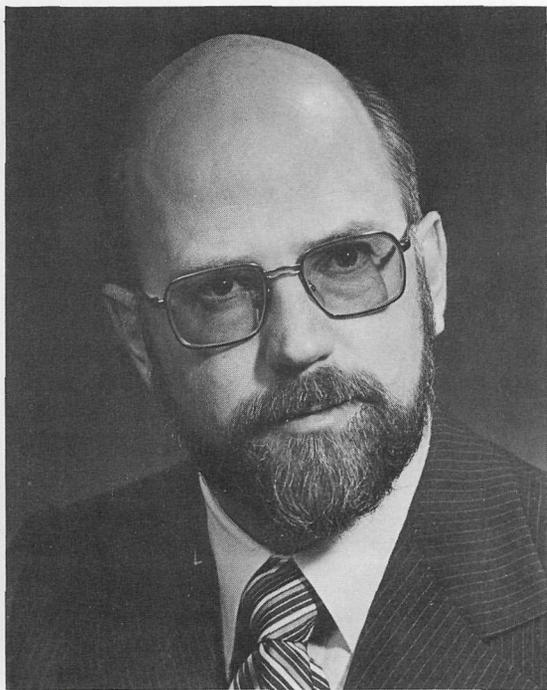


**1977
Annual Report
British Columbia
Ministry of Agriculture**







To Colonel the Honourable
HENRY P. BELL-IRVING, D.S.O., O.B.E., E.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 Ministry of Agriculture for the year 1977.

A handwritten signature in black ink, reading "Jim Hewitt". The signature is fluid and cursive, with a long horizontal flourish extending to the right. It is positioned above the printed name and title.

JAMES J. HEWITT
Minister of Agriculture



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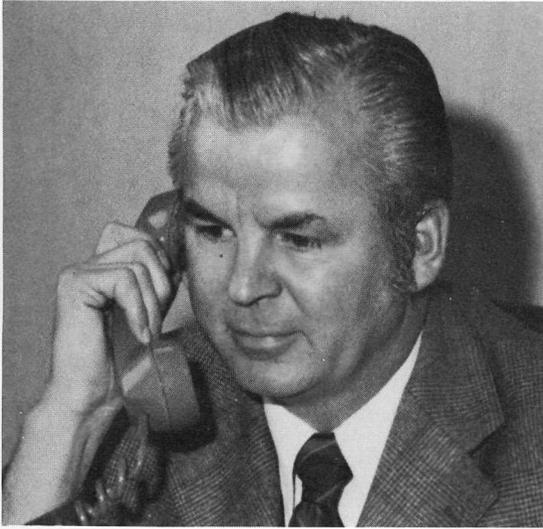
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Report of the Deputy Minister of Agriculture

To the Honourable James Hewitt
Minister of Agriculture
Sir:

I take pleasure in presenting you with the 1977 Annual Report of the British Columbia Ministry of Agriculture. This report summarizes activities of your Ministry for the twelve months ending December 1977.

The year 1977 could adequately be described as one of viewing new horizons in the overall development of agriculture within this province. These horizons were realized with the initiation of specific projects and programs designed to achieve agricultural expansion in this province over the next ten years.

One of the major programs of significance was the signing in mid-year of a new five-year Agriculture and Rural Development Subsidiary Agreement which will stimulate a great deal of activity in agriculture during that period.

Complementary to this, major initiatives were taken to study both the beef and swine industries and their potential within the British Columbia agricultural sector.

The year saw slight improvement in a still depressed livestock economy, little change in the cereal grains and horticulture markets and encouraging gains in the specialized forage seed markets.

Near year end, the farm income stabilization programs were being reviewed for the overall benefit of all eligible commodity groups. In addition, methods will be researched to achieve a degree of harmonization with federal stabilization programs.

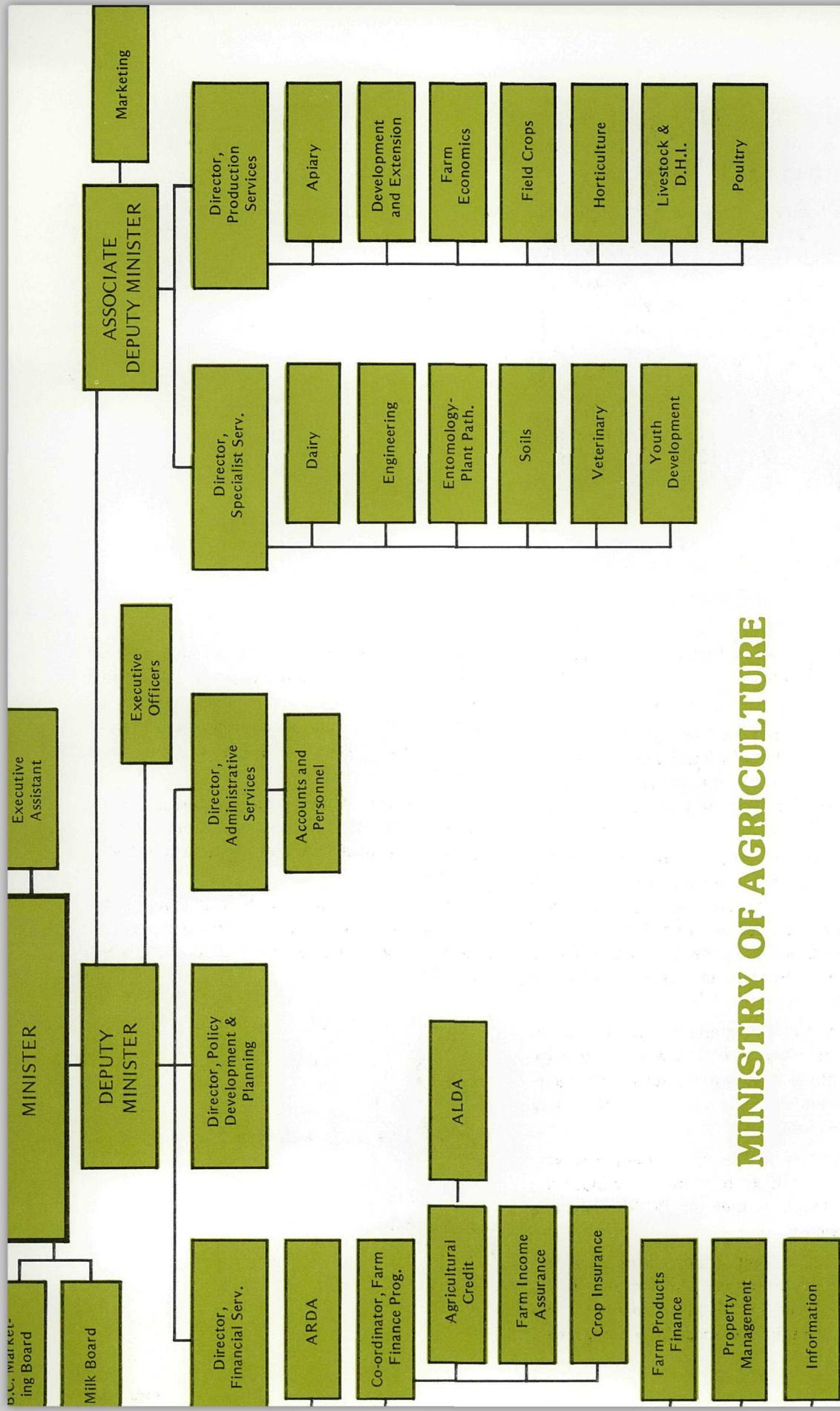
Staff of your Ministry also co-operated with research staff of the Select Standing Committee on Agriculture in their review of the food industry in this province.

These are but a few of the highlights of the year's activities as described in this document. I commend the report to your attention and consideration.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'S. B. Peterson'. The signature is fluid and cursive, with a large initial 'S' and 'P'.

S.B. Peterson
Deputy Minister



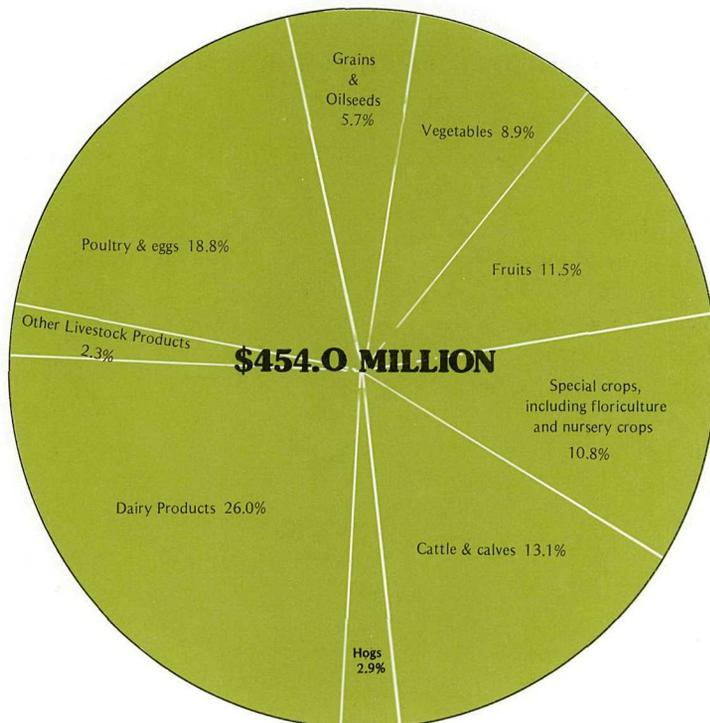
MINISTRY OF AGRICULTURE

1977 Agricultural Review

Farm Cash Receipts

British Columbia farm cash receipts for 1977 from crop and livestock sales totalled \$454.0 million, an increase of 6.7 per cent over 1976. Other cash receipts, including supplementary, deficiency and stabilization payments from all sources totalled \$44.3 million, down by 1.4 per

cent from the 1976 level. The overall increase in total cash receipts resulted from higher returns for crops, up by 14.2 per cent over 1976, coupled with only modest gains for livestock, up by 2.7 per cent.



¹ Does not include income stabilization payments

Source: Statistics Canada

Distribution of Farm Cash Receipts-1977*

	\$ mil.	per cent
Grains and oilseeds	25.9	5.7
Vegetables	40.4	8.9
Fruits	52.1	11.5
Special crops, including floriculture and nursery crops	49.2	10.8
Cattle and calves	59.6	13.1
Hogs	13.0	2.9
Dairy products	117.9	26.0
Poultry and eggs	85.5	18.8
Other livestock products	10.4	2.3
Total	454.0	100.0

*Source: Statistics Canada. Does not include supplementary, deficiency or stabilization payments.

Farm Operating Expenses

Total farm operating expenses and depreciation charges in British Columbia increased to \$412.7 million in 1977, an increase of 4.0 per cent over 1976. The most significant increases in expenditures occurred in wages to farm labour, machinery expenses and interest on indebtedness which rose by 15.0 per cent, 10.5 per cent and 13.3 per cent respectively.

Distribution of Farm Operating Expenses-1977*

	\$ mil.	per cent
Taxes	14.4	3.5
Gross Farm Rent	9.6	2.3
Wages to Farm Labour	61.3	14.9
Interest on Indebtedness	40.4	9.8
Total Machinery Expenses	55.2	13.4
Crop Production Expenses	33.8	8.2
Livestock Production Expenses	88.5	21.4
Repairs to Buildings	22.7	5.5
Miscellaneous	26.9	6.5
Depreciation on buildings and machinery	59.9	14.5
	412.7	100.0

*Source: Statistics Canada.

Net Farm Income

Comparing total gross income from all sources with farm operating expenses and depreciation charges it appears that total net income to the agricultural industry in B.C. has risen almost steadily throughout the 1970's. However, comparing farm cash receipts with cash operating expenses, and removing the influence of inflation, real net income of the farm sector declined between 1970 and 1976. Real growth beyond the 1970 level of net income appears to have been achieved in 1977.

Real Net Income from Agricultural Sales (1970=100)

1970	—	100.0	1972	—	102.4	1974	—	51.5	1976	—	89.3
1971	—	103.3	1973	—	100.5	1975	—	87.7	1977	—	119.7

Source: Statistics Canada. Does not include supplementary, deficiency or stabilization payments.

Trends in Costs and Prices

During 1977 the price of most farm inputs continued to climb sharply. The 1977 farm input price index (Western Canada) rose to 251.0 (1966 = 100), an increase of 13 points over 1976. By comparison, the index of farm prices of agricultural products in British Columbia rose less rapidly to 219.4 (1961 = 100), an increase of only five points over 1976. These movements in cost and price indices provide further evidence of the cost-price squeeze that has had a profound effect on the agricultural industry in the mid-1970's.

The urban public are given a good opportunity to see some aspects of British Columbia agriculture at agricultural fairs held in most British Columbia communities.



Executive Officer

The Executive Officer is responsible for the consolidation of legislative matters within the Ministry. In 1977, 61 Orders-in-Council were processed relating to 15 Acts.

The Executive Officer serves as secretary to the Advisory Committee of the British Columbia Agricultural Aid to Developing Countries Fund. In 1977, the fund disbursed \$350,000 to support 46 projects sponsored by 25 charitable organizations.

The Executive Officer acts as secretary at the monthly senior staff meetings of the Ministry and as secretary to the British Columbia Agricultural Services Co-ordinating Committee, which maintains a watch on agricultural developments in the province and encourages research within British Columbia agriculture.

The Executive Officer is also responsible for the administration of grants provided by the Ministry to the 88 Farmers' Institutes, 170 Women's Institutes, and 58 fairs and exhibitions. As Superintendent of Farmers' Institutes he provides liaison with the Ministry of Agriculture and organizes the annual meeting of the Farmers' Institutes Advisory Board.

During the 1977 session of the Legislature several Acts were amended. These are summarized below:

Bill 17: Farm Income Assurance Amendment Act. The Act provides authority to the Lieutenant-Governor in Council to make regu-

lations concerning the procedures to be followed, the security required under the farm income plan, and the appeal procedures. The regulations also provide a means of receiving money improperly or erroneously paid under a farm income plan and provide a penalty for a person who gives false or misleading information.

Bill 23: Agricultural Produce Grading Act. The Act consolidates and replaces the five grading statutes respecting the inspection and grading of produce which includes: beef, hogs, poultry and poultry products, wool, fruit, vegetables and honey.

The Act makes provision for a federal grader to carry out inspection on behalf of the province, provides for more stringent penalties than the earlier Acts as well as requiring those who are involved in the sale of agricultural produce to have a licence to do so.

Bill 37: Plant Protection Act: The Act enlarges the scope of protection provided to plants by including the management of any commodity grown in any growth medium. Regulations may be made to prevent the spread of an insect, pest or disease destructive to plants.

Bill 57: Soil Conservation Act: The primary purpose of the Act is to ensure the preservation of the soil as a natural resource for purposes of food production for present and future generations.

The amended Act provides more effective control over topsoil removal and placing of fill in agricultural reserves by requiring that local authorities obtain approval from the Land Commission before issuing permits. It also provides a means of quick action and allows for the imposition of a daily fine should the Act be contravened.

Bill 91: Miscellaneous Statutes Amendment Act: The Act includes:

- Amendment to the *Milk Industry Act* to provide for penalties to enforce the quality of marketed milk.
- Amendment to the *Veterinary Medical Act* to allow the Council of the Veterinary Association to investigate and examine a member's skill and knowledge in the practice of veterinary medicine, and to suspend, remove or restrict the practice of a member whom the Council considers does not have such skill or knowledge.

The Marketing Branch sponsored an extensive promotion campaign under the banner "It's your Harvest Time" to create an awareness of British Columbia home grown food products.



Marketing

During 1977, the Marketing Branch concluded the preparation of legislation entitled *The Agricultural Products Grading Act*. This Act is a consolidation of a number of Acts previously in effect, including the *Beef Grading Act*; *Fruit, Vegetable and Honey Grades Act*; *Hog Grading Act*; *Livestock and Livestock Products British Columbia Act*; *Poultry and Poultry Products Act*; *Wool Grade Act*. This Act was passed by the Legislature during 1977 with proclamation to take place early in 1978 following compilation of the regulations. As well the branch made input into the provincial position with regard to the proposed *Federal Competition Act* and took part in a number of the food inquiry sessions conducted by the Select Standing Committee on Agriculture.

The Marketing Branch took part in federal-provincial discussions regarding a brief entitled "Agriculture in the Multi-Lateral Trade Negotiations" put forth to the federal government by the four western provinces. As well the branch produced the western position on horticulture in the Multi-Lateral Trade Negotiations.

A major potato grading change was instituted by Agriculture Canada during 1977 following the adoption of a motion of support by the Canadian Horticultural Council. This motion followed very effective presentations made by the British Columbia industry and the British Columbia Ministry of Agriculture through the Marketing

Branch. This grade change was of significant benefit to the British Columbia potato producers during the 1977 marketing season.

The branch also took part on two Canadian Horticultural Council subcommittees; the Tender Fruit Committee and the Apple Committee. These committees met during the year and focused on the processing of tender fruit and the serious competition from outside the country. They also examined a proposal to conduct a study on the marketing of apples within the Canadian domestic market.

The branch took part in proposals to evaluate the British Columbia beef and swine industries. It is anticipated that 1978 will see significant recommendations on these two industries by the Ministry of Agriculture.

During the year a delegation from Japan visited the province to purchase a further shipment of Holstein-Friesian dairy cattle. This market appears to be developing well. The Japanese buyers are very pleased with the performance of the British Columbia cattle. The British Columbia industry also reacted well to the Japanese interest.

The branch once again undertook the co-ordination of the statistics function for the ministry. The 1977 Agriculture Statistics Fact-sheet as well as current statistical information was updated to the 1976 Agriculture Census.

Food Promotion

1977 saw some major changes in the food promotion operations of the branch. A Vancouver based advertising agency was commissioned to work with the food promotion unit. The function of the unit is primarily to work with food industry representatives in creating a high public awareness of British Columbia produced food products.

The food promotion unit maintained the recipe program with 26 recipe sheets issued during the year. The unit took part once again in the Canadian Restaurant Association Convention and Bridal Fair. The presence at the Pacific National Exhibition was changed this year from a food demonstration format to an audio-visual presentation in order to allow space for additional commodity groups to take part in the Country Fair.

The food demonstration trailer program was continued for another year. This program received very fine support from all communities visited as well as considerable recognition from the M.L.A.'s and media in the particular area. The program of visiting the retail stores and assisting in identification of British Columbia produce went very well once again. Over 300 stores were visited and supplied with promotional materials.

The appointment of a professional advertising firm to work with the promotion unit has been successful with a number of new radio and T.V. commercials prepared and aired. As well the branch undertook two media tours of agriculture production in the Fraser Valley in conjunction with the Fresh for Flavour Foundation. These promotions along with the materials prepared for instore display earned the Marketing Branch the 1977 Salad Month Award presented by the Canadian Fruit Wholesalers Association.

A very successful Harvest Time promotion involving radio, T.V. and an eye-catching wall panel and poster display served to cap the promotional year for the branch. During this time the unit worked closely with various commodity groups in order to provide tie-ins with the Harvest Time theme and develop individual commodity promotions for the coming year. As well the branch, in conjunction with the Information Branch, prepared a display and audio-visual presentation for the annual British Columbia Federation of Agriculture in Kelowna. This display pointed out the numerous services and activities of the

British Columbia Ministry of Agriculture and was very well received by the delegates attending the convention.

The food promotion unit's home economist handled numerous food demonstrations and consumer questions during the year.

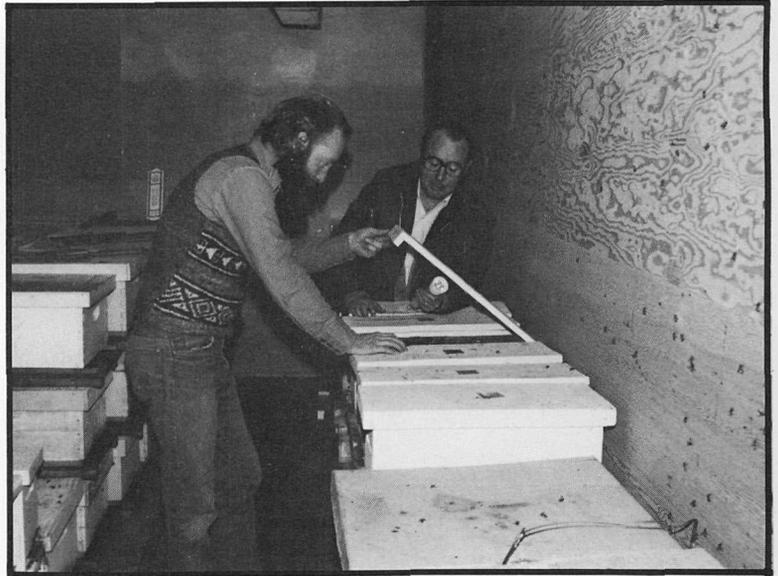
Markets Information

During 1977 a new function of markets information was set up under the Marketing Branch. The early spring drought in California and uncertainty as to horticulture supplies caused the ministry to form this unit in order to provide current factual information on production and marketing situations.

During 1977 the markets information unit produced 16 issues of a publication entitled "AgriMarket Reporter" which contains marketing information from British Columbia and competing areas of Canada and the Pacific Northwest. The publication has been keyed primarily to fruits and vegetables to date but it is hoped to expand into other commodities in the future, as staffing permits. In addition this function is responsible for the large number of enquiries by British Columbia industry and producers for various marketing statistics. The unit also forms the primary contact with the CAMIS function of Agriculture Canada on marketing statistics.

Production Services

Bee overwintering facilities at Cloverdale enable controlled atmosphere storage of bees for use the following year.



Apiculture

The total honey crop during 1977 was 2,404,064 kg (5.3 million pounds), an increase of 1,156,672 kg (2,550,000 pounds) over the 1976 crop. This is the largest honey crop ever produced in British Columbia.

If weather conditions in the interior dry belt areas had been satisfactory honey production in British Columbia during 1977 would have been in excess of 2,721,582 kg (6 million pounds). As it turned out, a one month period of fine settled weather enabled honey producers throughout the remainder of the province to harvest a record honey crop.

Active beekeepers in the province number 4,948, a gain of 448 new producers since 1976. The number of producing hives dropped from 51,000 in 1976 to 47,000 in 1977. This decline in hive numbers was due to three poor crops in the British Columbia Peace River area and the movement of some commercial apiaries into the Alberta Peace River area.

The wholesale market for honey has improved. Carryover of bulk supplies of honey throughout Canada are nonexistent and large volumes of the 1977 Peace River crop have already been shipped in car load lots to the U.S.A. where stocks of high quality No. 1 white honey are in short supply.

The price of No. 1 white honey in bulk (299 kg — 66 pounds) barrels to the packers, ranged

between 45-47 cents per pound. With the exception of the Peace River production the entire British Columbia honey crop is sold through local retail outlets or on-farm sales. The on-farm price for honey averaged 75 cents per pound.

In co-operation with the Farm Economics Branch, three producers' consensus costs and returns studies were completed for commercial beekeeping operations in the Okanagan and the Peace River. All three studies showed a return to both labour and investment.

For the second year, honey producers in British Columbia were given some assistance to compensate against bear damage to hives and subsequent loss of crop.

This assistance was provided under the terms of the "Beeyard — Bear Protection Incentive Program". Financial assistance was provided in the form of grants to honey producers to assist in the cost of constructing bear-proof electric fences or other satisfactory protective devices.

The incidence of bee diseases was lower during 1977 compared to 1976 and 1975. The trend towards a lower level of bee diseases is the result of a concentrated educational and inspection program.

Chalkbrood, a fungus disease affecting honeybees which has made its appearance in North America in the past decade, showed a decline in

1977. The reason for this decline is not understood.

Pollination of tree fruits, small fruits, cranberries, legume and vegetable seed crops continues to be an important responsibility of the bee-keeping industry.

Work was completed on the DATE project for wintering honeybee colonies in a controlled atmosphere building at Cloverdale. Hives overwintered in this facility and returned to our co-operators in the Peace River, produced a larger crop on the average than package bees.

Construction has now been completed on two ethylene oxide mobile fumigation chambers. These will be used to study the economics and feasibility of fumigating diseased hive equipment rather than burning.

A total of 200 honeybee queens were produced and mated under isolated conditions at our breeding stations in Powell River and Vernon. Eighty of these queens were shipped to Dr. C. Jay at the University of Manitoba for testing. The remaining 120 queens have been distributed to British Columbia honey producers for testing and evaluation.

For the fourth consecutive year experimental apiaries were located in the interior fireweed areas of British Columbia. Bear protective devices were tested and honey production recorded. Hives

averaged in excess of 45.35 kg (100 pounds) of surplus honey.

There are one million acres of fireweed available for honey production throughout the interior on clear cut areas which have been slash burned. Fireweed honey is a very high quality honey and finds a ready market whenever it is offered for sale.

District agriculturists provide direct communication with farmers, very often using in-the-field demonstrations.

Development and Extension



The Development and Extension Branch is the major delivery system for Ministry of Agriculture advisory services. It acts as a facilitator and co-ordinator for many regional and district extension programs in dealing directly with farmers.

District agriculturists located in 18 district offices in the agricultural regions of the province provided a wide range of programs and services to the agricultural industry in 1977. The branch acts as a local reference point for agricultural legislation and ministry programs. Many of these are the responsibility of other branches but field activity associated with these are the responsibility of the Development and Extension Branch.

Priority in extension program planning and initiation is being directed towards forage production and utilization, livestock management and farm business management. Considerable effort and time is allocated to range and community pasture management extension. The branch has been assigned the responsibility for the administration of all developed community pastures of which there are 11 in number. These are located in the Peace River and Central British Columbia regions.

Extension programs were designed to teach pasture management skills to pasture user groups. A "community pasture agrologist" was assigned to handle this extension function as well as carry out administrative duties for the pastures.

The agricultural industry strongly supported many of the agricultural extension programs during 1977. It is encouraging to note the desire of primary producers to acquire specific skills needed to manage a modern farm business operation. Extension programs in production technology and farm business management skills have been well attended at meetings, workshops and field days put on by ministry staff.

Broad regional extension programs are developed where a common need has been identified by a number of agricultural districts. These needs are identified by primary producers, Ministry of Agriculture, and Agriculture Canada. The regional programs are developed and initiated by extension committees which are active in the areas of dairy, alfalfa, range, forage, swine, silage and beef feedlot development.

Specific district extension programs are developed within various agricultural districts to meet special needs of local producers. These needs are identified by advisory committees made up of district producers or by discussion at commodity group meetings. Extension programs dealing with tax and estate planning received considerable attention and are popular among farmers.

In addition to the extension function, the branch is heavily committed to integrated resource planning in concert with other resource ministries at the provincial, regional and local levels. The

Ministry of Agriculture, along with other resource ministries, has given high priority to land use allocation, planning and co-ordinated research planning. It is expected that as resource planning progresses, the demands of time on staff to undertake this responsibility will become greater.

The branch co-ordinated a number of special projects and studies related to agricultural development. Foremost among these were:

- Establishment of a Green Zone Committee to make recommendations to reduce conflict between agricultural and urban activity occurring on the agriculture-urban interface.
- Benefit study of proposal to improve drainage and irrigation systems in the Nicomekl-Serpentine.
- ARDA pasture study.

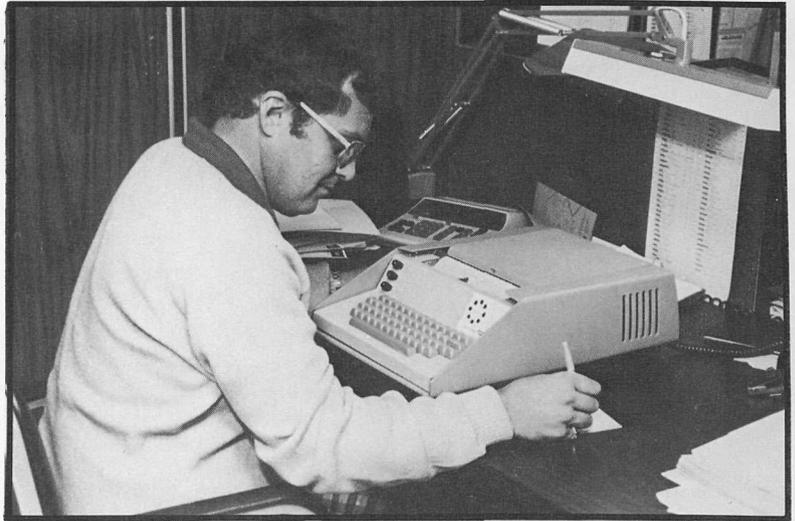
In February a two-year extension of the present Canada-British Columbia Small Farm Development Program Agreement was signed, extending the program to March 31, 1979. The principal client eligibility criteria includes: maximum total farm family income of \$10,000; maximum total assets of \$150,000; total farm product sales averaging between \$1,500 and \$30,000 over each of the last three years. The program continued to provide intensive and long-term assistance to individual small-scale, low-income farmers who are endeavouring to make farming their principal source of

livelihood. Analysis of statistical data indicates there are between 1,600 and 4,000 farmers in British Columbia who would meet the eligibility criteria for counselling services and assistance under the S.F.D. Program. Eight positions have been allocated to the province including a supervisory position which was established in April, 1977.

During the year several documents have been prepared which are significant to the British Columbia S.F.D. Program. The operational policy was revised and expanded. This policy, based on the appendices to the agreement, details inter-relationships with the Ministry of Agriculture and Farm Credit corporation in terms of program activity. A discussion paper was researched and developed which evaluated the program with the view of developing some strategies for small-scale, low-income farmers after the present agreement expires.

Computerized decision aids are available to farmers who need assistance on calculating loan costs, cattle ration formulations, machinery costs and other farm management needs.

Farm Economics



The Farm Economics Branch provides assistance to farm managers and to farmer advisors in the ministry who request guidance on farm business planning, financial management, farm records and analysis of economic data for use in business planning. To accomplish these objectives the branch publishes booklets and factsheets on specific topics, offers individual client counselling, conducts workshops and short courses and provides leadership in the use of farm records systems and advanced farm planning techniques.

During 1977, the following resource materials were published to assist farm managers and their advisors in the area of farm business planning.

- (1) Eighteen issues of the "Farm Business Management" factsheet were compiled on current topics and released.
- (2) "Taxation and the B.C. Farmer" — Advisor's guide and Layman's guide were updated to reflect new management strategies and requirements resulting from the removal of succession duties and gift taxes in early 1977.
- (3) The publication "Sources of Farm Credit in British Columbia" was revised and updated.
- (4) The "British Columbia Farm Business Management Data Handbook" was revised and is on sale.
- (5) Information was compiled and some filming completed on two audio-visual programs "Planning Your Credit Needs" and "How to

Apply for Credit". Both will be completed in 1978.

During 1977, the use of computerized decision aids increased substantially, as shown in Figure 1. Staff in several branches of the ministry use decision aids developed by Canfarm and delivered to the client through computer terminals. In 1977, the computerized decision aids included:

- loan calculator program
- feedmix and dairy feedmix programs
- cash flow forecaster and cashplan
- machinery replacement planning aid
- machinery buy vs. custom hire program.

The branch offers the British Columbia Farm Account book and the Canfarm record service to British Columbia farm managers. A comparison of enrollment on the record systems for 1975, 1976 and 1977 is shown in Table 1. A long-term comparison of enrollment is shown in Figure 2.

During 1977, three comparative analysis reports were published for use by farm managers including:

- (1) 1976 British Columbia Farm Business Analysis Report
- (2) 1976 British Columbia Dairy Farm Business Analysis Report
- (3) 1976 British Columbia Beef Farm Business Analysis Report.

During 1976, the British Columbia Farm

Business Management Advisory Committee established guidelines to allow private firms to offer Canfarm record service and computerized decision aids to farm clients. During 1977 the following firms were approved to offer such services.

- (1) Wilson & Paterson, Dawson Creek
- (2) Mr. Frank Lee, Victoria
- (3) Mr. H. H. Groenwold, H. R. Lucas, Abbotsford
- (4) Northwest Agrinomics Ltd., Clearbrook
- (5) Mr. G. B. Phillips, Smithers
- (6) Mr. K. P. Wiebe, Clearbrook
- (7) McNight Johnson & Co., Chilliwack, Abbotsford

- (8) Mr. Ted Osborne, Vernon
- (9) Canadian Bio-Resources Ltd., Surrey

During 1977, the costs and returns for several agricultural commodities were studied and the following reports published.

- CDS 199 – Silage, Hay and Pasture Production – Vanderhoof
- CDS 200 – 200 Hive Apiary – Peace River
- CDS 201 – 1500 Hive Apiary – Peace River
- CDS 202 – Barley, Oats and Alsike Clover Seed Production – Farmington
- CDS 203 – Silage, Hay and Pasture Production – South Peace River
- CDS 204 – Summerfallow, Barley, Wheat and

FIGURE 1

**Use of Computerized Decision Aids—British Columbia
Ministry of Agriculture—1974 to 1977**

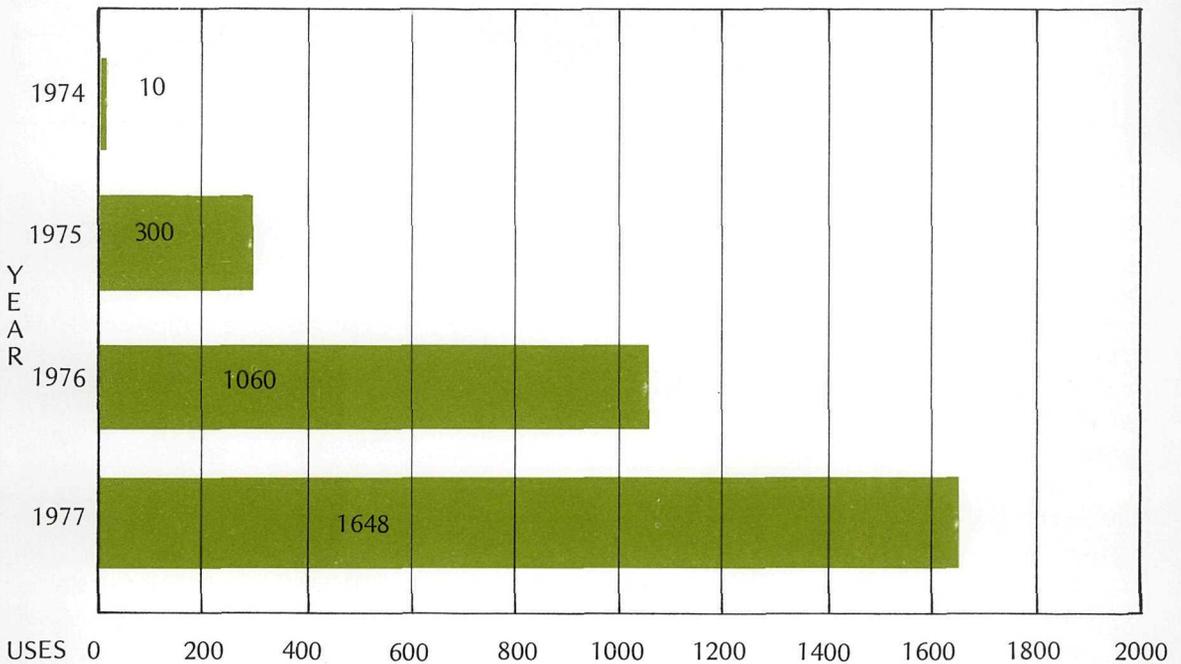
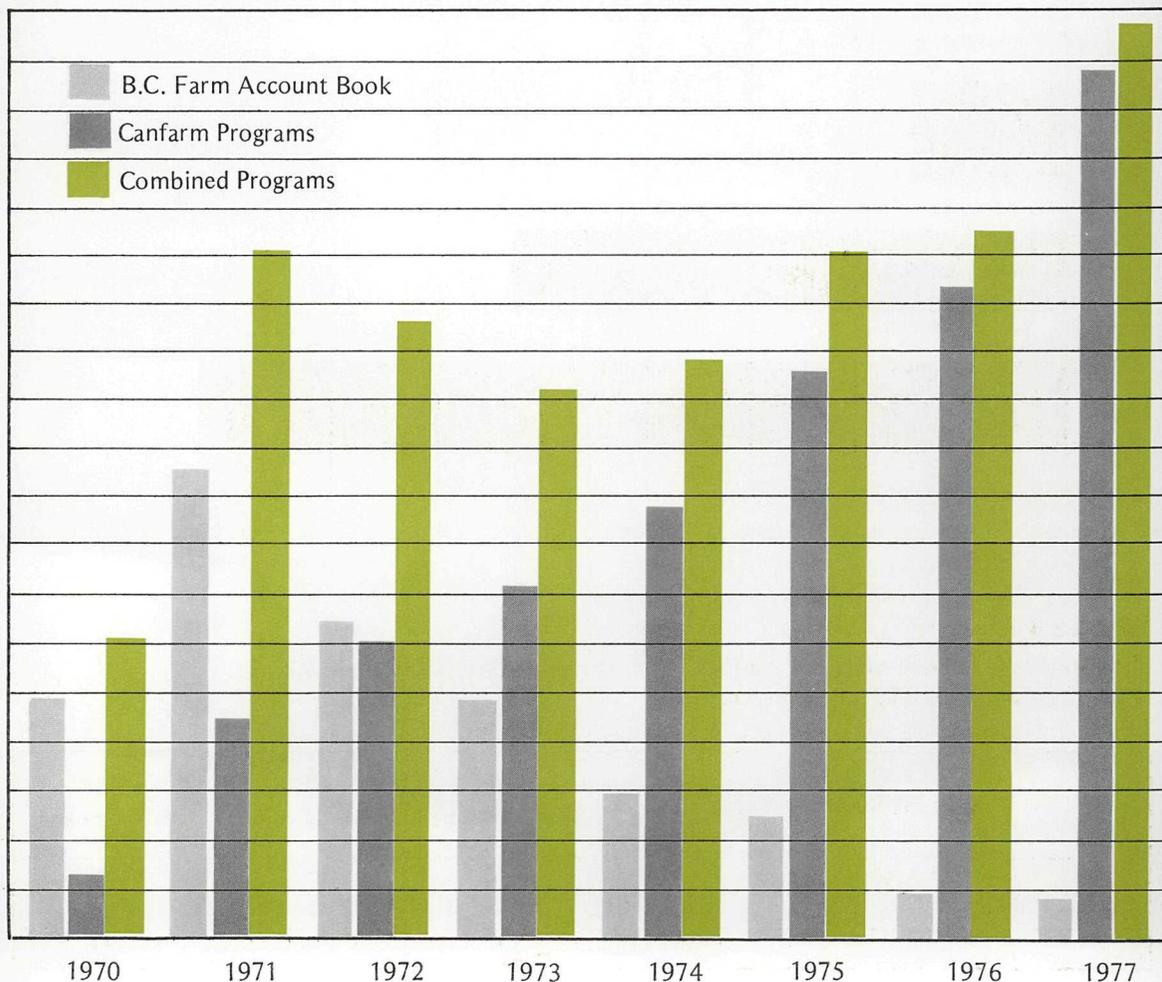


TABLE 1

**Comparison of enrollment on British Columbia Farm Account Book
and Canfarm for 1975, 1976 and 1977**

Record System	1975 Enrollment	1976 Enrollment	1977 Enrollment
B.C. Farm Account Book	52	32	19
Canfarm (V2 and V3)	293	355	447
TOTAL	345	387	466

FIGURE 2
Comparison of enrollment on British Columbia Farm Account Book and Canfarm Record System 1970 to 1977



- Creeping Red Fescue – North Pine-Pineview
- CDS 205 – Corn Silage – East Fraser Valley
- CDS 206 – Corn Silage – Central Fraser Valley
- CDS 207 – Corn Silage – West Fraser Valley
- CDS 208 – Corn Silage – Comox Valley
- CDS 209 – Silage, Pasture and Hay – East Fraser Valley
- CDS 210 – Silage and Hay – Central Fraser Valley
- CDS 211 – Greenchop, Silage and Hay – West Fraser Valley
- CDS 212 – Corn Silage Production – Aldergrove, Langley
- CDS 213 – Barley, Wheat, Oats and Alfalfa – Creston Flats
- CDS 214 – Corn Silage, Alfalfa Silage & Alfalfa Hay – Lister
- CDS 215 – Alfalfa Hay – Lister

tee, Canada-British Columbia Small Farm Development Program Co-ordinating Committee, ELUC Data Services Committee, the Western Farm Management Extension Committee and the British Columbia Farm Business Management Advisory Committee.

In addition to published data, costs were estimated for Strawberry Production – U-pick operation.

Data was gathered and analyzed to become part of the benefit cost study for proposed drainage and irrigation improvements in the Logging Ditch area of the Nicomekl-Serpentine.

During 1977, new computer systems and programs were developed for:

- (1) Storing and retrieval of information to facilitate the production of a “brand book”.
- (2) Analyzing data associated with the “Green Zone Project”.
- (3) Calculation of ownership and operation costs of farm machinery as part of a Federal-Provincial Farm Machinery Cost study.

On-going projects such as the agricultural credit reimbursement program, British Columbia Farm Business Management Accounting Program project, 4-H statistics programs, animal feed analysis project, grain quality study, drainage and irrigation data analysis and concensus data studies were carried out.

During 1977, the branch was designated as the liaison point for activities vis-a-vis the British Columbia Systems Corporation.

During 1977, the branch represented the British Columbia Ministry of Agriculture on several provincial, regional and national committees relating to the work area. The branch participated in meetings of the Canada Committee of Farm Management Services, Canfarm Advisory Commit-

Most field crops enjoyed average or better than average yields during 1977 due to generally favourable growing conditions.

Field Crops



Regional specialists in field crop production, weed control and range management are located throughout the province as part of the Ministry of Agriculture extension team. They provide specialized knowledge on all aspects of feed and range production as well as other crops such as cereals, potatoes, oilseeds and forage seeds. The branch is also responsible for administration of the *Weed Control Act*. Applied research and demonstration work is carried out in all major agricultural areas.

In 1977, most of British Columbia enjoyed a favourable growing season. Forage crop production was exceptionally good and haying and harvesting conditions were generally favourable. In the Peace River area, heavy spring rains delayed seeding and early fall frosts caused considerable damage to late seeded crops. However, the harvest of all crops except alsike clover was completed by freeze-up. Yields were close to average.

The total acreage of cereals in the province was estimated at 336,000 acres with barley as the major crop. Rapeseed acreage reached an all time high at 85,000 acres. Grown exclusively in the Peace River, this crop ranked second to barley in terms of acreage. Hay production in the province also set a record. Average yields of 2.8 tons per acre from 670,000 acres were reported. Imports of alfalfa from Washington reported at 140,000 tons in 1976 are expected to be down sharply in 1977.

Silage corn acreage was down slightly to 21,000 acres with an average yield of 19.5 tons per acre. Potato acreage totalled 11,295.

With few exceptions, prices received by farmers continued to be unfavourable. Feed grain prices were lower, local hay prices fell substantially and potatoes have not recovered from the very low price levels established in 1976. Rapeseed prices, on the other hand, were remarkably buoyant and certain forage crop seeds such as Creeping Red Fescue and Timothy strengthened.

The establishment of a strong forage production base is the key to an expanding livestock and dairy industry. With this in mind, the Field Crops Branch has become heavily involved in applied research designed to increase production both in quantity and quality. For example, on Vancouver Island, a split application of 120 lbs. of nitrogen on irrigated hay produced 76 per cent more hay than a check plot which had received no nitrogen but equal amounts of other nutrients. In the Lower Mainland, trials have indicated that the use of any companion crop in the establishment of forages is questionable and the use of annual ryegrass tends to suppress establishment of underseeded grasses and legumes. Here also a project was underway to compile data on manure composition, nutrient losses during handling and optimum rates of application.

In the Southern Interior, a new Canadian variety of alfalfa, Algonquin, performed equally to commonly grown U.S. varieties and in the Chilcotin the same variety seeded with Champ Timothy produced 4.2 tons of dry matter per acre, topping all other combinations. Work of a similar nature was conducted at 40 sites throughout the province. In addition, evaluation of silage corn varieties was carried out on 22 farms situated throughout the corn growing areas. As a result there was a growing trend to the use of earlier maturing varieties.

In range improvement activities, the concept of co-ordinated resource management planning gained acceptance by resource agencies and local producer groups. Range specialists were heavily involved in the Thompson-Okanagan and Cariboo regions. The development and use of new range seeding equipment has been an exciting experience. Approximately 1,700 acres were seeded in 1977. The possibilities for range improvement are very great. For example, at Cache Creek, a 40-acre site seeded to crested wheatgrass in 1970 produced 495 pounds of dry matter per acre in 1977 as compared to 66 pounds from unseeded range. Work was also started on the evaluation of a number of new dryland varieties of grasses for range improvement.

The forage seed industry in British Columbia appeared to be recovering from a period of depressed prices. In recent years, the continuing downward trend in acreage has been cause for concern. The branch was active in promoting the use of pedigreed seed and was responsible for the distribution of substantial quantities of foundation seed, particularly of Boreal fescue.

Weed control activities included some 65 weed control trials conducted in 1977 throughout British Columbia on corn, cereals, fruit and vegetable crops, potatoes and range land. Assistance provided by the Ministry under the *Weed Control Act* has resulted in excellent co-operative projects in six regional districts and in one municipality. Approximately \$80,000 expended in grants under this program resulted in a total expenditure of \$250,000 at the local level. Major programs were for thistle control in the Southern Interior. A number of other districts have expressed an interest in coming into the program in 1978. A knapweed seminar held at Kamloops in October was well attended.

The use of remote sensing as a method of determining the acreage of creeping red fescue in

the Peace is closer to becoming a reality as a result of work done by this branch in the Peace. Infra red photos of fescue fields were being correlated with satellite reflectance data and a contract has been issued by Agriculture Canada.

Potato projects included work on variety evaluation, fertility, foliar feeding, top kill and weed control. The branch co-operated fully with the Plant Quarantine and Research Divisions of Agriculture Canada in the virus free seed program. Seed sales of the 1976 crop amounted to 8,172 tons, half of which came from the Pemberton Seed Potato Control Area. A seminar on potato storage organized in co-operation with the British Columbia Coast Vegetable Co-operative had a marked effect in improving storage conditions. However, the apparent inability of processors to carry out contract commitments for processing potatoes was of very great concern to all associated with the potato industry. An outbreak of the dreaded Bacterial ring-rot disease on several farms was also a cause for concern.

The branch was actively involved in more than 100 meetings, tours and field days involving producers on topics such as forage production, range management, weed control, rapeseed and potato production. Staff was also heavily involved in inter-agency resource planning, interprovincial committees concerning a wide range of production topics and the inter-ministry pesticide committee. As in other years, a number of new publications dealing with cropping recommendations were issued.

Horticulturists located throughout the province are trained specifically to assist orchardists in fruit quality and tree management.



Horticulture

Producers of horticultural crops were favoured in a number of ways in the 1977 growing season. The winter was mild, the spring was open and the warm summer produced many crops of excellent quality. There was a strong demand for the services of the Horticultural Branch staff to deal with the more than 60 crops and the various problems associated with growing, handling and marketing of each.

Tree Fruits

The apple crop was down about 15 per cent from the record 1976 level. Major reductions occurred in the McIntosh and Spartan varieties. Main crop apple varieties showed excellent colour as a result of cool weather in September and October. Smaller apple crops in the Northwest and in Europe together with the lower Canadian dollar have created a continuing strong market for British Columbia apples.

Pear production was close to the 1976 crop in volume. Quality of the Bartlett crop was much superior to 1976 because of higher temperatures in August. Returns to growers for Bartletts are expected to be an average of 5 cents per pound for naked fruit — well below the cost of production. This situation is leading to removal of Bartlett trees in some areas and to greater emphasis on the Anjou pear which now comprises about 40 per cent of tree pear volume.

Approximately 19 million pounds of sweet cherries were sold. This volume compares favourably with the larger crops of the past two years. Due to the absence of rain and the excellent

growing weather, the quality of the 1977 crop was unsurpassed. An exceptionally large share of this crop went to the canners. Sales of sweet cherries on the fresh market went well with the eastern Canadian market taking 52 per cent of the British Columbia Tree Fruit sales.

In the area serviced by the Penticton office, 304 cherry trees affected by Little Cherry were found this year. The increase included 110 trees in the Naramata area where symptoms had not previously been discovered. A thorough tree removal, spray program, and microscopic leaf analysis is being carried out. A cherry seedling removal project has been started by the Regional District to eliminate possible sources of infection.

An exhaustive study into the causes of pitting in sweet cherries was conducted by British Columbia Tree Fruits with financial assistance of IRAP and technical help from the Summerland Research Station and the British Columbia Ministry of Agriculture. The committee has made a number of strong recommendations to the industry.

Sour cherry sales continued to be good due partly to a low crop in Michigan. All of the interim product is sold direct to Sun-Rype at Kelowna. Better than 50 per cent of the crop is harvested mechanically using tree shakers.

The quantity of apricots marketed through the Sales Agency has declined in the past three years. The Skaha apricot, an introduction from the Summerland Research Station breeding program, was again market tested in the Edmonton market and through a local cannery with favourable results. However, canners still prefer the Tilton for

their use. The variety is now being recommended for limited commercial planting.

The overall peach crop was about the same as in 1976. Quality was good although some hail and split stones were seen. Marketing of the peach crop took place in virtually the same areas of western Canada as in the previous two years with little or no fruit going east of Winnipeg. Good prices were maintained throughout the season.

Of the crop 72 per cent was sold fresh while the cannery took 26 per cent and 2 per cent went to Sun-Rype.

A test marketing of the Glohaven variety indicated a favourable reaction from wholesalers and retailers.

Prunes fell short of expectations owing to heavy hail damage in the Oliver district and a heavy June drop in the early strains. Quality was good and the price improved over the low years of 1975 and 1976.

Packinghouse field service staffs are being strengthened and some trained to assume additional duties including the provision of pest management service to member growers. The Horticultural Branch is giving full support to this change.

Promising results are being recorded in two measures to reduce the levels of deer damage to orchards. In the 1976-77 winter, feeding stations established by Fish and Wildlife successfully intercepted deer in their movement toward orchards. So far in the 1977-78 winter, orchard plots sprayed with two repellents are suffering less damage than unsprayed plots.

A program to make apple growers more aware of improvements that are required in the nutritional status of their trees is underway. Problems that were stressed included excessively high nitrogen levels and low zinc levels. In 1977 low boron levels were discovered in some orchard soils indicating a need for greater emphasis on soil application of boron rather than foliar spray application.

Grapes

The 1977 grape crop totalled 23,427,000 pounds. Of the crop 88.8 per cent was sold to wineries (with some processed into juice) for an average price of \$0.157 per pound. Of the crop 5.2 per cent was sold fresh in baskets via British Columbia Tree Fruits Ltd. for an average price of

\$0.256 per pound and 6 per cent of the crop was sold at the farm gate for an average price of \$0.20 per pound. Despite persistent rumours and allegations of a surplus grape crop through the summer, the vintage was handled easily and all the tonnage sold. An improved fresh market was responsible for removing much of the surplus to the point where not enough Bath tonnage was available for the new juice facility operated by Sun-Rype. Growing conditions during the summer months were favourable for a vintage grape crop. However, cooler weather after mid-September prevented northern vineyards from reaching optimum sugar levels. Harvesting was favoured by dry pleasant weather.

A great deal of experimentation and trial is underway as the grape industry struggles to adapt itself to the changing market demands of the late 1970's. Efforts are concentrated on the development of both fresh and process market outlets. In addition, grape industry efforts to produce better grape and broaden the industry base now involve four co-operative projects with provincial and federal government involvement. Variety testing plots have begun to produce fruit for evaluation.

Berries

It was a good year for strawberry growers. The plantings generally overwintered in good condition and produced a crop with above average yields, fruit size and quality. An increased demand at improved prices was reported for off-the-farm sales of both U-pick and prepicked strawberries. As in 1976, the grower price of processing strawberries was set at 34.5 cents per pound. Recent increases in plantings in the Abbotsford area have tended to increase the concentration of the industry in this area.

Raspberry growers in the Fraser Valley had what might be called a perfect year in 1977! A total of 13,336,517 pounds of local fruit was processed plus an additional 298,337 pounds imported from Washington State. This marks the first time since 1969 that U.S. berries have been purchased by local processors. An additional 1,635,483 pounds of raspberries were estimated to have been sold directly off farms or on the fresh market. Growers report an increased demand for off-the-farm sales of raspberries at favourable prices while the price and demand for processing fruit set new records. The average price for

processed raspberries is expected to approximate 52 cents per pound with a range of 47 cents to 55 cents. The increased demand and subsequent record prices are directly attributable to crop failures in other production areas.

The blueberry crop grew well with favourable weather contributing to berries of good size and flavour. Both sales and price were up due in part to a partial crop failure in the eastern U.S.A. and increasing world demand. Increasing blueberry acreage may be expected over the next few years.

The cranberry crop was one of the largest ever. Colour, size and general quality of the berries was excellent. The weather contributed in great part to the quality and size of the crop.

Approximately 30 acres remain in loganberries on Vancouver Island and the Gulf Islands.

Vegetables

The weather in 1977 was generally satisfactory for vegetable production. Transplanting and seeding were completed on schedule. Harvesting started when normally expected or a little earlier. Sudden heavy showers at the end of May and in July caused some bunching of lettuce seedlings at time of harvest. The long hot dry spell during the last half of July and August caused a lot of the cauliflower crop that went in at the beginning of this period to be poor in quality due to a lack of moisture. This was not true where irrigation was well managed. Heavy penetrating frost in early October wiped out about 1500 tons of cabbage. Prices at the time were \$160 to \$180 per ton.

Of the fresh market crops, Black Root Rot disease in carrots added to Lateral Root Dieback and Cavity Spot is causing growers to have second thoughts about growing the crop.

A study of field packing of celery vs. shed or central packing undertaken by the federal Department of Agriculture showed a 50 cent to 75 cent higher return per carton for field packing. However growers of celery voted against returning to field packing recognizing it is hard to put a price on the extra sales brought about by the sale of a washed and uniform product.

A Horticultural Branch vegetable specialist accompanied the Manager of the Cloverdale Lettuce and Vegetable Co-op on a visit to lettuce buyers on the Prairies where complaints were received about the quality of British Columbia lettuce.

Processing crops of peas, beans and corn gave yields above average but cole crop production and quality was hurt by the long hot dry spell during August. The vegetable processing industry is in a healthier position than in 1976. Inventories of a number of products are down from 1976 and prices for the finished product are up. Prices to the grower on all products except corn increased. Most growers had better than average growing and harvesting conditions. Production of processing carrots is still a disappointment.

A DATE project to find resistant varieties of peas to a new race of pea wilt has been very successful. Seed is being increased in Arizona.

Preliminary results from a corn nematode study suggest nematodes are a problem in some fields but poor farming techniques such as lack of liming, low use of fertilizer, poor seedbed preparation, and poor seeder performance are the cause of a number of poor corn stands.

In the Okanagan, field tomatoes and potatoes showed increases over 1976 whereas asparagus was down heavily due to neglect of one large field and the dry spring weather. Peppers showed a marked improvement.

The Select Standing Committee on Agriculture allowed a lot of people an opportunity to express their views on problems. If data provided to the research arm of the Committee on cost of production is updated each year, this will have been a worthwhile endeavour.

Hail storms in the Oliver area and Curly Top virus in the Ashcroft area limited production of tomatoes in what would otherwise have been a good year for this crop.

The British Columbia Interior was without the services of a vegetable horticulturist for most of 1977. During this period the vegetable duties were covered by other Interior horticulturists. The position is expected to be filled in the new year.

Mushrooms

Mushroom production for 1977 was extremely good. Total production is expected to be about 11 million pounds, exceeding earlier predictions. Sales of fresh mushrooms were good on both local and prairie markets. Supply of fresh mushrooms exceeded demand during the last quarter. Stocks of canned mushrooms were at an all time high at year end. Importation of canned mushrooms is still of great concern to local producers.

Nursery Crops

The nursery industry continued to expand during 1977 with annual sales estimated at over \$15 million. British Columbia nursery stock is now being sold in Quebec and Ontario. The Plant Protection Advisory Council was active in improving the European Pine Shoot Moth certification program and instituting a Balsam Woolly Aphid certification program. The council played a major role in convincing Agriculture Canada that a Pear Trellis Rust certification program would be a wise move. Weed control in container grown nursery stock by use of herbicides is now a reality. More trials with positive results were carried out in 1977.

A Tissue Analysis project was carried out to obtain target levels for nutrients in ornamental plant tissue. Diagnosis of nutrition problems has been difficult as soilless media cannot be analyzed through our Soil Feed and Tissue Test Laboratory.

Nematodes are a problem in some nurseries. Trials for controlling nematodes other than by fumigation were carried out. Biological control of Crown Gall is being tried at three nurseries in the Fraser Valley. Propagation under mist was tried for some hard-to-root ornamental species in the BCMA greenhouse at Cloverdale.

The 1978 Nursery Production Guide was written and will be distributed to growers in early spring. This will be the first official Nursery Guide published in British Columbia for general distribution.

Production of apple, cherry, prune and plum nursery stock is increasing and is decreasing in peach and apricot. Bud failure is partly to blame for the decline in production of peach trees. As a result of continued shortages of nursery trees, more growers are looking at contract growing particularly as a means of supplying peach trees and many growers are turning to American nurseries for supplies. Of all trees produced in 1977, 64.4 per cent were apples, 22 per cent were cherries and only 0.6 per cent were apricots. The major varieties of apple trees being grown are McIntosh (20 per cent), Spur McIntosh (20.4 per cent), Spur Red Delicious (18.2 per cent), Spartan (17.9 per cent) and standard growth Red Delicious (13 per cent). M26 is the most popular apple rootstock followed closely by Seedling.

Although Okanagan nurseries are increasing their production of apple, cherry and prune trees they are still mindful of the industry slump in the

early 1970's when thousands of surplus trees had to be burned. Diversification into the production of ornamentals in the Interior has accelerated.

Greenhouse Crops

The greenhouse industry is becoming aware of the impact of higher energy costs and the possibility of shortages in the future. Tentative moves are being made regarding energy conservation whereas strong moves are being made to increase production in greenhouse vegetables which will reduce the unit energy inputs.

There is a move away from tomato production due to the low returns for this crop. Markets for flowers have been strong. Production of seasonal crops such as poinsettias is greater than ever. Flower crops that are new to this area are of increasing interest. Freesias, gerberas and alstromeria are all cool temperature crops which add variety to the existing array.



Energy conservation in greenhouses related to crop yields received strong attention.

Allotment Gardens

The Allotment Garden Program was maintained in 1977 in the Victoria and Vancouver areas. The gardening season was a very successful one. There continues to be a fairly large turnover of plot-holders as some people find the work involved is more than they anticipated although it is estimated that only three to four hours per week are required to keep a plot in top condition. There are in excess of 1,500 plots operated by the Ministry in the two areas.

Although overall markets were still somewhat depressed in 1977, there was a marked improvement from 1976 conditions.



Livestock

One large beef marketing agency reports increases in overall prices for beef cattle during 1977 to be \$5 - \$7 per head over the previous year. This represents a total increase of almost 23 per cent on all classes of cattle sold. The Panorama Sales held in September averaged about 2 cents per pound increase over the previous year.

The Conagra beef marketing facility opened at Kamloops on October 1. This facility is the most modern of its kind in Canada and the North-western United States.

The new ARDA agreement should visibly assist in assuring an improved range resource for the beef industry in British Columbia.

The beef industry is re-examining its position with respect to further developing capabilities for backgrounding and finishing of many of the calves it presently exports. The first phase of this development was reached in early December with the staging of an invitational seminar under the direction of the chairman of the Agricultural Economics Council of Canada. Findings of the seminar will be examined early in the new year to further explore feasibility studies and hopefully develop a strategy to further develop backgrounding and finishing of beef cattle within the province.

The total number of beef producers enrolled in the Beef R.O.P. Program decreased to 202 in 1977

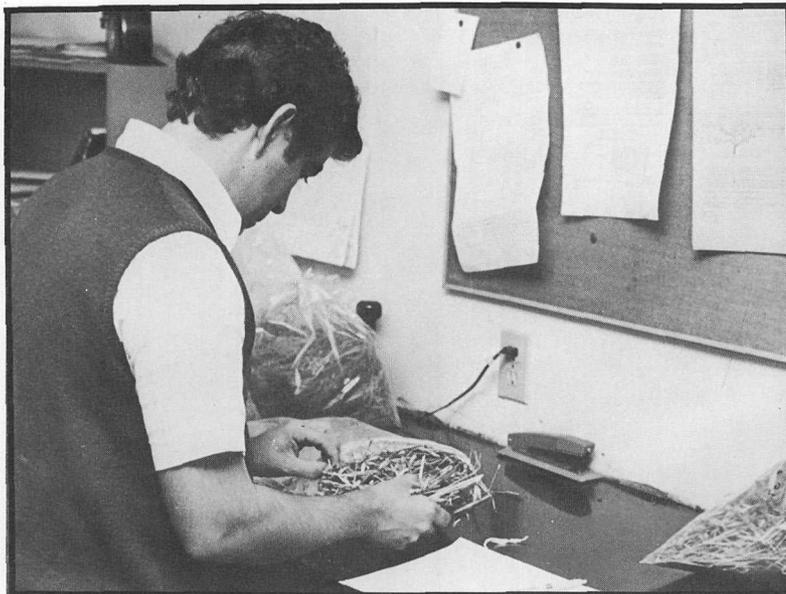
from 210 in 1976. However, total numbers of cattle on test were up by 533 head to 8,879. The "management rating" system developed by the branch and presented to the industry and staff during the year is unique in Canada.

The swine industry, although continuing to be small in relation to potential markets in the province, experienced a trying year. While overall prices of between 56 and 65 cents per pound (basis 100 index hogs) were reasonable, some severe market problems were caused by Intercontinental Packers closing their slaughter facility for hogs in early June. While alternative slaughter facilities existed in the province, these did not have adequate market access to dispose of the product. After considerable turmoil, the situation has eased by Intercontinental again commencing slaughter during the latter part of the year. The condition for reopening was dependent on a weekly minimum supply of 600 hogs per week.

Under the A.R.D.S.A. sub-agreement, a comprehensive study into the British Columbia hog industry was approved. It is expected this will be concluded by mid-1978. The report should provide a basis for future development of the industry.

Late in 1977, the Swine Record of Performance Program was established. British Columbia had been unable to provide an official test program

Specialists at the Soil, Feed and Tissue Testing Laboratory at Kelowna examine feed samples for nutritional quality as submitted by farmers.



since ultra sonic backfat probing replaced scalpel probing some four years ago.

The hog quality program continues to demonstrate that between 70 and 80 per cent of British Columbia slaughtered hogs have been produced by less than 27 producers during the years 1971 - 1976.

Prices for lambs in the province ranged between 50 to 60 cents per pound live weight. The Sheep and Wool Commission has been active and met with the ministry in December to discuss major areas of concern.

The branch was represented by appropriate personnel at the National Sheep R.O.P. meeting in Ottawa in February; the National Beef R.O.P. meeting in Guelph in June; the Canadian Milk Recording Board meetings at Ottawa in April, and Toronto in November; and the Canadian Council of Animal Nutrition meeting at Winnipeg in January.

The British Columbia Dairy Herd Improvement program records received formal approval of the Canadian Milk Recording Board retroactive to November 30, 1976. Programming is still under way by the British Columbia Data Systems to accommodate the program. Present enrollment in the program is 565, down some 57 from a year ago. However, total cows on test are up by 1,685 to 33,804. Average herd size has increased slightly

more than five cows per herd in the last year, and stands at 60.8 cows per herd at year end. Average production at 14,253 pounds of milk and 518 pounds of fat represents an increase of 371 pounds of milk and 13 pounds of butterfat over the previous year.

The dairy industry reports favourably on the use of a "British Columbia modified" Canfarm Feed Advisory Service. Other livestock producers are also increasing their use of the Feed Advisory Service provided by the branch.

Some gains were achieved in encouraging Regional Districts to assume the function of dog control and domestic animal protection. It is expected the results of ministry effort in this direction will be more visible during 1978.

Poultry prices during 1977 remained similar to 1976 prices. The egg, chicken and turkey industries are under supply-management systems in Canada.



Poultry

The poultry industry over the past few years has developed a highly organized marketing system through initially the provincial commodity boards, and followed by national marketing agencies. All egg and turkey marketing now comes under the jurisdiction of the national agencies with their attendant quota allotments to the provinces for production of product in keeping with market demand.

The Egg Agency (CEMA) also sets the price to be paid to producers for eggs. It bases this price on a formula which takes into consideration the costs involved in production. Regarding the Turkey Marketing Board and the Broiler Marketing Board, prices are set for product at the local level. Again costs of production are taken into account.

It is understandable that prices to producers of all poultry products remain favourable with a stable price structure. The weighted price for all grades and sizes of eggs paid to producers in 1977 was 69.1 cents per dozen; a decrease of .05 cents from 1976 prices due mainly to lower feed costs. Chicken meat prices for broiler chicken remained at 37½ cents throughout 1977, the same price as in 1976. Turkey prices to producers averaged 48 cents per pound live weight, an increase of one cent from 1976.

As the egg industry and turkey industry are controlled by national agencies (CEMA and CTMA) import restrictions are in effect for these

commodities with import permits only being issued when a shortage appears. Discussions have been under way for some time regarding a national broiler agency. Impetus to its formation resulted from continued increases of chicken imports from the U.S. The importation of a quantity of chicken by a British Columbia food chain caused the British Columbia Broiler Board to change their viewpoint and actively support the formation of a broiler agency.

Only the egg industry at the outset contracted with the ministry to receive benefits under the Farm Income Assurance Program. Since producer returns were at or above the negotiated cost of production, no payments were made in 1977 resulting in several discussions with the ministry to withdraw from the program. While the entire poultry industry is valued at over \$80 million at the farmgate, only a small portion of the industry, the broiler breeders, has received payments from the Farm Income Assurance Program.

The egg industry increased production in British Columbia because of a three per cent increase in CEMA quota allotment to the province in 1976. However, due largely to increased per bird production, there was an increase in surplus product that was removed from the fresh market by the CEMA buy-back program. This buy-back program purchased about 340,000 boxes (15 dozen each) from British Columbia, an increase of

18.8 per cent over 1976. Because of the rising cost to producers of this program, CEMA ordered a cut-back in global quota of approximately five per cent.

The Poultry branch staff consists of specialists in egg production, chicken meat production, turkey and hatching egg production and diseases of poultry. This staff works closely with primary producers in their respective fields of production expertise mainly on a person to person basis. Specialists not only assist with current production problems but also meet with associations, act on committees and generally promote economical production. They also act as a liaison with the respective marketing boards and organize and conduct a Poultry Conference and various short courses.

Using the facilities of the Poultry Test Station, the staff members plan and conduct projects of an experimental nature to find answers to current problems in the industry. Projects were initiated to test the genetic potential of various strains of egg-laying and meat-producing chickens and turkeys as a guide to producers in British Columbia. A project to study the practicability of housing broiler breeders in cages using artificial insemination was conducted. Many short-term projects were undertaken such as an investigation as to the cause of "clubbed down" in day-old broiler chicks, the most profitable time to market

"extended Tom" turkeys and the effects of intermittent light periods on laying hens. This project work provides considerable information to producers at little cost to government. The test station in the period December 1, 1976 to December 1, 1977 returned \$73,741 to provincial revenues from the sale of poultry products, an income which covered most of the costs of production.

Poultry diseases continue to be a major factor in the economical production of poultry products. With the poultry industry heavily concentrated in a relatively small area in the Lower Mainland (over 80 per cent of all poultry in British Columbia), disease problems must be closely monitored. The poultry veterinarian and other Poultry Branch staff work closely with the Veterinary Laboratory and practising veterinarians in monitoring disease levels and establishing control programs.

With the rather sudden increase in interest in the production of rabbit meat on a commercial basis, the staff of the branch has had to gather more knowledge on this animal. As little studies have been made on feeding, management and housing of this species, it is difficult to supply the information required. It remains to be seen if this form of livestock production will become a significant factor in meat production.

The Poultry Branch staff is closely associated with the poultry and rabbit production com-

munity through their association as well as individual producers. Dissemination of information derived from experimental and demonstrational projects is accomplished by direct contact and group meetings.

Financial Services

Over \$3 million was allocated to farmers for land clearing and secondary land development under long term low interest loans in 1977.



Agricultural Credit

The Acts administered by this branch include the *Agricultural Credit Act* and the *Agricultural Land Development Act*. Financial assistance is available to eligible farm operators and may be detailed as follows:

- (a) a provincial government guarantee to chartered banks or credit unions as supplemental security on loans to farmers;
- (b) partial reimbursement of the interest paid to approved lenders to effectively reduce the cost of farm loans;
- (c) incentives to farmers through credit programs which may take the form of special interest reimbursement and/or loan principal reimbursement, to encourage the participation in specific programs identified by the province;
- (d) direct loans to a maximum of \$15,000 for primary and secondary land development.

Guaranteed Loan Program

There have been 200 guarantees to banks and credit unions approved by the province since the

inception of this program in July, 1974. The total loans guaranteed were \$17,037,492. In 1977, identified as loan period 4, there were 27 loans guaranteed aggregating \$2,886,300.

In 1977, one claim in the amount of \$59,834 was made on the province under the guarantee covenants.

Partial Interest Reimbursement Program

In 1977, there was \$7,548,839 paid to farmers representing partial reimbursement of interest paid by them in 1976 to approved lenders. The approved lenders include chartered banks, credit unions, Farm Credit Corporation, Federal Business Development Bank and the Director of Veterans' Land Act. The effect of this reimbursement has been to reduce the farmers' net interest costs to approximately eight per cent on those loans not guaranteed by the province and to approximately 8½ per cent where a guarantee under the *Agricultural Credit Act* has been put in place to a bank or credit union.

Special Programs

Peace River Livestock Production Incentive Program

In 1977, through this program, 82 farmers received special interest reimbursement benefits totalling \$39,138. This represented reimbursement of a portion of their interest costs paid in 1976 and had the effect of reducing interest costs to approximately four to 4½ per cent.

The intent of this program is to encourage diversification among grain farmers in the Peace River area to produce livestock in addition to cereal crops and thus broaden their income potential.

Agricultural Land Development Act (ALDA)

In 1977 there were 498 contracts issued. These contracts totalled \$3,074,015. This direct loan program is to assist farmers in financing the cost of primary and secondary land development.

The forage-livestock sector is seen as the area of most potential for agricultural growth in this province. Programs to accomplish this will be implemented under a five-year \$60 million ARDA agreement signed in mid-1977.

Agricultural and Rural Development



General ARDA

During the year the ARDA agreement with the federal Department of Regional Economic Expansion underwent several major changes.

On March 31, 1977 the 1975-77 ARDA agreement expired and negotiations continued on a new agreement. In June an extension of the 1975-77 agreement was signed to July 31 to enable ARDA to proceed with a number of projects awaiting approval.

On July 8, 1977, at a formal ceremony in Vancouver a new five-year Agriculture and Rural Development Subsidiary Agreement was signed between British Columbia and Canada effective August 1, 1977. The major thrust in this agreement is towards improvement and intensification of the beef cattle industry in British Columbia. Of the total of \$60 million shared funding (50 per cent province, 50 per cent Canada) provided in the agreement, \$19 million is allocated to improvement of crown range, \$15 million is set aside for irrigation and drainage, \$20 million is designated for support services and community development including food processing plants, market outlet facilities, veterinary clinics, rural hydro, beef feed lots and other service facilities to assist primary production. A total of \$5 million is earmarked for research including project evaluation, feasibility studies, forward planning, market development

and includes management and manpower training programs.

The main programs of ARDA for the year continued to be in the areas of irrigation systems, drainage and range improvement through Co-ordinated Resource Management Planning. The major projects on irrigation systems are nearing completion so future years will see a lesser demand on ARDA funds in this area. Range improvement projects have greatly increased during the year with major work being carried out in the Kootenay and Kootenay Boundary Region, the Thompson Okanagan Region and the Cariboo Region. In all regions some 50 co-ordinated resource management plans for range improvement are in various stages of implementation. Co-ordinated resource management plans are being prepared in the Peace River region to complement the development of community pastures in that region.

Since the announcement of the new agreement, many more applications have been received and are being processed for projects on meat processing plants, fruit and vegetable processing plants, veterinary clinics, rural hydro, research projects and in the support services area.

During 1977, approval was given for 42 projects with a total capital investment of \$16,857,404. The ARDA-contribution to these projects will be

\$10,011,668 shared equally between the province and the federal Department of Regional Economic Expansion.

In each ARDA project there is a requirement of local contribution varying with the type of project from 10 per cent of the total cost for community pastures and range improvement, 25 per cent for irrigation and drainage projects, to 50 per cent for rural development projects.

**Summary of General ARDA Approved Projects
January 1, 1977 to December 31, 1977**

	No. of Projects	Total Cost \$
Research	4	270,000
Land Use and Farm Adjustment	6	4,040,800
Rural Development Service & Training	2	303,500
Alternate Income & Employment Opportunities	14	7,868,240
Irrigation, Drainage & Water Supply	12	4,172,946
Miscellaneous (Special ARDA)	4	201,918
TOTAL	42	16,857,404

The alfalfa crop insurance program was extended to cover alfalfa crops grown throughout the province. Coverage in the swath was also introduced in 1977.



Crop Insurance

The function of the Crop Insurance Branch is to administer the *British Columbia Crop Insurance Act* and to promote the maximum participation by eligible farmers in the various crop insurance programs that are offered.

The weather in 1977 was as variable as usual. The winter was relatively mild with less than normal snowfalls.

In the Peace River district the dry spell at the commencement of seeding gave way to a prolonged period of rain which delayed further work and resulted in more acres than usual going unseeded. Subsequent hail storms caused widespread damage in the North Peace. Harvesting was delayed by frequent rains through the latter half of September and early October.

In the Okanagan the weather was favourable to the production of fruit crops until severe hail storms in July damaged fruit crops in Creston and Oliver.

Early frosts at the beginning of October caused a little damage to grapes.

The alfalfa program was extended to cover alfalfa crops grown throughout the province which resulted in a small increase in participation to 31 growers. Coverage in the swath was introduced, which was a welcome improvement over the previous plan.

With a view to gaining information regarding the feasibility of establishing some form of quality guarantee for hay damaged in the swath, soluble nutrient levels were measured after hay had been in the swath for a minimum period of seven days and again when the hay was picked up. The difference in soluble protein was considered to be a possible way of measuring a loss in quality.

Participation in the berry program continues to expand with 79 applications accepted for 1977. Berry crops came through the winter in good condition with the exception of a number of strawberry plantings where herbicide damage resulted in excessive plantkill.

Participation in the grain program was down by 10 per cent in 1977 to 506 growers from 562 in 1976. This decline in participation is considered to be a reflection of reduced grain prices coupled with the uncertainties of a generally weak economic climate. In response to a request from the Grain Crop Insurance Advisory Committee, an extension of seeding deadlines to June 20 was made for barley and rapeseed. An additional 7,500 acres were seeded within the new deadline, bringing the total to 152,000 acres insured, a reduction of 19 per cent from 1976.

The grape program remains in a strong position with only a few claims recorded for 1977. These were for light crops aggravated in some instances

by hail damage. As a result of the introduction of the loss experience ratio table, growers with the most regular cropping experience now enjoy the lowest premiums available under the provincial crop insurance program.

There was little change in participation in the tree fruit program for this year. Severe hail storms hit Creston and then the Oliver areas with lighter storms hitting Osoyoos and Cawston at the height of the peach and apricot harvesting season. In the worst hit areas damage to these crops was severe, with apples also suffering heavy damage. Some growers who had opted for hail spot loss were able to receive 100 per cent indemnities.

Following losses to the field bean crops in 1976, a vegetable program to insure beans was prepared and a high proportion of the seeded acreage was covered. The growing season was favourable and all insureds met their production guarantees.

Crop insurance has again demonstrated that it is a most useful and effective service available to the farming community by rendering prompt compensation to the heavily hailed areas of Creston, Oliver and the Peace River district.

Raspberry producers were one of two commodities given farm income assurance programs during 1977. The other group was potato producers, thus bringing to 12 the total number of commodities now covered under farm income assurance.

Farm Income Assurance



In the fourth year of operation the number of Farm Income Assurance Programs increased to 12 from 10 in 1976/77. The number of participants increased to over 5,700. Programs were in place for dairy, swine, tree fruits (6), field tomatoes, greenhouse vegetables, broiler hatching eggs, beef, commercial eggs, sheep, blueberries, raspberries and potatoes. Programs for processing and a number of fresh vegetables as well as strawberries are under active consideration. Cost to government during the 1977 calendar year (not fiscal year) covered in this report is approximately \$32 million.

Payments under the federal *Agricultural Stabilization Act* were made to British Columbia producers on the 1976 crop for cherries, apricots, pears, prunes and potatoes, many of whom are participating in Farm Income Assurance Programs. There is some possibility of a payment to cow/calf ranchers for their 1977 crop.

While the A.S.A. payments are much appreciated by both the producers and the provincial government, the tardiness of the federal government in announcing that payments will be made under the *Agricultural Stabilization Act* causes either a protracted delay in issuing Farm Income Assurance settlements or an interim payment and a subsequent final payment adjusting for the A.S.A. influence on the Farm Income Assurance payment.

This situation was especially evident in payments proposed for the 1976 potato crop, which have yet to be finalized at time of writing.

The tree fruit program terminates with the settlement of claims on the 1977 crop and several other programs terminate in 1978. In order to consider the future of farm income stabilization policies, the Minister commissioned a review of farm income stabilization in British Columbia by S. C. Hudson, Consulting Economist. The report filed with the Minister and the British Columbia Federation of Agriculture is being studied by both the Ministry and the Federation for consultation early in 1978 on the format of new stabilization policies.

In the dairy program, the market return exceeded the cost of production from early summer until the present and requests by participants to withdraw from the program as provided for in the regulations have been received in November and December. These participants have decided that the market return and cost of production relationship will be maintained into the future and it is to their benefit to pay the obligation of the forward premiums. The extent of withdrawal cannot be forecast.

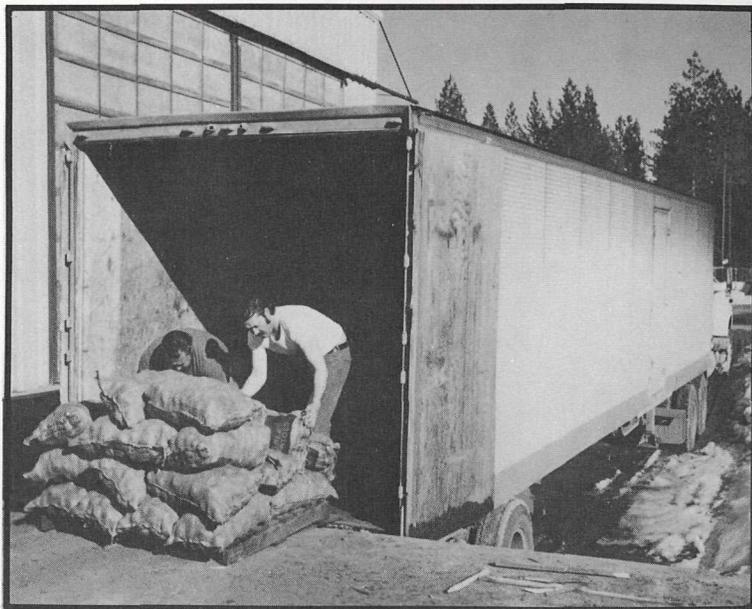
The commercial egg program has built up a fund surplus of over \$800,000 and negotiations are proceeding with intent to suspend or cancel the program.

The market return for the 1977 blueberry and raspberry crops is expected to be above the cost of production and no indemnities will be payable.

In the beef program the market return has improved over previous years, but will still require a sizable indemnity payment. Agreement was reached with producers to increase the premium sufficiently to clear the accumulated deficit.

A comment on benefits other than the direct payments to producers is appropriate as some of the programs approach maturity. Payments to participants have in many cases been invested in improved production facilities. This is obvious in the dairy industry. In the beef industry the herds have been maintained and breeding stock upgraded, placing producers in a good position to capitalize on the eventual return to normal market conditions. In the tree fruit industry it is doubtful that the producers' organization and stability of the industry would have survived without the influence of the Farm Income Assurance inputs. In the supply managed commodities of eggs and dairy it can be speculated that an ad hoc program to meet the stresses of the early 1970's might have been sufficient.

Potatoes are unloaded from a truck at a Grand Forks potato plant modernized with funds under the Farm Products Finance program.



Farm Products Finance

Thirty-six requests were received for financial assistance for new projects or from agricultural processing firms experiencing financial difficulties. After financial analysis of the requests eight organizations received grants totalling approximately \$660,000; six were not assisted; 12 were referred to the Agricultural and Rural Development (ARDA) program, as the more appropriate program; and 10 are currently under financial review. In addition six agricultural organizations requested grants to reduce their interest costs of which four were assisted with grants totalling approximately \$50,000. The remaining two are still under review. No loans or loan guarantees were made.

Early in the year arrangements were completed for the sale of the Creston facilities of Swan Valley Foods Ltd. to the Hardee Farms organization. Near year-end the Swan Valley company and its remaining assets were sold to Standard Brands of Canada Ltd. At the same time arrangements were started to sell the government's investment in Panco Poultry Ltd. and this is expected to be completed during 1978.

A number of companies previously assisted through loan guarantees had financial difficulties and required special attention. These included Chef Ready Foods Ltd. and Fraser Valley Organics Ltd. This work is continuing.

Considerable time was given to the continued examination of the financial circumstances of Spetifore Frozen Foods Ltd. By year-end the company's financial position had not improved and the future of this operation remains very much in doubt.

Financial assistance for market development purposes continued to be provided to the British Columbia Raspberry Growers' Association, British Columbia Coast Vegetable Marketing Board and the British Columbia Grape Growers' Association. This assistance was provided jointly with Agriculture Canada through their Agricultural Products Marketing Program (AGMAP). Significant benefits were obtained from the programs carried out by these organizations.

Late in the year arrangements were completed for the branch to assist the Agricultural and Rural Development Branch in the financial analysis of requests for grants involving the processing of agricultural products.

Technical booklets on a variety of agricultural topics are produced for primarily commercial farmers to assist them in production techniques.

Information

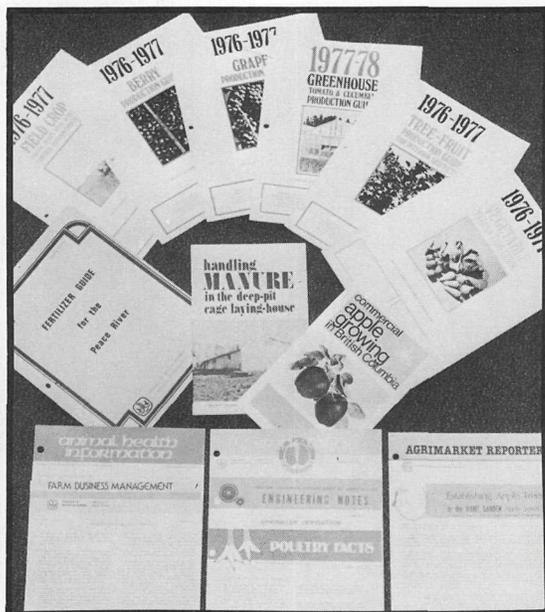
1977 was a year for policy change in the function of the Information Branch. The branch assumed a more public relations oriented role in addition to its designated function as a communications resource centre for ministry staff. The branch continued to assist field office staff in providing audio-visual aids, publications, pamphlets and advertisements to them for extension programs.

Press releases issued by the Information Branch are mailed to approximately 1,500 media, industry and government representatives across Canada. They continued to play an important part in the overall information dissemination of ministry programs, statements by the Minister and staff appointments. A total of 54 news releases were issued during the year.

Ministry of Agriculture publications are provided free to British Columbia residents, covering a variety of subjects ranging from financial management to cultural techniques in crop production. Numerous publications are also available only to 4-H Club members throughout the province. During 1977, 68 individual publications or pamphlets were processed through the Information Branch as new publications, revisions or reprints.

Advertisements are placed by the Information Branch throughout the year to create farmer awareness of specific Ministry services, seminars, programs or events. A total of 16 individual advertisements were placed in agricultural publications, weekly newspapers or special event catalogues during 1977. Advertisements promoted such programs as agricultural credit, the importance of pedigreed seed, crop insurance, farm vacations, youth development, irrigation workshops, among others.

A series of subject matter factsheets are produced as needed and are mailed to individual farmers on a mailing list or to the commodity organization concerned for distribution. During 1977, three new factsheets were started, namely Field Crop Facts, Agrimarket Reporter and



Poultry Facts. Existing factsheets include Stock Talk (for Livestock), Farm Business Management, Animal Health Information, Engineering Notes and Grower Notes (for Horticulture).

The Information Branch's film unit at Kelowna continued to produce photographs, slide-tape and film presentations for use primarily by Ministry of Agriculture staff. A total of 11 slide-tape and five 16mm film presentations were prepared during the year. Also, five 30-second public service announcements for television were produced to illustrate the effects of all-terrain vehicles on ranges.

In addition to airing the Fruit Growers' Television Shortcourse in early 1977, extensive filming was also completed during the summer and fall for the February 1978 annual production. Extensive filming was done for television specials dealing with forage handling techniques and farm management procedures. These will be aired during 1978.

The Information Branch was involved in a number of displays during the year, the largest of which was the display at the British Columbia Federation of Agriculture Convention.

The public relations function of the branch primarily involves the preparation of speech material for the Minister, media contact, writing feature stories on aspects of British Columbia agriculture, photography and other audio-visual aids. This function will expand in the coming year.

Poultry barns are under construction as improvements to a farm in the Langley area, one of 112 such properties under the branch's control.



Property Management

The administration section of the branch is now totally located at Langley, with the office previously located in Victoria being closed early in 1977.

The property management program has undergone a progressive adjustment, which reflects the changing policies of the British Columbia Land Commission, including increased tenant ownership of improvements and the addition of option to purchase clauses in the newly written leases, which qualifies tenants for ALDA loans. A master agreement between the Land Commission and the federal Industrial Development Bank provides for tenant access to loans for building improvement. To achieve uniformity, the British Columbia Assessment Authority has requested that tenants be directly responsible for the payment of taxes commencing with the 1978 tax year.

Because of the continuing demand for land there has been a recent review of the Ministry of Highway properties to determine if there are any additional parcels which would be suitable for certain types of agricultural production. A recommendation concerning this matter will be forwarded to the Land Commission early in the new year.

Two meetings were held during the year with staff of the Land Commission to review procedures and amendments to associated legislation which has resulted in improvements to on-site

reporting and effected minor changes to tenant selection techniques.

At the present time there is a total of 112 properties under control and management of the branch. These are comprised of 22 Greenbelt, 46 Land Commission and 44 Ministry of Highways parcels. During the year the Windeyer Property – No. 29, was transferred to the Ministry of the Provincial Secretary for the amalgamation with an adjacent property operated by the British Columbia Forestry Museum.

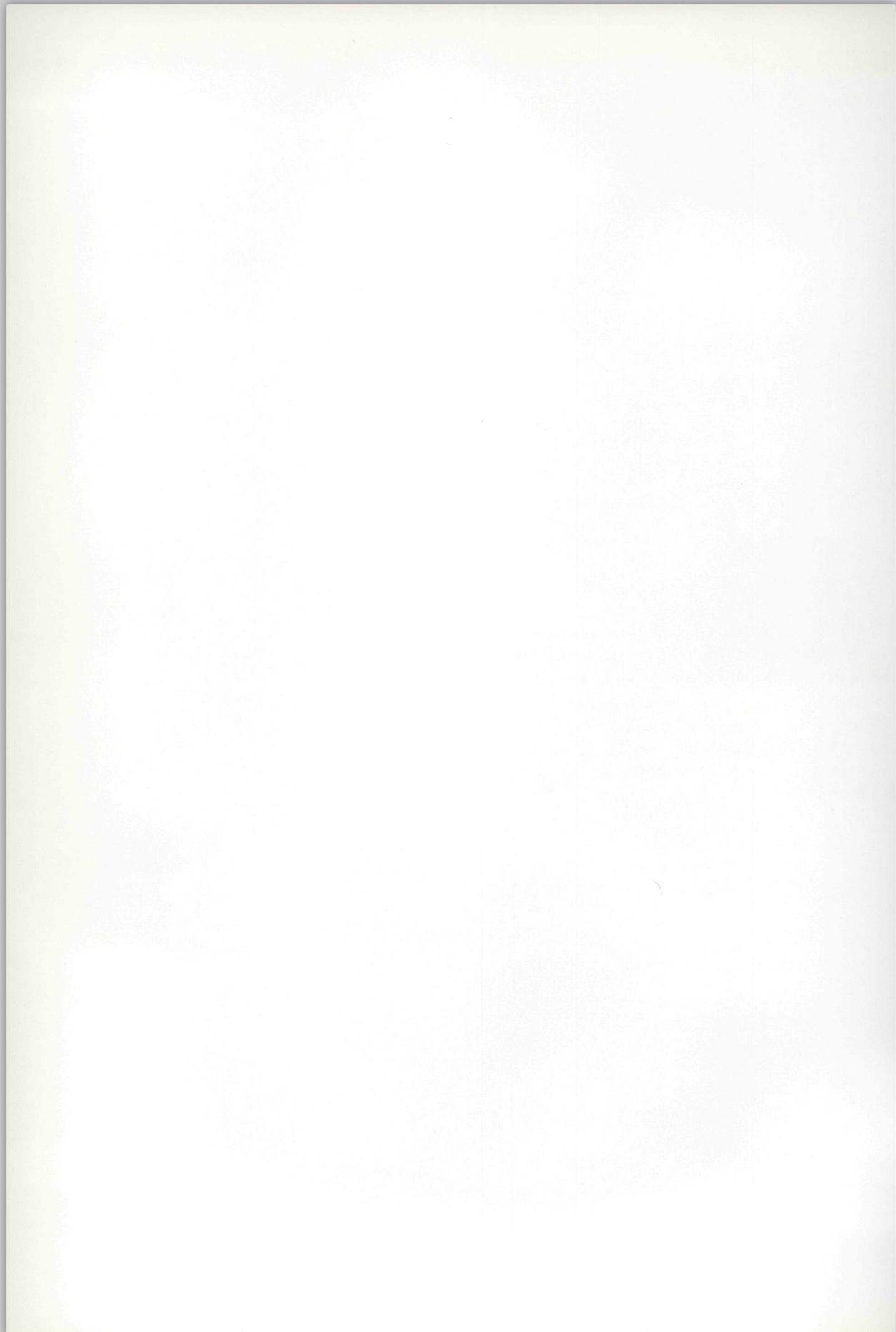
Field staff have had a busy year working with tenants to assist them with the planning portion of their enterprises and preparing technical reports as requested by the Land Commission and other Government agencies. The development of the 28 new farm units in the Langley Farms complex has required considerable attention. Two of these units are being reserved for possible co-operative use of the Ministries of Agriculture and Education, along with other agricultural agencies.

The programs associated with specific project properties have made normal progress and include the Effluent Disposal program at Vernon; the Corrections Branch rehabilitation program at the Pearce Ranch; and the Ecological Reserve development on the Hays-Christison-Shaw property at Armstrong.

The branch farm operations at Colony Farm,

Tranquille Farm and the East Kootenay Ranches have carried on during 1977 on substantially the same basis as the immediately preceding years.

The initial steps have been taken to fulfill the desire of the Ministry to develop increased co-operative use of the branch operated farm properties. Projects involving the University of British Columbia and Agriculture Canada are in the planning stages or are already under way.



Specialist Services

Although total dairy farms in the province decreased by 50 to 1,217 at year end, total milk production increased by 3 per cent from 1976 levels.



Dairy

Metriation of the dairy industry was the major event of the year. Coincidental with the adoption of metric measure was the change in the basis of payment from weight to volume. Since August 1, 1977 dairymen have been selling milk by the litre rather than by the pound. Butterfat is now reported as kilograms per hectolitre.

Total milk production increased by 3 per cent to 449 million litres. At year end the number of approved dairy farms was 1,217. This is a decrease of 50 during the year compared to -70 in 1976 and -26 in 1975.

Fluid sales increased by 2.5 per cent during the January to November period. This is a significant recovery compared to sales during the past two years. Butter production decreased by 11.5 per cent, to 5,656,000 pounds from 6.4 million pounds. Cheddar cheese production decreased by 5 per cent to just over 3 million pounds. Ice cream mix production was up 9 per cent to 4,270,000 gallons.

Farm cash receipts from dairying are estimated to be \$114 million during 1977. This figure is speculative in that the income assurance program has required a pay back in recent months, and at time of writing the federal levy on fluid milk sales had not been finalized.

The federal dairy policy implemented on April 1 reduced the provincial market share quota

allotment to 10.7 million pounds of butterfat from 11 million pounds. The in-quota levy was reduced to \$1.20 from \$1.35 per cwt., thus increasing the net subsidy payment per cwt. and maintaining stabilization income at approximately the 1976 level. Over-quota levy was reduced to \$7.00 from \$8.40 per cwt. But the equivalent to a 25 cent levy per cwt. on fluid sales was added to cover storage and handling charges on excess butterfat from this sector.

Dairy farm premise and dairy plant inspections, aided by the analytical services of the central dairy laboratory, continued to ensure that consumers had high quality dairy products. Amendments to the *Milk Industry Act* authorized cash penalties to producers of sub-quality milk in lieu of shut-off from the fluid market.

The branch continued to provide an expanded milking equipment analysis program. Inspectors are equipped with instruments to check vacuum fluctuations, air flow, temperature variations and for the presence of transient voltage. This program is a major component of the developing Mastitis Prevention Program.

Branch personnel assisted the dairy industry in many phases of metric conversion. Some of these were:

- (1) to arrange for a litre chart to replace the existing pound chart for every producer's bulk tank

Seven-Year Production/Fluid Utilization Summary for Milk Board Areas

Millions of Litres					
Year	Production (Qualifying Milk)	Quota Milk	Fluid Sales	Per Cent of Production	Per Cent of Quota
1971	340.5	262	223	65.5	85.3
1972	347.5	266.5	232.6	66.9	87.4
1973	350	272	242	69.1	88.9
1974	363	289	253	69.7	87.6
1975	384.5	296.5	251.5	65.4	84.8
1976	386.4	300.9	254.2	65.7	84.4
1977 (est.)	398	306.7	260.5	65.4	84.9

- (2) developing an acceptable calibration accuracy tolerance table for bulk tanks
- (3) calibration of laboratory equipment to report analytical results in metric units
- (4) assist dairy plant personnel with conversion by providing the appropriate factors
- (5) establishing a metric density of each finished fluid product for Milk Board audit purposes
- (6) adjust levies for Dairy Products Promotional Fund and Dairy Producers' Protection Fund to apply to metric units, etc.

By year end all processing plants where non-returnable containers are used had completely adopted metric containers. One processing plant and three raw milk vendors continue to use Imperial measure returnable containers.

With the assistance of funding under the DATE program, one of the most advanced range reseeder in North America was developed by Ministry of Agriculture staff. A total of 2,000 acres were seeded experimentally during 1977.

D.A.T.E. Program



The DATE (Demonstration of Agricultural Technology and Economics) Program continued in 1977 as a very effective tool to support projects aimed at demonstrating new advances in agricultural technology.

Achievements that merit special note:

- (1) the continued development of one of the most advanced pieces of equipment in North America to disc and reseed rangeland
- (2) the discovery and propagation of a variety of field peas that is resistant to pea wilt – a disease that threatened the industry in 1975
- (3) an investigation of 3 virus incidents on British Columbia poultry farms with subsequent recommendations for control
- (4) the monitoring of selenium deficiencies in livestock feeds on Vancouver Island with future recommendations to correct this problem. The involvement of 4-H members in the collection of feed samples provided a new dimension to extension work and the 4-H program.
- (5) the development of more realistic irrigation design criteria on the Nicomekl-Serpentine floodplain that should reduce the cost of irrigation schemes
- (6) the development and use of sophisticated analytical tools to determine optimum and maximum manure fertilizer rates in environmentally sensitive situations
- (7) the assessment of more effective laboratory techniques for determining livestock feed rations

Additional noteworthy achievements are recorded in a publication titled "1977 D.A.T.E. PROGRAM REPORT".

Engineering specialists in the Ministry designed a heavy-duty rangeland discer and reseed. They put on field days to show ranchers how it performs.



Engineering

The branch continued to provide engineering advisory services to the agricultural industry in 1977 from four locations: Victoria, Abbotsford, Vernon and Prince George.

Irrigation development is continuing throughout the province although insufficient water supplies are becoming a major limitation in many areas. Water use in one such area, the Nicomekl-Serpentine floodplain in Surrey, was investigated to determine if design criteria for water supply might be reduced without significant loss in production. In the Interior an evaluation project on large volume "giant gun" sprinklers was completed. Results of these projects will be useful in improving design criteria.

Implementation of projects under the ARDA Farm Drainage Outlet Assistance Program resulted in improvements to over 3,500 acres of farmland. Seven projects were completed in areas from Abbotsford to Salmon Arm. A five-year drainage research project in the Fraser Valley, also funded through ARDA, was completed on a positive note; yield increases due to drainage of over 40 per cent were recorded on the Matsqui site.

Surveys covering 800 acres of Interior native meadows resulted in plans for water management improvements.

Over 500 farmers were given significant engineering assistance through the farm building

and waste management advisory service. Although the number of complete new dairy farmsteads was down from the previous year, building activity remained high in ancillary structures notably bunker silos, milking parlors and manure storages. The number of building plans and complete farmstead plans for the swine industry increased sharply during the year. Several plans were prepared for beef producers, particularly for feed storage and feeding facilities. The farm building planning service was improved during the year by a major updating of the Plan Catalogue and building handbook, and by significant revisions and improvements to a number of key building plan sets.

Agricultural engineers were involved in developing the Green Zone concept aimed at reducing urban-rural conflicts related to intensive livestock operations. This program was closely co-ordinated with the Agricultural Environmental Control Program where producers police themselves in maintaining proper waste handling practices.

The development and evaluation of rangeland reseeding equipment continued in 1977 in response to strong support from Interior ranchers. Approximately 2,000 acres of rangeland were reseeded. Machinery requirements for silage were emphasized in 1977 particularly in the Northern and Central Interior. A project was initiated on the

The disc is hydraulically operated and specially designed to go over rocks and major obstacles.



development of a low cost silage handling system for small farms and ranches. Advisory information on farm mechanization problems was extended throughout the province.

The branch also carried out a number of special assignments. These included a review of effluent irrigation proposals in Penticton and Cranbrook for the Pollution Control Branch of the Environment Ministry, the preparation of a drainage feasibility report on the Minnehada Farm property for Lands Management Service of the Environment Ministry, and design checks on 92 irrigation and drainage plans submitted with ALDA loan applications.

Plans and proposals ranging from vegetable storages to a seed cleaning plant were reviewed for the Farm Products Finance Branch. Design, tendering and construction supervision was provided for the Hunter Creek Brand Inspection Facilities and the Tranquille Bull Test Station. Similar input was provided for community pasture corrals in the Northern and Central Interior funded through ARDA.

Other assignments involved the judging of an international contest sponsored by the Ministry of the Environment to select a machine to control the Eurasian Milfoil weed in interior lakes and the monitoring of farm electrical service loads in conjunction with B.C. Hydro.

Diseases of plants are identified to determine the best method of control. Biological control of insects is gaining significance as a means of reducing the number of chemical sprays used.



Entomology- Plant Pathology

The Entomology-Plant Pathology Branch was formed on May 1 from an amalgamation of the Entomology and Plant Pathology Branches. The responsibilities of this new branch includes the provision of information on or relating to control of plant diseases, insects, mites, rodents, moles and birds. The branch is also responsible for the development and maintenance of a pesticide information centre in Victoria. Liaison is maintained with the Pesticide Control Branch which was transferred on March 31 from this Ministry to the Ministry of Environment. The staff of the Entomology-Plant Pathology Branch continues to participate in training courses for pesticide applicators and vendors.

In the Okanagan Valley, high codling moth numbers developed in some apple orchards during hot weather in August. European red mite numbers, on the other hand, remained low throughout the season. The leafroller complex which has been shown to consist of at least six species is of concern. Cherry fruit fly surveys in Oliver, one in Osoyoos and two new locations in the Cawston area. The high levels of powdery mildew in Okanagan apple orchards were critical in some orchards. It was demonstrated that a pink spray is important in the prevention of fruit russetting from this disease.

A new technique for San Jose Scale control

which was developed by the federal research station at Summerland shows considerable promise for maximum control with minimum use of insecticide.

Under joint provincial government and direct grower support, an apple pest management program, utilizing the services of a private consultant was conducted in the Okanagan to determine if this approach could be commercially feasible. Of the forty participating growers representing 700 acres, over 80 per cent saved one or more sprays.

Specialists again co-operated with the federal research station at Summerland on the non-chemical control of codling moth in the Similkameen Valley.

A pest monitoring program in nine commercial pear orchards proved the effectiveness of refined techniques which have been developed for determining when to spray. Fruit quality was maintained with a minimum number of sprays.

Cherry orchards in the Okanagan and Similkameen Valleys were again surveyed for little cherry virus disease. A total of 314 diseased trees were removed in Oliver, Kaleden, Penticton, Naramata and Summerland.

As a result of the pear trellis rust survey and eradication program, a juniper certification program to allow for sales outside of the Fraser Valley has been accepted for the nursery industry of the Fraser Valley.

A survey of strawberry plantings in the Fraser Valley revealed only small number of predaceous mites. The control of two spotted mites with miticides has been erratic. Tests using fluorescent dyes showed that sprayers used by strawberry growers are giving poor spray distribution on the undersides of leaves. In cooperation with the research station at Agassiz, post harvest defoliation of strawberries was tested as a method of mite control. To date, results are inconclusive.

A method was developed of screening soil to determine the presence of onion white rot. Using this method, a survey showed the disease is present in at least half the commercial onion farms in the Lower Fraser Valley.

Under a ministry grant, a study was conducted by Simon Fraser University on the visual and olfactory mechanisms of host selection by the onion maggot. The study is seeking a more effective method of timing sprays. The general application of pest management procedures for onion pest control now seems feasible.

In co-operation with the Field Crops Branch and the Agriculture Canada Golden Nematode Laboratory, a DATE project was undertaken to determine whether the Hudson potato variety known to be resistant to the golden nematode could be successfully grown in the Saanich golden nematode area. A new soil fumigant, Temik, was also tested to determine its effectiveness in suppressing golden nematode populations. Temik suppressed nematode populations for only 30 to 40 days after planting thus permitting nematode populations to again increase later in the season.

Fumigants were tested against foliar diseases of vegetables to find more effective materials and to find replacements for the bisdithiocarbamates which have come under increasing registration restrictions.

A program has been set up at Cloverdale which is aimed at supplying commercial tomato and cucumber greenhouse growers with biological agents for the control of two spotted mite and white fly.

Inspection of nurseries was carried out in respect to regulations governing pine shoot moth on the sale of pinus. Nurseries now have a smaller incidence of shoot moth than when the program started four years ago.

Research was continued on biological control and on other methods of control that present little or no hazard to non-target organisms of insects

attacking man and animals. An insect predator and a nematode parasite are being tested as mosquito control agents. A project was initiated on control of manure breeding flies. Evaluation of new control materials has led to the recommendation of an insect hormonal material for mosquito control.

Advice on mosquito control was provided to Kamloops, Merritt, the Okanagan Valley, Prince George, Fort Nelson and Fraser Valley communities. Monitoring of populations of mosquito species was continued and the information obtained was used to provide a warning of possible disease outbreaks. Mosquito numbers were low in most parts of the province as a probable result of the light snow pack and low river levels.

A hot period in August resulted in large numbers of horn and face flies. Fly populations in poultry houses in the Fraser Valley were higher than in previous years.

A co-operative test with Agriculture Canada of chemicals for tick control was continued. A survey was initiated to determine if the "no-see-um" vector of Bluetongue of cattle is present in the Fraser Valley.

Mouse populations in the interior returned to normal levels from the abnormal peaks reached in 1975-76. The testing of control materials has led to the recommendation of an anti-coagulant for orchard mouse control. Commercial baits have been set out to evaluate their effectiveness against pocket gophers and ground squirrels.

Several starling baits were tested in the Okanagan Valley in an attempt to find a bait for use in traps as a replacement for apples. Studies indicate an integrated approach utilizing trapping, noise makers and distress signals is the most effective approach to controlling small local flocks. No method has been found effective against large migratory flocks. Trials are being conducted in the Summerland area using repellents to protect orchards from deer damage.

The Soils Branch operates the Soil, Feed and Tissue Testing Laboratory at Kelowna. Thousands of soil samples are analyzed for farmers to determine proper fertilizer applications.



Soils

Soils Branch activities were concentrated in five major areas: advisory services to farmers; soil, feed and tissue testing services; interministerial resource related activities; administration of the *Soil Conservation Act*; and technical services to the Provincial Agricultural Land Commission.

Advisory services were provided in the Central and Southern Interior, Lower Mainland and Vancouver Island areas. Irrigation information was prepared for approximately 500 soil samples from irrigation workshops and commercial designers. Drainage recommendations were made for more than 1,000 acres in the Interior and on Vancouver Island. Drain construction in the Lower Fraser Valley totalled 192,500 metres (632,000 feet). This was the highest level of construction during the last five years and was exceeded only in 1972. Additional advisory services included recommendations concerning soil management and a variety of soil related problems.

The Soil, Feed and Tissue Testing Laboratory received 11,000 soil samples entailing more than 90,000 individual analyses. Feed and Tissue samples increased to 6,000 in 1977 from 5,300 in 1976, an increase of 13 per cent. Extension and research activities related to the laboratory were maintained by participation in projects with other branches, Agriculture Canada and the University of British Columbia. Approximately 30 per cent of the soil samples and 58 per cent of the feed and

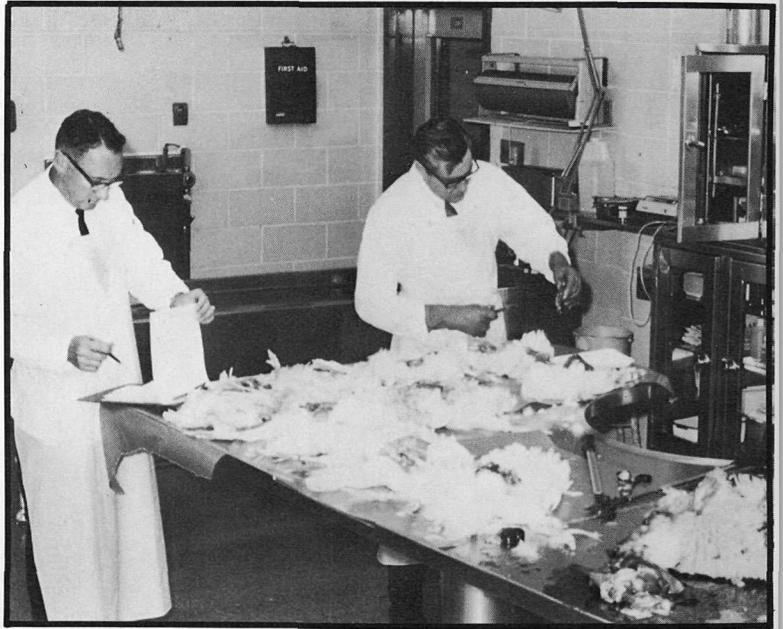
tissue samples were processed in support of these projects. Fertilizer and nutrition recommendations based on the laboratory service continue to be of economic benefit to growers.

Specialists advised the Ministry of Agriculture relative to interministerial resource problems such as mining proposals, electric power transmission lines and other development projects. This involved reviewing a variety of environmental reports, providing advice to provincial and municipal government agencies, and representing the ministry on appropriate Victoria and regional committees to ensure that Agriculture's concerns were given adequate consideration.

The *Soil Conservation Act* and Regulations were amended in 1977. More effective control over soil removal and land filling operations on land in the Agricultural Land Reserve (ALR) is now possible. Permits from the local authority (Regional District or Municipality) are required for soil removal or land fill operations within ALRs. Such permits also require approval from the Provincial Agricultural Land Commission. Numerous on-site inspections were made relative to soil removal and land fill operations.

Technical services to the Provincial Agricultural Land Commission were continued in 1977. At the request of the commission, 177 on-site inspections and reports were prepared for properties under appeal to the commission.

Carcasses of dead animals are examined by veterinary pathologists to determine the disease causing death.



Veterinary

The Veterinary Branch includes the field division, the veterinary laboratory and the brands division.

In the field division considerable activity centred around the transfer of provincial meat inspection service to the Health of Animals Branch, Agriculture Canada. An agreement between Canada and British Columbia Ministers of Agriculture was signed and federal domestic inspection began in six provincial establishments on September 1.

In accounting for the 17 provincial meat inspectors, eight transferred to the federal Health of Animals Branch, four remained in the Veterinary Branch, four transferred to other branches in the ministry and one terminated service. Under the agreement the Ministry of Agriculture pays for the services of federal meat inspectors. An inspection fee is then charged to individual abattoirs that represents approximately one half of the total inspection costs. It is expected that this inspection service will be less costly and result in broader market appeal. Inspection services are now available to qualifying abattoirs in all parts of the province.

Field veterinarians continue to provide animal inspection at livestock public sale yards and to supervise licenced businesses under the Veterinary Drug and Medicated Feed Regulations.

There were no cases of Western Equine Encephalomyelitis during the year. There have been a few isolated cases of Brucellosis. However, each incident was quickly brought under control by the Health of Animals Branch and British Columbia virtually remains free of this cattle disease.

In the 1976 annual report considerable attention was focused on Bluetongue. The federal Minister of Agriculture imposed a Bluetongue quarantine which covered the approximate territory from Hedley to Rock Creek, along the international border and north to the southern boundary of Penticton. The quarantine was lifted on January 13, 1977 following the eradication of positive reactors in beef herds.

The diagnostic caseload increased considerably at the veterinary laboratory. Diagnostic and investigational capabilities continued to develop concerning those diseases initiated by or wholly due to viruses, or trace mineral deficiencies.

A new method of paying for veterinary laboratory service was initiated when one hatchery-broiler operation signed a contract to pay for services based on units of production.

The laboratory carried out several projects for other branches and ministries. An Aleutian Disease eradication program for the mink industry was continued. Several mink ranches are now disease-free or have reached a minimal level of infection.

The Veterinary Branch administers brand inspection services on horses and cattle sold in specified areas of the province.



Participating mink ranchers report larger litters and stronger kits.

The virology section co-operated with the Poultry Branch in a DATE project to assess the infection status of poultry with respect to three viruses which could have a serious economic impact on the industry. The poultryman can now be made aware of control measures against viruses which cause Infectious Bursal Disease, Avian Adenovirus Infections and Avian Infectious Arthritis.

A new policy on the release of diagnostic results was adopted whereby results of laboratory tests become the joint property of the submitter and the Ministry of Agriculture. Results may be released for public knowledge at the discretion of the Minister when such release is considered in the public interest.

Youth Development

The 4-H program provides young people throughout British Columbia with a unique educational and recreational opportunity. The 4-H program is open to young people from nine to 19 years of age with clubs forming around a variety of projects. Leadership is provided by volunteer adults from the community.

The overall objective of the 4-H program is the personal development of the young people involved. In 1977, 3,943 members and 819 leaders enrolled in 267 4-H clubs throughout British Columbia.

During 1977, 4-H members participated in a variety of travel and exchange programs in addition to their regular project and club work. The passage of Canadian laws, Canada's Governmental system, Canada's role as a food producer, transportation and 4-H on a national and international level, were some of the topics dealt with by selected 4-H members at national and international 4-H programs. British Columbia was paired with New Brunswick in the Summer 4-H Work Exchange. The Interprovincial 4-H Exchange celebrated its fifteenth year and again saw an exchange of nine members from each province, one to each of the other nine provinces. In addition there were several regionally-organized exchanges involving other areas of Canada and parts of the United States.

The restructuring of the 4-H program in the province continued to work well with the British Columbia 4-H Executive Council becoming an effective policy-making group.

Through activities such as camps, conferences, activities at fairs, travel programs and club and project work, the 4-H program is helping to develop young people with positive attitudes and definite goals.

The British Columbia 4-H Youth Development Foundation is gaining stature. In 1977 two special projects were initiated to generate revenue for the foundation. The first was the development of a British Columbia 4-H T-shirt. The profit from the sale of the shirts goes into the foundation. The second was a DATE-sponsored project which studied selenium deficiency on southern Vancouver Island. 4-H members were involved in the collecting of silage, hay and grass samples. A portion of their fee for this service will go to the British Columbia 4-H Youth Development Foundation.

Almost 4,000 4-H club members are enrolled in 267 clubs across the province. Young members participate in demonstrations ranging from beef cattle to cooking shows.



Farm Vacation Program

The British Columbia Farm Vacation Program, administered by the branch, makes available a listing of farm vacation hosts. This program provides farmers and ranchers with an alternate source of income while, at the same time, giving urban people an opportunity to holiday on a farm and to learn about agriculture. In 1977 over 400 people took vacations on British Columbia farms and ranches. Vacations averaged five days for a total of 2,125 vacation days taken.

International Agricultural Exchange Programs

In 1977, 43 European, New Zealand and Australian trainees came to British Columbia. Participating trainees gain valuable farming experience and an understanding of cultures in different countries. In the fall of 1977, 12 young people from British Columbia worked on farms in Australia and New Zealand under this program.

