DEVELOPMENT OPPORTUNITIES IN THE BRITISH COLUMBIA TREE FRUIT INDUSTRY

Regional Economic Expansion
Expansion Économique Régionale

DEVELOPMENT OPPORTUNITIES in the BRITISH COLUMBIA TREE FRUIT INDUSTRY

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Coordination
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Department of
Regional Economic
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INTRODUCTION

This review of the British Columbia Tree Fruit Industry has three sections. Section I consists of a sectorial, hierarchical review that identifies the chief developmental constraints to the primary, secondary and tertiary sectors of the industry. Based on this review, Section II presents an abstracted synthesis that outlines the industry's constraints to development. Finally, Section III suggests possible actions for departmental consideration respecting a development opportunity in British Columbia.

The research base of this review is, "An Economic Study of the Tree Fruit Industry in British Columbia" by Dr. S.C. Hudson, September 1973 and, "Future Development of the British Columbia Fruit Industry" by Mr. D.J. Sutherland, November 1973. In addition to these research findings, the author of this paper has been assisted by an Advisory Committee composed of the following individuals:

Mr. T.A. Bennett, Marketing and Trade Division, Economic Branch, Agriculture Canada; Dr. C.J. Bishop, Research Branch (Horticulture), Agriculture Canada; Mr. E.P. Grant, Fruit and Vegetable Division, Production and Marketing Branch, Agriculture Canada; Mr. J.B. Mountain, Agricultural Products Division, Industry, Trade and Commerce; Dr. S.C. Hudson, Private Consultant, British Columbia Department of Agriculture; and Mr. D.J. Sutherland, Private Consultant, with extensive practical experience in the B.C. Tree Fruit Industry.

SECTION I

SPATIAL DISTRIBUTION OF THE INDUSTRY

Spatially, tree fruit production in British Columbia occupies five areas (Figure I). In industry terms, these five areas are conventionally considered to be:

(1) The Southern Areas of the Okanagan Valley adjacent to the communities of Osoyoos, Oliver, Kaleden, Cawston and Keremeos;

(2) the Lake Area of the Okanagan Valley in the vicinity of Penticton, Naramata and Summerland;

(3) the Centre Region of the Okanagan Valley around Peachland, Westbank and in the District of Kelowna;

(4) the Northern Area of the Okanagan Valley adjacent to the communities of Winfield, Woodsdale, Okanagan Centre, Oyama, Vernon, Shuswap, Salmon Arm and Kamloops; and,

(5) the Creston Area.

The acreage under fruit production for these five areas, plus the percentage of area industry's acreage, is given in Table I.

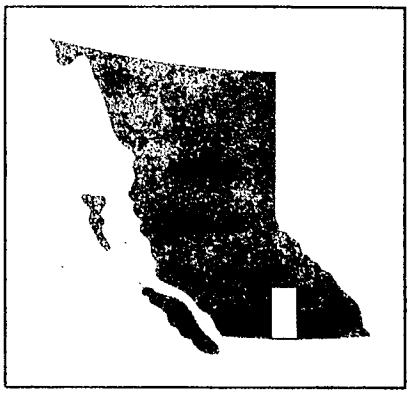
TABLE I

Distribution of Acreage by Area and Percentage of Areas Industry Distribution 1973

Area		Production	Areas
		Acres	Per Cent
(1)	South	9,231	28.5
(2)	Lake	5,678	17.5
(3)	Centre	10,425	32.2
(4)	North	5,692	17.6
(5)	Creston	1,344	4.2
	TOTAL	32,370	100.0

Figure I

SPATIAL DISTRIBUTION OF THE BRITISH COLUMBIA FRUIT INDUSTRY



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LEGEND

MAIN ROADS — 97

RAILWAYS — CP

PACKING HOUSES -1973- *

SHUSWAP LAKE

CHASE

CN

KAMLOOPS

1

SALMON ARM

CP

97A

5

ENDERBY

97

CN

***

VERNON

6

NORTH AREA

OKANAGAN

OYAMA *

WOODSDALE *

WINFIELD *

LAKE

RUTLAND **

CENTRE AREA

KELOWNA ****

WESTBANK

*

CP

97

NARAMATA

*

SUMMERLAND

*

LAKE AREA

PENTICTON

*

KALEDEN

*

3

3A

SCALE OF MILES

0 10 20

* KEREMEOS

OLIVER *

* CAWSTON

HAYNES *

SOUTH AREA

CANADA

** OSOYOOS

3

CRESTON 200 MILES

UNITED STATES OF AMERICA

Regional Economic Expansion

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Orchard Size

The Hudson Report records 2,788 registered fruit growers with one or more acres of orchard production in the Okanagan Valley in 1973. Hudson's classification of producers is 20 per cent "non-commercial" with less than 3 acres occupying 3 per cent of the total orchard area; 14 per cent "part-time" with from 3 to 5 acres occupying 5 per cent of the total orchard area; 57 per cent "the backbone of the industry" with between 5 and 25 acres occupying 57 per cent of the total orchard area; 8 per cent "medium sized" with from 25 to 60 acres occupying 24 per cent of the orchard area; and one per cent "large scale" with from 60 to 300 acres occupying 11 per cent of the total orchard area.

Grower Returns

One of Hudson's approaches to income analysis and producer problem constraints was to consider apple grower packout returns for the 1972-73 crop year[1]. Hudson found that for three varieties of apples, grower returns ranged from 1¢ to 9.5¢ per pound for Red Delicious; 1.5¢ to 5.9¢ per pound for Golden Delicious and 1.5¢ to 6.9¢ per pound for McIntosh. Assuming the break-even point for apple production is between 3 and 5 cents per pound, 20 per cent of the growers entailed a loss in apple production and 25 per cent realized a profit from the 1972-73 crop.

Consideration was given to growers' grades sold through B.C. Tree Fruits Limited to explain the variation in grower revenues. In the case of Red Delicious, 40 per cent of the growers had less than a 70 per cent packout of fancy or better; for Golden Delicious and McIntosh 32 and 81 per cent, respectively, of the growers reported less than a 70 per cent packout of fancy or better. For the 1972-73 apple crop as a whole, (seven varieties), 56 per cent of the growers averaged a grading packout of less than 70 per cent fancy or better, the McIntosh variety being chiefly responsible for low industry packouts.

However, it would be wrong to construe that the McIntosh variety is redundant. On the contrary, the McIntosh apple is the most popular apple in western Canada. Out of the five years 1968-1972, the highest extra fancy returns were for Red Delicious for three years and McIntosh for two years. For the fancy grade, McIntosh returns were highest for two years and Red Delicious returns were highest one year. The McIntosh problem is one of age of trees and rootstock type. For example, apple trees on standard rootstocks have a production cycle from 10 to 35 years. In years

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[1] Seventy per cent of B.C. fruit production is apples.

10 to 25 the production curve increases at about 30 degrees, plateaus from year 25 to 35 and tends to decrease from 35 years on. In the Centre Area, 54 per cent of the McIntosh variety on standard rootstock are over 35 years of age. Old fruit trees usually produce a low yield and a low quality of fruit per acre, which in turn causes low packouts of high grades and results in low returns per orchard.

In the South Area only one per cent of the McIntosh variety are on standard rootstock. This is because the South Area has not traditionally grown McIntosh, but in response to roadside sale demand, growers have in recent years planted many McIntosh trees on dwarf rootstock.

Dwarfing rootstock have a distinct economic advantage over standard rootstock. For example, 50 trees on standard rootstock are planted per acre; 100 trees on semi-standard rootstock; 200 trees on semi-dwarf rootstock; and 300 trees on dwarf rootstock. Over the life span of an apple tree the per acre return from dwarf rootstock is conservatively estimated to be at least twice the yield from standard rootstocks and most importantly, production commences five years earlier than on standard rootstock. The labour costs of growing and harvesting per unit of production are considerably lower for dwarfing rootstocks than for standard rootstocks. However, because the bearing area of trees on dwarfing rootstocks are closer to the ground the frost hazard is increased.

In total, 60 per cent of the industry's apple trees are on standard rootstock; 27 per cent on semi-standard; 11 per cent on semi-dwarf and 2 per cent on dwarf. Within the fruit growing region, the Lake Area is the most advanced in intensive plantings.

Considering the fact that the B.C. fruit industry is presently utilizing all of the provincial land area suitable for fruit production, the future growth of the industry depends on the adoption of intensive plantings and the use of more profitable strains and varieties. However, intensive plantings require a considerable advancement in the cultural management practices of the orchardist. Agriculture Canada's Research Station at Summerland is adapting this advanced form of apple production to B.C. conditions and is experimenting with the dwarfing of other tree fruits. The immediate need is for the Horticultural Extension Branch of B.C. Department of Agriculture to assist the growers to innovate and adopt an intensive planting orchard culture.

Demographically, Hudson reports that,

> "On the basis of this study together with personal observations, I am convinced that the distribution of growers in the Okanagan is the "normal" one found in many farming areas. There is a very substantial "group" (perhaps a third) of the growers whose returns cover their operational costs and provide going wages for their labour together with a reasonable return for capital and management. For a second large group of growers their returns are sufficient to cover operational costs including wages for the labour of the farm operator and his family, but provide no return for capital and management. The remaining "third" of the growers are those having difficulty in covering even their essential operating expenses from their returns and have had to lower their level of family living and, in some cases, to increase their indebtedness. It is this group of growers that are most urgently in need of assistance."

The factors responsible for the income problem of the lower one-third are generally recognized to be inferior orchard management practices, causing lower yields and lower quality of fruit produced. In addition, the variability of prices from year to year adversely affects grower net incomes.

In short, the problems at the primary sector of the industry are extension oriented: that is, problems of product quality control, land utilization and adaptation of research to applied production. These are functions of the Horticultural Extension Branch of the B.C. Department of Agriculture. On the basis of this review, these problems have been identified as most acute in the North Area. Conditioning these remarks is the fact that McIntosh is predominently grown in the North, accounting for poorer packout percentages. In the South, the predominent varieties grown are Red Delicious, Golden Delicious and Winesap, all of which produce a higher percentage packout of top grades.

INSTITUTIONAL NATURE OF THE INDUSTRY

The processing and marketing of fruit in British Columbia is controlled by the British Columbia Tree Fruit Marketing Scheme, 1960, which draws its authority from the "Natural Products Marketing (British Columbia) Act" and is supplemented interprovincially and in export markets by the Federal "Agricultural Products Act". Administratively, this legislation is implemented by the British Columbia Fruit Board.

B.C. Fruit Board

The corporate body that makes up the Board consists of a chairman and two members elected by the British Columbia Fruit Growers Association. The B.C. Fruit Growers Association is analogous to a trade union, with membership restricted to those growers with one or more planted acres of tree fruits. Spatially, the Association is divided into 21 locals, each of which sends delegates to the Association's annual Convention on a proportional representation basis.

The Board has the authority to promote, regulate and control the transportation, packing, storing and marketing (including price fixing) of any tree fruit grown in the Okanagan-Similkameen-Kootenay Valleys and, to designate the agency through which such fruit is marketed. Since 1939, the Board has designated B.C. Tree Fruits Ltd. as the sole agency to perform the industry functions of handling, storing, selling, exporting and promoting fruit on behalf of growers, and has disbursed revenue via the pooling principle. In implementing its authority, B.C. Tree Fruits Limited enters into legal contracts with growers and shippers.

Growers and Shippers

In 1973 the 2,788 registered fruit growers were organized into 14 autonomous co-operative packing organizations or were patrons of four privately owned packing houses. This grouping, unlike the membership of a B.C. Fruit Growers Association local, is voluntary and not necessarily related to local production areas. Consequently, there exist two parallel organizations from a grower's viewpoint, (a) membership in the B.C. Fruit Growers Association local - spatially determined, and (b) membership in a co-operative or private packing house - freely determined.

The industry ramifications of this institutional division are substantial. From the grower's viewpoint the institutional division is counter-productive. For example, the evidence of this review suggests the need to expand and improve the services of the B.C. Department of Agriculture's extension work. To improve that service and direct it to where it is most needed, requires better liaison between the growers and the Horticultural Branch plus the constant monitoring of same. If membership in the B.C. Fruit Growers Association locals were made synonymous with membership in local co-operative packing house organizations, a logical vehicle would exist to enhance grower-extension liaison.

From the industry's standpoint, the institutional division is manifest in variations between plant operating costs. For example, because of the application of the pooling principle individual packing plants receive a payment for their services based on the industry's average cost of packing a given variety. Based on a sample of eight co-operative houses packing the 1972-73 crop, revenue received by four plants was less than the costs the plants incurred and conversely greater for the four other plants. The difference between revenues received and incurred is charged to the growers. Therefore there is a built-in tendency for growers to ship not necessarily to their local plant but to plants whose operating costs are less than industry revenue returns.

On closer examination of the eight co-operative packing houses, one of the chief factors responsible for the variation in plant operating cost was identified to be the cost of servicing long term debt. The older plants built in the late 1920's and early 1930's are virtually free of debt cost, whereas the modern plants built in the 1960's have high debt servicing costs. It is therefore to the older plants that the growers have a tendency to gravitate. In turn, volume runs in the older plants tend to match capacity which to some extent off-sets the inefficiency of their operations. Meantime the modern plants, with the most up-to-date facilities, are sometimes under-utilized. The impetus for plant expansion therefore rests with the older plants which unfortunately in the past have received "band-aid" treatment. Eventually the funding of old plant expansion catches up with revenues received without necessarily having established an optimal plant structure. This is the crux of the industry's problem -- plants in the forefront of technology are sometimes penalized by high overhead costs per unit of output whereas plants built in the 1920's and 30's with low overhead costs benefit accordingly. Yet over time the older plants, with their outmoded facilities, will be unable to respond to market requirements, nor be capable of maintaining the industry in a high state of efficiency.

In the Hudson Report two solutions for this problem are proposed, (1) amalgamation and (2) rationalization.

> Amalgamation - For amalgamation of the institutional arrangements of the industry, Hudson recommends reducing the number of organizations from eighteen to four or five, in order to provide the level of volume that will justify the amalgamated facilities, and also recommends that membership in the British Columbia Fruit Growers Association locals be made synonymous with membership in local packing house organizations.
>
> Rationalization - Contingent on amalgamation, Hudson recommends an eight year physical rationalization program for the packing house sector of the industry, whereby the future redevelopment of an area's orchard practices and varietal pattern are planned into the design of local packing houses. Such facilities must be sufficiently capitalized to permit individual plants to respond to market changes.

Hudson estimates the financial costs of rationalizing the packing sector to be from $8 to $10 million over a period of eight years. The benefits he estimates to be approximately $2 million annually. However, such a program if pursued from a policy viewpoint, would constitute a public program that underwrites the future success of the B.C. Fruit Industry - the main economic base of the Okanagan Valley.

Two other institutions in the processing sector of the industry are Sun-Rype Products Limited and B.C. Tree Fruit Storage Limited. Sun-Rype was originally established to process cull fruit not suitable for the fresh market, but has since broadened its activities to where it processed 23% of the 1972-73 crop. B.C. Tree Fruit Storage Limited operates the industry-wide and industry-owned controlled atmosphere (C.A.) storage plants. The three grower owned companies, B.C. Tree Fruits Limited, Sun-Rype Products Ltd. and B.C. Tree Storage Ltd. have interlocking managements elected by the B.C. Fruit Growers Association or hired by the B.C. Fruit Board.

MARKETING

The British Columbia Fruit Board, through its agency B.C. Tree Fruits Limited, controls all fruit sales in the province. This Agency co-ordinates sales, establishes prices to buyers and monitors all roadside market stand sales. The marketing approach employed by B.C. Tree Fruits Limited is to secure annual estimates of local crop expectations from each packing house. These estimates are aggregated for the industry by varieties, qualities and size of fruit. Based on this supply expectation, B.C. Tree Fruits Limited draws up a marketing strategy for the domestic market, the export market and for the canning markets. Over the growing season, supply estimates are up-dated and, when necessary, marketing strategies are altered. This is performed approximately three to four times per year for each variety of fruit.

With the exception of roadside stand sales, Table II presents the volume and percentage breakdown of regional sales for the six chief fruits handled by B.C. Tree Fruits Limited during the 1972-73 crop year.

TABLE II

Volume of Fruit and Percentage of Regional Market Distribution, Crop Year 1972-73

	Crop											
	Apples		Pears		Cherries		Apricots		Peaches		Prunes	
	Volume (000)	%	Volume (000)	%	Volume (000)	%	Volume (000)	%	Volume (000)	%	Volume (000)	%
Fresh	160,380	73.2	18,782	48.0	5,055	78.7	2,871	55.1	7,049	71.8	4,692	88.0
Western Canada	83,695	38.2	12,522	32.0	2,726	42.5	2,340	44.9	6,990	71.2	4,479	84.0
Eastern Canada	23,662	10.8	5,870	15.0	2,322	36.2	344	6.6	59	.6	213	4.0
U.S.A.	33,741	15.4	391	1.0	-	-	188	3.6	-	-	-	-
Other	19,280	8.8	-	-	-	-	-	-	-	-	-	-
Processing	58,718	26.8	20,348	52.0	1,360	21.2	2,340	44.9	2,768	28.2	640	12.0
Canneries	2,629	1.2	12,913	33.0	391	6.1	1,219	23.4	2,768	28.2	640	12.0
Sun Type	56,089	25.6	7,435	19.0	969	15.1	1,120	21.5	-	-	-	-
Total	219,098	100	39,130	100	6,415	100	5,211	100	9,817	100	5,332	100

Source: An Economic Study of the Tree Fruit Industry in British Columbia
Dr. C.S. Hudson (Sept. 1973)

Considering Table II, the fresh market for B.C. fruit is the most significant market. This is particularly true for apples and peaches. For example, grower returns for apples in the 1972-73 crop year, averaged 6.2¢ per pound from the fresh market and 0.7¢ from the processing market. This implies that the processing of apples in B.C. is a secondary operation contingent on fresh market demand.

Concerning peaches, the B.C. Department of Agriculture estimates that approximately 60 per cent of the total peach crop in any one year is sold through roadside stands. Therefore, Table II understates the importance of the B.C. peach crop. However, assuming 60 per cent of the peach crop is unrecorded in Table II, that implies that the processing sector utilizes not 28 per cent of the crop as recorded but approximately 11 per cent. However, unlike apples, the processing of peaches requires a top quality fruit.

For the four other fruits, the relative fresh and processing market returns were:- pears, 7.7¢ and 4.3¢ per pound; cherries, 30.2¢ and 20.5¢; apricots, 7.4¢ and 5.2¢; and prunes, 9.5¢ and 6.0¢. The end product of the processing sector is the manufacture of juice, pie filling, fruit sauce and canned fruit, the most important product being canned pears. The market for these products is western Canada. The canning sector of the industry is privately controlled and operated except for the industry owned company Sun-Rype Products Limited.

The B.C. Fruit Industry expects future markets for their product to consist of an expanded domestic market because of projected increased per capita consumption of fruit. There will also be an export market shift from Europe to the Pacific Rim. In promoting this shift, the industry has appointed brokers in Hong Kong, Singapore and other Asian centres. The non-tariff (plant health) restriction, excluding B.C. fruit from the Japanese market, is presently under study by the industry and by government departments.

ECONOMIC VALUE OF THE INDUSTRY

Based on the 1972-73 crop year, the Hudson Report estimates the gross f.o.b. value of the crop within the Okanagan Valley to have been over $35 million. Of this amount, net returns to the growers from sales through B.C. Tree Fruits Limited were estimated to be $17 million and independent grower sales, via roadside stands, were estimated to be approximately $3 million.

Hudson estimates that for the 1972-73 crop year the value added component of the crop was between $10 million and $12 million. However, within the industry there exist two sources of value added. One source results from the activities associated with grading, packaging and storage of crop for the fresh market, and the second source is associated with processing activities when product undergoes substantial change in form. According to the Hudson Report, 77 per cent of product went into the fresh-packed market, and 23 per cent of the crop was processed. This is an unfortunate aggregation because without a separation of the value added component into processing and fresh packed, a value added industry ratio remains unknown.

The value of the secondary movement (transportation) of product from the fresh packed and processed stage to final market destination is estimated by Hudson to approximate $6 million annually.

In summary, the estimated value of the Fruit Industry to the Okanagan Valley economy in the crop year 1972-73 approximated $50 million ($35 million+$11 million+$6 million = $52 million). Over the past fourteen years only crop years 1967-68 and 1968-69 surpassed the value of the 1972-73 crop year. In terms of the Gross Domestic Product of the Okanagan Valley the fruit industry is the most important form of economic activity followed by tourism at approximately $40-$45 million annually.

Labour

The labour employment factor for the industry is estimated to be approximately 6-7,000 seasonal and 1,000 full-time employees. Direct labour payments within the industry are estimated $8.5 million for orchard labour and $5.5 million for grading, packaging, processing and administration.

SECTION II

SYNTHESIS

Based on the application of the D.R.E.E. proposal "Development of the British Columbia Fruit Industry" (see Annex) applied to the preceding review and discussed with members of the Advisory Committee, the industry's developmental constraints are synthesized under the headings, Primary, Secondary and Tertiary Sectors.

Primary Sector

Returns to the industry vary regionally because of changing weather patterns that directly affect a regional fruit industry or indirectly, a competing industry. Over the past ten years, unfavourable weather factors in British Columbia severely damaged crops in crop years 1965-66 and 1969-70. Conversely, unfavourable weather conditions elsewhere on the continent that were partially offset in British Columbia because of the widespread use of irrigation, benefited the B.C. fruit industry in crop years 1967-68 and 1968-69. Grower returns per pound of naked apples were 3¢ in crop years 1963-64, 1969-70 and 7¢ in crop years 1967-68, 1968-69.

The fruit industry is a high risk venture because of the production lag between planting and full crop harvesting. In the case of apples, pears and cherries, the lag may be as much as ten years.

Grower incomes are determined by the yield and quality of fruit per acre plus the relative market acceptance of the varieties grown. The range of apple trees planted per acre in the Okanagan Valley is generally from 50 to 300 or more and approximately 12 per cent of the apple trees on standard rootstock were planted prior to 1937 - "old trees". The Hudson Report notes, "in the whole of the Okanagan region 451 growers (one-third of the growers occupying one-third of the area) had a packout of less than 50 per cent fancy or better... One important reason for low returns is the low quality of fruit".

The preponderance of low tree densities, old trees, and less desirable varieties and effectiveness of orchard management are the overriding problems at the primary level of industry activity. Solutions recommended by Hudson and Sutherland and supported by the Advisory Committee are for the introduction of income stabilization programs; expansion and improvement of the Horticultural Extension Services and, the development and research services provided to the industry by the B.C. Department of Agriculture and by Canada Department of Agriculture.

Other components and elements listed under the Primary Sector of the industry are considered to be functioning without constraint.

Secondary Sector

The overriding constraint to the future development of the industry is the fragmentation of the packing sector into 18 independent associations, varying widely in packing and storage capacity. The application of current technology in the storage, grading, packing and handling of fruit in meeting future marketing requirements involves a large investment and necessitates a greatly increased throughput in order to reduce overhead costs per unit to a level which the industry can support.

A secondary constraint to the development of the industry is identified as an institutional division between membership in the British Columbia Fruit Growers Association locals and membership in co-operative or private packing house associations. Membership in the former is spatially pre-determined whereas membership in the latter is voluntarily determined. This results in a lack of grower cohesion and local co-operation, and weakens grower control of the industry.

Another important restraint is the lack of direct representation of the packing associations in the management of the industry. The rectification of this restraint involves a restructuring of the industry's administrative organization.

Extrapolated, the division encourages growers to ship to the packing houses that provide the highest return per pound of fruit shipped, regardless of how these supply allocations affect industry returns. Yet because of the application of the "one desk" selling principle, B.C. Tree Fruits Limited has since

1939 acted on behalf of the industry as the sole agency handling, storing, selling, exporting, promoting and negotiating wholesale prices of fruit on behalf of growers, disbursing revenue via the pooling principle. Therefore, in practice, competition in packing and processing is inter-industry not intra-industry.

Nevertheless, because of the voluntary membership associations, competition exists within the industry causing modern plants with advanced technologies and scale efficiencies to be less profitable and often under-utilized due to their high debt servicing costs, whereas plants built in the 1920's, being relatively free from debt servicing costs, are operating at maximum capacity. The incentive for expansion rests with the oldest plants, resulting in "band-aid" treatment, whereas the future success of the industry is dependent on the modern plants. Therefore, the problem of the industry is twofold, (1) existence of a counter-productive institutional division, and (2) a competing fragmented capital structure in the packing house segment of the industry. Recommendations are for the amalgamation of the institutional organization of the industry and for the rationalization of the physical and financial structure of the packing houses. Acceptance of these recommendations would encourage the generation of self-correcting measures applicable to other problems such as inventory control, labour mobility between plants, freight loads and schedules, plus improving the quality of local plant management.

Tertiary Sector

Review of the tertiary sector reveals a strong, dynamic and confident industry, surefooted in the domestic market and aggressively pursuing export market opportunities. The growth and development of the industry is constrained by the natural barrier of space that separates the fruit production region of B.C. from the high density consumer market of central Canada.

The marketing strategy developed and applied by the B.C. Fruit Industry is one of the most sophisticated in Canadian agriculture. The allocation of supply to the fresh market

maximizes grower returns; the canning and processing sector of the industry constitutes a secondary operation in terms of apples, providing the leverage to exploit fresh market opportunities at home and abroad and to minimize industry wastage. Because the industry is fresh market oriented the future success of the industry is dependent on a soundly structured and adequately capitalized packing house segment. The economic health and welfare of the Okanagan Valley, in turn, is dependent on the fruit industry.

SECTION III

POSSIBLE ACTIONS

Background

Considering the B.C. Fruit Industry from an economic viewpoint the realization of success is apparent. However, this success has not been achieved accidentally but through constructive efforts by the Government of Canada, the Government of British Columbia and by the B.C. fruit growers.

Federally, Agriculture Canada's Summerland Research Station has, over the years, successfully adopted the dwarfing of apple tree rootstocks and is currently experimenting with other fruit tree rootstocks. This work has been and is of crucial importance in a fruit growing region utilizing the total land area suitable for production. Through the Department of Regional Economic Expansion, the Canada-B.C. A.R.D.A. program has substantially assisted the municipalities in the Okanagan Valley to rehabilitate and install irrigation systems. Today, apple production in the Okanagan is entirely based on irrigation, and its benefits have been felt by the industry, particularly in crop years 1967-68 and 1968-69. Industry, Trade and Commerce have assisted the industry in the export market and are of the opinion that if industry costs can be stabilized, the export market offers a profitable outlet for B.C. fruit.

Provincially, the Horticultural Branch of the B.C. Department of Agriculture has above-average extension performance. For example, one-third of the growers are reported to have financial and management problems, yet for other sectors of Canadian

agriculture (for example, the dairy industry) a one-third ratio of problem clients would be a definite improvement. Nevertheless, because the B.C. Fruit Industry is in the forefront of international competition, the Horticultural Branch must reduce the officer/client ratio from the current load of 300:1 to a maximum of 250:1. Qualitative improvements in the Horticultural Extension Services will be realized once their officers begin to assist growers on the basis of grower packout records.

The Government of British Columbia pioneered in Canada the successful use of the Dairy Herd Improvement Program that has since been adopted by all other provinces. The philosophy imbued in the Dairy Herd Improvement Program is that extension services are most productive when applied to a specific program. Restructuring and expansion of the Horticultural Branch Extension Services via program orientation is a necessary first step to improving the productivity of the industry. Other provincial programs such as the B.C. Farm Credit Program, the Agricultural Land Development Act and the Federal-Provincial crop insurance program are eminently suited to provide back-up support to a restructured and expanded Horticultural Extension Service.

Finally, the B.C. fruit growers, in December 1973, approved by referendum the principle of retaining the "one-desk" selling agency. That constitutes a vote of confidence in the grower-agency chiefly responsible for having placed the B.C. Fruit Industry among the most dynamic sectors of Canadian agriculture. Notwithstanding this impressive development record, the future success of the industry depends on public funds which will assist the industry to reduce the number of packing houses from eighteen to approximately five; and which will secure economies of scale in labour employment and management, in supply allocations and in transportation shipments. The cost of the program is estimated to be from eight to ten million dollars over an eight year period. The benefits are conservatively estimated to approximate two million per annum.

Strategy

Against this background of successful federal-provincial-grower cooperation, it is recommended that continued joint action be pursued by the Department of Regional Economic Expansion, the Government of British Columbia and the B.C. Fruit Industry to design a program to rationalize the packing house sector of the

provincial tree fruit industry. Acceptance of the program for implementation would be dependent on agreement with the findings of three proposed studies. These are:

1. An engineering study to design an eight year rationalization program for the packing house segment of the industry.

2. A financial study of the packing house segment of the industry to determine, (a) the financial contribution the industry can make to the rationalization program and (b) provide the factual base to formulate an equitable consolidation of the assets and liabilities resulting from rationalization.

3. A study of the social and economic profiles of the communities affected by plant closure, establishment or expansion.

Eventual planning and funding of works proposed in these studies would be subject to federal-provincial negotiations. D.R.E.E.'s participation in such a program should be conditional on growers' acceptance of the plan, preferably through referendum.

DEVELOPMENT OF THE BRITISH COLUMBIA FRUIT INDUSTRY

This proposal is predicated on the assumption that there exists developmental opportunities in the British Columbia Fruit Industry, the attainment of which are limited by constraints. These constraints are both within and external to the industry. Based on this assumption, and subject to the approval of the Government of British Columbia, the following Systems Approach will be used to identify the industry's constraints and to propose means for their elimination.

Proposal

In Appendix I, the components and elements of the British Columbia fruit industry's three hierarchical functions are identified. Based on this systematic disaggregation of functions, components and their elements, a summary of the industry will be completed and, a synthesis of the industry's strengths and weaknesses prepared. This exercise will constitute Phase I of the proposal.

PHASE I

The steps to complete Phase I involve,

(a) establishing a team of approximately five people, knowledgeable about all components and elements of the industry, as outlined in Appendix I; and

(b) the departmental hiring of a consultant to solicit from members of the team all relevant information and opinions necessary to complete the survey.

...

Once having identified the team, the consultant will first contact each member and secure all relevant research material pertaining to the industry.

Following a literature review, the consultant will commence writing the survey and begin to identify the functions, components and elements that lack information.

Assuming the information gaps are not of major significance the consultant will complete a summary, if necessary substituting team opinions where information gaps exist.

Areas of the survey having substantial information gaps will require independent research.

Based on a completed summary, a synthesis of the industry's strengths and weaknesses will be extracted by professionals from the federal and provincial departments involved.

Once summary and synthesis are complete, paper will be circulated within the team. Following individual review of paper, the team will be brought together for discussion of summary and synthesis. Based on this discussion and subject to team review, paper will be submitted to D.R.E.E. and the British Columbia Department of Agriculture along with minority reports should substantial differences arise.

Negotiations must, of necessity, follow at this juncture between D.R.E.E. and British Columbia with the objective of securing a commitment in principle to proceed to Phase II - the physical and financial means to develop the fruit industry of the Okanagan Valley.

B.C. FRUIT INDUSTRY – FUNCTIONS COMPONENTS AND ELEMENTS

FUNCTIONS	PRIMARY	SECONDARY	TERTIARY
Components	Research Land Irrigation Culture Farm Structure Crop Patterns Labour Inputs	Research Institutional organization Processing Packing for Fresh Market Storage Spatial Aggregates Transportation Labour	Research Institutions Domestic Market Export Market Tariffs Supply lags and leads Transportation
Elements	**RESEARCH** ☐ R & D of new varieties, rootstocks structural growth changes ☐ Application of R & D ☐ Pest Control ☐ Husbandry (production techniques) **LAND** ☐ Soil Type ☐ Land contour ☐ Micro climate **IRRIGATION** ☐ H_2O Supply ☐ Capital Cost of Irrigation per acre **CULTURE (Social)** ☐ Education ☐ Language ☐ Industry (experience) **FARM STRUCTURE** ☐ Land ☐ Labour ☐ Capital **CROP PATTERNS** ☐ Varieties Grown ☐ Product Market (Factors affecting Price) ☐ Production cost per acre ☐ Returns per crop acre ☐ Spatial Location **LABOUR** ☐ Seasonal ☐ Crop Patterns ☐ Immigration ☐ Mobility ☐ Housing ☐ Wages **INPUTS** ☐ Availability ☐ Costs	**RESEARCH** ☐ Government (Federal and Provincial) ☐ Universities ☐ Industry & Industry organizations **INSTITUTIONAL ORGANIZATION** ☐ Description of Industry structure ☐ Internalities & externalities ☐ Government policy **PROCESSING** ☐ Canning ☐ Manufacturing ☐ Product Innovation ☐ Import Substitution **PACKING FOR FRESH MARKET** ☐ Labour ☐ Type of Fruit ☐ Plant load factor ☐ Plant Location **STORAGE** ☐ Characteristics of Capacity ☐ Location ☐ Capacity Utilization **SPATIAL AGGREGATES** ☐ Location of Facilities in terms of industry needs ☐ Need for additional storage capacity **TRANSPORTATION** ☐ Mode ☐ Cost Structure **LABOUR** ☐ Wage rate structure ☐ Demographic characteristics	**RESEARCH** ☐ Market Forecasting ☐ Market Penetration **INSTITUTIONS** ☐ Market Board ☐ Wholesale distribution **DOMESTIC MARKET** ☐ Intra-provincial ☐ Inter-provincial **EXPORT MARKET** ☐ Volume & type of product ☐ Product Designation ☐ Function of I.T. & C. **TARIFFS** ☐ Foreign ☐ Domestic ☐ Restriction generally **TRANSPORTATION** ☐ Mode ☐ Domestic ☐ Export ☐ Rate Structure **SUPPLY** ☐ Lags ☐ Leads

☑ Known
☒ Unknown
☐ Information Pending

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