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CANADIAN FRUIT VEGETABLES AND HONEY

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DOMINION OF CANADA
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Canadian Fruit, Vegetables and Honey

PUBLISHED BY DIRECTION OF THE HONOURABLE W. R. MOTHERWELL,
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1924

OTTAWA
F. A. ACLAND
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1924

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EAT CANADIAN FRUIT

CANADIAN FRUIT

THREE classes of fruit are grown commercially in Canada: (1) apples; (2) tender fruits, namely pears, peaches, plums, prunes, cherries, apricots, and grapes; and (3) small fruits, which include strawberries, raspberries, currants, gooseberries, blackberries, and loganberries.

THE CANADIAN APPLE

The apple is by far the most important fruit grown in Canada, and Canadian apples are among the best for flavour, high colour and long-keeping qualities.

The range of successful apple culture is extensive, embracing wide areas in the provinces of Nova Scotia, New Brunswick, Quebec, Ontario, and British Columbia, while in Prince Edward Island there are many districts well adapted to this fruit. As the distance between the Atlantic and Pacific apple-growing provinces is approximately 3,000 miles, it will be readily understood that there is considerable variation in growing conditions as well as in the fruit itself.

Varieties

Among the numerous varieties of apples grown in Canada, the McIntosh, an early winter apple of native origin, is foremost in commercial importance. The McIntosh originated as a chance seedling on the farm of John McIntosh in 1796, in Dundas county, Ontario. Propagation was begun about 1870 by Allan McIntosh. The fruit is above medium size, crimson in colour, and of a sprightly, sub-acid, aromatic flavour. Quality very good. Season, November to February or later.

The McIntosh apple is of more or less general adaptation, and is grown in enormous quantities, both in Canada and the United States. "If one were compelled to choose the apple of apples," writes Hedrick in his *Cyclopedia of Hardy Fruits*, choosing it in respect of qualities that, united, gratify the greatest number of senses, few would hesitate in naming McIntosh sovereign of all."

The Fameuse or Snow apple originated in Canada in the early days of French settlement. It is an early winter variety, grown chiefly in eastern Ontario and Quebec, and to some extent in New Brunswick and Nova Scotia. The export surplus is small, however, and the McIntosh, being hardier, tends to replace it.

Most of the other leading commercial varieties of apples grown in Canada had their origin either in the United States, Great Britain or the continent of Europe. Some naturally are more successful in one province or district than another. Among autumn varieties, Wealthy and Gravenstein are outstanding. Blenheim is little grown outside of Nova Scotia, where it succeeds exceptionally well. Important early winter varieties include, in addition to McIntosh, the Jonathan, Delicious, Rome Beauty—all extensively grown in British Columbia. The Rhode Island Greening is grown in Nova Scotia and the warmer sections of Ontario. The Ribston and Cox Orange pippins do well in parts of Nova Scotia and British Columbia.

Among winter varieties, Northern Spy has acquired the reputation in Canada and certain parts of the United States as being the best winter apple. Baldwin, while not as high a grade of apple, is widely grown in the warmer parts of Ontario and Nova Scotia.

The best of the cooking varieties grown in Canada include, in addition to large green apples such as Rhode Island Greening, many varieties that are highly coloured, such as the Wagener. In this respect Canadian demands do not conform to those of Great Britain, which call for a green cooker. Varieties such as Northern Spy and Gravenstein are excellent either for dessert or culinary purposes. Other highly coloured apples are suitable only for cooking purposes, and when baked whole, colour adds to their attractiveness. High colour is not necessarily associated with dessert quality in Canadian apples, nor is the lack of it an evidence of high cooking quality.

Production

The recorded production of apples in Canada in 1923 totalled 4,493,183 barrels, having a wholesale value of \$24,489,350. To this total Nova Scotia contributed 1,821,064 barrels; Ontario, 1,304,400 barrels; British Columbia, 3,700,000 boxes; Quebec, 65,094 barrels, and New Brunswick, 69,292 barrels.

NUMBER OF APPLE TREES, BY PROVINCES, 1921

Province	Number bearing	Number non-bearing
Ontario.....	4,492,672	987,115
Nova Scotia.....	1,822,396	294,049
British Columbia.....	1,625,696	515,821
Quebec.....	779,394	556,899
New Brunswick.....	397,338	145,358
Prince Edward Island.....	132,678	22,162
Other provinces.....	743	3,005
Total.....	9,250,917	2,524,409

THE TENDER FRUITS

In most of the districts suited to apple culture, such tender tree fruits as pears, plums and cherries are successfully grown. The more favoured sections, however, for such fruits are those bordering lakes Ontario, Erie and Huron, in the province of Ontario, and certain sections of British Columbia and Nova Scotia. In British Columbia, the sweet cherry does particularly well.

The Niagara peninsula, one of the most highly developed fruit districts in Ontario, is devoted largely to the production of tender tree fruits and to the culture of small fruits. The culture of the peach in Canada is confined in Ontario to the Niagara district, the shores of lake Erie and Lambton county; and in British Columbia to the southern portion of the Okanagan valley. Summer temperatures in Nova Scotia are not sufficiently high to permit of the outdoor culture on a commercial scale of either the peach or the grape.

THE SMALL FRUITS

There is hardly any limit to the territory in which the small fruits such as currant, gooseberry, raspberry, and strawberry may be grown. The heaviest commercial crops are secured in the moister climates of the coastal regions, and also in the vicinity of the Great Lakes. On the east and west coasts, the strawberry grows to great perfection, yield and quality being unsurpassed. The raspberry, which, like the strawberry, is indigenous, is commonly grown; but the commercial cultivation of the blackberry and loganberry is confined almost entirely to certain districts in British Columbia, including Vancouver Island. The blackberry is also successfully grown in the milder sections of Ontario.

Vineyard in the Niagara District of Ontario.

GRAPE GROWING AND WINE MANUFACTURING

Grapes are produced on about 13,000 acres, chiefly in the Niagara district. Production amounted in 1923 to over 25,000 tons. Part of the crop is marketed as table grapes, but the bulk is utilized for the manufacture, either in Canada or the United States, of unfermented grape-juice or for the domestic wine industry. In 1921 there were thirteen wine-manufacturing establishments operating in Canada, the output being approximately 500,000 gallons of wine, 384,000 gallons of grape-juice, and 3,625 gallons of syrups and fruit juices.

FRUIT PRODUCTION AND VALUE

The following are the statistics of the production of all classes of fruit in Canada, by provinces, as estimated by the Dominion Fruit Branch, for the years 1922 and 1923:—

PRODUCTION, BY PROVINCES, OF ALL FRUITS, 1922-23

Province	—	Apples	Pears	Plums and Prunes	Peaches	Apricots
		bbls.	bush.	bush.	bush.	bush.
Ontario.....	1923	1,304,400	112,000	83,100	332,860	.....
	1922	1,739,000	336,000	167,181	501,764	.....
British Columbia.....	1923	1,233,330	94,835	265,382	70,800	32,850
	1922	1,027,333	102,727	241,257	75,797	37,766
Nova Scotia.....	1923	1,821,064	20,500	.....	.....	.....
	1922	1,891,852	22,500	.....	.....	.....
Quebec.....	1923	65,094	.....	.....	.....	.....
	1922	216,984	.....	.....	.....	.....
New Brunswick.....	1923	69,292	.....	.....	.....	.....
	1922	173,236	.....	.....	.....	.....

Province	—	Cherries	Straw- berries	Rasp- berries	Other berries	Grapes
		bush.	qts.	qts.	qts.	lbs.
Ontario.....	1923	103,125	3,607,200	840,000	950,000	42,185,077
	1922	130,000	4,755,000	3,360,000	1,420,000	70,308,462
British Columbia.....	1923	100,000	3,900,000	3,360,765	1,441,200	.....
	1922	72,740	2,720,000	2,850,320	1,286,176	.....
Nova Scotia.....	1923	.....	135,000	36,080	112,500	.....
	1922	.....	128,000	33,081	108,273	.....
Quebec.....	1923	.....	510,000	.....	.....	.....
	1922	.....	403,000	.....	.....	.....
New Brunswick.....	1923	.....	500,000	16,995	24,000	.....
	1922	.....	672,000	28,324	23,100	.....

By provinces, the total values in 1922 and 1923 are as follows:—

Province	1922	1923
	\$	\$
Ontario.....	14,295,140	11,890,860
British Columbia.....	9,181,902	11,397,934
Nova Scotia.....	7,947,118	8,146,156
Quebec.....	1,579,368	564,705
New Brunswick.....	895,593	415,865

The following table gives the quantity and value of all classes of fruit produced commercially in 1923:—

TOTAL PRODUCTION AND VALUE, ALL FRUITS, 1923

Class	Quantity	Value
Apples.....	4,493,183 barrels	\$ 24,489,350
Pears.....	227,335 bushels	550,587
Plums and prunes.....	348,482 "	696,964
Peaches.....	403,660 "	916,050
Apricots.....	32,850 "	.....
Cherries.....	203,125 "	772,440
Strawberries.....	8,652,200 quarts	1,513,230
Raspberries.....	4,496,840 "	1,044,000
Other berries.....	2,527,700 "	494,691
Grapes.....	42,185,077 lbs.	2,742,030
Total.....		\$ 33,219,342

MARKETS AND MARKETING

Profitable fruit growing depends in no small degree on available markets, organized marketing, and adequate transportation facilities. Much of the fruit grown in Canada is consumed in a fresh state within its own borders. Much of it is put through the process known as "canning," or is made into jam, to be consumed at seasons of the year when the fresh article is no longer procurable. With the growth of population and the development of transportation, domestic consumption of most fruits tends to increase and to keep pace with production. It is customary, however, in the case of apples to market a considerable percentage of the merchantable crop in the United Kingdom, where it is quickly absorbed by the large population.

Co-operative associations of growers for distribution and marketing have been organized in leading fruit districts. In Nova Scotia, upwards of forty per cent of the apple crop is handled through the United Fruit Companies of Nova Scotia. There are a number of co-operative associations in the apple-producing centres of Ontario, and in the Niagara district, the Niagara Peninsula Growers Ltd., markets a variety of fruits and vegetables. The Niagara district grape growers are organized for marketing. In British Columbia the berry growers of the lower Fraser valley and of Vancouver Island are organized as the Berry Growers' Co-operative Union.

For handling the output of their orchards, the fruit growers of the Okanagan valley in British Columbia have one of the most comprehensive co-operative enterprises in Canada, operating as the Associated Growers of British Columbia, Limited. Mechanical methods of grading have been introduced, along with wrapping and box packing for apples. As a result, an excellent reputation has been secured in both home and export markets. The ability of British Columbia, particularly the interior valleys, to produce high-grade apples has been fully attested at various exhibitions where the product came into successful competition with that of other provinces and countries. The latest outstanding achievement was when McIntosh apples produced in that province were awarded the premier prize at the Imperial Fruit Show held in Manchester in 1923, as the best dessert apple grown in the British Empire.

The British Columbia growers are no longer confining their attention to the prairie markets, looked upon hitherto as the natural market for their products, but are making a determined effort to secure a wider outlet.

As regards the Ontario apple crop, organized marketing is not so general, owing to the small orchard units which for the most part prevail. In the principal apple districts the grower either packs his fruit in the orchard and markets it himself, or else hands it to the packing house of the local association, where it is graded, packed and shipped. In many sections of the province the prevailing practice is to sell the crop on the tree to an apple buyer, whose packers travel from orchard to orchard, picking, packing and grading the fruit on the spot, and disposing of the output either for export or domestic consumption.

CANADIAN APPLE EXPORTS

The apple exporting provinces are Nova Scotia, Ontario, and British Columbia. The growers of Nova Scotia, because of their nearness to Atlantic ports and low cost of transportation, have for years marketed their surplus in Great Britain, and the same may be said in a lesser degree of the province of Ontario.

THE CANADIAN APPLE

Display of box packed apples at the National Apple Show, Vancouver, B.C.

The apple imports into Great Britain from Canada come almost entirely in barrels from Eastern Canada and chiefly from Nova Scotia, while those coming from British Columbia are in boxes.

Apple export figures denote rapid growth. From 1896 to 1916 an annual average of 1,000,000 barrels were exported, whereas in 1923, the total amounted to 1,550,000 barrels. The increased volume of exports is due in part to the fact that in Nova Scotia and British Columbia many young trees have recently come into bearing, and also, to some extent, to the development of the Panama canal route to Europe, through which, in 1922, 50,000 boxes of British Columbia apples were shipped to England. In the autumn of 1923, shipments were made to Great Britain and South Africa, by the Panama canal route, and more vessels are being equipped with refrigerator space to engage in this trade.

On the basis of present production, and without regard to possibilities for future development, Canada is in a position to greatly increase her apple exports, it being estimated that British Columbia alone could supply one-half of the dessert apples imported by the United Kingdom.

While Great Britain is Canada's best customer for apples, this fruit is also exported to various other countries, including the United States, Newfoundland, Bermuda, Norway, and British South Africa.

APPLE EXPORTS, QUANTITY AND VALUE

Year	Bbbs.	Value
1913-14.....	947,382	\$ 3,465,475
1918-19.....	405,058	2,041,076
1919-20.....	873,882	4,242,219
1920-21.....	1,358,499	8,299,099
1921-22.....	1,845,955	8,854,379
1922-23.....	1,550,000	6,452,044

BRITISH APPLE IMPORTS

The quantity of apples imported from Canada and the United States into Great Britain for the seasons 1922-23 and 1923-24 was as follows:—

	1922-23		1923-24 (to March 31)	
	Barrels	Boxes	Barrels	Boxes
Canada.....	1,242,008	332,126	1,314,105	564,882
United States.....	290,427	2,561,534	1,687,487	4,321,373

Reduced to terms of barrels on the basis of three boxes to the barrel, it will be seen that in the season of 1922-23 the United Kingdom imported 1,443,000 barrels from Canada and 1,444,271 from the United States. In the season of 1923-24 to the end of March, Great Britain imported 1,502,399 barrels from Canada and 3,127,945 barrels from the United States.

FRUIT FARMS IN THE NIAGARA DISTRICT, ONTARIO

Peaches, grapes, pears, plums, cherries, and small fruits are the products of this fertile district on the shores of Lake Ontario.

FRUIT AND VEGETABLE CULTURE IN THE PROVINCES OF CANADA

ONTARIO

Much of Ontario is well adapted to fruit and vegetable culture. Owing to variation in climatic and other conditions and to the vastness of its area, the kinds of fruits and vegetables that can be grown successfully cover a wide range. It is probable that in no other part of the world are better flavoured apples grown than in this province, and the apple is the most valuable of all the fruit crops produced, followed by grapes and peaches.

Many of the varieties of apples that are of the highest quality and in greatest demand, such as Spy, McIntosh, King, Baldwin, etc., do exceedingly well. Until recent years, recorded production was greater than in any other province. Potentially it is still far greater, as the number of apple trees, bearing and non-bearing, in 1921, was: Ontario, 5,479,787; other provinces combined, 6,295,539.

Unlike the provinces of Nova Scotia and British Columbia, where apple growing is a specialized industry, the bulk of the apples in Ontario are grown in farm orchards, and these have been planted over a wide area. Farmers who do not grow any other fruit for sale frequently have apple orchards of moderate size. The extent of the orchards and the amount of attention given depend on location as regards marketing and on the natural advantages of the district to the production of this fruit. In favoured districts, apple orcharding has become a specialized industry.

Ontario's commercial apple-producing districts are comparatively near to local markets, including the cities of Toronto, Ottawa, Montreal, as well as many smaller centres of population. The prairie markets also are well within reach, while for export apple shipments, the port of Montreal is of easy access.

In the country bordering the western end of lake Ontario, fruit growing is more specialized than in other parts of the province. A very large acreage in this district is devoted to the production of tender tree fruits and to the culture of small fruits.

Peach orchards were first planted in the Niagara district over one hundred years ago, and to-day the fruit is grown on a large commercial scale in this favoured section. Many of the comfortable homes in this part of the country have been paid for mainly from the returns from the peach crop. While peach culture is a fascinating occupation, its richest rewards are secured only by the skilful grower, and those undertaking it are advised not to depend entirely on this crop, but to grow a variety of fruits.

Taking one year with another, the grape is perhaps the most reliable fruit grown in the Niagara peninsula, as the crop is usually good and the average return fair.

Other fruits that are widely grown in the Niagara section, and to a less extent in other favourable localities, are pears, plums and cherries. On account of the prevalence of "fire blight" pears are not as widely grown as they might be otherwise.

Small fruits and vegetables are grown practically everywhere in the province, but more especially along lakes Ontario and Erie, where, among fruits, large acreages are devoted to strawberries, raspberries, currants, and gooseberries. In the southwestern district, spring comes from one to

three weeks earlier than in other sections, a fact that tends to make the production of early vegetables a profitable undertaking. In the counties bordering lakes Ontario and Erie, the growing of vegetables such as tomatoes, peas, beans, etc., for canning purposes has attained considerable proportions, and of recent years the growing of early vegetables under glass has had a marked development.

QUEBEC

Just as Nova Scotia is celebrated for the Gravenstein apple, the province of Quebec is noted as the home of the Fameuse. "La Belle Fameuse," as it is termed, is an apple attractive in form, colouring, texture, flavour, and whiteness of flesh. It is worthy of note that King Edward VII was supplied regularly with Fameuse from the province of Quebec for his own table. Besides the Fameuse, Quebec produces the McIntosh, and an early apple, named Duchess, to great perfection.

The apple is the principal tree fruit, taking the province over, and can be grown quite well in the St. Lawrence river valley, particularly on the "Island of Montreal" and in adjacent districts to the south of the river. This beautiful stretch of country, known locally as the Eastern Townships, possesses great opportunities for fruit growing and for apple culture in particular. Other tree fruits include the European plum and the cherry, both of which succeed well in favourable districts. Strawberries, raspberries and other small fruits are profitably grown in various districts but chiefly in the St. Lawrence valley, the climate being well adapted to their culture. The vicinity of the city of Quebec is particularly favourable for small fruits, yields at the Dominion Experimental Station, Cap Rouge, being among the largest obtained on any of the Experimental Farms of the Dominion.

Vegetables succeed admirably throughout the province, and the counties along the lower St. Lawrence are proving to be one of the best sources of seed potatoes.

Large areas of cheap land suitable for horticulture await development.

NOVA SCOTIA

The province of Nova Scotia, being a peninsula bounded by the waters of the gulf of St. Lawrence, the Atlantic ocean and the bay of Fundy, has on the whole a moderate climate. The valleys through which flow the Annapolis, Cornwallis and other small rivers, constitute a continuous depression of about one hundred miles in length and from six to eleven in width, protected from cold winds by parallel ranges of hills. This stretch of country includes one of the most wonderful fruit districts in the world. From Look Out, in King's county, five counties can be seen, where for as far as the eye can reach, orchard follows orchard with farm land between. When the trees are in bloom, filling the air with perfume, the impression is one that will never be forgotten.

The Annapolis valley has long been famous for its apples. Historical records, going back to 1663 or even earlier, give support to the belief that the province was the birthplace of apple culture in America. What Nova Scotians believe to be the crispest and finest flavoured apples on the American continent are the product of the cool, moist climate and fertile soil of this territory. Assuredly, nowhere else in Canada is the delicious Gravenstein apple grown quite so successfully.

EXPERIMENTAL STATION, KENTVILLE, N.S.

This station is located in the midst of the Annapolis Valley, Nova Scotia, a district famous for its apples. It is operated by the Dominion Department of Agriculture, chiefly as an experimental fruit farm.

While the orchards are mainly of the apple, many other kinds of fruits can be grown successfully. Pears, plums, cherries and small fruits do well, and the fact that they are not grown extensively is due to a limited home market for soft fruits. Apples on the other hand are readily shipped to Great Britain and Europe from the port of Halifax, a distance from Windsor, N.S., where the orchards begin, of only 47 miles.

The valley is served by a railway throughout its length. At distances of a few miles apart, apple warehouses exist, where the fruit is stored until shipped. Co-operative methods in the buying of fruit-growing supplies and in selling the crop are general.

Modern cultural practices prevail throughout the valley, including pruning, spraying or dusting, fertilizing, and cultivating, all of which are necessary to the attainment of perfect fruit. About 25 per cent of the valley area, or 30,000 acres, has been set out in orchards, and the average apple yield is approximately 2,500,000 barrels.

Vegetables succeed well in most places in Nova Scotia, and for the potato in particular the climate is very favourable.

NEW BRUNSWICK

From a fruit-growing point of view the province of New Brunswick has been somewhat overshadowed by the adjoining province of Nova Scotia. But anyone who is acquainted with the highly coloured apples of the St. John river valley, and other parts of the province, will recognize that New Brunswick apples of the McIntosh, Fameuse and other dessert varieties are second to none. At the first Imperial Fruit Show held in London, this province was awarded a first prize in the overseas section.

The beautiful valley of the St. John river with its many favourable orchard sites offers one of the best opportunities in Canada for successful apple orcharding. In this valley, as well as in other parts of New Brunswick, the pear, plum, and cherry can be grown successfully. Though the apple is the chief commercial fruit, the climate is highly suitable for the cultivation of the small fruits. The valley of the Kennebecasis river is famous for strawberries, and in the southwestern portion of the province, adjoining the bay of Fundy, the tenderer varieties of fruit are particularly successful.

New Brunswick is noted throughout Eastern Canada for the production of potatoes of exceptional quality for table use and also for seed. The comparative cool climate and the sharp sandy and loamy soils produce potatoes of a very attractive appearance, and in no other part of Canada has this crop become relatively so important as in New Brunswick. In 1923 the estimated area planted to potatoes was 45,500 acres, giving a yield of 6,150,000 cwt., and a value of over six million dollars.

PRINCE EDWARD ISLAND

The climate of Prince Edward Island, popularly known as the Garden of the Gulf, is very favourable to horticultural crops, with the exception of peaches, grapes, melons, tomatoes, which require higher temperatures than those prevailing. Winter and summer temperatures alike are moderated by the waters of the gulf of St. Lawrence, while the rainfall is abundant and well distributed, and the soil fertile.

Orcharding has been retarded owing to lack in the past of transportation facilities. Now that this condition is improving, there seems no reason why large areas should not be planted to apples, of which many varieties succeed well. Ripening is retarded by the cool summers, but the fruit keeps much longer on that account.

Pears, plums and sour cherries succeed, and the earlier varieties of grapes mature. Small fruits are exceptionally successful and ripen at a later date than on the mainland, thus commanding good prices in the Canadian and American markets after fruit from other places is gone.

Nearly all the vegetables grown elsewhere in Canada succeed well and remain in edible condition longer than in the interior of the country where less moisture and higher temperatures are experienced. The potato is the leading vegetable crop, the Island potatoes being shipped as far as Cuba and the West Indies.

ORCHARD SCENE IN BRITISH COLUMBIA

View of the Okanagan Valley in British Columbia celebrated for its apples and other fruits.

BRITISH COLUMBIA

Recent years have witnessed a marked development of horticulture in the province of British Columbia. The first fruit trees were planted a little more than half a century ago, but until the advent of the railways, there was no incentive to commercial fruit growing.

The climate of British Columbia is the most varied of all the provinces of the Dominion. Between the mildest climate in Canada in the southeastern part of Vancouver Island to one of the coldest in the north-western part of the mainland, there are many gradations, and those who are unacquainted with the province will have difficulty in realizing the differences that occur within a short distance, both in temperature and precipitation.

The small fruit industry has its greatest development on the rich lands of the lower Fraser river valley, where large crops of the finest strawberries and raspberries are obtained. This district is also noted for large crops of potatoes and other vegetables.

The southwestern portion of Vancouver Island has a dry summer and a rather wet winter, almost without frost. The outstanding fruits for profit are, perhaps, the sour cherry, the pear, and the strawberry, but all the well-known fruits succeed, as well as the English walnut and the filbert.

Orcharding has attained its most widespread development in the Okanagan lake region and adjacent valleys of the interior. Apples, cherries, plums, prunes, and pears, among tree fruits are extensively grown, as well as the peach and apricot in the southern sections. In these valleys great advances have been made in methods of orcharding, packing and marketing, and the product is of a standard equal to that of the adjacent states of Washington and Oregon.

The Upper Okanagan includes the towns of Vernon and Kelowna, and has a large area planted to orchards. Near Vernon is the well-known Coldstream Ranch, one of the first of the large orchards set out in this district. The elevation of the orchard sites is from 1,200 to 1,700 feet above sea-level. The summers are warm and dry and irrigation is necessary for best results. The lower levels are noted for fine vegetables, including onions.

The Lower Okanagan Lake district, which includes Peachland, Summerland, Naramata, and Penticton, has a somewhat milder winter climate, and tender fruits such as peaches and apricots succeed well. Early vegetables are successfully grown. A large proportion of the available land is under orchard, and as the summer is dry and warm, irrigation is necessary.

At Creston in West Kootenay there is a large area suitable for fruit growing without irrigation, and some of the best fruit in British Columbia is grown in this district.

In many other parts of the province there are areas suited to the commercial production of apples, pears, plums, and cherries, as well as small fruits.

At Terrace, in central British Columbia, the strawberry grows to perfection, and a successful small fruit industry is being developed. Very little is known, however, of the horticultural capabilities of the immense central district north of the main line of the Canadian Pacific Railway, although there are many valleys favourably situated for fruit growing.

British Columbia is well adapted both by soil and climate to the production of vegetable and flower seeds, and the industry is on the increase. Besides certified seed potatoes, carrot, turnip, onion, mangel, and other vegetable seeds are grown to a limited extent. Among flower seeds, sweet peas are produced for seed, chiefly under contract with leading British seed houses. Experiments in bulb culture are carried on at the Dominion Experimental Farm on Vancouver Island, and the results are looked upon as promising.

FRUIT FARMS IN THE OKANAGAN VALLEY, BRITISH COLUMBIA

This district is sometimes referred to as the California of Canada. While noted chiefly for apple culture, peaches, apricots, grapes, and early vegetables are grown successfully.

PRAIRIE HORTICULTURE

In the Prairie Provinces of Manitoba, Saskatchewan, and Alberta, vegetables and small fruits are grown with marked success in many districts. In favourable localities, and where protected by shelter belts of trees, crab-apples, hardy plums, raspberries, currants, and other small fruits give bountiful crops.

Much valuable work for the promotion of horticulture is being done by the Dominion Experimental Farms and Stations which have been established in many districts, and also by provincial institutions, such as the Manitoba Agricultural College, and the Universities of Saskatchewan and Alberta. Enormous numbers of trees are distributed yearly by the Dominion Forestry Stations to be planted as shelter belts and windbreaks, thus making it possible to grow fruits and vegetables on the otherwise wind-swept prairies. New varieties of fruits and vegetables, better adapted to climatic conditions, are gradually being evolved, and as time proceeds a notable development of prairie horticulture is regarded as certain.

Manitoba.—The wild plum and cherry, and the Pembina or High Bush cranberry are common. Wild raspberries, gooseberries, currants, and strawberries are abundant. These fruits are taken advantage of by settlers, and when canned or preserved furnish a supply of fruit for winter use. In the older settlements they are not as plentiful as formerly, and cultivated fruits are sought for.

Vegetables produce well in all parts of the province, and in the south the tomato ripens successfully. The market gardens in the vicinity of Winnipeg are famous for fine vegetables. Potatoes, cabbages, cauliflowers, sweet corn, carrots, beets, beans and peas, are extensively grown in this locality, and large areas produce onions and cucumbers for pickle manufacture.

Saskatchewan.—This being one of the most recently settled of the Canadian provinces, comparatively little progress has been made as yet in the development of horticulture. The native plum is found in sheltered situations, but even the most hardy of the cultivated varieties of tree fruits do not withstand the low winter temperatures frequently experienced. Strawberries, raspberries, currants, and gooseberries succeed with protection. Large crops of potatoes are produced, and all the hardier vegetables grow well. Tomatoes cannot be depended on to ripen much fruit, but certain varieties of sweet corn are reliable.

Alberta.—In the dryer districts of southeastern Alberta, native fruits are not so abundant as in regions farther north where there is more rainfall. Irrigation has, however, been applied to a considerable area in the south. This assures good commercial crops of small fruits, the raspberry in particular yielding abundantly.

Apples of the hardier Russian sorts have been produced in southern Alberta, but from time to time the trees are winter killed and have to be replaced.

Farther to the north, small fruits and vegetables succeed without irrigation. Even in the sparsely settled country for hundreds of miles north of the city of Edmonton, vegetables, including asparagus and rhubarb, do remarkably well.

With shelter belts of trees to protect the garden from strong winds, which are prevalent in the treeless parts of the province, the settler can grow an abundance of fruits and vegetables.

GOVERNMENT ASSISTANCE AND REGULATION OF THE FRUIT AND VEGETABLE INDUSTRIES

Experimental work with varieties and cultural practices in fruit and vegetable growing, is carried on by the Federal authorities, as well as by the several Provincial Governments. The commercial services, or those having to do with trade regulation and promotion, come under the jurisdiction of the Dominion Government, while those relating to instruction and education are largely, but not exclusively, under provincial control.

The marketing of fruit is regulated under *The Fruit Act*, administered by the Fruit Branch of the Dominion Department of Agriculture. The Act defines grades, dimensions of containers and the marking thereof. Originally, the Act applied chiefly to apples, but of recent years all kinds of deciduous fruit have been brought under its provisions. Standardization has led to marked improvement in merchandising conditions both in home and export markets.

To insure that the provisions of the Act are complied with, a Government inspection service is maintained at principal shipping points, marketing centres, and at ports of export.

The Fruit Act (1923) specifies the dimensions of the barrel, half-barrel, boxes, crates, and baskets in which apples, pears, peaches, plums, prunes, cherries, currants, strawberries, and other berries may be marketed. It further provides that closed containers must bear the name and address of the packer, either as an individual or corporation, the name of the variety, and the mark indicating the grade of fruit contained therein.

Fruit Grades.—Fruit, packed in barrels, is graded as No. 1, No. 2, Domestic, and No. 3. These grades are defined as follows:—

“No. 1,” which shall include only well-grown hand-picked specimens of one variety, sound, of not less than medium size and of good colour for the variety, of normal shape and not less than ninety per cent free from scab, worm-holes, bruises, and other defects, no culls, and properly packed.

“No. 2,” which shall include hand-picked specimens of not less than nearly medium size and some colour for the variety, sound and not less than eighty-five per cent free from scab, worm-holes, bruises, and other defects, no culls, and properly packed.

“Domestic,” which shall include only hand-picked specimens of not less than medium size for the variety, sound and not less than ninety per cent free from worm-holes (but may be slightly affected with scab and other minor defects), no culls, and properly packed.

“No. 3,” which shall include only hand-picked specimens, no culls, and shall be properly packed.

When packed in boxes, apples, crab-apples and pears must be one of five grades, namely: “Extra Fancy,” “Fancy,” “C,” “Combination Extra Fancy and Fancy,” “Combination Fancy and C.”

The Root Vegetables Act.—The Root Vegetables Act, administered by the Fruit Branch of the Dominion Department of Agriculture, regulates the inspection and sale of root vegetables in Canada. The Act requires that vegetables shall be sold by weight; provides for the marking of packages; for Government inspection, and defines standard grades for potatoes and onions offered for sale within the Dominion. For fraudulent packing, penalties are provided.

HARVESTING THE APPLE CROP

Commercial Services.—In addition to the regulation of the fruit industry, the Government conducts numerous services to assist in commercial development. As well as administering the Fruit Act, the Dominion Fruit Branch has a Markets Extension Division charged with the giving out of information as to supply, distribution, prices and general home and export market conditions and requirements. This branch also makes a study of fruit transportation methods and problems, having regard to the safe and rapid carriage of fruits and vegetables, and the extension of markets for those products. Assistance is given in the adjustment of rates for carriage and in the settlement of disputes between buyer and seller.

The temperature conditions under which fruit is carried on ship-board are supervised by the Dominion Dairy and Cold Storage Commissioner, and experimental pre-cooling and cold storage warehouses are occasionally operated as demonstrations.

Under the jurisdiction of the Department of Trade and Commerce, but in close association with the Fruit Branch of the Department of Agriculture, a Fruit Trade Commissioner is stationed in England, to represent Canadian interests both in the United Kingdom and on the Continent. The address of this officer is 31, North John Street, Liverpool, England.

Experimental Work.—Experiments of a cultural nature, and the testing of varieties under varying conditions of soil and climate, are organized and conducted through the Division of Horticulture of the Experimental Farms Branch of the Dominion Department of Agriculture, through the Central Experimental Farm at Ottawa and numerous branch Farms and Stations throughout the Dominion.

Among the major activities of the Division of Horticulture is the origination of new varieties of fruits and vegetables through scientific plant breeding, with the object of securing improvement and better adaptation to native conditions.

For many years much attention has been given to the origination of new varieties of apple. Several of these are now being introduced and give promise of being useful additions to the list of autumn and early winter varieties. One, an apple of McIntosh parentage, named *Lobo*, received the Wilder Medal in 1923 from the American Pomological Society.

Many hardy seedling apples and plums, the results of controlled plant breeding, are being tested for suitability to prairie conditions at the Dominion Experimental Station at Morden, Man. At this Station has been gathered together one of the most extensive collections of hardy fruits in America.

Other Dominion Stations devoting special attention to horticulture are located at Kentville, N.S.; Fredericton, N.B.; Cap Rouge, Que.; Summerland, B.C.; and Saanichton, on Vancouver Island.

The Ontario Department of Agriculture operates a well-equipped horticultural experiment station at Vineland in the Niagara District, while at the Ontario Agricultural College, Guelph, good work in fruit breeding is being done, particularly with the apple and the strawberry.

Insect and Plant Disease Control.—Under the Destructive Insect and Pest Act, investigations are made into the diseases and insects affecting fruits and vegetables, and measures promulgated for their control and abatement, and to prevent their further introduction and spread. The Act is administered by two branches of the Federal Department of Agriculture, namely the Entomological Branch and the Botanical Division of the Experimental Farms.

Regulations under the Destructive Insect and Pest Act, now in effect, require that all importers of horticultural plants shall first apply for and secure a permit from the Destructive Insect and Pest Act Advisory Board,

Spraying trees to prevent insect and fungous injury and ensure a crop of unblemished fruit.

Ottawa, and file said permit with the Collector of Customs at the port of entry, where the shipment is inspected on arrival.

All importations of nursery stock must be accompanied by a certificate of inspection issued by an authorized official in the country of origin, stating that the stock is apparently free from any disease or pest within the meaning of the Act.

Nursery stock may be imported only through the ports of St. John, N.B.; Montreal, Que.; Ottawa, Ont. (for scientific purposes only); Niagara Falls, Ont.; and Vancouver, B.C.

The importation of a number of species of plants is prohibited as a measure of protection against certain pests and diseases.

Seed Production.—Under the Dominion Botanist, the inspection and certification of seed potatoes is carried on in all the provinces of Canada with the exception of British Columbia, which maintains a provincial service conforming to Dominion standards. Approximately 10,000 acres were inspected in 1923. Certified seed potatoes are exported to the United States, Bermuda, and elsewhere.

Representative Bodies.—A central organization, known as the Canadian Horticultural Council, with headquarters at Ottawa, represents horticulture in general. Special committees of the Council represent fruit growers, vegetable growers, florists and gardeners, the wholesale trade.

PRAIRIE FRUIT GROWING

Luxuriant growth of raspberries in Manitoba, indicating the possibilities of small fruit production in the Prairie Provinces of Canada.

manufacturers of containers, jam manufacturers, canners, nurserymen, and amateur horticulturists. A system of recording and registering new varieties of plants has been put into operation, and trial gardens are being established. The Council receives a grant from the Federal Government.

Provincial Fruit Growers' Associations exist for the benefit of the industry in Nova Scotia, New Brunswick, Quebec, Ontario, and British Columbia, to which provincial legislative grants are made.

Publications.—Bulletins and pamphlets, based on investigation and experiment and dealing with cultural practices, insect pests, and plant diseases, are issued by the Departments of Agriculture, Dominion and Provincial, and distributed free for the information and assistance of those engaged in the fruit and vegetable industries.

THE FRUIT AND VEGETABLE PACKING INDUSTRY

The combined industries of canning* and evaporating fruits and vegetables and the making of jams, jellies, etc., constitute an enterprise of considerable magnitude in Canada. The number of establishments engaged therein is 220, representing a capital investment of \$18,634,000 with an output having a gross value of \$18,036,500.

Of the total number of factories, 156 are in the province of Ontario, 26 in British Columbia, 22 in Quebec, 14 in Nova Scotia, and 2 in Alberta.

Fruits and Vegetables, Canned.—The production of canned fruits amounted in 1922 to 732,261 cases, having a total value at the factory of \$2,783,890. The output comprised apples, pears, peaches, raspberries, and other fruits, in the order given.

The output of canned vegetables was 3,058,000 cases, having a total at the factory of \$7,708,870, the leading products being tomatoes, sweet corn, and beans.

Fruits, Preserved.—Under this heading are included jams, marmalades, jellies, preserved or crushed fruits, and fruit syrups. Strawberries and raspberries constitute two-thirds of the fruit used in jam-making. The output in 1922 had a factory value of \$5,979,669, and comprised 35,086,109 pounds of jams, jellies, and marmalades, and 506,187 gallons of fruit syrups and preserved or crushed fruits.

Fruits, etc., Evaporated.—Production under this head in 1922 comprised evaporated apples,† 7,160,328 pounds; relishes, pickles, mincemeat, vinegar, cider, and various other commodities, having a total value of \$1,564,000.

Government Regulation.—Under the *Meat and Canned Foods Act*, government supervision is exercised in Canada over the production of canned fruits and vegetables and fruit preserves. This gives assurance that they are processed under sanitary conditions, and that sound materials only are employed, and guarantees the wholesomeness of the product. All export consignments must be certified by government inspection.

Canada is believed to have been the first country to require that fruits and vegetables subject to commercial canning processes, and intended for export or interprovincial trade, should conform to specified standard grades, and that information as to the quality, size, etc., of the contents should be printed on the label of the container, together with the assigned number, for identification, of the factory producing the article. Under this system, importer and consumer have assurance that the product will be of the grade, quality and quantity specified on the container, irrespective of the particular firm producing it.

Dehydration Experiments.—Experiments in the drying of fruit under modern processes of dehydration have recently been conducted by the Dominion Department of Agriculture, in several of the major fruit districts. Peaches, plums, apples, strawberries, and other small fruits have been satisfactorily treated. The results give promise of commercial development, which may lead to Canada supplying her own demands for many classes of dried fruits, and possibly to an export trade.

* Canning is the term used to denote the process of sterilizing and packing fruits and vegetables in cans or other air-tight containers for domestic use.

† Evaporated apples, 5,120,077 pounds; apple chop, etc., 2,040,251 pounds.

CANADIAN FRUIT PRESERVING INDUSTRY
Interior of factory showing fruit being prepared.

IMPORTS AND EXPORTS CANNED, DRIED AND PRESERVED FRUITS AND VEGETABLES

Year ending January 31, 1924

	Imports		Exports	
	Quantity	Value	Quantity	Value
		\$	Pounds	\$
FRUITS, CANNED AND PRE-SERVED..... (lbs.)	14,716,520	1,413,722	.....	732,071
Jellies, jams, etc..... (lbs.)	1,607,659	264,677	.....	.....
FRUITS, DRIED AND EVAPORATED				
Apples..... (lbs.)	1,217,106	56,478	1,784,583	181,267
Apricots..... (lbs.)	1,695,619	147,688	.....	.....
Peaches..... (lbs.)	1,721,919	150,242	.....	.....
VEGETABLES, CANNED AND DRIED..... (lbs.)	9,053,181	950,047	17,520,167	1,250,140
Pickles and sauces..... (gals.)	397,464	540,887	.....	.....
Total value.....	.....	3,523,741	.....	2,163,478

EXPORTS OF CANNED, DRIED AND PRESERVED FRUITS AND VEGETABLES, BY COUNTRIES

Year ending January 31, 1924

	Fruits Canned and preserved	Vegetables Canned and Dried		Apples Dried and Evaporated	
	Value \$	Quantity (Pounds)	Value \$	Quantity (Pounds)	Value \$
United Kingdom.....	56,727	11,332,534	933,180	581,950	57,674
United States of America.....	8,211	6,363,505	296,436	36,500	4,200
Netherlands.....	228	.....	.....	932,828	96,641
Newfoundland.....	1,513	505,439	34,119	89,650	8,223
Bermuda.....	233	96,778	8,154	.....	.....
Other countries.....	2,724	295,134	20,638	143,655	14,556
British South Africa.....	.....	126,070	7,276	.....	.....
Cuba.....	.....	493,440	40,210	.....	.....
France.....	.....	21,250	1,950	.....	.....
New Zealand.....	.....	29,861	2,872	.....	.....
Total.....	69,636	19,264,011	1,344,835	1,784,583	181,294

CANADIAN HONEY

Canadian honey is of unsurpassed quality, being light in colour and delicately flavoured. Its high quality has been demonstrated at leading exhibitions both on the American continent and in Europe, including London, Paris, Chicago, Buffalo, and St. Louis.

Bees can be kept profitably almost anywhere in Canada, and there is evidence at the present time of a growing interest in apiculture throughout the Dominion.

In Ontario and Quebec the industry may be said to have passed the experimental stage and is now recognized as an important and profitable branch of agriculture. The former province produces an average of about 10,000,000 pounds of honey annually, from white dutch clover, alsike clover, sweet clover, basswood, and buckwheat.

The beekeepers of Ontario have a province-wide co-operative organization for marketing their crop, known as the Ontario Honey Producers' Co-operative Limited. Although it has been in operation for only one year, its success as a merchandising medium seems assured. The company now controls and grades about eighty per cent of the crop. In 1923, this organization shipped more than thirteen carloads of honey to England and to European countries.

During the past few years Ontario has not produced nearly enough comb honey to supply domestic demand, but there is at present a tendency to produce a larger proportion of this delicious creation of the honey bee.

On account of the interdependence of bees and flowers, many Ontario fruit growers and farmers are keeping bees for the great benefit derived from the pollination of their crops as well as the production of nature's purest sweet.

The annual production of honey in the province of Quebec amounts to 3,500,000 pounds of extracted honey and 300,000 pounds of comb honey. The industry is represented by the Quebec Bee-Keepers' Co-operative Association, and the product is graded and marketed on the co-operative plan, according to quality.

The interest in bees and bee-keeping in Western Canada is spreading rapidly, as evidenced by increasing production. There were 1,200 beekeepers in the province of Manitoba in 1923, and production from 19,416 hives amounted to 3,041,712 pounds, which is at the rate of 155 pounds per hive. In British Columbia the honey output for 1923 was 432,518 pounds, and the number of apiaries is increasing steadily, with the demand for native honey greater than the supply.

CANADIAN HONEY

Exhibit of honey made by the Ontario Beekeepers' Association at the Royal Winter Fair, Toronto.

MAPLE SUGAR AND SYRUP

One of the oldest native industries in Canada is that of producing sugar and syrup from the sap of the maple tree. The journals of early explorers, dating as far back as 1673, refer to the annual tapping of the maples in the St. Lawrence river valley. Early settlers learned sugar-making from the Indian aborigines, but, needless to say, methods have entirely changed since the days when the Indian tapped the trees by gashing with a tomahawk, and boiled the sap by dropping hot stones into the container, until a small quantity of dark, thick syrup resulted. Under modern methods and equipment, a revenue-producing industry of considerable importance has been developed.

The higher grades of sugar and syrup are produced from clear, fresh maple sap. This is conveyed to the sugar-house, a structure built in the woods for the purpose, and quickly evaporated in special apparatus. The lighter the colour of the product, the greater is the delicacy of flavour. Genuine maple products of high quality are always in demand for table use and in the manufacture of various confections.

The maple sugar industry holds a place of prominence over large areas in Quebec and to a lesser extent in Ontario, New Brunswick, and Nova Scotia. It is estimated that 50,000 farmers engage each spring in the work, and that the province of Quebec produces about 90 per cent of the total output.

Production for 1923 was 8,215,975 pounds of sugar and 1,250,650 gallons of syrup. For the five-year period, 1918 to 1922, the total value of recorded production was \$32,179,000.

On many farms the sugar bush is simply the woodlot which has been preserved to supply fuel and to provide an annual crop of sugar and syrup to be used as a delicacy and sold to private customers.

It is not, however, from these small groves that the great marketable supply is secured, but rather from the more rugged areas where the plough is not easily operated. The groves, as found in the principal sugar counties, are chiefly maple trees, the other kinds having been removed for fuel or lumber. This is the condition in many of the settled counties of eastern Ontario and of Quebec, where the same groves may have been tapped by several generations. In the more northerly parts of these provinces there are considerable stretches of primeval forest in which the sugar maple predominates. With the object of improving the product and promoting sales, an association has been organized with headquarters at the Department of Agriculture, Quebec, Que., known as The Maple Syrup and Sugar Makers' Association of Canada.