lair, R.R. 4, Abbotsford	C. S. Lillies, Box 392, Abbotsford.
Route 2	Ditto	H. Bylsma, No. 5 Road, R.R. 4, Abbotsford.
Surrey (Route 1)	R. J. Livingston, 7051 Pacific Highway, R.R. 4, Cloverdale	S. Baehr, 17172 Sixty-fourth Ave., R.R. 4, Cloverdale.
Surrey (Route 2)	R. J. Livingston	J. Egan Jensen, Box 631, Langley.
Langley (Route 2)	H. L. Davis	
Vancouver Island—		
Centre	T. C. Tryon, R.R. 1, Parksville	W. T. Calbick, 516 Churchill Ave., Nanaimo.
South	J. Pendray, 4160 Blenkinsop Road, R.R. 4, Victoria	E. H. Leader, 3578 Richmond Ave., Victoria.

Superintendent, J. A. Mace, Superintendent, Dairy Herd Improvement Services, Parliament Buildings, Victoria.
Inspectors, H. Johnson, Box 234, Agassiz, and J. R. Hannam, 236 Corbould Street, Chilliwack.

APPENDIX No. 5

Cattle and Hide Shipments, 1957

District	Cattle	Hides
Cariboo—		
Quesnel	858	770
Williams Lake, Alexis Creek	17,233	178
Clinton, Lac la Hache, 100 Mile House, Graham Siding, Bridge Lake, Lone Butte	8,934	75
Lillooet, Pavilion, Bralorne	1,123	5
Bella Coola	.....	113
	28,148	1,141
Kamloops, Nicola, etc.—		
Kamloops, Chase	16,548	1,233
Merritt	10,431	407
Ashcroft, Lytton, etc.	6,242	218
Salmon Arm	2,229	1,277
	35,450	3,135
Okanagan—		
Vernon, Lumby, Falkland	4,482	1,822
Armstrong, Enderby, Sicamous	2,780	421
Kelowna	2,527	2,290
Penticton, Summerland	932	78
Oliver, Osoyoos	4,780	1,056
	15,501	5,667
Similkameen—		
Princeton, Keremeos, etc.	4,357	65
Grand Forks, Greenwood	1,180	509
	5,537	574
South-eastern British Columbia—		
Rossland, Crescent Valley	128	221
Nelson, Creston, etc.	1,498	1,393
Cranbrook, Fernie, etc.	3,572	933
Invermere, Golden	1,166	.....
	6,364	2,547
Central British Columbia—		
Prince George, Vanderhoof	1,732	1,770
Smithers, etc.	797	231
Burns Lake	845	17
	3,374	2,018
Peace River—		
Fort St. John	995	568
Dawson Creek	4,832	3,512
	5,827	4,080

Totals Compared

District	1957		1956		1955	
	Cattle	Hides	Cattle	Hides	Cattle	Hides
Cariboo and South	28,148	1,141	23,685	1,577	17,061	1,182
Kamloops and Nicola	35,450	3,135	38,034	2,736	28,953	3,263
Okanagan and Similkameen	21,038	6,241	21,854	6,313	18,000	6,898
South-eastern British Columbia	6,364	2,547	7,525	2,092	7,009	2,549
Central British Columbia and Peace River	9,201	6,098	10,641	6,755	6,288	4,684
Totals	100,201	19,162	101,739	19,473	77,311	18,576

APPENDIX No. 6

British Columbia Egg Production (through Registered Stations)

Month	Grade								Estimated Total, 1957	Total, 1956
	AEL	AL	AM	AS	APW	B	C	CRAX		
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	1,280	36,252	16,895	2,423	149	1,670	373	2,159	61,201	48,170
February	1,063	28,670	9,856	1,354	100	1,513	253	1,772	44,584	32,413
March	1,092	31,100	9,274	1,257	75	1,421	344	1,734	46,295	31,111
April	1,166	32,150	9,818	1,676	107	1,369	261	1,913	48,460	32,452
May	1,473	39,288	12,823	3,138	259	2,838	504	2,741	62,064	42,203
June	1,045	29,340	11,056	2,780	364	2,174	291	2,264	49,314	32,691
July	1,166	33,111	14,002	4,724	673	2,140	346	2,690	58,852	45,079
August	1,000	24,733	14,137	5,723	776	1,691	297	2,236	50,593	41,018
September	917	23,790	17,425	7,103	799	1,515	386	2,197	54,132	44,457
October	965	29,699	23,915	7,940	619	1,573	520	2,540	67,771	58,350
November	759	26,662	17,575	3,959	224	1,207	345	1,878	52,609	48,509
December	839	29,485	15,126	2,643	112	1,064	313	1,840	51,420	47,559
Totals	12,765	364,280	171,902	44,720	4,257	20,175	4,233	25,964	647,295	504,012

APPENDIX No. 7

British Columbia Weighted Egg Price to Producers

(Average paying price weighted by grade.)

Month	1957	1956	1955	Canada, 1957
	Cents	Cents	Cents	Cents
January	35.0	38.7	33.3	28.5
February	36.5	41.6	34.7	30.4
March	36.5	46.5	37.6	29.6
April	32.4	46.3	37.4	28.7
May	28.7	45.6	38.9	27.5
June	30.9	49.0	45.4	29.2
July	37.7	48.0	45.6	37.4
August	34.5	44.2	46.2	35.6
September	32.8	44.2	45.3	34.5
October	30.7	44.9	48.8	36.4
November	29.5	34.3	52.5	33.6
December	30.0	34.4	53.5	31.4
Yearly average	32.6	42.7	42.1	31.4

APPENDIX No. 8

Poultry in Pounds through Registered Stations in British Columbia

Month	Chicken	Fowl	Turkey	Duck	Goose	Monthly Total, 1957	5-year Average, 1952–56
January	634,113	319,809	636,112	4,419	162	1,576,670	716,205
February	425,905	290,055	129,449	5,842	67	851,318	588,224
March	441,226	216,461	60,562	7,406	62	725,717	686,737
April	482,053	331,719	83,734	9,985	.....	907,491	774,388
May	763,163	485,474	289,589	13,304	.....	1,551,530	972,369
June	553,338	332,010	62,944	11,363	.....	959,655	907,148
July	779,987	297,470	113,489	18,217	.....	1,209,163	953,901
August	1,016,097	573,274	341,968	31,881	.....	1,963,220	1,076,035
September	785,123	579,169	454,483	27,617	.....	1,846,392	1,267,172
October	950,146	676,887	961,673	25,946	541	2,615,193	1,446,425
November	683,729	421,941	1,113,413	16,696	167	2,235,946	1,208,224
December	451,359	223,028	769,351	14,637	2,570	1,460,945	2,594,852
Yearly totals	7,015,718	4,252,178	5,204,632	171,399	17,064	16,660,991	11,577,377

APPENDIX No. 9

1957 Average Monthly Producer Price for Live Poultry (Vancouver)

Month	Chicken			Fowl			Young Turkey		
	Broilers and Fryers	4–5 Lb.	Over 5 Lb.	Under 4 Lb.	4–5 Lb.	Over 5 Lb.	Under 10 Lb.	10–20 Lb.	Over 20 Lb.
January	22	23	23	18	25	23	----	31	28
February	25	26	26	17	20	24	----	----	----
March	26	26	26	16	18	22	----	----	----
April	27	27	27	16	18	22	----	----	----
May	27	27	29	15	17	21	----	----	----
June	27	27	29	13	15	18	----	----	----
July	27	27	29	13	15	18	----	----	----
August	25	25	29	14	16	20	----	----	----
September	25	25	29	15	18	22	35	31	27
October	25	25	29	15	19	22	35	33	27
November	25	25	29	15	19	22	36	33	27
December	25	25	29	15	19	22	36	33	28

APPENDIX No. 10

Poultry-flock Approval

	Number of Flocks	Number of Birds Pullorum-tested	Average Number of Birds per Flock	Per Cent Reactors
1957	164	286,446	1,747	.076
Five-year average, 1952–56	381	293,264	770	.0997

APPENDIX No. 11

Poultry-flock Approval by Breed

Breed	Jan.–June	July–Dec.	Total, 1957	Total, 1956
Barred Plymouth Rock	300	2,830	3,130	4,596
Black Australorp	1,805	1,094	2,899	1,436
Hampbar	960	183	1,143	2,024
Light Sussex	1,389	4,483	5,872	9,107
New Hampshire	29,844	38,583	68,427	102,829
Rhode Island Red	1,559	1,931	3,490	4,567
S.C. White Leghorn	22,671	114,942	137,613	129,170
White Cornish	443	409	852	------
White Plymouth Rock	14,513	14,530	29,043	38,076
White Hampshires	893	2,601	3,494	------
Cross-bred	5,069	11,666	16,735	18,443
A.O.V.	52	397	449	1,445
Totals	79,498	193,649	273,147	311,693

APPENDIX No. 12

Turkey-flock Approval

	Number of Flocks	Number of Birds Pullorum-tested	Average Number of Birds per Flock	Per Cent Reactors
1957	32	22,736	711	.031
Five-year average, 1952–56	42	21,408	510	------

APPENDIX No. 13

Turkey-flock Approval by Breed

Breed	Jan.–June	July–Dec.	Total, 1957	Total, 1956
Beltsville Small Whites	------	------	------	------
Broad Breasted Bronze	7,273	14,652	21,925	22,484
Broad Whites	470	------	470	758
Empire Whites	------	------	------	------
Jersey Buff	------	341	341	------
Spanish Blacks	------	------	------	------
White Holland	------	------	------	77
Cross-bred	------	------	------	106
Totals	7,743	14,993	22,736	23,641

APPENDIX No. 14

Amount and Kind of Vaccine Distributed

Type of Vaccine	1957	1956	1955	1954
Newcastle disease	5,149,350	4,385,050	2,152,600	2,282,450
Infectious bronchitis	1,628,950	1,683,050	600,500	300,800
Totals	6,778,300	6,068,100	2,753,100	2,583,250

APPENDIX No. 15

Bees

Table No. 1.—Diseases in Bees, 1957

District	Type of Disease			Burned	Treatment	Combs Burned
	A.F.B.	E.F.B.	Sac Brood, Wax Moth			
Vancouver Island	26	.....	(1)	12	14	.....
Kootenays	16	.....	2	4	12	140
South Okanagan	18	1	1	1	18	.....
Lower Mainland	24	.....	.....	22	2	.....
Thompson Valley	12	.....	(2)	12	.....	.....
Salmon Arm	.....	.....	1	.....	.....	50
North Okanagan	19	.....	1	6	13	450
Central Okanagan	34	.....	1	10	23	120
Peace River	7	200	.....	7	.....	.....
Totals	156	201	(3)	74	82	.....

[1] Two slightly infected with sac brood.
[2] Always present.
[3] Sac brood more widespread this year.

Table No. 2.—1957 Summary of Cucumber Pollination (Greenhouse), Greater Victoria

No.	Number of Green-houses	Size	Number of Hives Used Cucumber	Other Crops	Number of Hives Used	Estimated Crop	Total Number of Hives Owned
1	4	30′ x 140′	4	Bitter melons	1	Good	5
1A	4	.....	4	Bitter melons	1	Good	5
2	.....	.....	.....	.....	.....	.....	.....
3	2	30′ x 200′	1	.....	.....	Good	1
4	1	30′ x 200′	1	.....	.....	Good	1
5	3	30′ x 200′	4	Bitter melons	1	Average	5
6	2	30′ x 150′	1	Tomatoes	4	Good	5
7	8	.....	4	.....	.....	Good	12
8	22	.....	11	Bitter melons	2	Good	17
9	.....	.....	.....	Bitter melons	3	.....	3
10	12	.....	6	Bitter melons	3	Average	9
11	5	.....	3	Long Eng. cukes	2	Average	5
12	3	.....	3	.....	.....	Poor	3
13	1	.....	1	.....	.....	Average	1
14	2	.....	1	Bitter melons	2	Good	3
15	3	.....	3	.....	.....	Average	3
16	2	.....	1	Tomatoes, melons, and cukes mixed	2	.....	3

APPENDIX No. 15—*Continued*

BEES—*Continued*

Table No. 3.—Honey-crop Report, 1957

District	Beekeepers	Colonies	Crop	Average
			Lb.	Lb.
Vancouver Island and Gulf Islands	390	1,990	39,800	20
Lower Mainland, Fraser Valley, and Coast	1,284	3,928	157,120	40
Interior, Okanagan Valley, and Kootenays	999	7,666	766,600	100
Peace River and Cariboo	93	3,471	590,070	170
Totals	2,766	17,055	1,553,590	91

Value to producers of 1,553,590 pounds of honey at 22 cents per pound (wholesale), $341,789.80; 11,450 pounds of beeswax at 50 cents per pound, $5,725; pollination services, $1,780.

APPENDIX No. 16

SUMMARY OF GRAIN SCREENINGS FROM BRITISH COLUMBIA MERCHANTS, JANUARY 1ST TO NOVEMBER 30TH, 1957

Date	Consumed in British Columbia (Processed Refuse)		Exports (Processed Refuse)		Totals	
	Tons	Lb.	Tons	Lb.	Tons	Lb.
January	693	1,927	698	1,479	1,392	1,406
February	715	344	575	201	1,290	545
March	341	1,282	420	750	762	32
April	28	312	603	975	631	1,287
May	95	95	591	1,700	686	1,795
June	24	20	941	900	965	920
July	335	130	1,183	450	1,518	580
August	72	1,520	790	1,750	863	1,270
September	68	1,940	801	600	870	540
October	156	1,290	862	250	1,018	1,540
November	111	300	1,148	1,550	1,259	1,850
Totals	2,642	1,160	8,617	605	11,259	1,765

APPENDIX No. 17

Summary of Movement of Screenings from British Columbia Elevators, January 1st to November 30th, 1957

Date	Consumed in British Columbia								Exported										Total	
	No. 1 Feed		Refuse		M.F.O.		Flax		No. 1 Feed		Refuse		M.F.O.		Rape		Flax			
	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.
January	1,200	1,000	2,279	.....	141	100	.....	.....	2,317	.....	4,565	.....	318	1,000	.....	.....	.....	.....	10,821	100
February	925	1,800	1,692	1,500	121	1,160	60	1,000	1,198	500	2,967	.....	206	.....	.....	.....	.....	.....	7,111	960
March	791	1,800	1,169	.....	51	180	.....	.....	1,533	.....	2,475	.....	350	1,000	.....	.....	.....	.....	6,430	1,980
April	1,368	800	1,116	.....	41	1,320	70	.....	1,234	.....	1,555	.....	406	.....	.....	.....	30	.....	5,821	120
May	875	1,700	1,432	.....	33	.....	.....	.....	1,903	1,000	2,015	.....	81	.....	.....	.....	30	.....	6,370	700
June	742	1,500	1,333	1,000	20	900	35	.....	1,333	1,000	2,100	.....	43	.....	.....	.....	60	.....	5,668	400
July	1,708	1,500	1,769	1,000	78	600	.....	.....	1,306	1,000	2,032	.....	168	.....	40	.....	.....	.....	7,063	100
August	1,142	500	1,527	1,000	34	940	245	.....	1,492	300	1,985	.....	119	.....	.....	.....	70	.....	6,655	740
September	1,186	1,100	1,448	.....	31	860	140	.....	1,151	.....	1,782	1,000	123	1,000	199	720	210	.....	6,272	680
October	1,012	400	2,582	1,000	40	1,600	105	.....	4,475	1,000	3,565	.....	333	.....	.....	.....	420	.....	12,534	.....
November	983	1,800	2,886	1,400	33	1,200	141	100	1,378	.....	3,141	1,000	161	.....	.....	.....	105	.....	8,830	1,500
Totals	11,938	1,900	19,236	900	627	860	796	1,100	19,322	800	28,183	.....	2,309	1,000	239	720	1,870	.....	83,578	1,280

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