PROVINCE OF BRITISH COLUMBIA

Department of Agriculture

FIFTY-THIRD

ANNUAL REPORT

1958

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in right of the Province of British Columbia.
1959

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 1958.

NEWTON P. STEACY,
Minister of Agriculture.

Department of Agriculture,
Victoria, B.C., January 22nd, 1959.

BRITISH COLUMBIA DEPARTMENT OF AGRICULTURE

DEPARTMENTAL STAFF, 1958

Minister of Agriculture:
Honourable NEWTON P. STEACY.

Minister's Secretary:
Miss M. JEWELL.

Deputy Minister:
WM. MACGILLIVRAY.

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J. A. MCDIARMID, Clerk, Publications Branch, Victoria.

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Horticulture:

A. C. CARTER, B.S.A., Provincial Horticulturist, Victoria.
G. E. W. CLARKE, B.S.A., Supervising Horticulturist, Abbotsford.
J. A. SMITH, B.S.A., Supervising Horticulturist, Kelowna.
D. A. ALLAN, B.S.A., District Horticulturist, Oliver.
W. T. BAVERSTOCK, District Horticulturist, Vernon.
I. C. CARNE, B.S.A., District Horticulturist, Abbotsford.
A. E. LITTLER, B.S.A., District Horticulturist, Victoria.
W. F. MORTON, B.S.A., District Horticulturist, Kelowna.
J. E. SWALES, B.S.A., District Horticulturist, Creston.
G. R. THORPE, B.S.A., District Horticulturist, New Westminster.
M. P. D. TRUMPOUR, B.S.A., District Horticulturist, Penticton.
A. W. WATT, B.S.A., District Horticulturist, West Summerland.
R. M. WILSON, B.S.A., District Horticulturist, Salmon Arm.
M. G. OSWELL, B.S.A., Assistant District Horticulturist, Vernon.
J. L. WEBSTER, B.S.A., Horticulturist (Seed Production), 501 West Twelfth Avenue, Vancouver 9.
W. D. CHRISTIE, B.S.A., Horticulturist (Greenhouse and Nursery Crops), Abbotsford.
E. M. KING, B.S.A., M.S.A., Horticulturist (Vegetables), Kelowna.

Apiary:

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

Plant Pathology:

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

Entomology:

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

Live Stock:

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

Live Stock—Continued

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

Dairy:

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

Poultry:

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

Field Crops:

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

Farmers' Institutes:

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

Women's Institutes:

MRS. STELLA E. GUMMOW, Superintendent of Women's Institutes, Victoria.

Soil Survey:

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

Agricultural Development and Extension:

G. L. LANDON, B.S.A., Director, Victoria.
J. S. ALLIN, B.S.A., Supervising Agriculturist, Victoria.

Agricultural Development and Extension—Continued

G. L. LUYAT, B.S.A., Supervising Agriculturist, Kamloops.
S. G. PRESTON, M.S.A., Supervising Agriculturist, Prince George.
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J. W. AWMACK, B.S.A., District Agriculturist, Cranbrook.
K. R. JAMESON, B.S.A., District Agriculturist, Duncan.
S. B. PETERSON, B.S.A., District Agriculturist, Courtenay.
G. A. MUIRHEAD, B.S.A., District Agriculturist, Cloverdale.
P. E. EWERT, B.S.A., District Agriculturist, Mission City.
J. V. ZACHARIAS, B.S.A., District Agriculturist, Abbotsford.
G. CRUICKSHANK, B.S.A., District Agriculturist, Chilliwack.
J. F. CARMICHAEL, M.Sc., District Agriculturist, Grand Forks.
J. C. RYDER, B.S.A., District Agriculturist, Vernon.
J. D. HAZLETTE, B.S.A., District Agriculturist, Salmon Arm.
R. L. WILKINSON, B.S.A., District Agriculturist, Kamloops.
R. C. FRY, B.S.A., District Agriculturist, Quesnel.
A. E. DONALD, B.S.A., District Agriculturist, Prince George.
J. A. PELTER, B.S.A., District Agriculturist, Smithers.
R. W. BROWN, B.Sc., District Agriculturist, Vanderhoof.
J. E. HALL, B.Sc., District Agriculturist, Dawson Creek.
J. E. PIERCY, B.S.A., District Agriculturist, Fort St. John.
Miss E. L. R. LIDSTER, M.S.A., Supervisor, 4-H Clubs, Victoria.
G. L. CALVER, B.A.Sc., Extension Agricultural Engineer, Victoria.
K. E. MAY, B.S.A., Assistant Extension Agricultural Engineer, Victoria.
T. A. WINDT, B.A.Sc., Assistant Extension Agricultural Engineer, Victoria.
H. BARBER, Accountant, Land Clearing Division, Victoria.

Land Settlement Board:

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

Dyking Commissioner:

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

Southern Okanagan Lands Project:

F. O. MCDONALD, Project Manager, Oliver.

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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-third Annual Report of the Department of Agriculture for the year ended December 31st, 1958.

The Report contains a brief and comprehensive outline of the major activities of each branch and division during the year. As on previous occasions, there are available in the Department detailed reports from administrative personnel and members of the field staffs providing valuable records which are too voluminous to include here.

While most crops experienced satisfactory growing conditions, an unusually dry, hot summer materially reduced yields in some instances. Pastures and hay lands were most severely affected, although lower yields were evident, and in some cases quality was affected, in certain tree fruits, small fruits, and vegetables, including potatoes.

In Central British Columbia and in the Peace River, any reduction in yields of cereals, forage-crops, or seed-crops was more than offset by improved quality and higher grades resulting from excellent harvesting conditions.

The Soil Survey Branch was engaged mostly in the continuing study of Fraser Valley soils to determine a basis on which these may be assessed for taxation purposes on a productivity basis. The Federal group associated with our staff completed work in the Peace River and in the Prince George-Dunster areas which had been delayed by adverse weather conditions. This group also made substantial progress in the soil survey of the Interior Plateau, commenced south of Princeton in 1957 and designed to extend in time to the Chilcotin.

Land use and soil management were continuing responsibilities of the Field Crops Branch, which again provided leadership programmes at district, regional, and provincial levels for improved practices in tillages, in the production of pastures, forage-crops, cereals, and in weed-control. Seed-potato trials were again carried out at Oceanside, Calif.

Better co-operation in weed-control has been achieved with the Department of Highways, with local authorities, and with the railways.

The Horticultural Branch has maintained a full schedule of activities, planned to provide practical timely information to tree-fruit, small-fruit, and vegetable growers.

The completion of the report of the Royal Commission on the Tree-fruit Industry in British Columbia and its presentation to the Government in October was the culmination of nearly two years of exacting study by Dean Earle D. MacPhee and those associated with him.

A staff member from Kelowna provided specialist assistance to District Agriculturists and vegetable-producers in Central British Columbia, which has a good market available in Kitimat, Prince Rupert, and intervening points of settlement through to the Peace River and the Alaska Highway for all the commodities whose production can be recommended in that area.

There appears to be an encouraging revival of strawberry and raspberry growing in the Fraser Valley, and an indication of producer acceptance that larger units, better management, and high quality will be dominating influences on returns.

Plant pathologists and entomologists of the Department collaborated with field staffs and with Federal personnel in dealing with diseases and pests. The advent of codling-moth showing a strong resistance to DDT sprays presents a very serious problem. The very mild winter of 1957/58 contributed to a larger than normal series of problems, although the dry summer reduced apple-scab.

There is an increased interest in beekeeping and a keen demand for the services of the Apiary Branch staff.

Satisfactory progress can be reported on brucellosis control and eradication. There has been a very substantial increase in the number of calfhood vaccinations contributed to by the practitioners in the four veterinary service districts now established. It appears that 65,000 calves could be vaccinated in the year July 1st, 1958, to June 30th, 1959—more than 100 per cent increase in two years. The Fraser Valley programme has suffered from lack of veterinary and clerical personnel, but an aggressive approach is planned for 1959, when the Canada Health of Animals Division assumes responsibility for three more Interior control areas, releasing our veterinarians there to assist in the Fraser Valley.

New regulations by the United States Department of Agriculture governing the importation of Canadian cattle to that country are much more stringent in respect to brucellosis and will encourage greater co-operation in hastening eradication of that disease.

Dairy-farm Inspectors have been maintained at the level necessary to meet responsibilities and the " Milk Industry Act " of 1956. It is most gratifying to report a substantial improvement in dairy-farm premises.

Vibriosis in both beef and dairy cattle and mastitis in the latter are continuing serious problems, referred to in greater detail elsewhere. The indiscriminate use of antibiotics for the treatment of mastitis is a cause of major concern.

Domestic fur production continues to increase. Outbreaks of enteritis in mink in the late fall are most unfortunate.

There is an increased interest in sheep production, particularly farm flocks, in all areas, including Central British Columbia.

Lower prices for hogs have prevented any substantially increased swine production, although there is definite interest in an enlarged output throughout the Peace River, where assistance was given in distributing better breeding stock.

The Dairy Branch has striven to ensure that all regulations governing milk-processing in distributing plants are scrupulously observed to protect producer interests and to ensure high-quality products to consumers. Excellent co-operation has been received from officials of health units and from administrative officials of the Health Department.

Dairy-herd improvement continues to be a most valuable and effective policy, contributing as it has to the substantially higher production of milk and butter-fat per cow in British Columbia as compared with that of Canada and our sister Provinces and having a definite influence on the income of dairy producers.

The use of artificial insemination is increasing steadily.

Dairy sire evaluation policy has made less progress than hoped. Your Advisory Committee on these matters has continued to do valuable work.

Further progress is reported in performance testing of beef cattle in registered and in commercial herds. The Advisory Committee you established in the late fall will meet early in 1959 to assess the position of the programme and make recommendations that appear desirable.

Sales of live stock and live-stock products showed substantial increased values in 1958. A strong United States demand for feeder cattle boosted prices as much as $5 to $7 per hundredweight over those of 1957. While steer calves and yearling steers were most eagerly sought, buyers were keenly interested in all classes offered. A total of 36,139 head crossed the border—an increase of 13,290 over 1957. Similarly, 15,579 cattle moved to the Prairies, or 2,915 more than in the previous year.

Brand inspections at 107,516 were more than 7,300 over those of the previous year. It is estimated beef-cattle sales returned more than $18,300,000 to British Columbia producers.

In spite of a hot, dry summer, poorer pastures, and in some cases a shortage of water for domestic and stock purposes, milk production was significantly higher, to over 800,000,000 pounds. A substantially greater demand for fluid milk and a higher base price in areas of production under Milk Board jurisdiction resulted in a higher farm cash income.

In poultry, egg production was maintained at almost the level of 1957, with somewhat improved prices, but still far below those of 1956. There was a very large increase in broiler production, to the point that this phase of the industry can now practically meet Provincial requirements. Prices were significantly lower though, and those for fowl very much less.

The Random Sample Test at Abbotsford has completed one broiler test, and a laying test is now in progress.

During the year the farm-management programme started with seven pilot farms in the Fraser Valley and on Vancouver Island, with the District Agriculturists of the Development and Extension Branch participating. Dr. Richter, of the Agricultural Economics staff of the Faculty of Agriculture at the University of British Columbia, supervised the work as well as arranging a valuable short course in October, attended by Agriculturists, Horticulturists, Poultry Inspectors, and other Departmental personnel.

Four officials took a one-month course on extension and farm management at Washington State College in Pulman last July.

Arrangements have been made to have the management programme extended in 1959 to include assistance on almost thirty farms and covering beef, dairy, mixed-farming, tree-fruit, small-fruit, and poultry enterprises. The interest in this programme confirms the decision of the Department in considering it as one of the most important yet initiated and likely to have a significant effect on our extension activities as well as on agriculture generally.

There has been a continuing demand for agricultural engineering services over a very wide field. Farm safety was stressed. The Division made a very valuable contribution to successful mechanization of onion-harvesting.

Land-clearing, while less extensive than in 1957, reached a cost of nearly $400,000.

4-H Clubs continued to increase in numbers and in activities. The programme is gradually being recognized in its true perspective as a character-building movement designed to develop initiative, self-respect, and the respect for and confidence in the concepts from which our democratic processes arise, from the community through to the national and international levels.

Farmers' Institutes and Women's Institutes, agricultural societies, and other farm organizations continued to be valuable contacts in the broad field of agriculture and sources of sound information indicative of grass-roots thinking.

The responsibilities arising in the administrative work of the Dyking Commission and of the Southern Okanagan Lands Project kept the staff of those agencies extremely busy throughout the year.

The Land Settlement Board had an immediate objective—the sale of Doukhobor lands to Doukhobors. The number of parcels disposed of was very small relatively, and the progress to date would be disheartening if those concerned had no previous acquaintance, even of a limited nature, with those people.

The extension of the Pacific Great Eastern Railway to Dawson Creek and Fort St. John is of great value to the agriculture of that area, whose production has now a direct short haul to the consumer demand of the more than 60 per cent of the Provincial population west of Hope to the Pacific, including Vancouver Island. The railway, already a

significant influence, will be of increasing importance to the agricultural economy of the area. Car-lots of grain, of beef, and of hogs have already been shipped from Fort St. John to North Vancouver. Two car-lots of hogs were delivered to a Vancouver packing plant thirty-five and one-half hours from the time they left the Peace River point and returned $250 per car, or approximately $3 per hog more to the producers than they would have realized by shipping to Edmonton before the advent of the Pacific Great Eastern Railway. Your Department is gratified that the policy adopted these past fifteen years of stressing the importance of a live-stock balanced farm economy in the Peace rather than one based on grain alone has been justified by the course of events and warrants continuation.

In November the Wheat Board granted permission for farmer-to-farmer transactions in feed-grains by rail between the Peace River and the rest of British Columbia. Grains sold in this manner will not be assessed against the selling quota of the farmer and may qualify for Federal freight assistance. It is not possible to assess yet the value of this concession either to producers in the Peace or to users of feed-grains in other areas along the Pacific Great Eastern Railway or in the Fraser Valley, but it is generally felt that it should be of real assistance.

These comments on various phases of this Report form a brief summary of the greater detail it contains.

Financially it appears that farm cash income for British Columbia farmers in 1958 may have been as high as $125,000,000, or perhaps nearly $10,000,000 over that of 1957. The steadily increasing cost of goods and services the farmer has to provide in the operation of his enterprise is likely to offset the additional revenue and result in little, if any, greater net income.

It has become increasingly evident and has been more generally recognized in 1958 in agriculture itself that if farmers and their families want the amenities and standards of living enjoyed by comparable sectors of our non-farm population, they must, it is generally accepted, undertake certain changes. These include economic holdings, efficient management, maximum effective use of land, labour, and capital, a recognition that attainment of that objective requires acceptance that farming is a business to be operated as such.

Certain forms of Governmental assistance will be necessary, and an effective source of farm credit adapted to the particular needs of agriculture is essential.

The National Government must be prepared to assist Provinces in developing projects for the conservation of natural resources, for land reclamation, irrigation, dyking, drainage, for stream and river erosion, and for rehabilitation and maintenance where that is beyond the financial competence of the Province and the farmers concerned.

I regret extremely to report the death of Mrs. Violet MacLachlan, for many years Superintendent of Women's Institutes, who had been superannuated in 1946, and of Mr. Ernest MacGinnis, who was superannuated in 1950 from the position of Markets Commissioner, which he had held for several years. More recently he had been a member of the British Columbia Marketing Board and secretary to the Advisory Board of Farmers' Institutes, in which capacity he had become very well known to farm people throughout the Province.

LEGISLATION

New legislation dealing with agriculture as passed at the Second Session of the Twenty-fifth Parliament of British Columbia consisted of an Act to amend the "Dykes Maintenance Act," an Act to amend the "Fruit, Vegetables, and Honey Grades Act," and an Act to amend the "Soldiers' Land Act."

STAFF CHANGES

APPOINTMENTS

G. Crothers, Milk Board Inspector, March 27th, 1958.
J. A. Dinnes, Research Assistant—Grade 2, May 5th, 1958.
T. A. Windt, Agriculturist—Grade 1, May 12th, 1958.
R. E. D'Easum, Milk Board Inspector, August 1st, 1958.

SUPERANNUATION

R. P. Murray, Provincial Horticulturist, February 28th, 1958.
F. C. Wasson, Dairy Commissioner, August 31st, 1958.

W. MACGILLIVRAY,
Deputy Minister of Agriculture.

REPORT OF MARKETS AND STATISTICS BRANCH

M. M. GILCHRIST, B.S.A., MARKETS COMMISSIONER

In spite of declines in the general economy of the Province during the year, agriculture again displayed its basically sound position. While price fluctuations occurred, as always, the farm prices index (1935–39=100) reflected a firm tone throughout, reaching a high of 265.7 in May. This was the highest point reached since 1953. Lower returns for field crops produced a decline during the ensuing months, but offsetting this was a strengthening in live-stock prices. This latter factor was chiefly responsible for keeping the index above 1957 levels.

Thus on balance the farm economy escaped the full impact of the slackening-off in the rapid expansion of industry during the past few years. This seeming anomaly resulted from the fact that while capital expenditure declined, consumer spending increased under the influence of a continued high level of personal income.

Preliminary estimates indicate that farm cash income for the year was 5 per cent above the $113,500,000 figure achieved in 1957. The net income figure was adversely affected by further increases in the cost of goods and services used by farmers.

FEED-GRAIN MOVEMENTS

Feed-grains imported under the Federal Freight Assistance Policy during the 1957/58 crop-year amounted to 195,660 tons, a decline of some 7,000 tons from the preceding twelve-month period.

Total imports under this policy since its inception in the early years of World War II now stand at slightly more than 4,000,000 tons, at a total cost of some $28,000,000 to the Federal Treasury.

A further change in the policy was brought into effect late this year with the announcement that assistance payments would be $5.40 per ton less than the car-lot short-line rail freight charges from Calgary to destinations in British Columbia. The domestic rate from Calgary is now 70 cents per 100 pounds, or $14 per ton. This arrangement requires the importer to pay the difference between that rate and the subsidy, or $8.60 per ton.

FEEDS

Prices on basic feedstuffs showed very little change during the year, reflecting a stable supply position. No. 5 feed-wheat rose to $60 per ton at Vancouver in the latter part of the year, after having remained at $58 for the first eight months. Oats rose $1

to $56 per ton in midsummer, then returned to $55 by November. Barley stayed at $52 for the first half of the year, rising to $54 for the second half.

Laying-mash reached a high of $81 in September, dropping to $79 by the year's end. Dairy-mash followed a similar pattern, ranging from a low of $65 early in the year to $68 by October, then dropping $2 in November.

FRUIT

Generally lower yields marked the fruit industry's performance this year. All major crops, with the exception of cherries, strawberries, and raspberries, recorded yields below 1957 levels.

Production of apples, the most important crop, was down 6 per cent, but generally improved colour resulted in a relatively higher percentage of sales on the fresh market, with a corresponding decrease in diversions to processors. Most of the apples were marketed in Western Canada and the western American States. These outlets will take approximately 75 per cent of the total fresh-market sales. The United Kingdom will absorb some 700,000 boxes, while slightly over 500,000 will move into Eastern Canada.

Steadily increasing freight rates and sharper competition have combined to lower the sales volume in the eastern half of the continent, but this development has been offset by increasing sales in markets closer at hand.

The use of " handi-pak " containers in Western Canada and " cell pack " for United Kingdom sales has proved most effective in holding these markets against increasingly stiff competition.

Other tree fruits were successfully marketed on the fresh market, with sales to processors reduced accordingly. From a total Okanagan cherry-crop of 246,000 crates, 228,000, or 90 per cent, were sold on the fresh market. Close to 70 per cent of the peach-crop was also sold on this market.

Unusually warm, dry weather tended to shorten the small-fruits harvest season this year, but yields of strawberries and raspberries were still greater than in 1957, the former by over 25 per cent.

Sales of strawberries were good, but the raspberry market continued sluggish in the face of heavy carry-overs in the hands of processors.

VEGETABLES

The vegetable industry experienced a mixed market reaction during the year, but for the most part at levels below those achieved in 1957. Prices for early-crop potatoes were below those of the previous year, dropping to $52 per ton at Vancouver. While movement of late-crop tubers was generally good, prices reacted slowly, No. 1 Gems being quoted at $60 per ton by December.

Sharp reductions in tomato and canning-pea acreages reflected the sluggish demand for these important crops. This condition in turn reflected a reduced cannery pack in all major canning crops. This occurred in spite of a support price of $5.70 per case of 24/28-ounce tins of choice tomatoes.

Other vegetable-crops showed little price change from 1957. Beets, cabbage, and parsnips showed firmer prices by late autumn, but turnips and short carrots were below comparable levels of the previous year.

LIVE STOCK

Highlighting the live-stock picture during 1958 was the strong market tone for beef cattle. Contributing to this situation was the cyclic down-turn in United States production coupled with unusually high stocks of feed in that country. These factors resulted in a

heavy demand for Canadian cattle, exerting a strong pressure on domestic prices for all classes.

Both slaughter and feeder steers showed a steady price increase during the year, ranging upward to over $22 by late fall, an increase of nearly $6 over comparable 1957 quotations.

Producers in the Interior of British Columbia introduced weekly auctions for the first time this year, with gratifying results. The provision of a steady flow of offerings each week has proved more profitable than the previous practice of only one or two large sales each year.

Hog marketings showed a moderate increase over the 1957 total, but prices declined by about $2 per hundredweight on the average.

Sheep and lamb marketings were down slightly, but average returns showed moderate increases throughout the year, lambs reaching a high of $23.22 in June at Vancouver.

POULTRY AND EGGS

A decline in numbers of laying birds brought supply and demand into closer balance during the latter half of the year. This was reflected in average weighted prices to producers, which rose in October to nearly 39 cents per dozen, 8 cents above the October, 1957, average. Total receipts at registered grading-stations were down 4 per cent from 1957.

Production of poultry-meat, on the other hand, showed a steady increase throughout the year. By the year's end, marketings through registered grading-stations exceeded 20,000,000 pounds as compared to slightly less than 18,000,000 pounds in the previous year.

DAIRY PRODUCTS

A moderate increase of 3,500 head in dairy-cattle numbers resulted in an estimated increase of 4 per cent in milk production over the 1957 total of 773,000,000 pounds.

Fluid sales kept pace, reflecting the population increase and sustained consumer purchasing power. Prices received by farmers showed little change during the year, remaining close to levels established during the past two years.

Creamery butter production was, as usual in recent years, barely enough to supply 15 per cent of the Province's annual consumption of 25,000,000 pounds.

Ice-cream consumption reached a new high of over 4,000,000 pounds, as a result of warm summer weather and the increasing popularity of dairy foods in this form.

MISCELLANEOUS

A continued firm demand for quality ranch-bred mink provided another year of encouraging returns in the Province's fur industry. Late-fall and early-winter sales indicated a gross return of well over $3,500,000 for all pelts produced during 1958.

The annual wool-clip, estimated at 350,000 pounds, was up 7 per cent from the 1957 total, with prices relatively unchanged.

Excellent weather enabled British Columbia's 1,700 beekeepers to take off a record honey-crop of over 2,150,000 pounds. Prices remained at 1957 levels in all classes.

LEGISLATION

Under the regulation pursuant to the "Fruit, Vegetables, and Honey Grades Act," a charge was laid for the first time against a leading retail organization for a violation of this regulation in respect of an advertisement in the press improperly advertising imported potatoes.

The case was heard in Vancouver City Police Court, and the defendant was convicted and fined. It is hoped this action may result in an improvement in the general tone of advertising of produce in this Province.

MARKETING BOARDS

Following action of the British Columbia Interior Vegetable Marketing Board in removing controls on sales of late potatoes, effective January 1st, interest was revived in the reimposition of at least partial controls by midsummer. Accordingly, a newly formed selling agency, Interior Potato Growers and Shippers Company Limited, was designated by the Board as its agency for the selling of late potatoes at Coast markets.

The Interior Vegetable Marketing Agency Limited remains as the Board's designated selling agency for early potatoes and other vegetables.

REPORT OF HORTICULTURAL BRANCH

A. C. CARTER, B.S.A., P.Ag., PROVINCIAL HORTICULTURIST

GENERAL CONDITIONS

The outstanding feature that affected horticultural crops in British Columbia in 1958 was the extremely mild winter and the unusually hot summer. The past winter was reported to be the mildest in thirty-one years at Kelowna. By the end of February many crops were starting to grow and trees were close to bloom in the Okanagan, but March and April turned cool and showery and brought crop progress closer to normal for the time of year. The following table showing blossoming dates, submitted by M. P. D. Trumpour, District Horticulturist at Penticton, will give a picture of conditions as compared to the last four years; that is, early but late enough to be fairly safe from spring frosts.

Fruit	Year				
	1954	1955	1956	1957	1958
Apricots	Apr. 20	May 4	Apr. 21	Apr. 22	Apr. 12
Cherries	May 5	May 9	Apr. 25	Apr. 29	Apr. 23
Peaches	May 4	May 13–15	Apr. 28–30	Apr. 30	Apr. 24
Pears	May 9	May 19	May 5	May 2	Apr. 29
Prunes	May 8	May 17	May 7	May 4	May 1
Apples	May 12	May 24	May 11	May 8	May 5

May was reported to be one of the warmest on record; June was warm and, as usual, rainy. Consequently, the berry-crop was early and the season short. July and August were hot months and very dry. Crops grew quickly but burned in mid-July, especially in areas where there was no irrigation-water available. Insects and mites thrived in the heat, but fungus diseases were not serious.

Hail-storms occurred in a number of areas in the Okanagan and Kootenays. Losses were high on some individual lots at Osoyoos, Oliver, Cawston, Keremeos, and Summerland, but the over-all losses were not considered excessive.

Apple colour in the Okanagan was excellent, but up to August 29th general concern was felt by growers and industry officials because of the lack of colour. Fortunately the weather broke suddenly, the nights cooled off, there was a general rain, and within forty-eight hours an excellent red colour developed. McIntosh were mature and picking began at once, and the grades were good. The Creston area was not as fortunate, and the lack of colour has caused a considerable loss of income in this area.

The fall was astisfactory for harvesting various crops. Soil moisture was adequate for the winter, and all crops went into the winter normally. Over-vigorous orchards may have some damage in the Okanagan as a result of cold weather during the last week of

November. There was an unusually early snow-storm in mid-October which broke limbs on the stone-fruit trees and on some apple-trees in the area between Kelowna and Peachland.

The estimated production of certain horticultural crops for 1958 is as follows: Tree fruits, 361,374,000 pounds; small fruits, 26,915,000 pounds; and vegetables, 297,716,000 pounds.

TREE FRUITS

Apples.—The apple-crop looked like another big one in the spring—the set was heavy and sizing was very good early in the season—but the hot weather had an adverse effect, and many McIntosh were small at harvest-time while Delicious were heavy to medium. The picking dates for apples and pears were again established by the Horticultural Branch according to the standards available. For the first time, apple-growers in the Okanagan were faced with codling-moth which were resistant to DDT. Some orchards had heavy losses before resistance was confirmed by the Entomology Laboratory at Summerland, especially in Kelowna and Oliver. New sprays have been recommended for use in 1959.

Pears.—The Bartlett pear crop was lighter than 1957, but the quality was excellent. The Anjou crop looked good early in the season, but as the fruit approached maturity considerable damage from the disease Anjou pit was apparent. In some orchards, losses up to 50 per cent were recorded. This disease does not show every year, and the conditions that cause an outbreak are not known. Assistance has been requested on this problem from the Plant Pathology Laboratory at Summerland.

Peaches.—The 1958 peach-crop was down from last year because of the lack of size development during the hot weather as well as the light crop on the Valiant variety. Some growers panicked to get their peaches picked, and the result was mixed maturity of fruit early in the season. Later in the summer picking became more uniform, although maturity standards were still a problem for many growers and packing-houses.

Apricots.—Fresh-market apricots were of good size and quality in 1958, and the crop was similar to 1957 in volume. The cannery varieties had a light crop. Picking started about two weeks earlier than average.

Cherries.—The cherry-crop was of mixed maturity because of an extended blossom period. The warm spring brought early maturity and smaller than usual size. Rain splitting occurred in Oliver, Osoyoos, and the Kootenays area.

Prunes.—Many prune-trees are being removed in the Interior because of poor returns and unknown physiological troubles. The 1958 crop was less than 1957, although the size of the fruit was large.

Production.—The following figures give the estimated production for the 1958 tree-fruit crop for British Columbia: Apples, 276,177,000 pounds; crab-apples, 3,301,000 pounds; pears, 28,850,000 pounds; plums, 882,000 pounds; prunes, 8,210,000 pounds; cherries, 6,009,000 pounds; peaches, 25,999,000 pounds; and apricots, 11,946,000 pounds.

SMALL FRUITS

Strawberries.—The strawberry-crop was increased this year because of new acreage coming into production after the 1955 freeze. Yields averaged about 2.7 tons per acre, but the price was only 13.6 cents at the farm. The hot weather brought about a breakdown in the fruit as well as sun-scald in the field. Moulds resulting from rain at picking-time added to the growers' problems in all areas.

Raspberries.—The quality of raspberries was good, volume of production per acre average, and the price lower than in 1957. Raspberries in the Creston area softened as rainfall occurred periodically during the harvest season.

Loganberries.—The crop was smaller than 1957 but the price was improved over the previous year. Here again the hot weather reduced yields, although quality was good.

Blueberries.—Blueberry production is exhibiting a trend as a growing industry in British Columbia. This season saw a record yield of 2,000,000 pounds, a stable price, and a demand greater than the supply. It has been estimated by G. R. Thorpe, District Horticulturist at New Westminster, that the blueberry acreage will increase from 553 acres in 1957 to 1,000 acres in 1961, the bulk of which will be situated in the Fraser Valley.

Cranberries.—The cranberry industry will have doubled in acreage to 200 acres next spring. Spring frosts damaged some of the bloom in 1958 on one of the larger plantings, but even so the production was double that of 1957. Frost at blossom-time is one of the greatest hazards in the cranberry industry. Some growers are installing sprinkler systems to provide frost protection in the late spring.

Production.—The estimated small-fruit production for 1958 is as follows: Strawberries, 10,698,000 pounds; raspberries, 10,054,000 pounds; loganberries, 907,000 pounds; blackberries, 604,000 pounds; black currants, 50,000 pounds; red currants, 53,000 pounds; gooseberries, 61,000 pounds; blueberries, 2,002,000 pounds; cranberries, 70,000 pounds; grapes, 2,324,000 pounds; and filberts, 90,000 pounds.

VEGETABLE-CROPS

Coast Region

J. L. Webster, vegetable specialist, has reported that 90 per cent of all fresh vegetables grown on the Lower Mainland are produced within a 25-mile radius of Vancouver. Exclusive of potatoes, the total production of vegetable-crops in the area amounts to an estimated $4,000,000.

Pole Beans.—Pole bean acreage was 1,100 acres, with a production average of 6,730 pounds per acre. This is a reduction over last year, and it is anticipated that bean acreage will continue to decrease until research provides a satisfactory control programme for bean rust.

Canning-corn.—The acreage of canning-corn in the Fraser Valley dropped from 3,200 to 2,600 acres because of the unfavourable market outlook in the spring of 1958. Tonnage was reduced on many plantings because of the hot, dry summer.

Canning-peas.—The canning-pea crop acreage which is grown on the Lower Mainland has decreased in the past three years. Many fields did not produce an economic crop because of drought conditions.

General on Vegetables.—In the coastal area the heat-loving crops, such as corn, tomatoes, cucurbits, etc., gave a fine crop provided that moisture was available. Lettuce did poorly, however, because of the development of slime moulds and tip-burn.

Interior Region

E. M. King, vegetable specialist, has reported a continued upward trend in acreage from 1957.

Prior to 1957, acreage had shown a continuous decline for five consecutive years. Five thousand two hundred and thirty-three acres were devoted to vegetable production in 1958, compared with 5,055 in 1957. Of the twenty major vegetables grown, fourteen showed an increase and six a decrease in acreage from 1957.

Those crops registering an increase in acreage were early potatoes, late potatoes, onions, silverskins, cucumbers, cabbage, corn, squash, asparagus, turnips, green beans, green peas, peppers, and cantaloupes. Acreage decrease was recorded for tomatoes, lettuce, celery, carrots, beets, and parsnips.

Late potatoes and green beans accounted for the major portion of the total increase in acreage. Together they showed a 660-acre increase. This increase was almost nullified by a drop of 630 acres in tomatoes.

Field Tomatoes.—The 1958 tomato acreage was down from 1,886 acres in 1957 to 1,224 acres in 1958. The failure of several large canneries to operate was no doubt responsible for part of the reduction in plantings.

The young plants, of excellent quality, were planted out between April 25th and May 12th, one the earliest plantings on record. First pickings were made in late June, and heavy crops were taken in the first two weeks of July for the fresh market. After the middle of July and throughout August the summer heat had wilted the plants, the sun scalded the fruit and reduced the blossom set. Consequently, by September there were few tomatoes of satisfactory quality for the fresh market.

The two main varieties, Fireball and Gem, were particularly hard hit by the summer weather. An outstanding contrast occurred in the Osoyoos area, where, on the recommendation of the Horticultural Branch, the Summerland Gem was planted. It is a medium-vigour plant which produced high-quality fruits and reasonably good yields. This area normally has market claims, but this year where Summerland Gem was grown there were no claims at all.

Onions.—The Interior onion acreage has increased slightly over 1957 to 331 acres, partly fall-planted and the rest spring-sown onions. The main problems under consideration at present are variety recommendations and onion-maggot resistance to dieldrin and heptachlor.

Asparagus.—Asparagus yield for the Okanagan was about 1 ton per acre because of the hot, dry weather at cutting-time together with a sharp frost on April 24th. Prices offered by canners were much lower than in past years, and a subsidy was paid to growers. The cause of the price drop was a low United States price on asparagus, and the effect in British Columbia is expected to be a reduction in planting unless growers are assured of cost of production.

Beans.—Green and wax bean acreage increased sharply in 1958, but yields were low because of the hot summer. There is an expected trend away from pole beans to bush beans now that a mechanical bean-harvester has been introduced and proved to be satisfactory.

Turnips.—E. M. King has made three trips into Central British Columbia as a horticultural specialist to assist the District Agriculturists in the area and to encourage the production of suitable vegetable-crops, and particularly to study and assist in developing a Swede turnip industry. Turnip production in 1958 will be at least 300 tons, double the 1957 tonnage. The quality of the crop is excellent in spite of the severe drought this season. The yield will average between 15 and 20 tons per acre, with a high percentage of No. 1 grade. Central British Columbia appears to have an ideal climate to produce high-quality turnips, and it is hoped that a sizeable industry will develop in the area.

Dried Peas.—The Armstrong area had 2,382 acres of peas, with a yield of over 1,000 pounds per acre. Creston Flats had 600 acres, with a yield of 800 pounds per acre. An additional 120 acres were planted at Lister, near Creston, but the crop was a total loss because of drought conditions.

Watermelons.—Messrs. Baverstock and Oswell, of the Vernon office of the Horticultural Branch, report that watermelon production in the Grandview Flats area near Armstrong is a growing industry. The production was as follows:—

Year	Production in Lb.	Year	Production in Lb.
1953	362,000	1956	425,000
1954	700,000	1957	511,450
1955	400,000	1958	648,000

An Estimate of the Acreage and Production of Selected Vegetable-crops in British Columbia for 1958

	Acreage	Production in Lb.
Asparagus	590	1,064,000
Beans	1,549	10,733,000
Beets	289	4,315,000
Broccoli	175	1,355,000
Brussels sprouts	-----	402,000
Cabbage	551	9,308,000
Carrots	678	14,166,000
Cauliflower	421	5,328,000
Celery	379	5,233,000
Corn	2,744	21,026,000
Cucumbers	371	6,421,000
Cucumbers, hothouse	-----	1,081,000
Lettuce, field	574	9,677,000
Mushrooms	-----	1,431,000
Onions	402	7,223,000
Peas	4,588	13,255,000
Potatoes, early	3,369	33,656,000
Potatoes, late	7,259	103,932,000
Spinach	181	1,048,000
Tomatoes, field	1,256	23,148,000
Tomatoes, hothouse	-----	2,530,000
Turnips	430	7,237,000

NURSERY STOCK

Apple Root-stocks.—W. D. Christie, specialist in nursery crops, has reported that in 1957 a large proportion of the apples grown are on E.M. II root-stocks. The other East Malling stocks are of lesser importance, although considerable numbers are grown mainly for the backyard-garden market and for export. Although M.M. stocks have not been adequately tested, they appear to have some promise, and this year, for the first time, there has been a fairly substantial number of trees produced on four stocks. As shown in the following table, nurserymen have been quick to recognize the fact that the imported French Crab seedlings are actually domestic apple seedlings. These seedlings are of unknown parentage and many are from tender varieties. This type of seedling was damaged very badly in the 1955 freeze. As shown below, 80,000 apple-trees on seedling roots are on McIntosh seedlings, as compared with 40,000 on the so-called French Crab. This is a great improvement over the situation in 1957, when only 25 per cent of the seedling roots were McIntosh. There is a good supply of locally grown McIntosh seedlings now available, and it is expected that in the future when seedling roots are required, these McIntosh seedlings will be used almost exclusively.

Apple Root-stocks

Type	Number	Approximate Percentage
E.M. II	136,400	38.0
E.M. IV	10,680	3.0
E.M. VII	46,105	13.0
E.M. IX	21,730	6.0
E.M. XVI	7,120	2.0
E.M. XXV	1,130	0.3

Apple Root-stocks—Continued

Type	Number	Approximate Percentage
M.M. 104	2,740	0.8
M.M. 106	3,320	0.9
M.M. 109	3,100	0.8
M.M. 111	2,815	0.8
French Crab[1]	40,280	11.0
McIntosh seedling	80,780	22.6
Antonovka	1,860	0.5
Malus Robusta No. 5	1,000	0.3

[1] Stocks designated as French Crab are, in most cases, of unknown parentage, probably from domestic apple seed, including varieties such as Delicious and Winesap.

The following table shows the type of fruit-tree nursery stock which is being grown in British Columbia, as well as the number of trees:—

Tree-fruit Nursery-stock Production in British Columbia

	1957	1958
Apples	382,000	357,100
Pears	30,000	59,965
Cherries	31,000	46,875
Plums	9,000	4,700
Peaches	34,000	12,630
Apricots	.....	3,410
Totals	486,000	484,680

There have also been very significant changes in the number of apple varieties propagated. In 1957 approximately 70 per cent of the apple nursery stock was Red Delicious, but this year's production shows the effect of the recommendations regarding hardy frameworks. The next table shows the most important of the apple varieties grown and the numbers of each produced this season:—

Apple Varieties

Variety	Number
McIntosh[1]	90,277
Delicious	72,520
Golden Delicious	37,120
Spartan	29,010
Winesap	14,445
Rome Beauty	5,480
Antonovka[2]	13,250
Canada Baldwin[2]	10,730
Haralson[2]	3,990

[1] Partly for hardy frameworks.
[2] All for hardy frameworks.

SEED PRODUCTION

The total production of vegetable seed for 1958 was below that of 1957 but above 1956, with an estimated value of $400,000. The estimated value of flower seed is $12,300. Peas are by far the largest crop, followed by Swede turnips, onion sets and multipliers, beans, onions, and corn.

SURVEYS

The greenhouse survey for British Columbia has been completed, and the breakdown by areas is as follows:—

Greenhouse Survey, 1957

District	Number of Growers	Age		Total Area in Sq. Ft.	Square Footage Devoted to Certain Major Crops											
		5 Years and Under (Sq. Ft.)	Over 5 Years (Sq. Ft.)		Tomatoes (Fall)	Tomatoes (Spring)	Cucumbers (Fall)	Cucumbers (Spring)	Vegetable Transplants	Chrysanthemums	Carnations	Roses	Stocks	Snapdragons	Other Cut Flowers	Bedding Plants (Flats)
Lower Mainland	226	325,088	1,281,751	1,606,839	15,280	315,710	.....	40,000	173,251	559,028	171,305	74,925	77,732	51,693	25,614	132,700
Vancouver Island and Gulf Islands	201	68,954	2,130,103	2,199,057	345,970	1,426,911	23,000	217,260	.....	552,919	84,326	46,336	4,700	13,200	4,200	18,100
Okanagan	151	74,040	369,832	443,872	.....	223,241	.....	18,030	151,499	26,000	6,990	1,200	2,000	1,400	300	12,990
Kootenay	7	468	17,820	18,288	.....	.....	.....	.....	3,365	5,280	3,365	700	1,200	1,220	.....	3,700
Totals	585	468,550	3,799,506	4,268,056	361,250	1,965,862	23,000	275,290	328,115	1,143,227	265,986	123,161	85,632	67,513	30,114	167,490

EXTENSION

Most of the extension work carried out by the District Horticulturists requires a call at the farm to observe the problems that need attention. In some cases telephone calls are sufficient or the grower will bring his problem to the office.

With a problem year, such as 1958, for insect-control, the Horticulturists were kept extremely busy. For example, the resistant codling moth orchards were first observed by the Horticultural Branch staff; the Federal Entomology Laboratory at Summerland was advised of the grower's difficulty in getting satisfactory control with DDT. They, in turn, ran a check and found a high degree of resistance to DDT in the worms from the problem orchards. Resistance to DDT by codling-moth was confirmed in August. In the meantime special spray recommendations were issued to orchardists so that control of this problem insect could be assured.

Meetings have been part of the extension programme for many years. In the Fraser Valley and Vancouver Island the Horticulturists have regularly attended meetings of the berry-growers' associations in the various areas, either as speakers or observers. Similarly, in the Okanagan the fruit-grower meetings and the vegetable-grower meetings were attended.

A series of twenty meetings for tree-fruit growers was held through the Okanagan from Osoyoos to Vernon, with a total attendance of 1,611, an increase of 469 over last year. The following topics were covered by members of the Horticultural staff: " The Present Status of Bulk Handling of British Columbia Tree-fruits," by W. F. Morton, District Horticulturist, Kelowna; " Tree-fruit Maturity," by D. A. Allan, District Horticulturist, Oliver; and " Orchard Insect Control in 1958," by A. W. Watt, District Horticulturist, Summerland.

Assistance was also given in the Chautauqua programme by Dr. M. F. Welsh and Dr. D. V. Fisher, of the Research Centre at Summerland.

Pruning, budding, and grafting schools were held at all points where they were requested. Summer tours for orchardists were held at Keremeos, Oliver, Summerland, Kelowna, and Winfield, with a total attendance of 250 growers. This was the second year for orchard tours, and interest is increasing.

A large number of newspaper articles have been prepared for district newspapers and farm papers to assist growers to produce better crops. J. A. Smith has had a monthly column in " Country Life " in British Columbia directed to fruit-growers. The Horticultural news-letter was issued every two weeks from May to September. Crop estimates and production figures have been prepared for various horticultural crops.

All of the staff of the Horticultural Branch have given talks or prepared material for use on radio. The co-operation of the C.B.C. Farm Broadcast—CHWK (Chilliwack), CKOK (Penticton), CKOV (Kelowna), and CJIB (Vernon)—has been particularly appreciated. These stations have given time for broadcasts which were prepared to assist growers of horticultural crops; the time is given free and often on a regular basis.

The Horticultural Branch has been carrying out extension by means of television in the Okanagan through the co-operation of station CHBC-TV. The main transmitter for CHBC-TV is at Kelowna, and there are satellite transmitters in Vernon and Penticton. In this manner it is possible to direct material to farmers from Oliver to Salmon Arm and Revelstoke.

The programmes commenced on April 4th, 1958, and they have been continued weekly since that time. The first four programmes were of fifteen minutes' duration, but it was found that a thirty-minute programme was easier to prepare and deliver, and so the time was extended to half an hour on May 2nd.

M. G. Oswell, Assistant Horticulturist at Vernon, has done an excellent job of organizing this programme. He has also acted as master of ceremonies for all but three of the programmes. J. A. Smith, Supervising Horticulturist at Kelowna, has assisted and filled in for Mr. Oswell when required.

The plan of the programme is to give the first ten minutes to current information, and an interview with a guest for the remaining twenty minutes. Guests to date have consisted mainly of British Columbia and Canada Department of Agriculture officials, although growers and industry officials have also taken part.

The reaction of the public has been very favourable. The reaction of the farm population is that television has a greater impact than any other form of mass media as a means of putting over agricultural advice to a large number of people.

In addition to the weekly CHBC-TV shows, several of the staff took part in short features on horticultural topics that were filmed and shown on " Country Calendar " on the C.B.C. television network.

In 1958 G. R. Thorpe, District Horticulturist at New Westminster, and I. C. Carne, District Horticulturist at Abbotsford, spent several days visiting the major strawberry areas in Washington and Oregon State at harvest-time. Varieties and cultural practices were observed and much useful information was obtained, particularly from each of the State extension services.

Two staff-training programmes of the Department of Agriculture were participated in by most of the Horticultural Branch staff. They were the Communications Workshop at Victoria and Kelowna and the Farm Management Course at the University of British Columbia.

The report of the Royal Commission on the Tree-fruit Industry of British Columbia has been completed, and Commissioner E. D. MacPhee turned his report over to the Provincial Secretary on October 27th, 1958.

ACKNOWLEDGMENTS

Your Horticulturist wishes to acknowledge the co-operation he has received from the Horticultural Branch staff. This has been a particularly difficult year because the Provincial Horticulturist continued to act as secretary of the Royal Commission on the Tree-fruit Industry of British Columbia. The assistance of A. E. Littler, District Horticulturist at Victoria, has been particularly appreciated in handling much of the administrative work of the Horticultural Branch from March to October. The co-operation of the various branches of the British Columbia Department of Agriculture, the Canada Department of Agriculture, the Faculty of Agriculture at the University of British Columbia, and the various grower organizations throughout the Province has been appreciated.

Finally, this Branch would like to acknowledge the thirty-seven years of service which have been given to the betterment of horticulture by Bob Murray, Provincial Horticulturist who retired on February 28th, 1958. Mr. Murray energetically pursued his work with this Branch, and his contribution to horticulture has been outstanding. We hope he will enjoy his retirement.

REPORT OF PLANT PATHOLOGY BRANCH

W. R. Foster, M.Sc.

The dry, high-temperature weather prevailing during most of the growing season was not favourable for the development of many of the important bacterial and fungous diseases. It was favourable, however, for the development of physiological disorders and the spread of virus diseases by aphids and leaf-hoppers.

DISEASES

Field Crops and Vegetables

Bacterial Ring-rot of Potatoes.—Ring-rot has been found in trace amounts on four farms in the Fraser Valley and one at Prince George, and on one farm at Kamloops.

Club-root of Cabbage.—There was severe damage in many fields at the Coast. A new variety, 1922-L, developed at the University of Wisconsin, was tested here for the first time. This variety proved to be resistant and horticulturally suitable in some locations at the Coast but not in others. Further trials are warranted.

Dwarf-bunt of Winter Wheat.—There has been a considerable increase in dwarf-bunt in the Creston area and a slight increase in the Northern Okanagan. The Kharkow variety appears to be very susceptible, and the Ridit variety is increasingly susceptible. The Wasatch variety continues to be resistant but is subject to lodging. Attempts are being made to find better resistant varieties.

Leaf-mould of Tomatoes.—The Waltham variety of greenhouse tomatoes was resistant.

Leaf-roll of Potatoes.—A serious outbreak of leaf-roll occurred in certified and commercial potatoes in the Fraser Valley. The mild winter favoured the aphid population responsible for spreading the disease. Considerable improvement occurred in the reduction of primary leaf-roll net necrosis in commercial potatoes in the Northern Okanagan. This resulted mainly from the use of larger quantities of foundation seed throughout the industry.

Tree Fruits

Anjou Pit of Pears.—This was probably the most serious orchard disease in 1958. Losses up to 60 per cent occurred in some orchards in the Anjou variety. Previously it was severe in 1947 and 1950.

Apple-scab.—The mild winter brought the ascospores to maturity several weeks earlier than usual. Heavy primary infection occurred in some districts. Fortunately the hot, dry weather during spring and summer was unfavourable for the development of scab. An apple-scab warning service telling growers when the ascospores are discharging will be inaugurated in the Okanagan in the spring.

Brown-rot of Stone Fruits.—Brown-rot of apricots (*Sclerotinia laxa*) was found in several orchards in the Southern Okanagan for the first time. It did not cause any economic loss. The recommended Phygon and Captan spray programme for brown-rot of cherries in the Kootenays was effective. The dry weather during most of the growing season was not favourable for the development of brown-rot.

Little Cherry.—There were serious losses in the Lambert variety in the Creston Valley. Regulations were passed to stop the transportation of cherry nursery stock from the affected areas in the Kootenays.

Mineral Deficiencies of Tree Fruits.—The use of iron chelates for the correction of iron deficiency has been increasingly accepted. Zinc sulphate for correcting zinc deficiency is also being widely used.

Small Fruits

Root-rots of Strawberry.—The Rhizoctonia root-rot was severe on a number of farms in the Fraser Valley. Red-stele continues to be a problem at the Coast, particularly in poorly drained soils.

There is a need for a cheap soil fumigant. Many of the holdings are not large enough to carry out a suitable crop rotation.

REPORT OF ENTOMOLOGY BRANCH

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

The year 1958 was a busy one as far as insects were concerned, and several species were unusually abundant.

FIELD-CROP AND VEGETABLE INSECTS

Grasshopper infestations were considerably higher than last year in areas south of Williams Lake, and much more money was spent on control measures by the grasshopper-control zones. Red-backed cutworms in the Okanagan-Mainline and Peace River areas and variegated cutworms in coastal British Columbia caused considerable damage to cereal, vegetable, and other crops. Potatoes and sugar-beet seed-crop suffered, particularly in the Ladner area. Demonstration plots to show the effect of various insecticides when used on land to be seeded to watermelons were grown near Armstrong. Green peach-aphids were particularly numerous on potatoes in the Delta districts and caused an increase in the leaf-roll disease. Damage from tuber flea-beetle occurred at several points on Vancouver Island on fields claimed to have been treated properly. Cabbage-aphid caused severe damage to cabbage and cauliflower on Southern Vancouver Island, and infestations were also heavy in the Fraser Valley. Damage from onion-maggot in the Okanagan-Mainline reached serious proportions when control measures, previously effective, failed to give control. Turnip-maggots in Central British Columbia were again numerous, but many of the growers were advised of control measures at field-days and lectures. Wheat-midge caused severe damage near Kersley. *Liocoris* spp. was again present in economic numbers throughout the Peace River area, and it appears evident that control measures are necessary where alfalfa is to be grown for seed. The thistle butterfly was widespread in the North and South Okanagan, Fraser Valley, Vancouver Island, and West Kootenay, but there was little evidence of any damage to cultivated crops. Miscellaneous inquiries throughout British Columbia covered the usual wide range of other insects normally present in varying degrees on vegetables and field crops.

ORCHARD INSECTS

Orchard pests caused considerable concern in 1958. Codling-moth developed resistance to DDT in scattered orchards from Kelowna to Osoyoos. Heavier infestations also occurred in coastal British Columbia orchards. Considerable difficulty was experienced in controlling pear-psylla. Discussions were held with orchardists throughout the Okanagan during the "Orchard Tour" field-days. Trapping studies for Oriental fruit-moth in the Okanagan Valley by the Canada Department of Agriculture showed no moths, hence indicated success of our 1957 project of suppression by fumigation.

The following pests were present in the degrees noted:—

(*a*) More than in 1957: Apple-aphid on young apple-trees, black cherry-aphid, fruit-tree leaf-roller, McDaniel mite, two-spotted mite, blister-mite at Creston, peach tree-borer on nursery stock; pear-psylla was also more difficult to control; codling-moth DDT-resistant moths appeared in several orchards from Kelowna to Osoyoos; leaf-hoppers on non-sprayed trees in the early season; pear-slug on pear and cherry on Vancouver Island and Fraser Valley; stink-bugs on soft fruit; grasshoppers in young orchards at Creston.

(*b*) Less than in 1957: Eye-spotted bud-moth, lecanium scale on soft fruit due to increased control, woolly apple-aphid, thrips causing "pansy spot."

(*c*) Same as in 1957: Apple-aphid on mature trees, buffalo tree-hopper, cherry fruit-worm, European red mite, Liocoris (=lygus), peach tree-

borer, grasshoppers in Okanagan, apple-sawfly, San Jose scale, thistle-aphid, mealy plum-aphid, yellow-necked caterpillar, cherry fruit-fly cicadas in Creston area.

(*d*) Minor economic importance (low-level populations): Brown mite, California pear-slug, cicadas in Okanagan, cutworms, European earwig, European fruit-scale, oyster-shell scale, thrips on apples, rosy apple-aphid, yellow spider-mite, peach twig-borer.

SMALL-FRUIT INSECTS

The strawberry and black vine weevil continues to be well controlled in treated small fruits. The root-weevils *Sciopithes obscurus* and *Nemocestes* are not controlled by these insecticides and caused increased damage in 1958. The clay-coloured weevil damaged raspberries in the Yarrow district for the first time. Cyclamen mite at Creston on strawberries required three endrin treatments to effect control. The omnivorous leaf-tier was present again in a wider area in strawberries, centring on Abbotsford. The shallot-aphid caused moderate to severe damage to strawberries on both Vancouver Island and the Fraser Valley on non-treated acreages. Two-spotted mites were prevalent on both raspberries and strawberries at Creston and in the Fraser Valley. A high incidence of red berry-mite was reported by the Canada Department of Agriculture entomologists at Victoria. Bramble leaf-hoppers and rose leaf-hoppers were numerous to warrant control in coastal areas. The *Macropsis* leaf-hopper on loganberries on Lulu Island increased markedly over 1957. The raspberry root-borer continues as a serious pest throughout the Province. Spittle-bug control on strawberries and fruit-worm control on raspberries was needed at Creston.

FLOWERS AND SHRUBS

Inquiries concerning the pests of flowers and shrubs covered a wide range of insects. No serious outbreaks occurred, but of interest was an attack by the alfalfa looper to greenhouse chrysanthemums and damage to daffodils by the variegated cutworm in the Fraser Valley. Satin-moth caused damage to poplar-trees from Penticton to Savona.

LIVE-STOCK PESTS

There was no outbreak of tick paralysis on cattle as in 1957. Ranchers no doubt took the necessary precautionary or control measures. The winter tick was abundant on cattle at Empire Valley and in the Cariboo. The Coast tick was numerous and attacked several people, at least in the Nanaimo, Alberni, and immediate districts. The ear-tick was present in several cattle herds in the Adams Lake district. Cattle warbles were more abundant in 1958. Increased activity on research and demonstration control was carried on with systemic insecticides. The demonstration of warble-fly control at Empire Valley with 800 head of cattle proved effective and will continue during 1958–59 by the Canada and Provincial Departments of Agriculture. Feed-additive demonstrations were conducted at these ranches, and spraying tests at two others for warble and louse control. Horn-flies were more numerous than usual in the Interior. Cattle lice continue to be a major pest, and ranchers find it difficult to spray cattle late in the season due to low temperatures which often prevail after the cattle come down to winter pasture or feeding areas. Blackflies were troublesome, as usual, to cattle in several areas.

HOUSEHOLD AND STORED-PRODUCT PESTS

Ticks, bedbugs, wasps, box elder bugs, silverfish weevils, carpenter-ants, termites, fleas, black widow spiders, earwigs, and carpet-beetles were the most common pests reported. Stored-product insects were reported, in part, by the Canada Department of

Agriculture as follows: The brown house-moth and the white-shouldered house-moth were the commonest insects in elevators; yellow meal-worm, Indian meal-moth, granary-weevil, spider-beetles, tobacco-moths, mites, psocids, and black carpet-beetles were present in lesser numbers. In cereal-warehouses and feed plants the insects normally associated with such places were present in varying numbers in different areas of the Province.

EXTENSION AND PUBLICATIONS

1. Handbook of the Main Economic Insects of B.C.: Part 5, "Forage," and Part 6, "Stored Product Insects." Neilson and Arrand.

2. Mimeograph circulars were prepared on Spruce Gall Aphid; Turnip Pests and Their Control; Pear-psylla; San Jose Scale; Back Rubbers, an Aid in Controlling Horn-flies and Lice.

3. Press releases were made on warble-fly control, turnip-maggot, black widow spider.

4. Illustrated lectures were given at fifteen locations and grower field-days attended in the Peace River, Okanagan, and Central British Columbia. Radio talks were given over Quesnel, Kelowna, and Vernon radio, and two television appearances made on CHBC (Kelowna). Grasshopper zone meetings were attended.

5. Fall fairs were attended and displays shown at Creston, Dawson Creek, Smithers, Port Alberni, Nanaimo, and Armstrong.

REPORT OF APIARY BRANCH

J. CORNER, PROVINCIAL APIARIST, VERNON

Beekeeping in British Columbia had one of its better years during 1958. A mild open winter during 1957/58 resulted in above average wintering of colonies. A very early spring coupled with a hot, dry summer provided ideal conditions for colony welfare. In certain areas, such as the Similkameen and North Okanagan, the long period of hot, dry weather resulted in reduced nectar yields. However, in areas of usually heavy precipitation, this dry weather resulted in above average yields of honey. All factors considered, the Provincial honey yield of 1,913,717 pounds can be considered as above average.

MARKETING

Marketing of honey and honey products continues to be satisfactory. The price of beeswax has been somewhat depressed, with a top price of 45 cents being offered, as compared to 55 cents during 1957.

Two beekeepers are experimenting with methods of manufacturing beeswax candles. The bulk of our production of honey is still being sold through the retail trade, and there has been a vast improvement in the quality and attractiveness of packs.

DISEASE CONTROL AND INSPECTION

The inspection staff during 1958 consisted of V. E. Thorgeirson, J. Stann, H. Boone, G. V. Wilkinson, and L. Truscott. A total of 9,278 colonies were inspected.

One hundred and four live colonies infected with American foul-brood and valued at $2,080 were burned in accordance with terms of the "Apiaries Act." Fifteen colonies were treated under supervision of the Inspectors. Nineteen samples of brood comb and smears were received for analysis. All showed infection—twelve American foul-brood, five European foul-brood, and two nosema.

Samples of live adult bees were sent to Guelph Agricultural College and also to the Bee Division at Ottawa for diagnosis of septicæmia, a disease of the blood. Samples will be collected this coming year so that this work may be continued.

POLLINATION

Pollination service of honeybees has been continued. There were 841 colonies used for the pollination of fruits and vegetables. The number of colonies rented was 211, at an average charge of $5.33.

There is an opportunity for an improvement in extension techniques to inform growers of the effectiveness of honeybees as pollinators and to overcome the reluctance of beekeepers to move their colonies where pollination services are needed.

BULLETINS AND PUBLICATIONS

A bulletin on General Beekeeping in British Columbia is nearing completion, and Circulars No. 13 (The Use of Antibiotics and Drugs in Controlling Bee Diseases) and No. 10 (Beehive Construction for Beginners) are under revision. The following bulletins were printed: Honey and Pollen Plants of British Columbia, Pollination, Bee Stings, and Beekeepers Calendar.

EXTENSION

Short courses on beekeeping were held in Fort St. John and Victoria. Another beemaster's short course was held at the University of British Columbia, where seventeen of the twenty-six candidates wrote examinations and were successful in obtaining the beemaster's certificates. Three 4-H Honeybee Clubs are organized in Armstrong, Vernon, and Penticton. The extension work involved in beekeeping is unlimited, and the services of our staff are in constant demand for inspection, lectures, field-days, as well as production and marketing information. Once again a booth was set up at the Armstrong Interior Exhibition in co-operation with Horticulture, Entomology, and Agricultural Extension.

Our new refractometer is a very useful instrument to have available. Thirty-one samples of honey were tested and acknowledged. Five series of 35-mm. slides were completed for showing at beekeepers' meetings. The subjects covered were: 1, Disease; 2, Wintering; 3, Spring Management; 4, New Equipment; and 5, General Beekeeping.

Correspondence consisted of 1,729 letters in and 2,140 letters out. Twelve tape-recorded programmes were made for rebroadcast on CKWX, CKOV, and the C.B.C. Two appearances were made on Okanagan Farm and Garden television programmes.

MEETINGS

Members of this Branch attended seventeen field-days, fifty-two meetings, and thirteen fairs and exhibitions.

Honey was judged at ten local fairs and exhibitions. The Canadian Beekeepers' Council meeting and the Provincial Apiarists' meeting in Vancouver, an agricultural extension meeting in Kelowna, Inspectors' meeting, and a field-day at Beaverlodge were attended, also the annual meeting of the British Columbia Honey Producers' Association. A visit was paid to the Agriculture Section at Guelph Agricultural College, as well as the Bee Division Experimental Farm, Ottawa.

REPORT OF LIVE STOCK BRANCH

A. KIDD, V.S., D.V.M., D.V.P.H., LIVE STOCK COMMISSIONER
AND CHIEF VETERINARY INSPECTOR

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

LIVE STOCK AND VETERINARY DIVISION

(Dr. A. Kidd)

As most of our duties are of a regulatory nature, this section will show 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"

During July the Fort Fraser and the Westwold Bull-control Areas were established. There are eleven gazetted bull-control areas and fifteen gazetted bull districts within the Province.

" Beef Grading Act "

This Act applies to 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 639 inspections to retail outlets in the Greater Vancouver area.

During the year the Canada Department of Agriculture promulgated revised beef grading regulations and a new schedule of grades. The regulations pursuant to the British Columbia " Beef Grading Act " are being revised to conform and will be established by Order in Council during 1959.

" Contagious Diseases (Animals) Act, 1956 "

The main objective of this Act continues to be the eradication of brucellosis from the cattle population of the Province. Progress toward complete eradication is being carried out relentlessly through a thoroughly planned programme. In a few years British Columbia will be certified free of brucellosis. This will rid all cattle-owners of the burden of this costly disease, and from a public health aspect eliminate the source of undulant fever in humans.

Problems with reference to a few diseases are outlined.

1. *Specific Diseases.*—Foot-rot in Sheep: Veterinary Inspectors carried out routine inspections of some 10,000 sheep before grazing permits were issued allowing sheep on certain Crown lands. This is a joint effort with the Grazing Commission of the Department of Lands and Forests and helps greatly to keep this condition under control.

Tuberculosis of Cattle: The Health of Animals Division of the Canada Department of Agriculture has the responsibility of this disease throughout the entire Province. The tremendous export of beef cattle to the United States again created an emergency this year, and one Veterinary Inspector was loaned to the Health of Animals Division during September and October to assist in the tuberculosis and brucellosis testing of cattle. For the entire year 36,139 range cattle were shipped to the United States from British Columbia for purposes other than immediate slaughter.

Vibriosis of Cattle: Now that brucellosis is being eradicated from the cattle of the Province, vibriosis is emerging as the No. 1 disease of concern in beef and dairy cattle. It is becoming increasingly widespread and more firmly established in all areas. This is primarily a sterility disease spread through the use of an infected bull. The use of artificial insemination makes this disease a lesser problem in our dairying areas. We regret to report that dairymen in general are making no progress in controlling this disease, and the situation is worsening each year. Similarly, in our beef-raising herds, vibriosis is showing up on more ranges. Individual ranchers or groups of ranchers can eliminate vibriosis from their herds by a good programme of artificial insemination or through a sound controlled programme of pasture and corral breeding. With few exceptions this is not being done. The problem of vibriosis herds on common ranges is a matter of great concern. The very nature of vibriosis prevents control or eradication in those herds. Present-day knowledge indicates vibriosis can be eliminated from infected herds—beef or dairy—only through a sound breeding programme. Cattle-owners concerned are failing in their efforts, and it is evident that more effective action must be taken. This disease is sufficiently serious to both the beef and dairy industries to warrant earnest consideration of the following:—

(*a*) Regulations under the appropriate legislation.

(*b*) Increased publicity and advice to cattlemen.

(*c*) Increased research to provide more effective measures for control and eradication.

2. *Non-specific Diseases.*—Cyanide Poisoning: The cause of death of two cattle in the Southern Interior and caused from eating the fruit-laden branches of the choke-cherry trees.

Malnutrition: Reported by almost all of our Veterinary Inspectors as the cause of deaths of animals or nutritional abortions, particularly evident in the early spring when cattle-owners have not put up sufficient winter feed.

3. *Brucellosis Eradication in Cattle.*—Of the four areas taken over by the Canada Department of Agriculture on November 19th, 1957, three—Pemberton-Sechelt, West Kootenay, and McBride—have been declared certified brucellosis-free areas by the Health of Animals Division. It is expected that the Vancouver Island Brucellosis-control area will be certified also during 1959.

This Department discontinues payments to veterinary practitioners for vaccination of calves against brucellosis when a brucellosis-control area is taken over by the Canada Department of Agriculture.

It is intended in the near future to request the Canada Department of Agriculture to take over four more of our brucellosis-control areas, which will permit the Health of Animals Division to effect the gradual certification of British Columbia. The more stringent regulations governing the importation of cattle to the United States, which went into effect on November 15th, emphasize the urgent need for brucellosis certification. These permit the importation of cattle meeting the following qualifications with respect to brucellosis:—

(*a*) Cattle originating in fully listed herds and tested with negative results within thirty days preceding entry.

(*b*) Cattle from negative herds in brucellosis certified areas and tested with negative results within thirty days preceding entry.

(*c*) Cattle from herds which have passed a negative brucellosis test not more than three months preceding the date of offer for entry and tested again with negative results within thirty days preceding entry.

(*d*) Official vaccinates under 30 months of age from herds not known to contain any animals affected with brucellosis.

(*e*) Cattle of beef breeds raised under range conditions in Western Canada will be allowed the range test privilege of negative blood test within thirty days preceding their offer for entry or official calfhood vaccination certificate.

These regulations do not apply to cattle under 6 months of age, steers, or cattle for immediate slaughter.

In the report of the Live Stock Branch of 1957, it was reported that progress in the Fraser Valley Brucellosis-control Area programme was lagging. This situation still pertains. It will continue until the Department has sufficient veterinary and office personnel in the area to implement in full the several phases of the programme that has been planned and which has made certain definite progress.

During the calfhood-vaccination year ended June 30th, 1957, a total of 39,230 calves were vaccinated, mostly by veterinary practitioners, at a cost to the Department of $40,680. During the calfhood-vaccination year ended June 30th, 1958, a total of 47,087 calves were vaccinated, again mainly by veterinary practitioners, at a cost of $49,790. Present indications are that nearly 60,000 calves will be vaccinated during the calfhood-vaccination year ending June 30th, 1959. The continued increase is due to greater publicity by this Department and more coverage by veterinary practitioners, including those locating in the more remote areas of the Province through our Veterinary Service District Policy.

Current statistics indicate that there will be another increase of approximately 3,000 calves vaccinated in the Fraser Valley Brucellosis-control Area to nearly 18,000 head. This compares well with the approximate 11,000 head in 1956/57. We estimate 26,000 calves in the Fraser Valley eligible, and in the next year steps will be taken to ensure these are vaccinated against brucellosis.

During April, Live Stock Branch and Dairy Branch Inspectors forwarded samples of the milk from each shipper in the North and South Okanagan to the Animal Pathology Laboratory for the purpose of the milk ring test for brucellosis. Three hundred and fifty-nine samples were taken, 248 showing negative, 39 positive, 17 suspicious, and 15 trace results. Follow-up herd tests were carried out.

During June, at the request of the Federal authorities, the Live Stock Branch and Dairy Branch Inspectors took samples from the milk of 298 shippers on Vancouver Island and forwarded these to the Federal Animal Pathology Laboratory for the brucellosis ring test. Two hundred and sixty-six samples showed negative results, 16 positive results, and sixteen suspicious results. In the follow-up herd tests on thirty-one premises, 973 cattle were negative, 19 suspicious, and 5 positive. The one herd not tested was a Federal listed herd. It was further concluded that the calfhood-vaccination titre does affect the brucellosis ring test of milk.

Routine work in relation to live-stock transportation permits involves much effort by both office and field staffs.

One successful prosecution was carried out where cattle were transported into a brucellosis-control area without the necessary live-stock transportation permit.

A Veterinary Inspector has been present at all bull sales, fat stock sales, breeding stock sales, and feeder sales of beef cattle in order to test for brucellosis, where required, and to issue live-stock transportation permits where necessary. Live-stock sales were held weekly at Williams Lake and Kamloops from early September through to December, which required almost the full time of our Kamloops Veterinary Inspector for that period.

Veterinary Inspectors vaccinated a total of 2,594 calves on 283 premises.

Veterinary Inspectors blood-tested 8,006 cattle on 544 premises. Brucellosis agglutination blood test results showed 7,729 head were negative, 149 head over 36 months of age were positive, and 95 head over 36 months of age were suspicious.

Calfhood Vaccinations in Brucellosis-control Areas, July 1st, 1957, to June 30th, 1958

Area Number and Area	1957/58
1. West Kootenay (Federal certified)	195
2. Nicola	4,891
3. Cherryville	18
4. Cariboo	9,216
5. Vancouver Island (Federal certified)	1,621
6. Pemberton-Sechelt (Federal certified)	46
7. McBride (Federal certified)	73
8. South Okanagan	2,767
9. East Kootenay	2,018
10. Kamloops-North Okanagan	8,789
11. Fraser Valley	14,794
Total	44,428

Calfhood Vaccinations 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
July 1st, 1957, to June 30th, 1958	44,428	47,087
Totals	168,206	266,408

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 1958 a total of 609 fur-farm licences were issued and the amount of $6,535 collected. Inspectors made a total of 277 fur-farm visits on various matters.

The Victoria office issued 197 fur-farm transportation permits to cover export and import of fur-bearing animals. A total of 122 permits to vaccinate for distemper were issued to cover inoculations of 50,834 mink.

During the year twelve fur-farms were quarantined because of distemper and seven quarantines were lifted. At the year's end eight distemper quarantines remain within the Province.

For the first time virus enteritis in mink was recognized during October on two fur-farms located in the Municipality of Surrey. Due to the nature of the disease, no quarantines are being instituted by this Department. A total of seven permits were issued to cover the vaccination of 2,195 mink for virus enteritis.

" Horse-breeders' Registration and Lien Act "

No applications for enrolment were mailed out and no stallions were enrolled during the year.

" Meat Inspection Act "

There are two abattoirs continuing under the Meat Inspection Service as provided by this Department—namely, Clappison Packers at Haney and Seed & Pitts Packers at Pitt Meadows. Both plants also come under the meat grading service of the Federal Marketing Service as carried out by the Livestock and Livestock Products Division.

During the year many representations are received from various persons interested in establishing abattoirs under the Provincial Meat Inspection Service. It is evident, however, that no matter how interested the persons may be in having supervised meat inspection and grading, few, so far, will spend sufficient money to build establishments to the requirements of the Meat Inspection Act and regulations. Almost everyone wants meat inspection, but no one has the money to spend in order to get it. There are at least two abattoirs, however, in the Fraser Valley that will likely soon qualify for inspection as their premises are gradually being brought into line with requirements.

" Milk Industry Act," 1956

Fine work is being carried out under this Act in the inspection of dairy-farms that are selling raw milk as approved raw-milk dairy-farms and shipping milk as approved fluid-milk dairy-farms. The cost-price squeeze is forcing many producers into bigger operations with increased mechanization and greater efficiency to cut production costs. This is particularly evident in the Fraser Valley and Vancouver Island areas. The trend is indicated by the considerably increased installation of farm holding-tanks for milk. The substantial number of these in use in the Fraser Valley is being increased steadily each month. A few have been installed on Vancouver Island and one in the East Kootenay District.

Parts I and II of the regulations under the " Milk Industry Act " were amended during the year to require, among other things, that tanks can be installed only by permit to ensure that milk-houses and the tanks meet approval.

Three separate successful prosecutions were carried out by Inspectors under section 5 of the " Milk Industry Act " where persons were selling milk for human consumption without a certificate of approval.

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

Mastitis Examinations by Veterinary Inspectors

Number of premises	99
Number of cows examined	1,453
Number clinical	336
Number to treat	273
Number to eliminate	63

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."

" Sheep Protection Act "

Compensation paid from Dog Tax Fund for the years 1956, 1957, and 1958:—

Year	Goats		Sheep		Poultry	
	Number	Compensation	Number	Compensation	Number	Compensation
1956	-----	--------	141	$3,531.50	462	$1,180.50
1957	-----	--------	121	2,303.50	543	595.00
1958	1	$30.00	96	2,305.00	746	741.89

POLICIES

Artificial Insemination Assistance Policy

On March 5th a policy statement regarding artificial insemination of cattle and related problems was approved by the Honourable the Minister of Agriculture. The funds are made available through the " artificial-insemination assistance " section of the Live Stock Branch vote. The policy is listed as follows:—

(1) An Advisory Committee on Artificial Insemination and related matters was established by the Minister of Agriculture, and held its first meeting on January 12th, 1956. Government policy has been, and will continue to be, based upon the recommendations of this committee.

(2) The primary objective of the programme evolved by the Advisory Committee is to ensure that the major service load shall be carried by sires proven, under artificial-insemination conditions, to be superior.

(3) Artificial-insemination service is to be extended, as and when considered practical, to the various areas of the Province.

(4) A permanent frozen-semen laboratory is to be established at the British Columbia Artificial Insemination Centre.

(5) It is intended that the continuing implementation of the British Columbia artificial-insemination programme shall be, as at present, a co-operative and cost-sharing effort between the Provincial Government and the Federal Government, and the British Columbia Artificial Insemination Centre, and the various sub-units throughout the Province.

(6) Provincial Government support of this programme shall be as follows:—

(*a*) Sharing with the British Columbia Artificial Insemination Centre, on approximately a 50–50 basis, the extra costs which the implementation of the programme entails. This has resulted in the young sire evaluation programme.

(*b*) Contributing to the establishment of a permanent frozen-semen laboratory.

(*c*) Special grants, as deemed necessary, to facilitate the establishment of artificial-insemination service throughout the Province.

Under " Special Grants " two Artificial Insemination Clubs (semen purchasing organizations) newly constituted during the year will receive assistance at the rate of $1 per head per first service and be reimbursed the costs for the transportation of the semen. The grant and reimbursement is approved by the Minister on a calendar-year basis and is available only to a newly formed club requiring aid, and may be forthcoming to that club until such time as it becomes self-sufficient.

Dairy-cattle Placement Policy

During the nine-year period from 1950 through to 1958, a total of 671 head of dairy cattle have been selected and placed from the Fraser Valley. A total of 631 head of females were shipped, including 392 Holsteins, 124 Guernseys, 78 Jerseys, and 37 Ayrshires. In the same period an additional 40 registered dairy bulls were selected and shipped, including 19 Holsteins, 13 Guernseys, 4 Jerseys, and 4 Ayrshires. Production background has been the prime requisite under this policy, and almost all selections have been from D.H.I.A. herds.

While most of the females selected have been graded, due to the difficulty experienced in obtaining suitable registered animals at a figure Interior dairymen could pay, all have had registered sires—many artificially. This policy is integrated with the brucellosis-control programme, the use of registered sire, and D.H.I. services.

In the last two years, two yearling Hereford bulls have been selected in the Fraser Valley and shipped to up-coast points under the Pure-bred Sires for Farmers' Institutes Policy.

Live-stock Improvement Policy

During the year, 4 Yorkshire boars were purchased for $375 and 1 Suffolk ram for $50. Freight charges amounted to $66.59. The Department also paid the freight on 16 hogs from Edmonton to Dawson Creek, amounting to $143.26. This makes a total of $472.63 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 1958 were as follows (1957 figures in parentheses): 12 (12) pure-bred sires were purchased during the year at a cost of $5,575 ($4,395), which included 10 Herefords, 1 Shorthorn, and 1 Aberdeen-Angus; transportation charges paid by this Department amounted to $493.40 ($381.80). The Farmers' Institutes receiving these sires were as follows: Grand Forks, Newgate, Westbridge, Pemberton, Jaffray, Tatalrose, and Bella Coola. Total payments received from farmers under this policy during the year amounted to $4,119.85 ($3,402.62). Final payments were received on 9 bulls, including 5 Herefords, 1 Shorthorn, and 3 Holsteins, and also on 1 Hampshire ram.

Veterinary Service District Policy

The purpose of this policy 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 were established last year with veterinarians located at Dawson Creek and at Prince George.

Two additional veterinary service districts were established by signed agreement commencing September 1st. Dr. J. A. Roberts, resident at Williams Lake, is providing veterinary service in the Williams Lake Veterinary Service District, and Dr. K. E. Marling, resident at Creston, is providing veterinary service in the Creston Veterinary Service District.

Short Courses

Four Veterinary Inspectors attended the Veterinary Short Course at Washington State College at Pullman held for three days during April.

All of the Live Stock Branch staff and D.H.I. supervisors attended a two-day Communications Short Course held at Acadia Camp on the University of British Columbia campus during May.

Two Veterinary Inspectors attended the Veterinary Indoctrination Course held at the Civil Defence College at Arnprior in Ontario. The course took place from September 8th to 12th, with all expenses paid by the Department of National Health and Welfare.

Publications

Bulletin No. 64, on goat-raising in British Columbia, received its tenth revision and has been printed for distribution.

Live Stock Circular No. 58, on the fur-farm industry in British Columbia, received its second revision and has been printed for distribution.

DAIRY HERD IMPROVEMENT SERVICES

(J. A. Mace)

Operation

With the establishment of a third route in the Okanagan Valley, there are now twenty-four D.H.I.A. routes in operation. As of June 30th, 1958, these routes reported 15,558 cows on test in 550 herds. This is an increase of 39 herds and 1,286 cows from the same period in 1957 (9 per cent). Average size of herds shows a further increase, from 27.9 to 28.2; the average number of cows per route has also increased, from 620 to 648.

The highest average production ever recorded by D.H.I. members in British Columbia was achieved in 1957, this being 12,014 completed milking periods averaging 9,759 pounds of milk, 404 pounds of butter-fat, with an average test of 4.14 per cent—an increase of 261 pounds of milk and 10 pounds of butter-fat over 1956 from 96 more milking periods. Since 1952, completed milking periods have jumped from 8,086 to 12,014, or 48.4 per cent. A summarized report showing production by breeds is shown in Appendix No. 2.

Calf-tagging

A total of 4,100 calf tags have been issued to supervisors. This will represent a 1,000-tag increase since the introduction of compulsory tagging and will prove of great assistance in securing authentic parental information for sire lists and proving bulls in artificial-insemination units.

Departmental Subsidy

Grants to twenty-four D.H.I.A. routes amounted to $51,821, an increase of $2,831. Increase can be largely accounted for by the new Okanagan route.

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

Twenty-eight herds are now using this service. The decrease is largely due to R.O.P. insisting that no entirely pure-bred herd is eligible for this service irrespective of size, and our insistence that the service will not apply to mixed pure-bred and grade herds which contain over 20 pure-bred animals.

Field Work

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

Supervisor contacts	174
D.H.I. officials' contacts	30
Member visits	173
C.O.P.s brought up to date[1]	172
Other calls	50
Meetings	37
Talks	22
Herds check-tested	212

[1] Certificates of production.

Both Inspectors worked in the Victoria office for considerable periods during the year in order to help keep the work up to date.

Office Routine

The preparation of I.B.M. punch-cards for all of our records has now been completed. Punching will continue on a current record basis for both D.H.I. and R.O.P.

records. Sire lists and A.I. reports are being returned very much more slowly than anticipated, owing apparently to insufficient staff to handle the increasing volume of work being done by mechanical tabulation. This situation will have to be corrected before punch-cards can play the part in our work, which was anticipated when the procedure started.

Dairy Sire Lists

The twenty-fourth list of Jersey Sires was prepared and issued.

Artificial Insemination Clubs

Reports have been prepared as time permitted showing the performance of sires in the four main dairy breeds in the two semen-producing units. Meetings of the Young Sire Selection and Evaluation Committee were attended throughout the year. It must be reported that progress in the young sire programme is lamentably slow, and little, if any, production gain will be shown until this programme is speeded up considerably.

Publications

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

H.I.C. No. 80—Index of Jersey sires listed in the twentieth to twenty-fourth lists (inclusive).

H.I.C. No. 81—Nineteenth Annual List of Long Production Records (1,621 living cows which have produced over 1 ton of fat—increase, 173 over 1957).

Miscellaneous

Automatic milk weighing and sampling devices are being installed on some dairy-farms. In order to check the accuracy of milk weights and samples obtained from these, D.H.I. Inspectors visited one farm which was on D.H.I. and had installed a "Milk-O-Meter" and compared weights and samples obtained from the meter with those secured in the ordinary manner. Three hundred and ninety-two single milking samples and 193 composite samples were obtained.

In the composite group, 96.9 per cent of the meter samples were within plus or minus 5 per cent of actual for weight and 95.5 per cent within the same range for butter-fat test. Since there is an admitted difference of plus or minus 5 per cent in milk and fat records estimated on a once-a-month basis compared with daily weights and tests, and since over 95 per cent of the meter samples fell within this error range, it was decided that weights and samples obtained from such meters would be accepted for D.H.I. production records providing they were properly operated and that the average error did not increase in subsequent checks.

More staff is necessary if continually increasing record work is to be kept up to date and if information which can reasonably be expected is to be published as required.

A list of secretaries and supervisors of all dairy herd improvement associations is shown in Appendix No. 3.

BRANDS DIVISION

(Thomas Moore)

Shipments and Inspections

Inspections of cattle in British Columbia were 107,516 head, compared to 100,201 head in 1957. This shows an increase of 7,315 head. Cattle shipped from the Interior of British Columbia to the United States in 1958 were 36,139, compared to 20,849 in 1957, an increase of 15,290 head. Inspections of cattle from the Cariboo were 23,777 head, a decrease of 4,371 head; from Kamloops-Nicola, 39,966 head, an increase of

4,516 head. Shipments of hides were 14,851, a decrease of 4,311. Horses inspected in 1958 were 6,370 head, an increase of 805 head. Shipments of cattle to the Prairies were 15,579 head in 1958, an increase of 2,915 head. A complete table of annual inspections of cattle, horses, and hides is attached (*see* Appendix No. 4).

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 twenty-nine shipping-points.

Cattle Exports to the United States

Cattle exports from British Columbia from January 1st, 1958, to December 31st, 1958, were as follows: Bulls, 751; cows, 5,022; steers, 22,595; heifers, 2,545; and calves, 3,356; combined total, 34,269 head.

We are able to furnish these figures through the co-operation of the Health of Animals Division, Canada Department of Agriculture, Vancouver.

Flood Check-point

The Department of Highways, which is operating this post and staff of same who are Deputy Brand Inspectors, co-operated with this Department in inspection work in the checking of stock, hides, and dressed beef passing through this check-point and in the enforcement of the "Stock-brands Act."

The following figures are shown for the years 1957 and 1958 in the checking of all live stock, hides, and dressed beef through the check-point:—

	1957	1958
Number of cattle	7,111	4,889
Number of horses	1,293	1,612
Number of hides	2,556	3,075
Dressed beef (quarters)	280	448
Number of trucks checked	1,122	1,283

"Stock-brands Act"

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

The annual supplement, No. 2, to the brand-book, showing all brands issued in 1958, will be available in early 1959.

There were 325 applications for new brands, 1,057 applications for brand renewals sent out from this office, 1,295 brands renewed, 120 brands transferred, and 90 brands reissued.

Marketing of Cattle

This year has seen a definite change in the marketing of cattle in the Interior and now follows more of the pattern in the Lower Mainland by having smaller sales more frequently rather than the large cattle sales in the past. This would seem to tend to more orderly marketing and would appear to keep prices more even.

Kamloops has been operating a cattle sale weekly, with contributors sending cattle to this sale from many other districts. Williams Lake has been holding a cattle sale every two weeks, which appears to be quite satisfactory. Other centres have held their usual cattle sales at Okanagan Falls, Quesnel, and Fort St. John.

Licences Issued

	1957	1958
Stock-dealers	133	169
Slaughter-house operators	73	76
Hide-dealers	62	63
Beef-pedlars	13	16
Horse-slaughterers	15	15
Horse-meat dealers (animal-food)	9	7
Horse-meat dealers (human consumption)	1	2
Permit to transport horses for working purposes	65	90
Permit to transport horses for breeding purposes	1	3

Convictions

There were thirteen prosecutions and convictions under the "Stock-brands Act," of which three were for dealing in stock without a licence, five for failing to get brand inspection, one for failing to report at Flood check-point, one for carrying beef without Form 4, one for failing to give twenty-four hours' notice of required brand inspection, one for failing to send Form 4 to an Inspector, and one for using unregistered brand on stock.

There were fifteen convictions under the Criminal Code of Canada, as follows: Theft of cattle, nine; sale of stolen beef, two; receiving stolen beef, two; cruelty to animals, one; and fraudulent possession of cattle, one.

Miscellaneous

A meeting was held with the Brand Commissioners. Their assistance and co-operation are appreciated.

Lectures were given to the Royal Canadian Mounted Police, Brand Inspectors, and Deputy Brand Inspectors on the "Stock-brands Act," "Horned Cattle Purchases Act," and the "Beef Cattle Producers' Assistance Act." The co-operation of the Royal Canadian Mounted Police is appreciated in the enforcement of these Acts and the Criminal Code in the stealing of cattle.

A number of meetings and annual cattle sales were attended, also a Communications Short Course at the University of British Columbia and the National Livestock Brand Conference held at Salt Lake City, Utah, U.S.A.

ANIMAL PATHOLOGY LABORATORY

(Dr. J. C. Bankier)

Introduction

The work of this laboratory has shown a steady increase during the year, which reflects the public demand for laboratory diagnosis of disease conditions which occur in their herds and flocks.

Grateful acknowledgment is made for the assistance 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.

Laboratory Services

Exclusive of brucellosis testing, the number of live-stock and poultry owners receiving service from the laboratory during the year totalled 647.

Visitors to the laboratory in connection with pathological problems totalled 566.

In the brucellosis-control programme in the North Okanagan area, the milk ring test was used as a primary screening procedure. This test is definitely useful for rapidly detecting many of the dairy herds infected with brucellosis. Further research on the ring test will, no doubt, yield techniques which may reduce the margin of error between it and the blood test.

A breakdown of the specimens examined in the laboratory is shown in Appendix No. 5.

Miscellaneous

Due to resignations of two of the laboratory staff and a long illness of a third staff member, prompt and efficient service to the public was hard to maintain during the latter part of the year. It was only through working overtime that the remaining staff managed to keep the work moving reasonably well.

During the year, animal pathologists addressed ten meetings on subjects relating to poultry, mink, and artificial insemination; three conferences were attended, as were four meetings of the British Columbia Poultry Industries Council, three meetings of the Live Stock Advisory Committee, and three meetings of the Advisory Committee to the British Columbia Poultry Random Sample Test. Health problems and vaccination procedures associated with birds at the poultry random sample test station at Abbotsford were attended to. An additional 115 visits were made to farmers in connection with pathological problems.

REPORT OF DAIRY BRANCH

George Patchett, Dairy Commissioner

PRODUCTION

Total milk production for 1958 will be about 4 per cent more than the 773,260,000 pounds produced in 1957, or approximately 804,000,000 pounds.

The increase is largely in the Fraser Valley, where production of qualifying milk has in some months exceeded last year's supply by nearly 10 per cent.

Creamery butter production is running about 48 per cent above the same period last year and will be in the neighbourhood of 4,250,000 pounds, which is about 23 per cent of the requirement for the Province. Imports will amount to around 14,200,000 pounds.

Cheddar-cheese production will be just about three-quarter of a million pounds, an increase of 7½ per cent over last year. About 9,450,000 pounds will be imported, as we manufacture only about 7 per cent of our consumption.

Ice-cream production has increased by 10 per cent, bringing the total to 4,250,000 gallons.

Concentrated milk products are not much changed from last year.

UTILIZATION, 1957

	Canada (Per Cent)	British Columbia (Per Cent)
Creamery butter	26.00	8.85
Cheese (factory)	7.00	2.00
Concentrated milk and ice-cream	9.00	25.00
Fluid sales (milk and cream)	31.00	56.00
Dairy butter	17.00	1.15
Used on farms	10.00	7.00
	100.00	100.00

MARKETING

While much of the production of milk for fluid trade is under the control of the Milk Board, consumer marketing is not controlled, except that no one may sell for less than cost. This has resulted in a free movement of milk throughout the Province and has tended to keep the retail price within bounds. This in turn has increased the consumption of milk. More and more milk is being sold through store outlets.

FARM INCOME FROM MILK

Gross farm income from all dairy products this year can be estimated at $32,500,000, based on the increased production and an average value of $4 per hundred pounds for all milk.

DAIRY PLANTS

There were ninety processing and manufacturing plants in operation during most of the year. Butter is made in eleven plants, Cheddar cheese in three, ice-cream in twenty-eight, cottage cheese in six, and milk is pasteurized for fluid consumption in seventy-four. There is one condensory and one powdered-milk plant.

Some excellent blue mould cheese is made at Creston, an Italian type at Nanaimo, and Gouda cheese at Yarrow.

DAIRY LICENCES AND CERTIFICATES

The following licences, certificates, and permits have been issued in 1958:—

Licences

Creameries or dairies	90
Milk-testers	102
Milk-graders	75
Cream-graders	17
Special tank-milk graders	29
Oleomargarine manufacturers	4
Oleomargarine wholesalers	16

Certificates of Proficiency

Pasteurizer operator (second class)	12
Pasteurizer operator (temporary)	3
Cheese-maker (second class)	1
Ice-cream maker (first class)	1

Permits

Reconstituted milk	4

MILK GRADING (TWELVE-MONTH SUMMARY)

Average number of shippers	3,614
Number of completed samples	83,660
Number failing to qualify	4,720
Percentage failing to qualify	5.64

INSPECTION AND INSTRUCTION SERVICES

There were seven Inspectors in the Branch until the end of August, when this number was reduced to six by the promotion to Dairy Commissioner of George Patchett at the retirement of F. C. Wasson.

These Inspectors have had a busy year keeping up with the rapid changes taking place in all phases of the industry. All H.T.S.T. pasteurizers in the Province have now been inspected, checked for accuracy, timed and sealed for the first time. All farm holding-tanks will have been checked for accuracy of measurement of contents and otherwise inspected and permits issued for their use before the end of the year.

Much improvement in the quality of the milk and higher butter-fat tests from these tanks are reported by the Inspectors. Checking of tests and grades done by licensed graders has continued, and many new graders and testers have been instructed, examined, and licensed.

SUMMARY OF INSPECTIONS AND SERVICES

Dairy-plant inspections	603
Farm visits	444
Whiteside tests	327
Butter-fat check tests (composite), producers' milk and cream	1,987
Butter-fat check tests (fresh milk), from producers' cans	434
Cream grades checked	437
Milk grades checked (Resazurin)	2,443
Sediment tests	386
Ring test samples taken	1,793
Lactometer and cryoscope tests	298
Reports and test-cards to shippers	547
Milk-cans condemned	9
Examinations for licences and certificates	89
Meetings attended	59
Margarine samples tested	11

SHORT COURSES IN DAIRY WORK

The annual pasteurizer operator's course and Babcock tester's course was conducted by Dairy Inspectors and University Dairy Department instructors in late October and early November. Seventeen students attended the pasteurizer course and eleven the tester's course. Instruction was also given in testing to six candidates for D.I.H.A. work.

Periodic courses have been given for tank-truck graders and milk-graders for licences.

OLEOMARGARINE

Total imports of margarine in 1957 amounted to 8,354,387 pounds, and total manufactured, 12,244,112 pounds, making a grand total of 20,598,499 pounds.

Imports as of September 30th, 1958, are down by 9 per cent. The amount manufactured in British Columbia is up by 20.4 per cent.

	Lb.
Estimated imports for 1958	7,602,492
Estimated manufactured, 1958	13,745,910
Total	21,348,402

SUMMARY

The dairy industry is in a healthy condition. Competition is intense in the retail milk market, which results in more stream-lining of methods which are progressing more and more toward automation. This is naturally making it harder for the small operators to stay in business. The consumer is reaping the benefit as retail prices have not advanced, except in isolated cases.

Appreciation is extended to the staff of the Dairy Branch, the health departments (Provincial and civic), and to personnel in the Federal grading division, who have co-operated with this office throughout the year.

REPORT OF POULTRY BRANCH

W. H. Pope, P.Ag., Poultry Commissioner

The utilization of the findings of research by the poultry industry has made possible increased production at lower prices, to the ultimate benefit of the consumer. Improved control and quality, wider use of refrigeration, and rapid transportation have brought about increased competitive pressures on all production areas. In order to maintain their operations, producers are constantly being forced to search out and apply improved production techniques to offset the increased cost of production factors and lower product prices. The following table indicates the long-range downward trend of poultry prices in spite of the increased production costs:—

	Producer Price								
	1951	1952	1953	1954	1955	1956	1957	1958	Average
	¢	¢	¢	¢	¢	¢	¢	¢	¢
Eggs	49.6	38.6	46.7	37.5	42.1	42.7	32.6	33.9	40.4
Chickens	30.8	29.6	31.6	26.2	27.0	25.7	25.3	24.4	27.6
Fowl	30.6	24.1	28.0	20.6	20.6	21.7	17.6	17.6	22.6
Turkeys	45.0	.....	39.8	35.2	31.2	34.1	32.6	27.7	35.1

COMMERCIAL EGG PRODUCTION

Faced with the prospect of low egg prices for an indefinite period, producers have improved production efficiency. Producer-vendors and producer-marketing groups have increased in number during 1958. These marketing groups are not large, but the basic idea is being closely watched. Commercial egg production in 1958 is approximately 5 per cent below 1957 levels. It is estimated that about 50 per cent of all eggs produced are processed through registered grading-stations. (For production and prices *see* Appendices Nos. 6 and 7.)

POULTRY-MEAT PRODUCTION

Broilers.—The production of broilers (chicken 3 to 4 pounds) continues to increase in volume and must be recognized as the most important source of poultry-meat. With potentially high feed and labour efficiency of broiler production, this food item is likely to continue to take a larger share of the consumer's meat purchases. Production of broilers through registered grading-stations increased approximately 35 per cent over 1957. Even with this increase there was an acute shortage during the early summer months.

Turkeys.—The movement of turkeys through registered plants for the period January to December showed an increase of 18 per cent over 1957. This evidence of confidence is probably due to Federal import restrictions. Prices followed the general downward trend of poultry products. One of the interesting developments in turkey production is the shift of production areas. Within the last two years production in the Ashcroft-Kamloops area increased from practically nothing to 25 per cent of the Provincial total. This year Inspector C. W. Wood reports there were over 100,000 turkeys grown on the alfalfa meadows of former beef-cattle ranches. Shipping charges and shrinkage of live

birds from this area to Coast processing plants indicate the need of processing facilities in that area if this growth is to continue.

Fowl.—The importance of fowl continues to decrease. It is being replaced by chickens as the gap between birds bred and raised especially for the meat trade and birds bred for egg production continues to widen. Leghorn fowl in many instances return to the producer little more than enough to pay handling and shipping charges. (For production and producer prices *see* Appendices Nos. 8 and 9.)

FLOCK APPROVAL

The Provincial Flock Approval Programme was under the direction of Inspector H. Gasperdone, of New Westminster. During the past few years this work has changed from a seasonal to a continuous operation. While most of the field work is handled by temporary staff, the assistance of permanent members is required from time to time during peak periods. Inspector C. W. Wood, of Kelowna, made all necessary inspections in the Okanagan and Interior points. The year-round demand for chicks is responsible for the substantial decrease in the number of birds approved for the production of hatching eggs by lengthening the season and allowing a greater production per bird. A newly introduced recording system has allowed differentiation between meat- and egg-type birds maintained for hatching-egg production. A detailed report of British Columbia's Flock Approval Programme is available from the office of the Poultry Commissioner. (*See* Appendices Nos. 10, 11, 12, and 13 for breeds, comparative numbers, and Pullorum reaction.)

POULTRY-FARM ECONOMIC STUDY

With the co-operation of the Department of Agricultural Economics, University of British Columbia, and the Economics Division of the Canada Department of Agriculture, a study of management and cost of production of commercial eggs was undertaken. Detailed records were secured from twenty commercial producers from July, 1957, to July, 1958, by Joan MacIntosh. These quarterly reports and a year-end statement were issued to the co-operating producers. An analysis of the data has been completed and the material is being compiled for publication.

RANDOM SAMPLE POULTRY TEST

The British Columbia random sample poultry test has attracted the attention of poultry-breeders in Canada and the United States. The facilities that have been provided are second to none. Nineteen entries were selected out of the many that were received, with consideration being first given to those entries having significance to the British Columbia breeders and commercial producer, and secondly to Canadian poultry-breeders. Foreign entries were accepted only where substantial numbers of that particular entry were being used by our producers. This test is now in its tenth month and will be completed in August, 1959.

The first British Columbia random sample broiler test of 5,000 birds has been completed, and the second and final test for this season is presently being carried out. Separate reports of the results of the tests are available for general distribution.

The demands of this testing programme on our clerical and technical staff have been heavy, and its success to date is a tribute to the willingness and co-operation of all concerned. Grateful appreciation is extended to officials of the Production Service, Canada Department of Agriculture, and to Art Hill, A. J. Darbey, J. J. Andrews, G. R. Wilson, J. Biely, J. M. Pearce, Elgin Wolfe, and Dr. J. C. Bankier as members of the Advisory Committee for guidance and assistance received throughout the year.

GENERAL

Extension.—The long-term trend of a downward price curve for all poultry products is bringing with it an increased demand for the services of highly qualified field personnel. Marginal operations cannot look forward with confidence to peak price years to bring up their average income. In an effort to reach as many producers as possible, staff members have taken advantage of every opportunity to speak at producer short courses, arrange meetings, and use all available radio, television, and farm publication space.

Conference.—The Third Annual Poultry Conference, held in Langley in July, was sponsored by the Departments of Agricultural Extension and Poultry Science of the University of British Columbia and this Department. The theme of the sessions was " Commercial Production Management." Recognized authorities on subject-matter were drawn from Ontario, Alberta, New Jersey, Indiana, California, and Washington. A substantially increased attendance showed approval of the change of locale from the University to the Fraser Valley. All technical-staff members participated in and contributed to the programme. Civic and municipal officials of Langley freely gave valuable assistance.

Study.—A research study of incubator sanitation by Dr. John Lancaster, Department of Poultry Science, University of British Columbia, was supported by this Department. Poultry Branch staff members and officials of the Production Service of the Canada Department of Agriculture collected the required specimens and co-operated with Dr. Lancaster in an effort to determine the " Effectiveness of Incubator Fumigation as Practised in Commercial Hatcheries in British Columbia." The field and bacteriological phases of this study have been completed. A separate report of the results will be made available for general distribution.

Disease.—While there can be no accurate measurement of the monetary loss, the various respiratory diseases, singly or in combination, are taking a heavy toll of the poultry in this Province and add materially to production costs. The three most commonly encountered are Newcastle, infectious bronchitis, and chronic respiratory disease. It is not uncommon to find two of these diseases in co-existence. There is serious question in the minds of field staff and producers as to degree of immunity being produced by recommended vaccination procedures. This dissatisfaction of the results of vaccination is in many cases causing producers to abandon the only effective method of control. Newcastle continues to be a serious threat to the welfare of the industry. (*See* Appendix No. 14 for comparative distribution of vaccine.)

Poultry Population.—A census of poultry population on Vancouver and Gulf Islands by Inspector D. M. Hamilton indicates that this area contains approximately 25 per cent of the Provincial total. This is a considerably greater proportion than was previously considered to exist on the islands. The poultry population in Vancouver Island District is as follows: Layers, 343,750; broilers, 814,000; and turkeys, 86,750. More than two-thirds of the layers and practically all of the broilers are in the area south of Duncan, while the bulk of the turkeys are in the Nanaimo-Ladysmith area.

Central British Columbia.—A study of the market and production potential of the Bulkley and Skeena Valleys was made in May of this year. This area contains a stable market for substantial quantities of poultry produce, all of which could be satisfactorily produced in the district. This market is presently being supplied by Alberta firms. A complete report on this study has been submitted and is on file.

Conclusion.—The number of new or extended projects undertaken during 1958 with no increase in staff has made it necessary from time to time to seek assistance from other branches of this Department, from other departments, from the Canada Department of Agriculture and the University of British Columbia. To all concerned, I extend my thanks and grateful appreciation, but especially to the Department of Public Works, for the unfailing assistance and spirit of co-operation received.

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

The prolonged dry spring and summer affected field-crop production throughout all areas of the Province. Spring-seeded cereals suffered more than fall-seeded wheat in the Okanagan and Creston areas, where average yields of spring grains were down, although fall crops did not suffer. In the Peace River the acreage in spring grain was again reduced this year and offset by an increase of oats, barley, and forage-crop seed. Although yields were only slightly below average, crops were very spotty, ranging from good to poor. Excellent fall weather prevailed in all areas, and grain of high quality was harvested under ideal conditions.

HAY AND PASTURE

The dry spring and summer was particularly severe on pastures. First-cut hay-crops were reasonably good in all areas, but any second crop was light or used for pasture. All hay was put up under ideal conditions. In the Fraser Valley and on Vancouver Island, pastures dried up in mid-July. Farmers had to pasture hay-fields, and most started feeding their normal winter supply of hay and silage at that time. As a result, they had to purchase above average requirements for the winter feeding period.

The long, open fall permitted good haying weather on the Interior ranches, and there was a good supply of hay in that area for winter needs.

Hay Yield Data, Fraser Valley.—In co-operation with the Soil Survey Division, this Branch initiated a study on hay yields as related to soil type in Fraser Valley soils. A total of 105 plots of three samples each were collected, dry weights taken, and average yields determined. The co-operation of the Plant Science Department of the University of British Columbia is also acknowledged and appreciated.

PRODUCTION OF REGISTERED AND CERTIFIED SEED

Some areas of the Province specialize in the production of registered and certified seed of cereal and forage crops. The major areas of production are the Peace River and Kootenays. 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	55.0	3,050
Parkland	10.0	490
Vantage	20.0	1,000
Oats—		
Abegweit	69.0	2,900
Eagle	129.5	11,295
Garry	24.0	2,715
Larain	15.0	680
Rodney	238.0	25,150
Victory	116.0	2,170

Variety	Acres	Estimated Production (Bu.)
Wheat—		
Garnet	6.0	300
Saunders	45.0	2,450
Selkirk	740.0	34,450
Thatcher	3.0	150
Flax—		
Marine	2.5	70
Raja	131.0	2,020
Redwing	125.0	1,750
Alfalfa—		
Grimm	107.0	------
Ladak	33.0	------
Rambler	46.5	------
Rhizoma	554.0	------
Vernal	23.0	------
Manchar brome-grass	12.0	------
Duraturf creeping red fescue	25.0	------
Olds creeping red fescue	82.0	------
Summit crested wheat-grass	72.0	------
Merion Kentucky blue-grass	626.0	------
Climax timothy	498.0	------

Commercial Forage-crop Seed

The Peace River District continues to be the major forage-seed area in the Province. Grass-seed crops were good this year. Creeping red fescue is estimated at a record 2,000,000 pounds. Good harvesting conditions have resulted in good yields and quality of seed-crops. Double-cut red clover production in the Fraser Valley will be below the 1957 production.

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

	Production (Final) 1957 (Lb.)	Estimated Production 1958 (Lb.)
Alfalfa	55,000	175,000
Red clover, single	80,000	792,000
Red clover, double	284,000	265,000
Alsike clover	110,000	2,000,000
Sweet clover	100,000	521,000
White Dutch clover	------	4,000
Timothy	51,000	194,000
Timothy-alsike	40,000	50,000
Alsike-Altaswede	------	40,000
Brome	120,000	82,000
Blue-grass, Merion strain	------	90,000
Blue-grass, Kentucky	60,000	40,000
Crested wheat	2,000	21,000
Creeping red fescue	1,000,000	2,000,000
Meadow fescue	25,000	25,000
Reed canary-grass	4,000	------
Orchard-grass	5,000	------
Russian wild rye	2,500	3,600
Red-top	14,000	3,000
Annual rye-grass	------	10,000

Seed Improvement

Foundation-stock seeds produced by the Agronomy Department of the University of British Columbia and distributed to growers through this Branch include: Vantage barley, 850 pounds; Eagle oats, 2,700 pounds; Victory oats, 2,800 pounds; Storm rye, 2,650 pounds; Ridit wheat, 1,650 pounds.

Potatoes

Potato acreage was well up this year, with approximately 11,500 acres planted. Because of lighter average yield, total production will be about equal to 1957.

Acreage in seed-potatoes increased again in 1958. The following list of varieties and inspected acreage is supplied through the Federal seed-potato inspection service:—

Variety	Acreage	Variety	Acreage
Canus	2.62	Netted Gem	1,691.02
Columbia Russet	5.72	Red Pontiac	68.25
Early Epicure	36.83	Red Warba	0.75
Early Rose	8.75	Sebago	3.50
Gold Coin	20.25	Warba	89.86
Green Mountain	31.75	Waseca	18.08
Katahdin	7.50	Wee McGregor	2.00
Kennebec	164.75	White Rose	104.78
Keswick	3.50		
Manota	0.5	Total	2,260.41

The main areas of production are also given, with approximate acres inspected in 1958 (1957 acreages in parentheses): Vancouver Island, 206 (166); Lower Mainland, 395 (694); Pemberton, 269 (214); Okanagan, 311 (249); Cariboo, 185 (116); Central British Columbia, 50 (75); Boundary District, 532 (461); East and West Kootenays, 294 (131).

Oceanside Test-plots

Seed-potato samples were assembled by this Branch, treated and planted at Oceanside, Calif., on November 26th. Seventy-six samples were sent in by growers. Disease readings will be taken in February.

Field Peas

Acreage in field peas was down this year, particularly in the Creston area, and yields were below average because of the dry season.

Crop Improvement Association

This year sixty-four tests were distributed through the British Columbia Crop Improvement Association. Through these tests the following varieties were distributed for trial: Rambler alfalfa, 160 pounds; Vernal alfalfa, 50 pounds; Dupuits alfalfa, 72 pounds; silage corn, 75 pounds; Altaswede clover, 10 pounds; reed canary-grass, 120 pounds; Lasalle red clover, 60 pounds; Manchar brome, 60 pounds; Climax timothy, 50 pounds; Summit crested wheat-grass, 25 pounds. In addition we distributed the following pedigreed seed of forage-crops to the members at cost: Manchar brome-grass, 95 pounds; Hercules orchard-grass, 23 pounds; Summit crested wheat-grass, 100 pounds; Viking birdsfoot trefoil, 20 pounds; Cascade birdsfoot trefoil, 10 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. The

potato quality-study trials were continued this year on various soil types. The majority of the trials and demonstrations are carried on for several years to assess the results more accurately. Reports of completed trials are on file in this office.

Forage-crop Programme

The forage programme commenced in 1957 was continued this year. Displays were changed three times in the dealers' stores throughout the Province. A number of easel-type posters and leaflet publications were also distributed. This year monthly news items were sent to all newspapers and publications in the Province.

Farm Management

This Branch assisted in the farm-management programme commenced by the Department in 1957. Land-capability surveys were made of the three farms on Vancouver Island and maps were prepared. Assistance was also given the District Agriculturists in making field-crop recommendations.

Soil and Forage Analyses

The Soil Analyst reports as follows:—

" This year 2,500 soil samples were given the routine test for pH, nitrogen, phosphorus, potassium, and calcium. Of these, some 200 received the additional conductivity test and twenty were analysed for organic matter. At present there are about 200 samples that have not been done. These should be completed before next spring.

" The forage analysis programme was again continued, and 205 samples of forage were submitted for analysis for crude protein and moisture. Due to lack of time, only 185 of these were completed. If time permits, the rest will be done this winter."

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 1958, 65,160.50 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
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
1957/58	1,461	100,588.24	34,404.75

Fertilizer and Agricultural Poisons Board

One meeting of the Fertilizer and Agricultural Poisons Board was held with the trade. The following mixes were approved: 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.

National Soil Fertility Committee

The National Soil Fertility Committee (Western Section) held its annual meeting in Edmonton, Alta., on December 11th and 12th.

WEED-CONTROL

During the past season two Weed Inspectors were appointed in the Peace River District to enforce the "Noxious Weeds Act" in those areas. The Department of Highways continued its programme of roadside spraying of weeds, and the number of miles increased again this year. We received a number of complaints of weeds on waste areas and along roadsides, and these were referred to the proper authorities for action.

We have continued to test weed chemicals coming out on the various crops and weeds to assess their value in the weed control programme on farms.

GRAIN SCREENINGS

In the period January 1st to November 30th, fourteen permits for removal of screenings were issued. During the same period, sixty feeders' permits were issued. At present three companies are processing refuse screenings pellets. The new regulations under the Federal "Feeding Stuffs Act," allowing up to 15 per cent refuse screenings in a registered feed, are expected to increase the movement of refuse screenings locally and to complicate control of refuse screenings. (*See* Apendix No. 16.)

Appendix No. 17 gives in summary the movement of screenings from British Columbia elevators for the period January 1st to October 31st.

REPORT OF FARMERS' INSTITUTES

L. W. JOHNSON, SUPERINTENDENT

Two new Farmers' Institutes were incorporated (Lister in the Creston district on July 16th and Willet in the Argenta district on September 22nd) while two institutes (Tupper Creek Farmers' Institute and Tate Creek Farmers' Institute) were amalgamated on June 13th under the name of "Tomslake Farmers' Institute."

One hundred and forty-eight institutes are on the active list at the present time and forty-four are on the inactive list. Annual returns filed during the year again show a slight decrease in membership, but with the volume of business remaining well over the million-dollar mark.

DISTRICT INSTITUTES

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

District	Place	Date
"A"—Vancouver Island	Nanaimo	Sept. 20
"B"—Skeena-Bulkley	Telkwa	June 23, 24
"C"—Nechako	Prince George	June 19, 20
"D"—Kamloops-North Thompson	Kamloops	Nov. 15
"E"—Lower Fraser Valley	New Westminster	Jan. 24
"F"—West Kootenay	Nelson	Oct. 25
"G"—Okanagan-Shuswap	Revelstoke	Nov. 14
"H"—Cariboo	Forest Grove	June 17
"I"—East Kootenay	Cranbrook	May 29
"J"—Peace River	Fort St. John	June 26

ADVISORY BOARD OF FARMERS' INSTITUTES

The fortieth annual meeting of the Advisory Board was held in Victoria on February 3rd, 4th, and 5th, at which time ninety-two resolutions submitted by the ten district institutes were considered, fifty-one being endorsed, thirty-one withdrawn by Board members, and ten were lost.

On February 5th the Board met with the Select Standing Committee on Agriculture and presented seven resolutions, as follows:—

(1) Report of resolutions presented by the Advisory Board:
(2) Rural electrification:
(3) Educational tax on farm land:
(4) Peace River District as a distress area:
(5) "Milk Act" administration:
(6) Appropriation for agriculture:
(7) Reservation of public picnic and camp grounds.

The report of the Chairman of the Select Standing Committee to the Legislature is as follows:—

LEGISLATIVE COMMITTEE ROOM, February 12th, 1958.

Mr. Speaker:

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

Your Committee heard submissions from the Advisory Board of the Farmers' Institutes in the form of resolutions and your Select Standing Committee on Agriculture recommends:—

(1) That the Minister of Agriculture make a full report to the Advisory Board of the Farmers' Institutes each year on the action taken and the final disposition by the respective Departments of Government on the resolutions presented to the Select Standing Committee on Agriculture and that copies of this report be sent to all members of the Legislature:
(2) That the Province's own public utility, the British Columbia Power Commission, develop some of the large-scale electric projects and associated transmission systems in the interests of the people of the Province:
(3) That a review be made of the present methods of taxation for school purposes with a view to finding a more equitable method than that now in practice:
(4) That consideration be given by the Government to amending the "Distress Areas Assistance Act" to permit the Minister of Agriculture to enter into agreements with credit unions in British Columbia on the same conditions that are now set out in the "Distress Areas Assistance Act" in respect to the chartered banks of Canada and that the Peace River area be declared a "distress area under the 'British Columbia Distress Area Assistance Act'":
(5) That the Minister of Agriculture take action to rectify any maladministration of the "Milk Act" if and where such practices exist; should maladministration be proven, it is then further recommended that the Chairman of the Milk Board be replaced:
(6) That, as concern is shown by the Committee in respect to the appropriations of the Department of Agriculture, the appropriation be increased to meet the requirements of the Department's responsibility to the agricultural industry:
(7) That, in view of Government policy in setting aside areas to be used for public recreation and enjoyment, the Minister of Recreation and Conservation be advised by the Farmers' Institutes of specific areas that they consider would be in the best interests of the public to have reserved for such purposes.

Respectfully submitted.

FRANK RICHTER, *Chairman.*

It is with regret that we report the sudden passing on August 19th of Ernest MacGinnis, secretary of the Advisory Board since January, 1949.

EXHIBITIONS AND FALL FAIRS

One Class A exhibition, four Class B exhibitions, and sixty fall fairs were held in the Province this year, being a decrease of one Class B exhibition. It was unfortunate that one of the oldest exhibitions in British Columbia, the Cowichan Exhibition at Duncan, through circumstances beyond control, was unable to stage an annual exhibition this year.

POUND DISTRICTS

New pound districts constituted in unorganized territory of the Province during the year were as follows: Revelstoke, January 16th; Salmon Valley, April 14th; Saltspring

Island (North), April 22nd; Vanderhoof North, April 22nd; Hagensborg, April 30th; Edgewater, June 30th; and Hornby Island, August 11th.

The boundaries of three pound districts were extended—Hart, February 3rd; Rose Prairie, April 30th; and Vanderhoof North, August 11th—and pound-keepers were appointed for fifteen districts.

GRASSHOPPER-CONTROL AREAS

Seven Grasshopper-control Committees applied for and received advances for the purpose of paying expenses during the year in exterminating grasshoppers or controlling and abating the pest within control areas, as follows:—

Grasshopper-control Area	Amount of Advance
Clinton	$8,000.00
Nicola	20,000.00
Osoyoos-Oliver	1,000.00
Princeton	1,000.00
South Riske Creek	2,000.00
Thompson Valleys	4,000.00
Westbank	300.00
Total	$36,000.00

MISCELLANEOUS

Fence-viewers were appointed for Saltspring Island, and 125 licences for the sale of poisons used exclusively in agriculture were issued. Six fall fairs were officially opened, and fifteen meetings of the Interdepartmental Safety Committee were attended.

REPORT OF WOMEN'S INSTITUTES

STELLA E. GUMMOW, SUPERINTENDENT

Two new institutes have been organized during the year—Newcastle, near Nanaimo in the North Vancouver Island District, and Peardonville, in the Hopeline District in the Fraser Valley. One new district was formed, to make seventeen, with the Salmon Arm and North Okanagan District being divided to make the eastern section into the Kamloops District, made up of nine institutes.

Silverton, Wells, Appledale, Keremeos, and Pine View have disbanded and will be struck off the rolls. This leaves a total of 238 institutes.

District meetings were held in each of the sixteen districts, as follows: April 1st, Hopeline at Abbotsford; April 2nd, Douglas at Fort Langley; April 3rd, North Fraser at Port Moody; April 15th, North Vancouver Island at Gabriola Island; April 26th, North Thompson at Vinsulla; May 3rd, North Okanagan and Salmon Arm at Kamloops; May 6th, South Okanagan and Similkameen at Oliver; May 8th, Kettle River at Main River; May 10th, Arrow Lakes at Nakusp; May 14th, West Kootenay at Crawford Bay; May 15th, East Kootenay at Lister; June 17th, Cariboo at Forest Grove; June 19th, Central Interior at Prince George; June 24th, Bulkley-Tweedsmuir at Telkwa; June 26th, Peace River at Bessborough; and September 23rd, South Vancouver Island at Sooke.

PROVINCIAL CONVENTION

A successful Provincial convention was held the last week in May at the University of British Columbia, and this was well attended and full of interest. A feature was a panel

on the "Integration of Indian Women," with some of the native women taking part. The Leadership Course which preceded the convention was also of value. The sum of $4,200 was handed over to furnish the W.I. ward in the new Solarium. The new Solarium was opened October 25th, and the Provincial Board members, who met earlier in the same week, were able to attend.

The Women's Institute Centennial project, the combined history and cook book "Adventures in Cooking," was presented at the time of the convention, and this has been widely acclaimed as a valuable contribution to the Province of British Columbia's Centennial Year achievements.

PACIFIC NATIONAL EXHIBITION

Mrs. A. A. Shaw was in charge of the Women's Institute section of the Pacific National Exhibition again this year, and a very attractive display of articles was of interest in the Home Arts Building. A display of Centennial dolls, a project of the Douglas District, represented the early historical characters in British Columbia, Sir James Douglas, Judge Matthew Begbie, and so on. Each doll was dressed by one institute and made from the local Langley clay.

Twenty-seven institutes competed in the Home Arts section, with 211 exhibits and 326 articles shown. Summerland won the Challenge Cup with 44 points; Kaslo a close second with 42 points; and Penticton third.

The demonstration booth was as busy with ceramics, painting for pleasure, quilt-making, pillow lace, and weaving, creating a constant source of interest. The cook book was also on display and sold at this booth.

SPECIAL MEETINGS

Four Border picnics were held this year. These were at the Peace Arch at Blaine, Oroville, Colville, and Victoria, and were well attended and are proving a very fine meeting ground for American and Canadian women.

APPRECIATION

As I am now on the point of severing my relations with the Department of Agriculture and the Women's Institutes, I wish to express my appreciation and heart-felt thanks for the support and co-operation received from the Minister, Deputy Minister, and staff of the Department of Agriculture during the twelve years I have worked with this Department. To the Provincial Boards and the Women's Institutes also goes this same appreciation, and I know that my successor will receive similar support. I extend my best wishes for continued success in the years to come to the Department and the Women's Institutes.

REPORT OF SOIL SURVEY BRANCH

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

The soil-survey field operations in 1958 were confined to the Delta and Surrey Municipalities, and to soil classification of four farms in connection with farm-management studies. A member of the staff was engaged at extension work in the Okanagan and Similkameen Valleys. The decrease in the amount of field work was due chiefly to four staff resignations in the spring and only two replacements. This reduced field operations to one survey party, in place of two parties working on different projects.

The manuscript for "Soil Survey of the Upper Columbia River Valley" was completed and sent to the editors for publication. Copies of the report were supplied to co-operating agencies to serve until the material is in print. Preparation of the "Soil

Survey of the Kettle River Valley" report is under way. One meeting of the Reclamation Committee was held.

SOIL SURVEY OF THE LOWER FRASER VALLEY

The detailed soil survey of the Lower Fraser Valley was continued. About 18,600 acres were classified on a scale of 400 feet to an inch. Approximately 3,000 acres of this amount are in the Municipality of Delta, and the balance is in Surrey Municipality. The classification work was confined chiefly to the dyked lowland, the most important land-form for agriculture. In 1959 the adjacent Surrey uplands that are not in the process of subdivision will be mapped on a somewhat smaller scale owing to the dense forest-cover in uncleared sections.

In the Delta Municipality all of the major soil types were described in detail, and soil profile samples were collected. The soil samples are being processed by our laboratory technician, who is working under the direction of the Professor of Soils, University of British Columbia. The results of these analyses will be used as part of the procedure involved in the organization of classified soil types into agronomic groups.

The soils of the lowland in Surrey Municipality are complex. Their technical-group categories are Dark Gray Gleysolic, Gleysol, and Organic soils. These distinctions are due to different drainage conditions, each one of which is a different limitation in regard to the growth of crops.

In general, the soils of the Surrey upland do not differ from the soils examined last year in the upland section of Delta Municipality. They are derived chiefly from marine beaches that overlie impervious glacial till or equally impervious glacio-marine sediments. The exception is a section of coarse-textured outwash that penetrates the south-east part of Surrey. This is part of an extensive outwash deposit located in Langley Municipality. The soils derived from the sandy and gravelly outwash are droughty in summer. In this outwash there is a water-supply, in places no more than 8 feet from the surface, that has possibilities as a source of irrigation-water.

The purpose of the detailed soil survey is to rate the productivity of different soils for use in equalization of rural land assessment. As part of the procedure, hay-yield information was obtained in the early part of the season. With the co-operation of the Field Crops Branch, 318 hay samples from 106 fields were collected from the more important soils in the Pitt Meadows and Delta Municipalities. The samples were processed by the Department of Plant Science, University of British Columbia. The results are encouraging enough to warrant further sampling of crops in 1959. With completion of soil-survey work in each municipality, reports and maps will be prepared for the Assessment Commission.

FARM-MANAGEMENT SOIL SURVEYS

Detailed soil surveys of several selected farms were undertaken in 1958. The purpose is to use farm-soil maps as a basis of farm-management studies. The studies will be made by other branches of the Department of Agriculture and by co-operating departments of the University of British Columbia. Four farms, having a total of 306 acres, were mapped. No less than twenty-four soil distinctions were found, twelve of these being types not yet encountered by the general soil survey.

The soil types mapped were found to belong to the Dark Gray Gleysolic, Gleysol, Organic, and Regosol soil groups. The Dark Gray Gleysolic, Gleysol, and Organic soils represent different degrees of poor drainage and soil development. In the case of the Organic soils, the water-table is at or above the surface for a part or all of the growing season. The Regosol is new soil material, having little or no soil profile development. The lack of soil development may be due in part to newness of material and partly to a high water-table. The farm soils are derived from Fraser River flood-plain sediments.

Three of the farms are better than average for the valley, and one is below average, due to poor drainage and low lime status. The soil pattern on all of the farms is complex.

The farms were mapped on a scale of 200 feet to an inch. The horizons of each soil-type profile were bulk and core sampled, and a number of composite soil samples were taken. The soil samples were delivered to our laboratory technician, who is working under the direction of the Department of Soil Science, University of British Columbia, for chemical and physical analyses.

During the farm surveys an attempt was made to acquaint the farm-owners with the significance of soils as part of the farm-management programme. The local District Agriculturist and others dealing with this research project were also acquainted with the findings as field work progressed. Soil maps and reports containing an interpretation of the soil conditions on each farm are in the course of preparation.

SOIL CONSERVATION

Testing of soil samples sent to this office by farmers and district officials was continued in 1958. A total of 375 samples were examined for alkali, of which about 16 per cent contained black alkali in harmful quantity and another 16 per cent had white alkali in concentrations too great for normal plant growth. Fourteen samples of water intended for irrigation were tested, three of which were too alkaline for the purpose.

Over 100 visits to farms were made in the area between Keremeos and Salmon Arm in connection with land drainage problems. Investigations were completed and plans prepared for 3,200 feet of drainage-works, installed by November 1st. Plans for a further 3,633 feet of drains are complete, and the projects should be under construction by the end of the year. Preliminary investigations for some 4,600 feet of drains covering six schemes are in progress. While a smaller than average footage of drains was installed in 1958, the demand for advisory assistance increased.

There was an increase in the demand for advisory assistance during the year in regard to irrigation problems. Over fifty farm visits were made to check the engineering of farm sprinkler systems, application rates, and amounts and water requirements of soil types. Advice was given to irrigation districts in regard to control, measurement, and conservation of water.

Miscellaneous duties included talks on soil and water conservation at the Kelowna Junior High School, participation in the Okanagan Farm and Garden television programme, Okanagan orchard field tour, Agricultural Extension Short Course, and the Kootenay and Columbia Valleys Short Course. Advisory assistance was provided to the Water Rights Branch in connection with soil materials for construction and water duties of soil types as related to applications for water rights.

SOIL SURVEY OF THE KETTLE RIVER VALLEY

The Kettle River valley survey includes the Boundary District from Bridesville to Greenwood, and from Carson to Grand Forks and Cascade. It also includes the main Kettle River valley from Rock Creek to Damfino Creek, the Westkettle from Westbridge to Carmi, and the North Fork or Granby River valley a distance 30 miles up-stream from Grand Forks. In this area an outline of the agriculture is as follows:—

The first settler to take up land was James McConnel. There is a water right in his name as of March 7th, 1875, to apply in the neighbourhood of Rock Creek, but the record does not disclose on what land the water was to have been used. He was followed in 1885 by W. H. Covert.

Covert brought his wife and child by saddle-horse over the trail from a comparatively near-by trading-post in Washington. This was Fort Colville, founded in 1825. He also brought in and planted the first fruit-trees. He established a water right on October 18th,

1887, for irrigation in Lot 497, from Fourth of July Creek. The Hardy Brothers, who operated the first nursery, obtained water rights on Hardy Creek for irrigation in Lots 333 and 334 on November 9th, 1889, and December 1st, 1896. Both the Covert and Hardy properties were in the vicinity of Grand Forks. The dry climate placed early value on the establishment of rights to take water from streams. By the turn of the century over 100 of these rights were recorded in the area between Cascade and Rock Creek.

After 1900 the Doukhobors entered the country in large numbers, to become the chief holders of farm land in the Grand Forks locality. The greater part of their undertaking began on a communal basis. The unit of settlement was a village composed of two large community houses for each 100 acres. These were surrounded by additional dwellings and farm buildings. The community houses accommodated from thirty-five to fifty persons. Tree fruits were planted in the development stage, and thereafter the orchards and cultivated land were worked mostly by the women and children. Roads, bridges, sawmills, brick plants, reservoirs, and irrigation-works were built and tended by general effort. This procedure flourished during the lifetime of Peter Verigin, who died in 1924, and disintegrated thereafter.

The Doukhobors set themselves off from their neighbours by distinctions of religion, dress, food, and social life. They sought land and freedom on their own terms, so their agriculture was patterned to their special needs, and the requirements of the market were secondary. Hence the breakdown of communal existence was destructive to their agriculture. Off-the-farm employment took precedence over farming. To-day there are few full-time farmers, but many derive benefit from their fields and gardens. The orchards are abandoned, and the irrigation systems have deteriorated. Most of the community houses have survived, but arrangements for living are carried out separately by individual families. The present Doukhobor population in the Boundary District is about 3,500.

In 1955 the amount of land under irrigation in the mapped area was as follows:—

Area	Irrigated Acres
North of Rock Creek	273.50
Rock Creek	69.00
Kettle Valley Station	163.50
Midway	460.50
Greenwood	350.00
Granby River	197.75
Grand Forks	78.00
Cascade	38.25
Grand Forks Irrigation District	2,386.00
Covert Irrigation District	288.00
Total	4,304.50

About 1,630 acres are irrigated from small individual systems that divert water from creeks here and there in the valleys and small pumping plants along the Kettle River. The two irrigation districts are corporate bodies under the " Water Act."

The Grand Forks Irrigation District was incorporated in 1921. About 10 per cent of the water is supplied by gravity from Morrissey Creek when the creek is in the freshet stage. The balance is pumped 30 feet from the Kettle River. The water is not supplied under pressure, hence pressure for sprinkler irrigation is obtained by pumping from the main system. The 1951 tax and toll amounted to $6.57 per acre, and there was an additional charge annually of $2 for domestic water. Delivery amounts to 30 acre-inches per acre during the irrigation season.

The Covert Irrigation District, incorporated in 1946, was originally the Covert Estate irrigation system, which had operated nearly fifty years. This is a gravity system diverted from July Creek and piped for distribution. There is no storage. In 1951 the combined

taxes and tolls were $4.50 per acre. Delivery amounts to 1 acre-foot per acre for the irrigation season, which is regarded as inadequate.

In acreages that vary from year to year, the crops grown under irrigation consist of potatoes, vegetables, vegetable seed, tree fruits, small fruits, alfalfa, legumes for seed, flowers for seed, mixed hay and pasture. Potatoes are the chief commercial crop, comprising from 500 to 600 acres each year. About two-thirds of this amount is registered and inspected for certification as seed-potatoes. Market vegetables include asparagus, beets, carrots, and onions to the extent of about 38 acres. In 1955 the vegetable-seed crops were onion, carrot, parsnip, beet, lettuce, broad bean, bush bean, pea, and tomato.

Vegetable-seed growing showed promise in 1939, when the world war cut off Dutch competition. In 1940 about 87 acres of seed vegetables were planted. Seed acreage increased annually to a peak of 997 acres in 1945. Competition was effective thereafter, and seed acreage declined to about 115 acres in 1955.

The original tree-fruit plantations were extensive until disintegration of the Doukhobor communal system led to abandonment of many orchards. The neglected orchards were left standing, to become a source of infestation to orchards still producing. Other production difficulties causing decline of production were frost damage to trees and inadequate irrigation. In 1930 about 49,000 boxes of apples were produced for sale. This declined to 32,000 boxes from 350 acres in 1955. The yield, about 125 boxes per acre, is low compared to the Okanagan average of 400 boxes or more per acre. The present trend is toward abandonment of commercial tree fruits.

There is considerable dry farming in the highland areas to the west of Grand Forks, the trend being away from grain in favour of alfalfa and other hay. This has the advantage of better erosion-control. The 1951 Census listed 3,781 acres of grain, consisting of 1,854 acres of wheat, 664 acres of barley, 789 acres of oats, 354 acres of rye, and 120 acres of mixed grain. Cultivated hay and other forage crops amounted to 7,738 acres, the total area in grain and hay being 11,519 acres.

Most of the dry farming is for winter feed in connection with beef-cattle ranching, which takes advantage of the local range. Since there is evidence that the range is not completely used, the number of cattle are limited by the amount of winter feed produced. The cattle shipped and consumed locally indicate the amount of beef the mapped area is yielding under these conditions. Over thirteen years the average number per year of cattle produced for sale was 2,150 head; 1945, 1946, 1948, 1949, and 1956 exceeded 2,500 head, with lows of 1,470 in 1952 and 1,689 in 1957.

Dairying is confined to irrigated land and low river-bottoms, the number of cows being 1,207 in 1951. Sheep are on the increase, the number of ewes being about 600, and lambs sent to market amounted to approximately 700 in 1955. In the same year there were 125 sows and 800 pigs sent to market. The poultry population varies from year to year. In 1955 there were 6,000 hens and 3,000 birds marketed. Horses are used on farms and for other work, 901 being included in the 1951 Census.

In 1951 the farm population was 2,507, of which 336 were owners of land and 177 were tenants and part owners. Occupied farm land in the mapped area, according to the 1951 Census, amounted to 87,306 acres, of which 79,461 acres were owned by the occupants and 7,845 acres were rented. The total improved acreage amounted to 29,767, and unimproved land in private ownership was 57,539 acres.

REPORT OF SOIL-SURVEY ACTIVITIES, CANADA DEPARTMENT OF AGRICULTURE

The following is a report received from L. Farstad, Senior Pedologist, Experimental Farms Service:—

" SOIL SURVEY OF THE TÊTE JAUNE, MCBRIDE, AND GISCOME AREAS

" The detailed soil survey of the Aleza Lake Forestry Station was completed in early July, as was the checking of several areas in the vicinity of Giscome. The report and map are being readied for publication.

" SOIL SURVEY OF THE PEACE RIVER AREA

" Following the completion of the reconnaissance soil survey of the Peace River Area, field-trips and meetings were held at the Experimental Farm, Beaverlodge, during July 17th to 25th in order to draw up family groupings of the mapped soils. Present for the meetings were members of the British Columbia Soil Survey and Alberta Soil Survey and members of the Soil Science Departments of the Universities of British Columbia and Alberta. Dr. A. Leahey, Principal Pedologist, Ottawa, acted as chairman.

" The moisture régime of a soil is a very important soil characteristic and has an important bearing on plant growth and crop production. Moisture relationships, therefore, were used as the most logical criteria for grouping the soil series into families. Soil characteristics which influence the amount of available moisture held in the soil in the Peace River include texture (three classes) and permeability (three classes).

" These family groupings are the first such groupings attempted in British Columbia, and if interpretations of the soil characteristics are correct, it may be assumed that plants will behave about the same on all the soils of a family.

" The members of the various soil survey units met also with the staff of the Beaverlodge Experimental Station to arrange the families into agronomic groups. Criteria used in the agronomic groupings include those soil characteristics which affect moisture relationships, fertility, and tillage. Some seventy series were grouped into families, and these in turn were grouped into fourteen agronomic groups. Only six or seven of the latter are important agriculturally.

" SOIL SURVEY OF THE PRINCETON AND TULAMEEN SHEETS

"A map and report covering a detailed reconnaissance soil survey of the Tulameen and Similkameen Valleys within the Princeton sheet was completed.

"Approximately 80,000 acres in the Princeton and Tulameen sheet have been covered by a reconnaissance soil survey."

REPORT OF AGRICULTURAL DEVELOPMENT AND EXTENSION BRANCH

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

EXTENSION ACTIVITIES

The emphasis placed on planned programmes in each district in recent years was continued during 1958 and definite progress has been made. Particular mention should be made to the programmes in Central British Columbia, where projects involving increased poultry, vegetable, and live-stock production and marketing were undertaken. Increased production of turnips is under way to supply Kitimat and other markets as well as Vancouver, etc.

Specialists on soils, poultry, live stock, vegetable production, etc., have worked with the District Agriculturists in developing these programmes.

FARM AND HOME PLANNING

During the year a definite programme on farm management was undertaken in co-operation with the Agricultural Economics Department, University of British Columbia, and farm-management specialist of the Department, J. Dinnes.

Seven farms were selected in consultation with District Agriculturists S. B. Peterson, Courtenay; K. R. Jameson, Duncan; George Muirhead, Cloverdale; J. V. Zacharias, Abbotsford; P. E. Ewert, Mission; and George Cruickshank, Chilliwack. Mr. Peterson has two farms and the others one each under study.

The programme is being supervised by Dr. J. Richter, University of British Columbia, in co-operation with British Columbia Department of Agriculture staff.

In connection with this programme, a short course was held at the University of British Columbia during the week of October 20th to 24th which was attended by fourteen members of the Agricultural Development and Extension Branch, eleven from the Horticultural Branch, four from the Poultry Branch, and five from other branches.

This was an excellent short course on farm management and was a preliminary phase of staff training on this project.

STAFF TRAINING

During January and February practically the entire staff of the Department attended short courses on " Communications " in Victoria and Kelowna. Instructors were J. S. Allin and George Muirhead, of the Extension Branch, and John A. Smith and Ian Carne, of the Horticultural Branch. They had attended a short course at Washington State College in 1957.

The Communications Course proved very acceptable and instructive.

Supervising Agriculturists J. S. Allin and S. G. Preston attended the Summer School at Washington State College, June 23rd to July 18th, in connection with " Farm and Home Planning and Agricultural Economics." This course will be of real value to them in our farm-management studies.

Several meetings were held at the University of British Columbia during the year dealing with extension courses for agricultural staff. Those attending included Professors J. K. Friesen, B. A. Eagles, A. J. Renney, J. C. Berry, W. J. Anderson, and Mr. Graham Drew, of the University of British Columbia staff, and J. S. Allin, G. L. Landon, and George Muirhead of the British Columbia Department of Agriculture.

Progress is being made in establishing courses in agricultural extension at the University of British Columbia.

Regional meetings were held during the year at Abbotsford and Prince George, and a conference was held with the staff at Agassiz Experimental Farm.

The 4-H Club work continues to expand, and four University of British Columbia students were employed during the summer to assist with this very important programme.

STAFF CHANGES

J. C. Ryder was transferred from Victoria to Vernon. Mr. Piercy was moved from Kamloops to Fort St. John, and R. W. Brown moved from Fort St. John to Vanderhoof.

CENTRAL BRITISH COLUMBIA, NORTH CARIBOO, AND PEACE RIVER

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

Quality of crops was good even in those areas of low yield; most hay was put up in good condition and grain was harvested and threshed before the wet fall weather. Fescue and alsike clover yields in the Peace were exceptionally good. Grain yields were somewhat reduced, but improved grades compensated through higher prices. Alfalfa-seed production and seed quality was the highest in a number of years in the Peace.

Higher prices for beef during the past year have renewed interest in cattle-raising, and is apparently one of the major reasons for improved morale among farmers.

Further lots of breeding ewes were brought into Central British Columbia, as well as a considerable number of rams.

Dairying is expanding in all parts of Central British Columbia and the Peace, but at a rate that barely supplies the fluid market. Expansion would be more rapid if good stock could be obtained more readily, and if farm credit was adapted to the needs of the dairyman.

Settlement continues active and, for the most part, is progressing as fast as social services and construction of schools, roads, supplementary employment, etc., warrant. There is a reasonably active demand for Crown land for agricultural purposes in all areas. A good many United States farmers are finding it impossible to secure land at home to expand their operations effectively and are looking to the Peace and Central British Columbia for new holdings.

During the past season the Pacific Great Eastern Railway has been extended to Dawson Creek and Fort St. John, thus realizing the long-sought outlet to the West Coast. The gas pipe-lines from the Peace to the Coast have been completed, and gas is being provided to all towns en route. The British Columbia Power Commission has extended lines between Quesnel and 100 Mile House. In all areas served by the Commission various rural extensions have been made.

Extension (General)

Following plans worked out at regional meetings, certain defined programmes were followed in addition to routine extension work, as follows:—

Beef Cattle Promotion: Peace River and Cariboo.
Feeding of Beef Cattle: Peace River.
Swine Improvement: Peace River.
Dairy Promotion: All areas (considerable assistance in regulations and marketing was provided in the Bulkley).
Sheep Promotion: Prince George and Vanderhoof.
Vegetable Production (Swede Turnips): Bulkley, Prince George, and Cariboo.
Fertilizer Use: Peace River and Cariboo.
Poultry: All areas.

In all phases of this work appointed specialists Messrs. King, Wood, Nelson, and Luyat lent invaluable assistance that District Agriculturists would have had neither the time nor specific training to provide by themselves. The resident Dairy Inspector, Mr. Hitchman, gave much valuable help to dairymen, well beyond his regulatory responsibilities. Appreciation is also acknowledged for information and assistance provided by Live Stock Inspector Frank Clark and Agricultural Engineers George Calver and Tom Windt.

It is the sincere wish of the Extension Service in Central British Columbia and the Peace River that the policy for designated-area specialists be continued until there is scope for full-time specialists in this region. It is further recommended that ample provision be made for these specialists to carry out their projected number of visits for specified periods of the season.

Regional meetings are held in the fall and spring. At the spring meetings, programmes are finalized and requests made for specialist services for the season. The fall meeting becomes an evaluation period, as well as making up programmes for the winter and coming growing season. These meetings are only completely successful when attended by all resident Department of Agriculture officials, the specialists attached to the region, the Director of Extension, and, if at all possible, the Deputy Minister of Agriculture.

Field Crops

Temperatures were higher than normal, resulting in rapid growth and early maturity. However, the same conditions created near-drought conditions in some sections. This was particularly noticeable on fine-textured clay soils, where moisture reserves are normally low and wilting point quickly reached. As a consequence, yields on heavy clay

and sandy soils were low. On loams and the better silt soils, yields were fair to good and quality of crops excellent. Friable soils of good depth carried good reserves of moisture from the previous year.

It is noted that yields of cereals are down somewhat but to some extent are compensated through improved grades. Very high yields of first-class fescue were obtained, alsike clover seed was good, and alfalfa seed was good in some areas. Red clover seed set on the other hand, was very low.

Increased use of commercial fertilizer is noted, particularly in the Peace. Very encouraging results, too, were obtained in that district on forage-seed crops as well as cereals.

Crop production for Central British Columbia is reported as follows:—

Area	Wheat	Oats	Barley	Forage Seed
	Bu.	Bu.	Bu.	Bu.
Bulkley Valley	3,000	33,000	5,000	57,000
Nechako Lake district	7,500	210,000	60,000	30,000
Prince George-McBride	9,000	85,000	23,000	--------

Prices on alsike clover and timothy seed have strengthened. Creeping red fescue remains about the same as 1957.

Hay yields were fair to good in the Peace, Bulkley, and Nechako Valleys and poor in the North Cariboo and Prince George district. With the introduction of some hay from adjacent districts and use of more grain or cereal hay, it is expected, however, that there will be no shortage of winter feed for live stock.

Weeds

Weed Inspectors were again appointed on a seasonal basis in the Peace River. Some patches of toad-flax are still present in the North Peace. An outbreak of tartary buckwheat was identified in the South Peace, and appropriate control measures taken.

Mr. Mertens, Weed Inspector, is enthusiastic toward growing of creeping red fescue in the Peace but feels that this crop will continue to occupy an important place in the economy only if couch-grass can be kept under control.

No new outbreaks of weeds were reported in Central British Columbia. Toad-flax in the Vanderhoof district and leafy spurge in the Cariboo are continuing to spread and may eventually create considerable problems.

Horticulture

Vegetable-growing has received the serious attention of farmers and extension workers during the past year. Special emphasis was given to growing and marketing of turnips. Horticultural Specialist M. King made three trips through Central British Columbia during the spring and summer to give assistance to growers and District Agriculturists. Through use of approved seed, cultural methods, insecticides, etc., the quality of roots grown is far better than ever previously observed. No problems in marketing are anticipated for this season. The writer is of the opinion that the services of a vegetable specialist should be continued and extended to the Peace River as well.

The following is a summary of vegetable production as reported by the District Agriculturists for the Prince George, Vanderhoof, and Bulkley districts:—

	Tons
Potatoes, commercial	1,440
Potatoes, seed	300
Cabbage	143
Turnips	421
Carrots	34

Figures are not available for the Cariboo, which produces chiefly potatoes, a good part of which are seed. There appears to be room for a considerable production of potatoes, turnips, and possibly other root vegetables in the Peace.

Fruit-growing is of little importance. Mr. Pelter reports close to 2,000 baskets of strawberries marketed at Terrace. The area certainly has the climate and location to take advantage of small-fruit growing for the local market.

Honey

All significant honey production is carried on in the Peace; most of this is south of the river. Production was as follows: North Peace (103 colonies), 18,000 pounds; South Peace (2,800 colonies), 490,000 pounds.

The average price to the producer was close to 15 cents a pound, which would give a value of $76,000. The Peace is reasonably well adapted to honey production. Large areas of sweet clover and alsike, which are preferred by bees, could carry a great many more colonies.

Live Stock

Extension work in live stock consisted of dairy promotion in all areas, with particular emphasis in the Bulkley; sheep in Central British Columbia; initial promotion of performance testing of beef cattle in the Cariboo; swine improvement in the Peace; and beef improvement and feeding in the Peace. Progress in all phases may be considered reasonably successful.

Beef

Outlets for cattle in the Cariboo were increased, with Baird & Company operating sales at Quesnel and Williams Lake in addition to sales sponsored by the British Columbia Beef Growers' Association. Export sales remain strong, and consequently prices are high. Records of marketing for all areas are not complete, but the following is a summary of available data:—

North Peace—		
Shipped	3,345	
Local slaughter	458	
		3,803
South Peace—		
Shipped	1,452	
Auction	200	
Local slaughter	2,100	
		3,752
Total for Peace		7,555
Cariboo (Quesnel and Williams Lake)—Sales		13,723
Prince George—		
Shipped	242	
Local slaughter	1,305	
Vanderhoof—		
Shipped (truck)	470	
Thirty-four cars (estimated number of cattle)	958	
Local slaughter	25	
Lakes District—		
Twenty cars (estimated number of cattle)	440	
Truck	400	
Bulkley	700	
		4,540
Total, all districts		25,818

Taking the average Quesnel and Williams Lake sales price per head of $140, the beef industry in Central British Columbia and the Peace realized approximately $3,600,000 in 1958. R. C. Fry, District Agriculturist at Quesnel, reports 6,296 head going to the United States. It is estimated a similar proportion of cattle shipped out of other districts went for export as well.

Increased prices for beef cattle have already improved the economic status of cattlemen, as well as farmers with only a few head.

Dairying

The production figures which follow are compiled from information provided by District Agriculturists and Dairy Inspector R. N. Hitchman:—

	1958 (Lb.)	1957 (Lb.)
Bulkley-Skeena—		
Bulkley-Skeena fluid	3,617,000	
Terrace fluid	400,000	
	4,017,000	3,458,000
Add creamery purchases (as milk)[1]	1,267,000	
Total	5,267,000	
Nechako Valley	1,600,000	1,000,000
Prince George-McBride—		
Prince George fluid	2,900,000	
Prince George other	330,000	
	3,230,000	
McBride	1,075,000	
Total	4,305,000	4,201,000
Cariboo—		
Quesnel, all sources	2,200,000	2,000,000
Williams Lake[1]	350,000	
122 and 100 Mile Houses[1]	380,000	
Total	2,730,000	
North Peace—		
Fluid	1,600,000	
Other	75,000	
Total	1,675,000	1,560,000
South Peace—Fluid	3,656,000	3,534,000
Totals	19,233,000	15,753,000
Total value at $4.50 per hundredweight	$865,485	

[1] Not included in 1957 Report.

There has been little significant change in milk prices to either the producer or consumer during the past year.

The Dairy Branch reports that 2,040,000 pounds of milk were reconstituted at Kitimat in 1958, 75,000 pounds at Fort St. John, and, in addition, 40,000 pounds of butter were brought into Prince George for use in manufacture of ice-cream. There is thus plenty of scope for expansion of the dairy industry to take care of these deficiencies in production as well as the needs of the rapidly increasing population.

Sheep

Considerable interest is being shown in sheep-raising in Central British Columbia and the Peace. Sheep could fit well into the farm economy in these areas and are adapted to handling in relatively small numbers. Breeding stock, however, is relatively difficult to secure, so progress is slow. We can look for more rapid increase when local ewe lambs become available. Shipped from Lakes District, Vanderhoof, Prince George, and McBride, to November 1st, were 1,257 head. A considerable number of ewe lambs are evidently being retained to increase flock size.

Hogs

Hog-raising continues to be of major importance in the Peace despite depressed prices. Local slaughter-houses at Prince George and Quesnel take considerable numbers of hogs. This condition has influenced a moderate increase in hog-raising in these districts. Hog production for the Peace is as follows:—

North Peace—		
Shipped	7,528	
Local slaughter	321	
		7,849
South Peace—		
Shipped	5,660	
Local slaughter	10,500	
		16,160
Total		24,009
Estimated value at $35 per head		$840,000

The number produced for slaughter is estimated to be approximately 18 per cent over 1957. A shipment of higher-quality-bred gilts was brought into the South Peace in 1957. The South Peace Stockmen's Association sponsored a swine club, using the progeny from these sows. In this way it is hoped to keep a maximum number of the female stock in the district and promote higher-quality hogs.

POULTRY

Poultry-raising is increasing in popularity in all areas. C. W. Wood, Poultry Fieldman, and W. H. Pope, Poultry Commissioner, made trips to the area during the year, made studies of the business, met with poultrymen, and conferred with the District Agriculturists.

The following are estimates of baby-chick imports to various districts:—

	Chicks	Poults
Quesnel and Williams Lake	58,000	1,400
Prince George	40,000	------
Vanderhoof	8,000	------
Bulkley	14,000	------
Peace	70,000	------
Totals	190,000	1,400

There is obviously a considerable increase in poultry over the previous year. Production still lags far behind consumption for the area as a whole. In the Peace a number of flocks have been increased to furnish a cash return on grain on hand. In Central British Columbia the good demand and relatively uniform price of eggs has encouraged a few more producers and expansion of existing units.

4-H Clubs

All areas report good interest in 4-H Clubs, with considerable increase in enrolment. Efforts are being made to keep the type of club adapted to the general social and economic status of the district. A Club Leaders' Conference was held in Victoria in February. Leaders attending from Central British Columbia and the Peace were Mrs. E. Holder, of Montney; Charles Schobert, of Doe River; and Mrs. Charles Carpenter, of Vanderhoof. Departmental representatives at the conference from this region were J. Hall and the writer.

John McFaul, summer assistant on 4-H Club work, made a brief trip through the area. The writer and J. Arrand (entomologist) assisted in the Peace. There is a very definite need for an assistant on 4-H Club work for the summer months in the Peace and Central British Columbia.

The following is a summary of clubs and enrolment (in parentheses) by district:—

	Bulkley	Vanderhoof	Prince George	Cariboo	North Peace	South Peace	Totals	
							Clubs	Members
Beef	1 (10)	3 (35)	.. (....)	1 (10)	.. (....)	2 (29)	7	(84)
Garden	2 (30)	2 (20)	.. (....)	1 (8)	1 (12)	3 (44)	9	(104)
Other	.. (....)	1 (11)[1]	3 (56)	.. (....)	.. (....)	1 (11)[2]	2	(22)
Home craft	1 (18)	2 (17)	3 (56)	.. (....)	.. (....)	1 (15)	6	(88)
Community	.. (....)	1 (17)	1 (11)	5 (45)	2 (31)	2 (24)	11	(128)

[1] Lamb. [2] Grain.

Projects were shown at local farms on achievement-days. Beef Clubs auctioned their stock at the time of showing, and prices realized effectively impressed the members on the need for quality and finish. There appears to be room for such sales for lambs and packaged garden produce, as instituted by Mr. Pelter at Vanderhoof.

Land-clearing

An exceptionally fine season prevailed for land-clearing operations. Practically all clearing and dugout excavation was done under the "Farmers' Land-clearing Assistance Act" through private contractors. This work resulted in many acres of land being brought under cultivation. Brush-breaking in the Peace is done with conventional breaking-ploughs, while the disk-type breakers are in general use in Central British Columbia. There are six wells to be drilled at Vanderhoof under the provisions of the Act, but it appears that only two will be completed this year. Several water-holes were dug in addition to the regular dugouts shown.

Settlement

Application for Crown land for agricultural purposes remains strong in the Peace River, Prince George, and Vanderhoof districts, but there seems to be some levelling off. The advent of the Pacific Great Eastern Railway into the Peace has created a demand for land around Little Prairie. Several United States farmers have bought land around Vanderhoof. An accelerated demand for farm land in all areas is anticipated in 1959.

Official Visitors—Specialist Services

Regular visits were made by specialists already mentioned, as well as J. Corner, Apiarist. Provincial Veterinarians Newby and Thompson made several regulatory visits, while Dr. A. Kidd, Live Stock Commissioner and Chief Veterinary Inspector, travelled to Prince George twice during the season to investigate the establishment of beef grading and inspection there. Dr. J. C. Berry, of the Animal Husbandry Department, University of British Columbia, travelled through Central British Columbia and the Peace with Graham Drew (University Extension) and Frank Clark. They met with dairymen, discussed live-stock problems with the District Agriculturists, and classified several dairy herds. Mr. Drew was publicizing the University Youth Training School.

The Honourable N. P. Steacy, Minister of Agriculture, made a number of trips to the North. He met with farmers, farm organizations, and groups handling farm produce in Central British Columbia and the Peace. He was especially interested in providing an outlet for the commodities which can be grown in this region.

A group of nine farm writers toured Central British Columbia from Terrace and Kitimat to Quesnel at the end of May. District Agriculturists, Experimental Station Superintendents, and H. Milne, of the Canadian National Railways Agriculture and Colonization Department, assisted in making arrangements. Boards of Trade and Farmers' Institutes at Terrace, Smithers, Vanderhoof, and Prince George collaborated.

Fairs

Fairs were held in the North Peace, Dawson Creek, Kiskatinaw, Prince George, Fort Fraser, Burns Lake, Smithers, Quesnel, and Bella Coola, and a flower show at Williams Lake. At least one Departmental official acted as judge for each of these fairs. Heavy rains seriously reduced attendance at the Prince George Fair, but weather was excellent at all others. A seed fair was held at Fort St. John on March 7th, at which the writer acted as one of the judges. The fair creates considerable favourable publicity, but could well include greater participation by exhibitors.

Farmers' and Women's Institutes

Both Farmers' and Women's Institute meetings were held in June in the Cariboo, East Central British Columbia, the Bulkley, and Peace River. Officials attending the meetings were the Honourable N. P. Steacy, Minister of Agriculture; L. W. Johnson, Superintendent of Farmers' Institutes; and Mrs. Stella E. Gummow, Superintendent of Women's Institutes. Resignation of Mrs. Gummow as Superintendent of Women's Institutes is regretted by all who looked forward to her annual visit to the Peace and Central British Columbia.

Conferences and Short Courses

Communications Short Courses were held at Victoria and Kelowna during the past winter. District Agriculturists from this region attended the Kelowna meeting. These courses tend to create closer unity among Department of Agriculture officials. This was particularly evident through a resolution, unanimously adopted at the Kelowna meeting, in which it was recommended that the Minister take steps to so organize the Department of Agriculture for more efficient and co-ordinated service.

With the introduction of the initial stages of the farm-management programme, several meetings have been held. A short course, at which Messrs. Pelter, Hall, and the writer attended, was held at the University of British Columbia in October.

Three members of the Department—Supervising Agriculturists Allin and Preston and Farm Management Specialist Jim Dinnes—attended a four-week postgraduate short course in farm management and farm and home planning at the Washington State College

in July. Special mention should be made of the useful and practical material presented in the courses and the very efficient teaching methods used by the Extension Service instructors in the Farm and Home Planning Course.

Regional conferences have been held regularly in the spring and fall for Central British Columbia and the Peace. As far as practical, we have in attendance our Director, Mr. Landon; specialists who have been most active during the season, or required for planning for next season; and all District Agriculturists and resident officials. These conferences have been most successful in the opinion of all attending.

A report on prospects and plans for 1959 will be made following the regional meeting in December.

LIVE-STOCK PRODUCTION IN BRITISH COLUMBIA

(G. A. Luyat, P.Ag., Supervising Agriculturist, Acting as a Beef Cattle and Sheep Specialist)

Trends in Beef-cattle Production

The final two months of 1957, following a draggy market on all cattle but cows, saw the demand and prices for feeder cattle increase with heavy export to the United States. Two-year-old grass-finished steers continued to find only a local market under stress. The year 1957 was one of transition in the beef industry when producers were hurriedly converting to a feeder basis. The move gained momentum in 1958 with a strong market developing for light feeder cattle, especially steer calves. At the close of the year the industry in British Columbia found itself almost 100 per cent on a feeder economy, leaning heavily to a cow and calf basis. For the moment, at least, the problem of high costs of grain on the western side of the Rockies has been solved.

Marketing

The auction method of marketing cattle was fully used this year to handle the bulk of the cattle at Kamloops, Williams Lake, and Quesnel. Up till late November a total of 17,556 head had been handled under the system at the three points. The change from selling by private treaty under sealed bids has proved out quite successful for both the buyer and the seller. The producer with a small number and lacking bargaining power is not put at a disadvantage. All buyers have equal opportunities to purchases and can reduce expenses in securing requirements. The service has been particularly outstanding to feeder buyers, including Americans who are not always acquainted with the country or the markets. Buyers were encouraged by the selection and the volume offered. A sound market was developed. Perhaps no other form of extension has been as effective in improving cattle quality as the auction sale, where poor and good types sell side by side with a wide differential for quality and uniformity.

One sale was held at Okanagan Falls in late October. The annual feeder sale was again held at Fort St. John, but volume was lacking because of previous private sales. It is not likely that any progress in the feeding of cattle in the Peace River area will take place this coming winter as all available feeder cattle moved out at attractive prices. The regulations permitting shipments of grain from the Peace River area by rail on a farmer-to-farmer basis with freight assistance will alter feeding economies, but little in such areas as the Cariboo. Grain is already available from Edmonton at a cost of $5.50 per ton for freight.

Three feed-lots using refuse screenings under permit as the basic ingredient of the ration are in operation in the vicinity of Kamloops. Screenings which were available at the low price of $3 per ton f.o.b. Vancouver later moved during the summer to $7 to $9. The uncertainty is reducing operations this year of the margin of profit. A number of ranchers located on the railroads are using refuse screenings with marked success as a hay replacer.

Performance Testing of Beef Cattle

A total of 231 pure-bred calves by December 1st have completed the weaning weight test under the joint Federal-Provincial programme, and two further herds are awaiting a weaning date to go on test. A breakdown showing the breeders participating, the breeds, and the numbers of each sex is as follows:—

Pure-bred Herds	Calves Tested			Total
	Bulls	Heifers	Steers	
Angus				
Woodwyn Farms, West Saanich Road	7	6	12	25
J. A. Hay, Lumby[1]	----	----	----	----
Herefords				
McKim Bros., Salmon Arm	9	26	----	35
D. P. Boltz, Midway	16	13	----	29
F. Bricker, Box 296, Fernie	4	10	4	18
G. Lyster & Sons, R.R. 3, Armstrong	16	14	----	30
Whitefroct Ranch, Heffley Creek	3	8	3	14
H. N. Boultbee, Hillcroft Ranch, R.R. 7, Langley	6	7	----	13
L. W. Wood, R.R. 3, Armstrong	9	13	----	22
Kalwood Farms Ltd., Oyama	15	9	----	24
Karl and Margaret Freding, Princeton	19	8	----	27
Oliver From, Westbridge[1]	----	----	----	----

[1] Weaning data for 1958 not completed by this date.
Total Hereford calves, 212; total pure-bred calves to date, 237.

It will be noted from the foregoing table that the herds entered in the test cover every part of the southern portion of the Province from Vancouver Island to Fernie. Considerable interest is also being taken in the programme by many who are not already participating, judging from the inquiries received.

The writer was privileged to attend a meeting of the Co-ordinating Committee on R.O.P. for Beef Cattle held at Saskatoon in June at the time of the annual C.S.A.P. (Western Section) meeting, and also a meeting of this Committee with the research personnel from Western Canada.

A total of 612 grade calves were being tested this year from eight commercial herds. Three of the herds are now going into their third year of testing and are beginning to build up valuable and meaningful individual cow records of performance wherein each cow in the herd is being progeny tested or rated by the performance of her offspring. The repeatability of heavy weaning weights and good-type scores of calves by the same cows is sufficiently high to justify culling cows with unsatisfactory calves. Perhaps the most outstanding feature witnessed in a testing programme on commercial herds and, for that matter, pure-bred herds is the rapid progress made through improvement of feeding and management practices.

Sheep Production

The sheep population is holding its own in most areas of the Interior, with perhaps a slight increase showing up in Central British Columbia. A few small farm flocks changed hands. Four hundred cross-bred range ewe lambs by Suffolk rams were shipped to Ontario for distribution as farm flocks. These ewe lambs sold for $19.50 each f.o.b. shipping-point. Three single decks of replacement breeding ewes were imported from Alberta by range sheepmen.

British Columbia lambs did not move on to the market until mid-September because of poor demand and low prices. Finally an agreement was reached to sell at $18 f.o.b. shipping-point or $20.55 off cars in Vancouver. Later, prices advanced to $19–$19.50 at shipping-point. Shipments from New Zealand made marketing of local lamb unpre-

dictable and hazardous. It was reported that some 25,000 lambs had entered Vancouver in the late spring for consumption there.

At the beginning of September the National Sheep Committee appointed by the Honourable Douglas Harkness, Minister of Agriculture, Ottawa, to investigate the sheep industry in Canada visited the Fraser Valley and Island sheepmen during the Pacific National Exhibition, and following this the Interior sheepmen at Kamloops. Several sheepmen agreed that there was considerable room for expansion on the Coast, and that the rough logged-off lands were not being utilized to their maximum because of the lack of sheep numbers for the purpose. The writer suggested that the cross-bred ewe lambs of Suffolk breeding being disposed of from the range bands as market lambs would make ideal sheep for the Coast by virtue of having plenty of hybrid vigour, size, and being good mothers with good-quality wool. Mr. Tisdale, of the Sheep Committee, agreed and wondered why all these good ewe lambs were going to slaugter instead of making the nucleus to farm flocks. A. A. McNeil, of the Committee, a commercial breeder of Brant County, gave his experiences in the use of these cross-bred range ewe lambs on his own farm, which he said were highly satisfactory in performance.

VANCOUVER ISLAND AND LOWER FRASER VALLEY REGION

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

The principal source of farm income in the region is dairying. In the Lower Fraser Valley, the general picture for dairy production was somewhat improved. Milk prices were up; feed-supplies good; prices for dairy cattle, beef, and calves remained firm; and generally 1958 was one of the best years for dairy-farmers in a long time.

On Vancouver Island, dairy-farmers did not experience the same stable conditions as the Lower Fraser Valley. The combined effect of a reduced price for their product and increased costs of production through poor pastures and decreased forage yields resulted in lower returns than had been anticipated.

For both Vancouver Island and Lower Fraser Valley the number of producers has declined but with no decrease in production. Cattle numbers per farm have increased and production per man has likewise risen.

The demand for dairy-farms and the increasing utilization of land for industrial and residential development has caused land prices to rise to an unprecedented level, especially in the Lower Fraser Valley.

Extension Activities

In addition to the more usual agricultural extension work on which we have reported in previous years, three new phases of activity were engaged in during the year, namely: (1) Communications Workshop; (2) Farm and Home Planning Course; and (3) Farm Management Programme.

(1) Films, flannelgraphs, buzz groups, and other methods were all employed in two staff meetings—one in Victoria and one in Kelowna—in an attempt to convey to all agricultural extension workers who attended an understanding of the basic factors of " Communications."

Portions of the " Communication " material were repeated several times during the year to smaller groups, including farmers, 4-H Club Advisory Council, Veterinary Inspectors, and D.H.I.A. Supervisors.

(2) Appreciation is given for the opportunity of being able to attend the Washington State Summer School course on " Extension Methods—Farm and Home Planning " for the purpose of gaining a better understanding of this extension approach, which is considered to be one of the best methods of adult education through which an agricultural extension service may perform its function. Farm and home planning is a method of conducting

an agricultural extension programme, the core of which is management. It is an educational process rather than a management service.

The course of action which we are developing in British Columbia follows the same general procedure which has been effective in other areas of North America. The pilot-farm aspect of the farm-management programme which we have already adopted is a necessary prerequisite to any broader full-scale extension programme which has farm management as its base.

(3) There is a greater awareness that the economic aspects of farm production and its problems are increasing in importance. Thus we have developed a programme of farm management which should definitely contribute much toward meeting the challenge of present-day economic pressures. Such a programme should result in better solutions with more assurance of their practical application.

To initiate action in this regard, therefore, in May, 1958, seven pilot farms were selected for study. The joint effort by farmer and District Agriculturist included the keeping of accurate records (financial, field, labour, etc.), budgeting, and financial statements. An analysis of these records by District Agriculturist, farmer, and farm-management specialist should reveal opportunities for improving efficiency to increase net returns.

Each District Agriculturist in this region will have an additional farm with which to work during the full calendar year of 1959.

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.

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. These planning committees are operating effectively in Delta, Surrey, and Pitt Meadows districts.

4-H CLUB DIVISION

(Miss Echo Lidster, Supervisor)

From September, 1957, to July, 1958, Miss Lidster was on leave of absence from the Department of Agriculture for the purpose of doing graduate work at Cornell University in New York State. She obtained the degree of Master of Science in September, 1958.

The total 4-H Club enrolment for British Columbia is as follows: Clubs—1957, 170; 1958, 190. Members—1957, 1,991; 1958, 2,267.

Provincial 4-H Club Week

Delegates from 4-H Clubs throughout the Province were brought to the University of British Columbia on July 2nd, 3rd, and 4th. A total of seventy-eight delegates were billeted at the Youth Training Camp. The Provincial quota of fourteen delegates was selected from these. The basis for selection involved judging ability and knowledge of project subject-matter, achievement record covering all years in club work, personality, character, and general knowledge. The following delegates were selected:—

Beef: Kathryn Bostock, Rock Creek; Grant Smith, Lumby.
Dairy: Douglas Blair, Langley; Maxine Hanson, Ladner.
Garden: James Rowse, Hope; Lynn Spraggs, Armstrong.
Homecraft: Dorothy Johnston, Prince George; Lorraine Arcand, Chilliwack.
Poultry: Harold Hill, Armstrong; John Skelton, Armstrong.

Sheep: Kay Armstrong, Enderby; John Ross, Courtenay.
*Swine: David Ormrod, Langley; Eric Andrews, Chilliwack.

National 4-H Club Week

The above-named young people represented British Columbia at National 4-H Club Week, which took place in Toronto and Ottawa, November 15th to 20th.

This was the third year in which no competitions took place at National 4-H Club Week. As a result of this arrangement, delegates are being selected on a broader basis in their Provincial competitions, resulting in a more mature group attending National 4-H Club Week. Delegates participated in the programme as chairmen of various functions, by asking the blessing at meals, Grain Club model meeting, home decorating discussion, and dress revue. Tours were made to the Royal Winter Fair, Royal Ontario Museum, Casa Loma, Maple Leaf Gardens, Niagara Falls, Orenda Engines, House of Commons, and Ottawa and Hull.

Canadian National Exhibition Scholarship

The Canadian National Exhibition offered each Province a scholarship of $600 to be awarded to a boy or girl from each Province. British Columbia selected Thomas Wilson, of Cloverdale, from the six candidates who applied. Mr. Wilson is enrolled at the University of British Columbia.

Eaton Watches

The T. Eaton Company again awarded gold watches to the highest-scoring individual in each project in the Provincial elimination competition in British Columbia. In 1958 the winners were as follows: Beef—Katharyn Bostock, Rock Creek; Dairy—Douglas Blair, Langley; Garden—Lynn Spraggs, Armstrong; Goat—Paul Howe, Saanichton; Grain—Ann Bell, Armstrong; Honeybee—John Stann, Vernon; Homecraft—Lorraine Arcand, Chilliwack; Potato—Philip Pincosy, Salmon Arm; Poultry—John Skelton, Armstrong; Rural Electrification—Ed Curlyo, Chilliwack; Sheep—Kathleen Armstrong, Enderby; Swine—Eric Andrews, Chilliwack.

Provincial Advisory Council of 4-H Club Leaders

This council met in Victoria on February 25th, 26th, and 27th, 1958. Delegates attending were as follows: Peace River—Mrs. E. A. Holden, Montney, and Charles Schobert, Doe River; Central British Columbia—Mrs. Ken Carpenter, Vanderhoof; Vancouver Island—Alex. Hall, Victoria; Lower Fraser Valley—Mrs. Ada Attridge, Mission; Kamloops—Harold Becker, Westwold; Armstrong—Robert Hornby, Armstrong; Kootenay—John Stevenson, Argenta; North Vancouver Island—Mrs. Doris Stephens, Alberni, and Mrs. William Walker, Alberni. Supervising Agriculturists and District Agriculturists: Jim Hall, Dawson Creek; S. G. Preston, Prince George; Fraser Carmichael, Grand Forks; George Cruickshank, Chilliwack; and Ken Jameson, Duncan.

4-H Club Award Trips

In addition to National 4-H Club Week, several trips were made available to 4-H Club members within the Province in 1958:—

(1) *Pullman, Wash.*—Four club members from the Interior of the Province attended Washington State 4-H Club Congress, June 9th to 12th, accompanied by Jack Piercy, Assistant District Agriculturist, Kamloops—Arthur Harfman, Bridesville; Patsy Steffens, Merritt; Barbara McIntosh, Vanderhoof; and Allan Suchy, Doe River.

* Candidates in Goat, Grain, Potato, and Swine projects were grouped together. The individuals with two highest scores come from the Swine project.

(2) *Fairview, Alta.*—Frances Marshall, Shearer Dale; Sheila Schobert, Doe River; Sandra Cox, Landry; Kay Sutton, Progress; Leonard Peterat, Central; and Gordon Framst, Cecil Lake, attended Fairview Farm Camp in July. This trip is awarded to the proficiency winner in each club, based on the previous year's achievement report.

(3) *Montana 4-H Conservation Camp.*—Anne Beynon and Fred Clark from Wycliffe Beef Club attended this camp from July 14th to 18th, 1958, in company with Joe Awmack, District Agriculturist. This trip occurs every third year for British Columbia.

(4) *Inter-district Exchange Visits.*—These visits, of one week's duration, are arranged between districts within the Province. Travelling expenses are shared equally between the club members and the British Columbia Department of Agriculture.

Exchange visits between Vancouver Island and Kamloops were arranged for Don Kevis, Alberni; Allan Dale, Cedar; Lorne Grieve, Courtenay; and Ernie Dolling, Cedar. Kamloops exchanges were Wilma Davidson, Knutsford; Helen Salle, Barriere; and Bill Freding, Princeton, during the last week of August.

Exchange visits between Fraser Valley and Quesnel were arranged for Ed Curlyo, Chilliwack, and Arthur Jackson, Abbotsford.

Kamloops Fat Stock Show and Sale

The annual show and sale held in Kamloops is the final stage of achievement for some 240 boys and girls who are members of Beef and Sheep Clubs. The champion calf was shown by Jim Wilkinson, of Westwold, and sold for $1.85 a pound; the reserve champion was sold by Arthur Harfman, of Bridesville, and sold for 85 cents a pound.

EXTENSION AGRICULTURAL ENGINEERING DIVISION

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

Requests for assistance with engineering problems on the farm have increased, but in line with past policy the emphasis has been placed on the group approach rather than individual problems. This approach has utilized the following methods: Equipment trials and demonstrations, field-days, bulletins, short courses, and talks. The staff of the Division includes G. L. Calver, Senior Agricultural Engineer; K. E. May, Assistant Extension Agricultural Engineer; T. A. Windt, Assistant Extension Agricultural Engineer; H. Barber; Mrs. C. Smethurst; and Mrs. M. Marte.

Farm Machinery

The individual work with farmers' machinery problems has been limited to minor visits regarding specific machines, replies to some thirty-five letters of inquiry, and assistance to other branches of the Department, including sprayer development for the Horticultural Branch and machinery checking for the Poultry Branch. Since farm machinery covers such a broad field, the group approach appears to give the best coverage. Included in this have been three farm machinery meetings dealing specifically with general machinery maintenance and operation and forage-harvesters. Farm machinery maintenance is considered of vital importance, and the two-day short course has worked out as our most satisfactory method of teaching. Short courses were held at Langley High School, Chilliwack High School, Fort St. John, Dawson Creek, and Armstrong. The average attendance was sixteen, which is approximately the maximum number of students that can be handled in a practical course by two men. Flannelgraph and visual aids were prepared for the courses and assisted materially with the subject-matter presentation. Although field-days are time-consuming, they do show the machinery in operation and

the adjustments and maintenance required under working conditions. Six field-days were held, two of which were in conjunction with special projects, the others with tillage equipment, silage machinery, and orchard machinery. Bulletins prepared by this Division were limited to the farm machinery field and were prepared for the use of the Field Crops Branch in its forage-promotion programme. The titles of these bulletins are: (1) "Silage Harvesting Machinery"; (2) "Silos"; (3) "Mechanical Feeding."

Projects

1. *Turnip Production.*—The first step in the mechanization of this crop is promotion of the use of up-to-date sprayers and seeding equipment. This was carried out in the form of a field-day at which pre-spraying and planting was carried out in conjunction with the Entomological Branch. Mechanical harvesting will no doubt require consideration as production increases.

2. *Onion-harvesting.*—This third year of onion-harvesting development work saw the completion of the initial programme as it was set out. The annual report of Mr. May states: "Trials proved a Bruner disk lifter to be unsatisfactory and subsequent development of an experimental model by this Division, although not completely successful, did indicate that equipment manufactured by Mr. Paul Rickard for growers in the Salem, Ore., area should operate in the Interior. Trials of the equipment confirmed this, and a successful field-day was held to demonstrate the machine. Mr. Rickard, who manufactures a complete line of onion equipment, has agreed to supply this area. It is now the responsibility of the growers to decide whether they should purchase this equipment, which will enable them to increase production, lower production costs, and obtain a greater net return than is now possible using hand methods."

3. *Potato-spraying.*—This project was initiated at the request of potato-growers, entomologists, and pathologists to evolve an efficient method of obtaining complete coverage of potato vines to control aphis and possibly late blight. Trial work was carried out through the auspices of the Agricultural Engineering Department of the University of British Columbia by a Provincially employed student assistant. The initial development involved construction of an experimental spray boom and the formulation of accurate coverage assessment procedures. The sprayer utilizes a trailing hinged boom with vine lifters, and results would indicate that although this may give improvement in coverage over equipment in present use, further improvements are required.

4. *Vertical Mulching.*—This dealt with the development and adaptation of equipment to place organic material in the channels opened by a deep tillage tool and is being used in conjunction with a drainage demonstration in the Ladner area. Present indications are that it is relatively successful.

5. *Apple-tree Props.*—This project is in the preliminary stages and has dealt so far with the development of a planer-head to shape lodgepole pine props. Testing and further work will be required.

Safety

The farm safety programme is placed under farm machinery in that the majority of the work has dealt with machinery safety, though some emphasis has also been placed on the use of hand extinguishers for farm fire-control. Safety work has been divided into:—

(1) The compilation of accident data, based on reports from all district farm organizations on local farm accidents, with a view to obtaining data not only on deaths but also injuries causing time-loss.

(2) Talks on farm safety presented to three farm groups, to the annual meeting of the British Columbia Safety Council, and to the Western Farm Safety Meeting held at Edmonton this spring.

(3) Safety demonstrations at which special tractor safety equipment was shown together with fire equipment. A total of ten demonstrations were held, with an average of forty-five farmers attending.

(4) Work in conjunction with the British Columbia Safety Council to set up a farm safety group under each of its community safety sections such that farm safety becomes the responsibility of local groups, with this Division merely supplying information on safe practices.

Farm Structures

Work in farm structures required a greater amount of individual assistance in that in each structure planned there must be some modifications to meet local conditions; hence some seventy-seven letters of inquiry have been answered giving this specific type of information. Special visits dealt with an investigation of bulk bins for dairy-barns and a review of one potato-storage structure being constructed under the "Canada-British Columbia Potato-warehouse Construction Assistance Act." Some fifteen farm visits dealt with either stanchion or loose housing of dairy cattle or with building layout planning. The two new plans prepared were an Olympic laying-nest and a Mercury shut-off switch for a self-feeding bunk. Plans distributed through our central plan service were as follows:—

Agricultural Engineering plans	891
Midwest plans	7
Canadian Farm Building Plan Service	5,075
Total	5,973

Meetings have been held regarding plans for the Canadian Farm Building Plan Service, a continuing organization, which will print revision sheets on any of the eight catalogue subjects as such information is required to keep these books of plans up to date. For instance, a new bulk milk-house plan is being prepared in connection with the dairy-house plans.

Soil and Water

Included in the soil and water programme have been forty-three letters of inquiry, some of which indicate the need for a revised bulletin dealing with farm drainage. With the emphasis being placed on farm-management studies, two maps have been completed for dairy-farms on Vancouver Island. This work has been carried out to not only give a plan of the farm, but to make available information for recommendations regarding the handling of drainage problems, development of irrigation systems, and planning building layouts.

Drainage

Drainage work has been limited to one field-day in the Ladner area and sixteen individual farm drainage visits. Detailed drainage plans were prepared for portions of three farms on the basis of these field visits.

Irrigation

Work in irrigation has dealt to a large extent with the development of suitable water-supplies, and hence the development in several cases of water-storage facilities. These included review of storage on Oregon Jack Creek, supervision of the start of construction of the Knife Creek dam, together with several small dugout-construction projects. Irrigation systems were designed for three farms. In view of the need for clean water for the effective operation of sprinkler irrigation systems, a plan for a horizontal screening device was prepared and distributed. Four reports were prepared dealing with irri-

gation: (1) " Canal Linings and Concrete Canal Rehabilitation "; (2) " Canal Linings," supplementary report; (3) " Past History of Wilmer Bench Lands or Columbia Fruit Lands Irrigation District "; (4) " Water Reserve, McIntyre Creek."

The only demonstration being carried out is continuing work in the Vanderhoof area. The past year was the second full year of this trial. The control of the system was carried out by the Experimental Farm Service at Prince George, and the staff of this Service will make a complete report. The demonstration is providing valuable information on the possibilities of irrigation in the area.

Conservation

Conservation work has been limited to three farm visits on stream erosion and the preparation of reports on erosion—Rumball Creek, Okanagan flood-control trial and channel review, and Fortune Creek erosion control.

Miscellaneous

Once again rural electrification has received only very limited attention and has dealt with answers to inquiries on hydro-electric and wind-electric development for individual farmers, with one or two inquiries dealing with specific electric equipment.

Meetings attended included the Pacific Northwest Section Conference of the American Society of Agricultural Engineers, the meeting of the Western Safety Committee, and two meetings of the Lower Fraser Valley Sub-committee on Agricultural Engineering.

Domestic Water

Assistance to farmers in the development of domestic water-supplies is provided under the terms of the Farmers' Domestic Water Assistance under the supervision of this Division. Eleven dugouts were constructed in the Peace River area and one in the Smithers area. One of these dugouts was four times the minimum size recommended by the Department. Total cost to the farmers was $5,772.13. Three dugouts were recommended for discount following an inspection which indicated that they had filters, wells, and were properly fenced. All of the work in the Peace River area was done by one experienced contractor.

Land-clearing

All land-clearing carried out under the terms of the " Farmers' Land-clearing Assistance Act " has been done by private contractors working under agreement with the Department of Agriculture. It is the responsibility of this Division to supervise the field operation of these contractors. This supervision includes the review of equipment to be operated by contractors or those who are to be considered for an agreement, checking on the actual calibre of work carried out by the men working under agreement, and the investigation of any claims regarding unsatisfactory work. New contractors were set up in six areas.

T. Windt's report states: " In order to meet the requests for land-clearing in areas not already served by contractors, tenders were called in several areas. The writer reviewed the equipment in the tendered areas of Vanderhoof, Williams Lake, and Salmo-Fruitvale. Thirty-five tractors were inspected. In choosing a contractor, consideration was given to the condition of tractors and amount of land-clearing experience."

Although time-consuming, a contract awarded on the basis of tender is considered to be the most equitable method of choosing new operators for a given area. Past experience in land-clearing indicates that as a general principle a large tractor can give the most economical job if all other factors, such as machine condition and operator, are equal. Minor exceptions are extremely soft ground conditions or specialty jobs. The work of all contractors hired to date has been of a fairly high calibre, as witnessed by the fact that

during the past year only five formal complaints have been lodged on the basis of over 540 jobs completed.

During the past season forty-three contractors were working under agreement with the Department, thirty-eight contractors operated solely on land-clearing work, three were hired for small ditching jobs, and two with well-drilling rigs. The thirty-eight calibre contractors operated some fifty-two crawler tractors. Temporary field assistants included F. Mertens and N. Reedman. District control of contracts and contractor liaison are carried out by the District Agriculturists, who are responsible for the smooth operation of much of the field work. The estimated total value of land-clearing for the year ended November 30th, 1958, is $360,000, a slight decrease from 1957, though late billings will increase the amount. Approximately 9,725 acres of land were developed for production due to the 1958 operations. The following table gives a breakdown of the areas of operation, acreages, and costs per acre:—

Summary of Land-clearing for 1958

District and Number of Contracts	Acreage Cleared	Average Cost per Acre	Total Cost
Vancouver Island and Gulf Islands (33)	164	$99.00	$16,216.55
Pemberton (8)	130	43.00	5,607.25
Fraser Valley (175)	838	114.20	95,995.83
Shuswap and North Okanagan (42)	301	62.20	8,701.75
Similkameen, Kamloops, and Ashcroft (42)	296	81.60	24,154.50
Boundary and Kootenays (16)	220	55.10	12,105.70
Williams Lake (3)	135	32.80	4,430.97
Quesnel (27)—			
Clearing	208	71.80	16,365.75
Breaking	102	14.00	
Prince George (49)—			
Clearing	852	40.20	35,939.76
Breaking	254	10.40	
McBride (17)—			
Clearing	251	48.90	12,334.25
Breaking	92	11.10	
Vanderhoof (8)—			
Clearing	336	18.60	7,325.00
Breaking	88	12.00	
Smithers (10)	138	39.80	5,511.00
Terrace (2)	8	90.80	711.25
Peace River South (53)—			
Clearing	1,145	23.00	32,517.21
Breaking	340	18.25	
Peace River North (74)—			
Clearing	2,551	15.80	58,047.12
Breaking	1,278	12.80	

BRITISH COLUMBIA FEDERAL-PROVINCIAL FARM LABOUR SERVICE

For the second year the Federal-Provincial Farm Labour Service completed operations under comparatively easy conditions. A surplus of labour prevailed during most of the year 1958 in areas where seasonal farm labour is required.

The programme was again supervised by B. G. White and G. L. Landon. Mr. White has included placements in his report and details, so they will not be repeated in this report.

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

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

The only area where some difficulty occurred in finding placements was in Victoria. The small-fruit crop matured ten days to two weeks earlier than usual, with the result that school-children were not available in the usual numbers. The Greater Victoria School Board has indicated it is not willing to approve release of students in certain grades as has been done in past years. A meeting will be held with Department of Education officials, School Board officials, growers' organizations, etc., early in 1959 to discuss the situation.

PUBLICITY PROGRAMME

The programme of publicity undertaken in recent years was continued during the year, using newspaper advertisements, radio and television broadcasts, and news releases. These are always very effective.

GENERAL

Once again I wish to express my appreciation to B. G. White and officials of the National Employment Service for their co-operation in handling the programme in 1958.

AGRICULTURAL MEETINGS

Meetings were held during the year at Mission, Abbotsford, Saanich, and Courtenay, which were addressed by the Honourable N. P. Steacy, Minister of Agriculture, and G. L. Landon, Dr. A. Kidd, and W. H. Pope on the work and programmes of the British Columbia Department of Agriculture.

The annual meeting of the Canadian Agricultural Extension Council was held in Winnipeg, Man., in May, with representatives from all ten Provinces.

CANADIAN COUNCIL ON 4-H CLUBS

A very successful annual meeting of the Canadian Council on 4-H Clubs was held in Winnipeg early in May, with the Director of Agricultural Development and Extension representing this Province.

REPORT OF SOUTHERN OKANAGAN LANDS PROJECT

F. O. McDonald, Manager

The continuous hot weather throughout the season, May to September, presented the Project with a number of problems, including a high demand factor for irrigation-water, also algæ and aquatic plant growth in both the domestic and irrigation systems.

McIntyre (Vaseux) Creek.—In co-operation with the Department of Highways, an extensive programme of dykes and protective work was instituted from plans prepared by the Dyking Commissioner, J. C. MacDonald. This should afford protection from wash-outs for the main canal where it crosses the McIntyre " fan " and the highway in the same locality.

Cistern-filling.—A total of 149 cisterns were refilled from the main ditch during the period January 16th to 19th, 1958.

Timber Work.—All flumes were carefully checked, timbers and planking replaced where necessary, and date nailing used. All flumes were jacked up to grade and new footings installed where necessary. Replacement of whole sections is of immediate concern and will have to be faced by 1960.

Ditch-bottom.—Replacement of ditch-bottom has been undertaken in four different sections.

Cavitation.—Cavitation in the clay strata on Flume No. 23 was eliminated by bulldozing the canyon to the depth of the cavity, which forced the subterranean stream to the surface.

Road Work.—Road work was continued. One-half mile of new roads were built and several miles dressed with shale.

Pitching and Cleaning.—A 2,500-foot stretch of canal was completely lined with Fiberglass and hot asphalt. A winter's exposure is necessary to determine resistance to frost and its adhesive qualities.

Timbers for 1959–60 work were floated into place September 24th, and replacement in October and November has progressed ahead of other years because of an early start, the water being turned out of the system on September 30th.

Okanagan Flood-control.—The Project co-operated in an experiment to determine the effect of a high flow of water in the new river channel.

S.O.L.P. No. 2.—Approximately 3,000 feet of cement-asbestos pipe was laid, using Class 50 p.s.i. material. The intake channel was deepened and a second 24-inch culvert was installed by Okanagan flood-control authorities.

Aquatic Growth.—The main-canal flow was reduced by 10 per cent due to moss and jelly-ball growth. High water temperature of 74° F. and a deposit of Shuttleworth Creek mud contributed to the problem.

Garage Space.—Two thousand five hundred square feet of a local garage was rented, whereby twenty vehicles can be properly stored and repair work carried out under good conditions.

Staff.—During the year one ditch-rider was retired after twenty-one years of service. I regret to report the death of another ditch-rider, C. E. Francis, who had served the Project for twenty-two years.

Painting.—The main office building, the three domestic-water storage tanks, and the domestic-water pump-house were all repainted during the year.

Testalinda Creek.—Two large settling-basins were installed immediately above the ditch to catch the gravel during freshet.

Willow's Auto Court.—Six hundred feet of drain-pipe was installed, leading from a glacial pot-hole south-west of the court to Osoyoos Lake, which eliminated a health hazard in this area.

Peanut Lake.—Again the problem of seepage resulted in complaints. Fortunately, no serious flooding of land or basements occurred. The water-level quickly subsided after September 30th. A solution to this problem is under advisement.

Covers on Boxes.—A start was made to provide locked covers in heavily populated areas as the open boxes present a danger to pre-school-age children playing on Project property.

Gas Furnace.—The hot-water furnace conversion to natural gas is proving a success, cutting down on janitor service. The cleanliness of the office is noticeable since the change-over.

Seeding Range Lands.—Seed supplied by the game and forestry departments was used to reseed the areas stripped of topsoil.

Operation of Irrigation Districts.—The Osoyoos Irrigation District suffered a wash-out of its main diversion box on May 3rd. Replacement was effected by May 7th. A wood box with coromat lining was constructed instead of concrete.

The East Osoyoos Irrigation District suffered a washout of its main 14-inch line on August 31st. No replacement has yet been made.

The Black Sage Irrigation District used its auxiliary 30-horsepower pump for the first full year. Water supply and pressure were satisfactory and an improvement over previous years.

Irrigation Season.—Water was turned in April 21st, reached the border May 3rd, and all pumps were operating by May 5th, except the S.O.L.P. No. 2 150-horsepower, which went into service on May 8th. The flow of irrigation-water was interrupted once on the Osoyoos bench due to a serious leak in Flume No. 22.

There are 701 individual irrigation services to growers.

Weather.—A total of 11.15 inches of rain fell in 1958. The maximum temperature recorded was on July 21st, 100° F.; other high temperatures recorded for the year were May, 96° F.; June, 99° F.; August, 98° F.; and September, 91° F. Winds approximating 60 miles per hour were recorded on July 12th, doing some damage to crops. Minimum temperature for the year was 8° F. on November 28th. The lowest temperature recorded during the winter of 1957/58 was January 1st, 15° F.

The average maximum temperature for the year was 79° F. and the average minimum temperature was 33.2° F. These temperatures indicate an unusually warm year.

DOMESTIC WATER

The new reservoir proved adequate in quantity for village needs, but the quality declined throughout the year due to algæ growth. The reservoir has been cleaned out and gravelled, and the objectionable odour and taste have subsided. Future corrective measures suggest themselves as follows: (*a*) Covering the reservoir; (*b*) construction of an underground gallery; and (*c*) driving a well or wells.

In case of failure of the pond or other emergency, water from Okanagan River can be admitted to the pumps.

Expansion of water services to the surrounding area total twenty-one new services and the laying of a pipe-line on Crook Street in East Oliver. The demands on the service will soon make it necessary to install more pump capacity. No sprinkling regulations were imposed during the year, few leaks developed in the system, and service was uninterrupted.

Mains installed in 1920 are now all replaced, except on Fourth Avenue, where three blocks of original installation remain.

New Chlorinator.—The new chlorinator was installed in November. Operation is satisfactory and flow of chlorine can be controlled within close limits.

Pump-house Fire.—On May 15th at 5 a.m., a fire caused by chlorine corrosion of delicate switch parts was suffered. Prompt action of the Oliver Fire Department is hereby acknowledged.

Cleaning Tanks.—The tanks were thoroughly cleaned.

Fencing Pond.—A 6-foot wire-mesh fence was constructed, complete with gates and topped with barbed wire.

Services.—The following constitutes the services for the past year:—

Residential	520
Commercial	78
Industrial	5
Metered services	147
Hydrant pressure	100–120 p.s.i.
Water temperature	55°–64° F.

REPORT OF 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 development area at Kelowna, commonly known as the Christian Ranch, was sold this year to The Corporation of the City of Kelowna for airport purposes.

The Board has also 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. A survey and subdivision of 18,000 acres (875 parcels) has been carried out in accordance with the recommendations of the Honourable Mr. Justice Arthur E. Lord, Commissioner under the "Doukhobor Lands Allotment Inquiry Act." A valuation of these lands has also been made. They are now being offered for sale to Doukhobors.

The Board also holds over 4,600 acres scattered through the various parts of the Province, representing properties on which it held mortgages and to which it obtained title through tax-sale proceedings. Several of these properties were sold this year.

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 1958:—

During the year the sales made by the Board amounted to $30,958. Thirty-two purchasers completed payment and received title deeds, and eight borrowers paid up in full and received release of mortgage.

Collections were as follows:—

Loans	$4,522.10
Land sales	38,795.70
Dyking loan refunds, etc.	7,513.75
Foreclosed properties and areas—stumpage, rentals, etc.	8,303.81
Total	$59,135.36

The above figures include collections from the sale and rental of Doukhobor lands in the amount of $11,948.13.

REPORT OF DYKING AND DRAINAGE

J. L. MacDonald, B.Sc., P.Eng., Inspector of Dykes and Dyking Commissioner

The Dyking Commissioner is the appointed administrator of twelve dyking or drainage districts in the Fraser Valley with a combined area in excess of 70,000 acres. The majority of these districts were originally constituted under the "Drainage, Dyking, and Development Act" and administered by elected local commissioners or trustees. Some of these districts—namely, Coquitlam Dyking (3,050 acres), Maple Ridge Dyking (8,352 acres), Matsqui Dyking (10,039 acres), Pitt Meadows No. 2 Dyking (1,060 acres)—had an unfortunate early history of financial failure. The local commissioners were unable to provide adequate works due, in part at least, to their inability to provide or obtain the necessary financing. Periodic failure of these works therefore resulted, thereby further adding to the financial difficulties of the districts. The end result was that the Government was forced to assume a large part of the indebtedness of these districts and to place the districts under the administrative control of this office. This was done under the authority of the "Dyking Assessement Adjustment Act" of 1905. These districts are still being administered under this Act and later amendments. The Maple Ridge No. 2 Drainage District (5,460 acres) and the Matsqui No. 1 Drainage District (4,100 acres) were subsequently incorporated under this "Dyking Assessment Adjustment Act," 1905, and are administered by this office by virtue of it.

The Districts of Dewdney (3,356 acres), South Westminster (1,401 acres), Sumas (28,029 acres), and West Nicomen (4,138 acres), which were constituted at later dates under the "Drainage, Dyking, and Development Act" or special Acts pertaining to the "Drainage, Dyking, and Development Act" as the principal Act, also eventually found themselves in financial difficulty, and administrative control of these districts was likewise removed from the orginal commissioners or trustees and vested in this office by virtue of special Acts pertaining to each district.

This office also administers the affairs of two smaller districts—namely, East Nicomen (1,180 acres) and North Nicomen (250 acres), both of which were constituted under the "Water Act" subsequent to the 1948 Fraser River flood disaster. These districts were unable to find in their area local land-owner residents who would assume the responsibility of acting as trustee administrators of their districts and therefore petitioned the Government that they be placed in voluntary receivership under the administration of this office.

Each dyking and drainage district is an entity in itself, and in general the work carried out in each district is of interest only to that district. In all of the above districts a programme of improving dykes and drainage facilities has been progressively carried forward in the past several years within the limitations imposed by the district's ability to finance such improvements. In several districts it has been necessary to increase taxes in order to meet the general rise in cost that has taken place, as well as to carry out some of this much-needed improvement work.

In such cases the district ratepayers were kept fully informed as to why the increase was necessary by either the holding of public meetings in the districts or by form letter to each individual taxpayer.

Using as criteria the lack of individual complaint to this office, the general absence of any organized protest from ratepayers' groups, and also the generally poor attendance at ratepayers' meetings called for the purpose of reporting on dyking and drainage matters in the districts, it appears fair to state that the people in most districts are reasonably well satisfied with the condition of their district works and also the present type of administration of their districts.

The following is a brief summation of the work carried out in each of the above districts during the 1957 calendar year.

COQUITLAM DYKING DISTRICT

The work of improving a diversion-ditch known as the "Back Ditch" was completed during the year. Successful negotiations were carried on with both the City of Port Coquitlam and the Municipality of Coquitlam for assistance in the cleaning of this 4-mile ditch, which cleaning was made more difficult and costly due to a municipal road belonging to these two municipalities being located on the ditch right-of-way.

Protest was also made with the City of Port Coquitlam with respect to the new Mary Hill subdivision, drainage facilities for which would have deposited considerable new water into the district ditches, overtaxing district drainage facilities and increasing district costs for cleaning these ditches and for pumping this additional water. This protest resulted in an agreement whereby the city would construct a diversion-ditch to keep this water from entering the district.

Dykes were maintained adequately during the year, and no trouble was experienced during the freshet period, which, except for coming earlier than usual, was of normal proportions.

Pumps and pumping-stations operated with only normal maintenance requirements, although it was necessary to carry out some needed renewal work on the district pole-line serving these pumps.

District costs had been showing a gradual rise for the past several years, due primarily to high pumping costs and also to the need for increasing maintenance expenditures on district ditches if they were to serve their purpose. Taxes, as a result, had to be raised from $3.70 per acre to $5 per acre. It is planned that the additional revenue provided will allow progressive improvement to be made in all the district's internal waterways and ditches in the next two or three years.

MAPLE RIDGE DYKING DISTRICT AND MAPLE RIDGE DRAINAGE DISTRICT

The Maple Ridge Drainage District is located within and embraces thereby a portion of the lands which also form a part of the dyking district. In general the dyking district is responsible for the maintenance of the dyke and the main natural waterways and the operation of the pumps. The drainage area was formed to provide additional drainage facilities in the form of ditches for a portion of the dyked area. During the past year normal maintenance was carried out on the dykes in the form of brush removal and spraying, minor gravelling, and patrol during the freshet.

Considerable study and manipulation with regard to pumping levels appears to have met with general approval and success. Watercourses and ditches were pumped low in advance of winter storms, thus providing the maximum of storage, and winter flooding was therefore kept to a minimum from these storms. The new 30,000-i.g.p.m. pump installed in the previous year proved of material assistance in holding water-levels down to the point where little flooding occurred. As well, a low pumping level was established in the early spring, thus having the effect of lowering the water-table in the area, thereby drying out the land and permitting an earlier than normal seeding or other use of the land. During the dry summer months, water-levels in the ditches were allowed to rise, thus raising the water-table and providing sub-irrigation for hay and other crops.

The district purchased a new ¾-yard dragline during the year at a cost of $28,750, financed in part from an accumulated renewal reserve fund and in part by an increase in taxes from $3 to $4 per acre. A start was made on improving district watercourses and ditches with this dragline, and it is planned to continue with this programme of improvement as fast as district finances permit.

MATSQUI DYKING DISTRICT AND MATSQUI DRAINAGE DISTRICT

Like Maple Ridge District, the Matsqui Drainage District is comprised of certain lands within the dyking district which formed a second district in order to provide themselves with drainage facilities in the form of ditches over and above the drainage-ways for which the dyking district was responsible. During the past year the works of both districts were adequately maintained; dykes were kept free of brush; ditches and watercourses are, for the most part, receiving adequate maintenance and are in generally good condition, as are the district's five pumps located in the two pumping-stations.

River-bank erosion, with its subsequent danger to dykes, is probably the most serious problem in this district, and the district, for this reason, continued with what has now become an annual programme of placement of quarried-rock protection along its river-bank. This work, involving an average annual expenditure of $15,000, is initiated by the district, and costs shared by the Provincial and Federal Governments. Each year requires that existing protective work be repaired where necessary, and the funds remaining are then used for new work. During the year the Federal and Provincial Governments consented to an increase in future years' percentage sharing of costs from the existing 33⅓ per cent to 37½ per cent by each, thus reducing the district's future contributory share from 33⅓ to 25 per cent. As the limiting feature of any one year's work has always been the district's ability to finance its one-third share, it should be possible to increase future years' expenditures somewhat and permit a fully protected river-bank in

a shorter period of time. Expenditures will always be required to maintain and reinforce this existing and projected rock facing, but these should be in lesser amounts once the need for new work is removed.

Taxes in this district were increased from $3 to $3.50 per acre in 1955, so that the district is presently operating without a further immediate tax increase in prospect.

PITT MEADOWS No. 2 DYKING DISTRICT

This small district undertook a major rehabilitation of its interior watercourses in 1955 by means of a $25,000 Government loan, repayable in twenty annual instalments. The district drainage-works are, as a result, in good condition and do not require as yet a large amount of maintenance.

It can be foreseen, however, that as the years pass the need for greater maintenance will increase and that taxes will probably have to be increased above the present $5.35 per acre to enable this increased maintenance to be carried out adequately. Present maintenance on dykes and pumps is held to the minimum considered adequate due to the present tax rate, which is one of the highest required from any district.

DEWDNEY DYKING DISTRICT AND SOUTH DEWDNEY DYKING DISTRICT

These two districts are protected by one dyke and one pumping-station, although their administration and financial set-ups differ.

The South Dewdney District was constituted under the " Water Act " following the 1948 Fraser River flood and is administered by local trustees. The trustees have appointed this office as their clerk and assessor.

Costs of maintenance and operation of the dykes and pumps are shared by the districts in a percentage proportional to the acreages of the two districts. A complete brush-removal programme on the dyke was carried out during the year. Emergency measures were taken during and after the freshet to close off by back-filling an underground flow of water from the river into the district in two locations—one near the pump-house and the other a short distance east of the Dewdney School.

Portions of this district's dykes overlay a porous sand strata, which, when river-levels rise and outside pressure increases, permits seepage of water into the district, which, unchecked, could be dangerous to the district. The fear is that the sand strata will wash itself out, creating a tunnel under the dyke which could cause the dyke to collapse. A constant watch is kept along the base of this dyke at the points of known weakness during the freshet period, and immediate back-fill action is taken whenever there is a serious increase in natural seepage.

SOUTH WESTMINSTER DYKING DISTRICT

The works in this district required only normal maintenance during the year. The two pumps installed in the previous year proved of material benefit in augmenting the pumping capacity previously serving the district, and flooding from winter storms was considerably less than in previous years.

SUMAS DYKING DISTRICT

Maintenance in this district was carried out as required. Flooding in the East Prairie section during the winter storm period was almost negligible—certainly much reduced from previous years as a result of the installation of two new 30,000-i.g.p.m. pumps in the previous year. A new 100,000-i.g.p.m. pump was installed for the lake area during the year at a cost of $75,000, financed from the District's renewal reserve

fund. The full benefit of this new pump will manifest itself during the present winter, as its primary purpose is to augment the district's pumping capacity during the winter period of heavy precipitation.

EAST NICOMEN AND NORTH NICOMEN DYKING DISTRICTS

Work in these districts was limited to normal minor maintenance in the form of brush-spraying, etc. East Nicomen made repairs to two culverts (flood-box) installations through the dyke, and also made some repairs to its river-bank rock protection work. North Nicomen, in co-operation with the Department of Highways, constructed a dam across a slough in the district and installed a culvert with flap gate through this dam.

WEST NICOMEN DYKING DISTRICT

This district, in addition to normal maintenance, made repairs to existing river-bank rock-protection work, and extended this protection work by approximately 500 feet. It constructed several new drainage ditches in the area, and also cleared and gravelled a considerable section of its interior dyke.

OTHER DISTRICTS AND AREAS

The Dyking Commissioner's office, as well as administering the above twelve districts, has been appointed by the trustees of the South Dewdney, Silverdale, Harrison Mills, and Albion Dyking Districts as the assessor and collector for these districts.

A very minimum charge is made to the districts for this service, which is less than they would pay to a locally appointed clerk. In addition, this tie permits close liaison between the trustees and this office, which we consider valuable to the districts. Engineering and other advice is given by this office to the benefit of the district.

As well as the administrative duties outlined above, this office, by virtue of the " Dykes Maintenance Act " of 1950, is required to assume some measure of control and responsibility over all dyked areas in the Province. This requires inspections of dykes and other works and consultations with the responsible authorities in these other areas. During the year, inspections were made of the Sea Island dykes in conjunction with Vancouver International Airport authorities, and a report forwarded to Richmond Municipality, the controlling authority, and the Provincial Government; Tillbury Island dykes and other dykes in Delta Municipality and a major flood-box repair job in Delta along with the controlling Delta municipal authorities; Chilliwack District dykes and river-bank protection works with the Chilliwack Municipal Dyking District Board; and at some portions of the Agassiz District works with Kent municipal officials. District works were inspected or local problems discussed in several other districts in the Lower Mainland and Fraser Valley administered by local trustees.

As well, dykes in the Creston area of the Kootenays and the Pemberton Valley area were visited and inspected, and advice and reports given to the local authority and the Government as required.

The Dyking Commissioner was also requested to inspect and advise with respect to stream or river control in various other areas in the Province during the year.

In general, we would report that almost all districts have been able to provide reasonably adequate maintenance and to maintain a solvent position during the year. Many districts are, however, undergoing a considerable economic transition, with large-scale subdivision of holdings and large increase in property values and population. This is creating a demand, as well as a necessity, for greater protection in these areas, which is adding to district costs of operation. There is a general feeling that the various Acts under which districts operate require revision to allow a broadening in the basis of taxation to meet the added costs imposed by changing conditions.

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	93	6	3	6	47
Central British Columbia and Peace River	178	----	14	5	153
Fraser Valley	5,084	----	242	----	2,328
North Okanagan	479	7	15	6	158
South Okanagan	158	6	9	3	80
West Kootenay	87	1	7	21	37
Vancouver Island	964	32	291	33	311
North Bend and Lillooet	7	----	----	2	----
Pemberton-Sechelt	29	1	----	2	3
Totals	7,079[2]	53[3]	581[4]	78	3,117

[1] "Fluid" refers to approved fluid-milk dairy-farms from which milk is shipped to pasteurization plants.

[2] The 7,079 dairy-farm inspections is total of 368 inspections of approved raw-milk dairy-farms and 6,378 inspections of approved fluid-milk dairy-farms.

[3] The 53 prohibition notices with regard to raw-milk sales are issued mostly to persons selling milk without a valid certificate of approval.

[4] The 581 prohibition notices with regard to fluid-milk shippers are issued to dairy-farmers who have voluntarily ceased to ship milk and to persons who have had their certificates of approval cancelled for cause. Many shippers who have had their certificates of approval cancelled do comply and are reinstated as fluid-milk shippers.

APPENDIX No. 2

Breed Averages for 1957

Breed	Percentage of Total D.H.I. Records	Milk, Lb.	Fat	
			Per Cent	Lb.
Ayrshire	3.9	8,700	4.11	358
Guernsey	16.2	8,291	4.79	397
Holstein	51.6	11,165	3.72	415
Jersey	18.7	7,647	5.14	393
Unclassified (cross-breds, etc.)	9.6	9,214	4.36	402

APPENDIX No. 3

Dairy Herd Improvement Associations

Association	Secretary	Supervisor
Chilliwack—		
Route 1	H. C. Clark, 215 Henderson Ave., Chilliwack	G. De Lair, c/o J. O. Grigg, R.R. 2, Chilliwack.
Route 2	Ditto	F. Wiffen, 295 Maple Ave., Sardis.
Route 3	,,	A. O. Livingston, McNaught Road, R.R. 1, Chilliwack.
Route 4	,,	R. France, 39 Rowat Ave., Chilliwack.
Comox Valley	W. W. MacLeod, Box 714, Courtenay	E. J. Del Guidice, Box 1178, 780 England Ave., Courtenay.
Cowichan	W. R. Barker, Box 1017, Duncan	J. Egan Jensen, General Delivery, 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, 5461 Grove Ave., Ladner.
Dewdney-Deroche—		
Route 1	T. S. Moore, R.R. 3, Mission City	A. H. Maddocks, Grace St., Box 141, Matsqui.
Route 2	Ditto	R. N. Marriott, Box 131, Agassiz.
Langley Route 1	H. L. Davis, Box 30, Milner	E. H. Leader, Box 165, Langley.

APPENDIX No. 3—*Continued*

Dairy Herd Improvement Associations—*Continued*

Association	Secretary	Supervisor
Matsqui—		
Route 1	C. A. Sward, R.R. 1, Matsqui	V. A. Gill, R.R. 1, Matsqui.
Route 2	Ditto	S. P. Harvey, Mount Lehman.
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, Box 644, Kelowna.
Pitt Meadows-Maple Ridge	G. Park, Pitt Meadows	N. Daykin, 22031 Dewdney Trunk Road, R.R. 1, Haney.
Richmond	Stephen May, 159 No. 6 Road, R.R. 2, Vancouver	D. S. Heelas, 1657 West Fifty-ninth Ave., Vancouver 14.
Sumas—		
Route 1	O. M. Dayton, 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.
Route 2	R. J. Livingston	H. de Blieck, 19836 Trans-Canada Highway, R.R. 4, 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	J. Bell, John Dean Park Road, R.R. 1, Saanichton.

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. 4

Cattle and Hide Shipments, 1958

District	Cattle	Hides
Cariboo—		
Quesnel	796	514
Williams Lake, Alexis Creek	15,605	330
Clinton, Lac la Hache, 100 Mile House, Graham Siding, Bridge Lake, Lone Butte	4,742	114
Lillooet, Pavilion, Bralorne	2,634	----
Bella Coola	------	8
	23,777	966
Kamloops, Nicola, etc.—		
Kamloops, Chase	21,905	644
Merritt	10,789	264
Ashcroft, Lytton, etc.	4,856	32
Salmon Arm	2,416	1,092
	39,966	2,032
Okanagan—		
Vernon, Lumby, Falkland	4,426	1,423
Armstrong, Enderby, Sicamous	3,781	370
Kelowna	2,044	1,788
Penticton, Summerland	1,291	51
Oliver, Osoyoos	3,781	614
	15,323	4,246
Similkameen—		
Princeton, Keremeos, etc.	4,793	158
Grand Forks, Greenwood	2,416	590
	7,209	748
South-eastern British Columbia—		
Rossland, Crescent Valley	134	91
Nelson, Creston, etc.	1,366	818
Cranbrook, Fernie, etc.	5,666	895
Invermere, Golden	1,449	244
	8,615	2,048
Central British Columbia—		
Prince George, Vanderhoof	2,100	1,149
Smithers, etc.	660	65
Burns Lake	893	----
	3,653	1,214
Peace River—		
Fort St. John	3,015	948
Dawson Creek	5,958	2,649
	8,973	3,597

Totals Compared

District	1958		1957		1956	
	Cattle	Hides	Cattle	Hides	Cattle	Hides
Cariboo and South	23,777	966	28,148	1,141	23,685	1,577
Kamloops and Nicola	39,966	2,032	35,450	3,135	38,034	2,736
Okanagan and Similkameen	22,532	4,994	21,038	6,241	21,854	6,313
South-eastern British Columbia	8,615	2,048	6,364	2,547	7,525	2,092
Central British Columbia and Peace River	12,626	4,811	9,201	6,098	10,641	6,755
Totals	107,516	14,851	100,201	19,162	101,739	19,473

APPENDIX No. 5

Miscellaneous Specimens Examined in Laboratory

Diseases Due to—	Chickens	Turkeys	Cattle	Horses	Sheep	Swine	Fur-bearers	Miscellaneous	Remarks	Total
Bacteria										
Abscess			1							1
Actinomycosis			1							1
Botulism	18							1 duck		19
Corynebacterium—										
Renale			1							1
Pyogenes			1				1 nutria			2
Pseudo tuberculosis							1 mink	3 budgerigars		4
Unidentified	1							1 dog		2
Clostridium chauvei			1							1
Clostridium septicum			1							1
Enterotoxæmia					5		1 rabbit			6
Erysipelas		16				1				17
Listeriosis	1						3 chinchilla			4
Mastitis milk samples			271						57 pos., 27 susp., 187 neg.	271
Metritis			1				1 nutria			2
Navel ill			1							1
Necrophorus			3						One a sequel to epitheliogenesis imperfecti neonatorum	3
Pasteurella—										
Hemolytica				1						1
Multocida	2	7	1				1 mink			11
Pseudo tuberculosis								6 canaries		6
Pericarditis	3						1 nutria			4
Pneumonia	41		1				11 mink	1 monkey		54
Proteus							1 mink, 1 chinchilla	6 dogs		8
Pseudomonas	1							8 eggs, 2 dogs		11
Pullorum	12								5 pos., 7 neg.	12
Salmonella	1						1 mink		Type not yet identified from mink; *S. infantis* from chicken	2
Staphylococcus	14	7						8 dogs, 1 cat, 1 deer		31
Streptococcus pyogenes			1			1		3 dogs		5
Toxæmia	1	2				2	1 mink			6
Tuberculosis	12									12
Virus										
Chronic respiratory disease	137									137
Distemper							20 mink	3 dogs		23
Encephalitis	10							1 dog		11
Encephalomyelitis	84									84

Enteritis	------	------	------	------	------	------	18 mink		Not previously observed in B.C.	18
Fowl pox	4	1	------	------	------	------	------		------	5
Hepatitis	------	------	------	------	------	------	------	1 dog	------	1
Infectious bronchitis	63	------	------	------	------	------	------		------	63
Laryngo-tracheitis	9	------	------	------	------	------	------		------	9
Leucosis—										
Neutral	35	------	------	------	------	------	------		------	35
Ocular	1	------	------	------	------	------	------		------	1
Osteopetrosis	1	------	------	------	------	------	------		------	1
Visceral	76	------	------	------	------	------	------		------	76
Newcastle disease	89	------	------	------	------	------	------		------	89
Pneumonia	------	------	------	------	------	1	------		------	1
Protozoa										
Coccidiosis—										
Cæcal	47	44	------	------	------	------	------		------	91
Intestinal	88	59	------	------	------	------	2 rabbits	3 canaries, 1 Pekin robin	------	153
Hepatic	------	------	------	------	------	------	4 rabbits		------	4
Entero-hepatitis	28	49	------	------	------	------	------	3 peacocks, 1 pheasant	------	81
Giardiosis	------	------	------	------	------	------	25 chinchillas		------	25
Trichomoniasis	5	3	------	------	------	------	2 chinchillas		------	10
Helminthes										
Cæcal worms	6	------	------	------	------	------	------		------	6
Capillaria	24	------	------	------	------	------	------		------	24
Gape worms	------	1	------	------	------	------	------	6 partridge	------	7
Gizzard worms	------	------	------	------	------	------	------	2 geese	------	2
Round worms	18	------	------	6	3	------	------	4 goats, 1 dog, 1 chicken egg	------	33
Stomach worms	------	------	------	------	1	------	------		------	1
Tapeworms	6	------	------	------	------	------	------	1 dog	------	7
Tapeworm cyst	------	------	------	------	------	------	1 nutria	1 moose	------	2
Fungi										
Aspergillosis	1	6	------	------	------	------	------	1 grouse	------	8
Monilia	------	32	------	------	------	------	------	1 dog	------	33
Unidentified fungus	------	------	------	------	------	------	1 mink	1 dog	------	2
Nutrition										
Anæmia	3	1	------	------	------	------	5 mink		------	9
Aphosphorosis	------	------	1	------	------	------	------		------	1
Curled tongue	------	7	------	------	------	------	------		Iso-leucine deficiency or congenital	7
Dermatitis	1	2	------	------	------	------	------		------	3
Leg weakness	27	2	------	------	------	------	------		------	29
Perosis	8	17	------	------	------	------	------		------	25
Riboflavin deficiency	4	3	------	------	------	------	1 chinchilla		------	8
Rickets	4	4	------	------	------	------	------	2 dogs	------	10

APPENDIX No. 5—*Continued*

Miscellaneous Specimens Examined in Laboratory—*Continued*

Diseases Due to—	Chickens	Turkeys	Cattle	Horses	Sheep	Swine	Fur-bearers	Miscellaneous	Remarks	Total
Nutrition—Continued										
Vitamin A deficiency	34									34
Vitamin B complex deficiency							1 mink	1 budgerigar		2
Vitamin E deficiency	25		1				3 mink			29
Metabolic Disorders										
Aleutian-like disease							13 mink			13
Blue comb	22	6								28
Fatty degeneration of liver	3						2 mink			5
Gout	8							3 budgerigars, 1 penguin		12
Hypercalcemia			1							1
Nephritis	116	1			1		4 mink, 1 chinchilla	1 cat		124
Miscellaneous										
Air sacculitis		2								2
Anasarca	6									6
Ascites	6	2					1 mink			9
Bronchiectasis	2									2
Cannibalism	23	4								27
Congenital defect—										
Heart	3	1					1 mink			5
Urethra								1 guinea-pig		1
Kidney	1	1								2
Pelvis	3									3
Beak	3									3
Coryza	3									3
Cystitis							1 mink			1
Cystic calculi			1				10 mink	1 dog		12
Cystic kidney	1									1
Cystic ovary	3									3
Dermatitis								1 dog, 2 grouse		3
Digestive derangement	328	88					7 chinchillas, 1 mink, 1 rabbit	3 budgerigars, 1 pheasant		429
Duodenal ulcer								1 monkey		1
Eggshell defect								24 eggs		24
Eggbound	1							1 budgerigar		2
Emaciation	5									5
Enteritis	15	9	1				2 chinchillas, 2 rabbits	3 geese, 3 dogs, 1 pigeon		36
Fibrillary muscle rupture						1				1
Feeding and management	133	85				1	3 mink, 1 chinchilla	3 ducks, 1 goose, 1 budgerigar		228
Fur-chewing							1 chinchilla			1
Gastric ulcer							1 mink			1
Gizzard erosion	13							1 canary, 1 grouse		15

Hæmoglobin determination and white-cell count	------	------	4	7	------	------	------	1 dog	------	12
Hæmatoma	6	------	------	------	------	------	------	------	------	6
Hæmophilia	------	------	------	------	------	2	------	------	------	2
Hæmorrhagic disease	73	------	------	------	------	------	------	------	------	73
Hæmorrhage from debeaking	13	------	------	------	------	------	------	------	------	13
Heat prostration	------	------	------	------	------	------	3 mink	------	------	3
Impaction	6	1	------	------	1	------	2 chinchillas	1 penguin, 1 budgerigar	------	12
Incubation problem	------	------	------	------	------	------	------	30 eggs	------	30
Identification	------	------	------	------	------	------	------	1 black rat	------	1
Injury	17	16	------	------	------	------	3 mink, 1 rabbit	6 budgerigars, 2 grouse	------	45
Internal hæmorrhage	17	7	------	------	------	------	5	------	------	29
Internal laying	6	------	------	------	------	------	------	------	------	6
Lipoidosis	1	------	------	------	------	------	------	------	------	1
Malocclusion of teeth	------	------	------	------	------	------	1 chinchilla	------	------	1
Meningo-encephalitis	------	------	------	------	------	------	2 mink	------	------	2
Mummified fœtus	------	------	1	1	------	------	------	------	------	2
Myocardial degeneration	1	------	------	------	------	------	------	------	------	1
Necrosis of crop	1	------	------	------	------	------	------	------	------	1
Necrosis of liver	1	------	------	------	------	------	------	1 swan	------	2
Negative findings	87	138	23	12	4	2	48 mink, 27 chinchillas, 1 rabbit	26 eggs, 23 dogs, 6 pigeons, 7 wax wings, 4 budgerigars, 2 geese, 1 cat, 1 goat, 1 deer, 1 meat, 1 water, 1 feed	------	416
Non-patent oviduct	4	------	------	------	------	------	------	------	------	4
Œdema of wattles	3	------	------	------	------	------	------	------	------	3
Œsophageal obstruction	1	------	------	------	------	------	1 mink	------	------	2
Omphalitis	60	2	------	------	------	------	------	------	------	62
Passive congestion	------	------	------	------	------	------	------	1 dog liver	------	1
Peritonitis	90	------	1	------	------	------	------	1 pigeon, 1 pheasant	------	93
Poisoning	------	------	------	------	------	------	19 mink, 1 ferret	5 mink meal	------	25
Poisonous plant	------	------	------	------	------	------	------	1 water hemlock	------	1
Prolapse	3	------	------	------	------	------	------	------	------	3
Pyothorax	------	------	------	------	------	------	5 mink	------	------	5
Rhinitis	------	------	------	------	------	3	------	------	------	3
Ruptured oviduct	2	------	------	------	------	------	------	------	------	2
Semen samples	------	------	17	2	------	------	------	------	------	19
Sinusitis	------	1	------	------	------	------	------	------	------	1
Strangulated bowel	3	------	------	------	------	------	------	1 cat	------	4
Synovitis	------	4	------	------	------	------	------	------	------	4
Tooth decay	------	------	------	------	------	------	1 mink	------	------	1
Torticollis	1	------	------	------	------	------	------	------	------	1
Toxæmia	------	------	------	------	------	------	1 mink	------	------	1
Transport problem	62	------	------	------	------	------	------	------	Death in transit	62
Tumours	33	------	2	------	------	------	3 mink	3 budgerigars, 1 grouse, 5 dogs, 1 cat, 1 deer	Carcinoma—1 cattle; embryonal nephroma—1 budgerigar; fibroma—1 grouse, 3 chickens, 1 budgerigar, 2 dogs;	

APPENDIX No. 5—*Continued*

MISCELLANEOUS SPECIMENS EXAMINED IN LABORATORY—*Continued*

Diseases Due to—	Chickens	Turkeys	Cattle	Horses	Sheep	Swine	Fur-bearers	Miscellaneous	Remarks	Total
Miscellaneous—Continued									hæmangioma—5 chickens; leukemia—3 mink; lipoma—1 dog; mast cell sarcoma—1 dog; melanosis — 1 deer; myelocytoma—1 chicken; reticulum cell sarcoma—1 cat; unidentified—24 chickens, 1 budgerigar, 1 cattle, 1 dog	49
Unsuitable for examination	24	3	1	------	------	------	3 chinchillas, 1 mink, 1 nutria	3 dogs, 1 budgerigar, 1 goose, 1 canary, 6 milk samples	------	45
Uterine defect	------	------	1	------	------	------	------	1 dog	------	2
Warts	------	------	------	------	------	------	------	1 dog	------	1
Yolkers	149	6	------	------	------	------	------	10 pheasants	------	165
External Parasites										
Lice	------	------	------	------	1	------	------	------	------	1
Red mites	2	------	------	------	------	------	------	------	------	2
Totals	2,309	640	340	29	16	11	276	307 (increase over 1957 =36%)	------	3,928
Serology										
Brucellosis	------	------	12,622	------	------	------	------	------	Positive, 444, 3.52%; suspicious, 364, 2.87%; unsuitable, 36, 0.29%; negative, 11,778, 93.31%	12,622
Newcastle disease	515	40	------	------	------	------	------	10 ducks	Positive, 136; suspicious, 45; negative, 384	565
P.P.L.O.	4,047	415	------	------	------	------	------	10 ducks	Positive, 3,049; suspicious, 363; negative, 1,060	4,472
Pullorum	40	------	------	------	------	------	------	------	Positive, 17; suspicious, 1; negative, 22	40
Milk-ring tests	------	------	688	------	------	------	------	------	Positive, 110; suspicious, 2; negative, 576	688
Totals (Serology)	4,602	455	13,310	------	------	------	------	20 (decrease from 1957= 44%)	------	18,387
Grand totals	------	------	------	------	------	------	------	------	------	22,315

APPENDIX No. 6

British Columbia Egg Production (through Registered Stations)

Month	Grade								Estimated Total, 1958	Total, 1957
	AEL	AL	AM	AS	APW	B	C	CRAX		
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	1,397	42,709	17,535	2,298	87	1,660	456	2,726	68,868	61,429
February	1,079	33,149	11,160	1,454	78	1,316	360	2,099	50,695	44,672
March	990	31,807	9,430	1,411	73	1,293	484	1,895	47,383	46,320
April	1,037	30,160	8,913	1,483	67	1,321	335	1,958	46,012	48,351
May	1,302	38,582	11,313	2,428	174	1,910	637	2,569	59,184	63,029
June	974	29,940	10,158	2,235	256	1,895	540	2,197	48,195	49,303
July	1,051	33,119	12,444	4,481	629	2,521	651	2,863	57,759	58,988
August	803	22,224	12,131	5,829	755	2,416	496	2,477	47,129	50,643
September	822	21,286	14,380	6,031	746	1,780	447	2,383	47,875	54,468
October	883	25,228	17,642	5,494	443	1,538	466	2,399	54,093	67,462
November	887	21,364	13,903	3,563	198	1,112	344	1,532	42,903	52,686
December	905	23,424	12,578	2,660	141	1,092	348	1,731	42,879	51,719
Totals	12,130	352,992	151,587	39,367	3,647	19,854	5,564	26,829	612,975	649,070

APPENDIX No. 7

British Columbia Weighted Egg Price to Producers
(Average paying price weighted by grade.)

Month	1958	1957	1956	Canada, 1958
	Cents	Cents	Cents	Cents
January	29.0	35.0	38.7	28.1
February	29.1	36.2	41.6	30.4
March	29.6	36.5	46.5	36.4
April	35.8	32.4	46.3	30.7
May	35.6	28.7	45.6	29.9
June	31.9	30.9	49.0	34.8
July	34.4	34.9	48.0	32.8
August	33.1	34.5	44.2	37.2
September	33.8	32.8	44.2	34.1
October	38.8	30.7	39.7	36.6
November	36.0	29.5	34.3	31.4
December	35.4	30.0	34.4	31.3
Yearly average	33.8	32.6	42.7	32.7

APPENDIX No. 8

Poultry in Pounds through Registered Stations in British Columbia

Month	Chicken	Fowl	Turkey	Duck	Goose	Monthly Total, 1958	5-year Average, 1953–1957
January	590,988	365,698	639,265	13,735	750	1,610,436	916,785
February	649,863	344,314	31,114	12,380	.....	1,037,671	646,372
March	746,114	301,482	40,979	10,968	450	1,099,993	699,380
April	830,360	232,360	12,312	17,083	.....	1,092,115	806,859
May	1,154,993	249,553	54,921	23,896	.....	1,483,363	1,092,207
June	892,867	299,309	247,719	22,320	.....	1,462,215	948,747
July	1,083,209	308,589	255,594	17,586	.....	1,664,978	1,042,839
August	1,106,416	329,660	510,555	22,258	65	1,968,954	1,314,934
September	1,315,894	431,205	826,770	27,685	50	2,601,604	1,434,243
October	1,487,156	455,499	1,474,702	28,368	713	3,446,438	1,733,074
November	1,160,629	312,438	1,087,521	13,210	144	2,573,942	1,506,025
December	771,151	247,471	1,164,611	11,589	775	2,195,597	2,481,189
Yearly totals	11,789,640	3,877,578	6,346,063	221,078	2,947	22,237,306	14,622,654

APPENDIX No. 9

1958 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	26	26	30	15	18	22	36	33	28
February	27	27	30	14	17	22	36	34	28
March	26	27	30	14	17	22	36	34	28
April	25	27	32	17	21	26	36	34	28
May	25	27	32	16	21	26	36	34	32
June	25	27	32	14	17	22	36	34	32
July	25	27	32	15	17	20	35	34	34
August	24	27	32	14	17	19	35	34	34
September	22	26	29	14	17	19	35	34	30
October	22	24	27	12	15	17	35	34	28
November	22	22	25	14	16	18	34	34	27
December	22	22	25	14	16	18	34	34	27

APPENDIX No. 10

Poultry-flock Approval

	Number of Flocks	Number of Birds Pullorum-tested	Average Number of Birds per Flock	Per Cent Reactors
1958	130	233,909	1,799.3	0.012
Five-year average, 1953–57	323	303,633	1,150.6	0.1197

APPENDIX No. 11

Poultry-flock Approval by Breed

Breed	Total, 1958	Total, 1957
Barred Plymouth Rock	1,950	3,130
Black Australorp	2,491	2,899
Columbian Plymouth Rock	232	------
Hampbar	2,799	1,143
Light Sussex	4,684	5,872
New Hampshire	19,282	68,427
Rhode Island Red	1,507	3,490
S.C. White Leghorn	104,161	137,613
White Cornish	------	852
White Plymouth Rock	894	29,043
White Hampshires	------	3,494
Cross-bred	1,352	16,735
A.O.V.	------	449
Totals	139,352	273,147

APPENDIX No. 12

Turkey-flock Approval

	Number of Flocks	Number of Birds Pullorum-tested	Average Number of Birds per Flock	Per Cent Reactors
1958	19	14,159	745	----
Five-year average, 1953–57	37	22,429	606	----

APPENDIX No. 13

Turkey-flock Approval by Breed

Breed	Jan.–June	July–Dec.	Total, 1958	Total, 1957
Beltsville Small Whites	35	4,860	4,895	------
Broad Breasted Bronze	614	8,315	8,929	21,925
Broad Whites	------	------	------	470
Jersey Buff	------	335	335	341
Totals	649	13,510	14,159	22,736

APPENDIX No. 14

Amount and Kind of Vaccine Distributed

Type of Vaccine	1958	1957	1956	1955	1954
Newcastle disease	6,171,710	5,149,350	4,385,050	2,152,600	2,282,450
Infectious bronchitis	1,986,000	1,628,950	1,683,050	600,500	300,800
Totals	8,157,710	6,778,300	6,068,100	2,753,100	2,583,250

APPENDIX No. 15

Bees

Table No. 1.—Diseases in Bees, 1958

District	Type of Disease					Gassed	Treated	Combs Burned
	A.F.B.	E.F.B.	Sac Brood	Nosema	Wax Moth			
Vancouver Island	9	----	----	(1)	(2)	9	----	63
Kootenays	10	----	(1)	----	(2)	10	----	120
South Okanagan	35	----	(2)	----	(2)	23	12	1,113
North Okanagan	9	----	----	----	(2)	8	1	100
Central Okanagan	8	----	(2)	----	(2)	7	1	190
Salmon Arm	5	----	----	----	(3)	5	----	450
Lower Mainland	5	5	----	----	(2)	5	----	750
Peace River-Central Interior	15	175	----	----	----	15	----	------
Thompson Valley	8	----	(2)	----	----	7	1	160
Totals	104	180	----	----	----	89	15	2,946

[1] Slightly infected.
[2] Always present.
[3] More widespread this year.

Table No. 2.—Honey-crop Report, 1958

District	Beekeepers	Colonies	Crop	Average
			Lb.	Lb.
Lower Mainland	1,295	4,546	340,950	75
Vancouver Island	426	1,936	158,752	85
Interior	882	8,097	931,155	115
Peace River	98	2,556	472,860	185
Totals	2,701	17,135	1,913,717	115

Value to producers of 1,903,717 pounds of honey at 23 cents per pound (wholesale), $437,854.91; 22,000 pounds of beeswax at 45 cents per pound, $9,900.

APPENDIX No. 16

SUMMARY OF MOVEMENT OF SCREENINGS FROM BRITISH COLUMBIA ELEVATORS, JANUARY 1ST TO OCTOBER 31ST, 1958

Month	Consumed in British Columbia										Exported										Total	
	No. 1 Feed		Refuse		Uncleaned		M.F.O.		Flax Refuse		No. 1 Feed		Refuse		M.F.O.		Flax Screenings		Rape Screenings			
	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.	Tons	Lb.
January	893	1,900	2,638	.....	.....	.....	43	700	70	.....	1,406	1,000	4,735	600	194	1,000	1,457	.....	448	.....	11,886	1,200
February	343	900	1,951	.....	.....	.....	52	1,040	.....	.....	653	.....	2,853	1,000	.....	.....	402	1,000	360	.....	6,615	1,940
March	155	900	1,250	1,000	.....	.....	45	840	35	.....	841	500	2,649	500	140	.....	1,183	.....	.....	.....	6,299	1,740
April	741	700	1,671	.....	.....	.....	44	1,480	.....	.....	1,674	.....	3,239	100	276	1,000	753	.....	.....	.....	8,399	1,280
May	848	1,100	2,383	1,450	.....	.....	30	.....	.....	.....	1,647	1,000	2,694	500	225	1,000	631	.....	1,680	.....	10,140	1,050
June	1,127	1,300	2,134	650	72	10	46	580	.....	.....	1,122	1,500	3,191	.....	92	.....	1,039	.....	459	400	9,284	1,440
July	1,468	1,100	2,907	850	.....	.....	38	920	.....	.....	1,867	1,300	3,847	1,000	189	.....	545	.....	.....	.....	10,863	1,170
August	1,449	1,900	2,214	.....	.....	.....	.....	.....	.....	.....	1,546	1,000	2,108	1,850	294	1,000	662	.....	.....	.....	8,275	1,750
September	2,329	850	1,989	1,150	.....	.....	.....	.....	2	600	1,250	.....	2,040	.....	100	.....	273	.....	.....	.....	7,984	600
October	3,245	600	1,752	1,000	.....	.....	.....	.....	.....	.....	1,671	1,000	2,257	.....	276	1,000	498	.....	.....	.....	9,700	1,000
Totals	12,603	1,250	20,892	100	72	10	300	1,560	107	600	13,680	1,300	29,615	1,550	1,788	1,000	7,443	1,000	2,947	400	89,451	770

Total screenings British Columbia consumed, 33,975 tons 1,520 pounds; total screenings exported, 55,475 tons 1,200 pounds.

APPENDIX No. 17

Summary of Movement of Grain Screenings from British Columbia Merchants, January 1st to October 31st, 1958

Month	Consumed in British Columbia				Exports (Processed Refuse)	
	Raw Refuse		Processed Refuse			
	Tons	Lb.	Tons	Lb.	Tons	Lb.
January	1	------	818	1,350	943	1,735
February	120	------	439	655	658	225
March	6	840	254	1,324	661	400
April	1	1,000	199	100	833	300
May	------	------	337	1,298	1,459	1,065
June	------	------	70	420	2,175	1,950
July	1	------	112	738	1,880	1,470
August	1	------	20	900	1,634	1,900
September	1	------	159	1,885	913	1,800
October	------	------	201	1,040	463	1,770
Totals	131	1,840	2,613	1,610	11,625	615

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