

**CANADIAN HORTICULTURAL COUNCIL**



**Industry Renewal:  
National Replant Strategy  
for Tree Fruits and Grapes**

**A Role for  
The Governments of Canada and the Provinces**

**June, 2005**

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# **1. Statement of the Opportunity**

## **1.1 A Growing Market**

Canada's Food Guide recommends that Canadian consumers eat five to ten servings of fruits and vegetables every day. Canadians have been responding to this advice: the average per capita consumption of fruit increased from 88 kg to 94 kg during the eight years from 1995 to 2003. The purpose of this strategy paper is to set out a national competitiveness strategy to lead Canadian tree fruit and grape producers to capture an increasing share of this domestic growth market and to expand their presence in international markets.

## **1.2 The Goal – To Grow At Home And Abroad**

The large segment of Canadian agriculture represented by tree fruits and grapes accounted for farmgate value of \$300 million in 2004. This national competitiveness strategy for tree fruits and grapes seeks to increase the farmgate value 50% to \$450 million by 2020, over the next fifteen years, and to achieve one-third of the industry's sales from international markets. Increases in farmgate value can be gained both by increasing the value per unit and by increasing the volume of units on the same land base. This strategy seeks to achieve growth by increasing both factors and thereby raising returns to producers. To achieve this improvement in returns, three things beginning with "r" are necessary – renew infrastructure and refocus marketing by public-private reinvestment.

## **1.3 The Time Is Right**

Why is a national competitiveness strategy needed? Economists often measure competitiveness by reference to sustained market share. Canadian tree fruit and grape producers collectively have been gradually losing market share at a time when the overall

market for fruit, in both fresh and processed forms, has been growing. Viewed by this measure, Canada's tree fruit and grape producers have been losing their competitive edge. Now is the time to implement a comprehensive strategy to effect a turnaround, to regain market share lost to imports, and to position the industry for sustainable growth.

### **1.3 The Two Pillars Of Success**

The foundation of a successful national competitiveness strategy rests on two pillars:

- Effective marketing
- Efficient production

These two pillars must be closely interconnected so that production is geared to supplying what the consumer wants. In tree fruits and grapes, this alignment of production capacity with market needs is particularly challenging because the cycle time to bring fruit into production is measured in multiples of years. In the development and implementation of the national competitiveness strategy, Canada has catching up to do vis-à-vis its international competitors. The support of government is needed to accelerate the process to restore Canada's competitive edge.

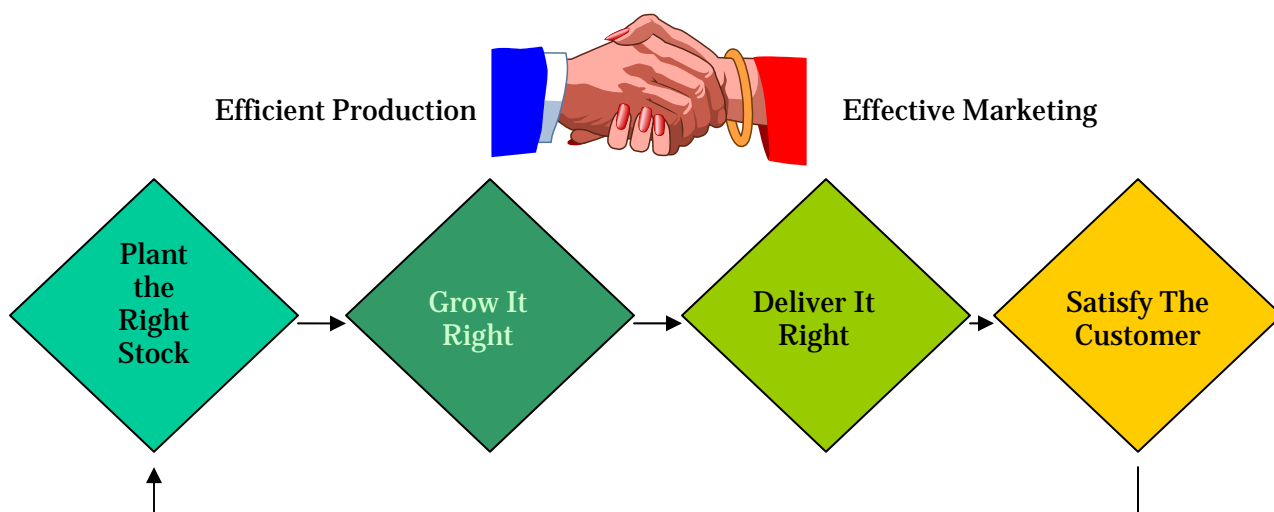
Tree fruits and grapes are perennials. In this respect, they are very different from other horticultural and field crops for which annual planting decisions are made. They require a unique strategy, in which public funds play a key role to leverage and drive innovation, to ensure their long-term viability.

With industry and governments working together as partners in the implementation of the national competitiveness strategy, what needs to be achieved over the next fifteen years can be done.

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## 2. Seven Year Competitiveness Strategy



### 2.1 Plant The Right Stock

The focus of this report is on the first element of the strategy – plant the right stock. Unlike other sectors of agriculture that operate on *annual* production cycles, orchards and vineyards represent a significant *long-term* investment in production infrastructure. In order to be competitive with countries with younger infrastructure supplying product to our domestic market, Canadian orchard and vineyard infrastructure needs renewal and reinvestment:

- Production *capacity* needs to be better aligned with consumer needs – the varieties and cultivars in production may no longer be the best ones for the market
- Production *technology* needs to take advantage of innovation – higher density plantings on newer rootstocks will increase yield (productivity), result in lower labour costs, and result in less application of crop protection materials per tonne of fruit produced; informed selection of cultivars offers growers opportunity for enhanced natural resistance to disease and better winter hardiness for conditions in their region

- Optimize the return on the significant public investment in tree fruit and grape research to ensure that innovation proven “on the bench” is transferred commercially to the orchard and vineyard with the least possible lapse of time

## **2.2 Grow It Right**

This element of the competitiveness strategy has been significantly developed as part of the Integrated Fruit Production (IFP) project done with funding provided in part from Canadian Adaptation and Rural Development (CARD) Fund of Agriculture and Agri-Food Canada. This project led to the development of national guidelines and region-specific protocols to apply the principles of IFP. This systematic approach assures consumers of production under safe and ecologically-responsible conditions following best agricultural practices.

The optimization of IFP practices depends on the implementation of the first part of the strategy, “Plant It Right.” Utilizing the latest technologies including high density planting, trellises and pruning systems, IFP can achieve its greatest potential.

## **2.3 Deliver It Right**

Canadian producers compete in the globalized market for tree fruits and grapes. Imports from the southern hemisphere, from Washington State and from Asia are competitive realities that are here to stay. Canadian producers enjoy significantly shorter supply lines in the domestic market than international competitors and must leverage this logistical advantage in terms of the level of service provided to major accounts. It provides Canadian packers with the opportunity to utilize such innovative packaging technologies as returnable containers that would be cumbersome for offshore competitors to adopt. Every possible advantage in distribution will be exploited.

As the grocery retail market for fresh tree fruits and grapes has consolidated, with very few major buyers, the Canadian industry will increasingly need to develop ways to provide national distribution to major accounts, drawing on supply from the different

producing regions of Canada. Canadian suppliers do not have a history of such close levels of inter-provincial marketing cooperation but it must compete with international suppliers which are able to provide such a “one-stop shop” order point, selling program and consistent supply of product. The national competitiveness strategy anticipates that the apple producing regions will form a national marketing strategy working group with representation from other value-chain partners including packers, processors and retailers. This team will contract for market intelligence and consumer research to develop a full understanding of trends in consumption in the domestic market and the perception of Canadian-grown tree fruits, grapes and products processed from them, recognizing that the Canadian market is a composite of many different regional and metropolitan markets with unique characteristics. Drawing on this foundation, the team will first formulate a strategy to increase domestic consumption of Canadian-grown tree fruits and grapes and implement a national marketing campaign. Among the messages expected to be delivered is that “tree fruits and grapes are good for you,” informing consumers of their contribution to health and wellness as one means of driving consumption. The role of the “Canada brand” in both the domestic and export markets will also be assessed and developed based on the market research done, to improve its image and increase consumer loyalty.

The adoption of IFP as set out in the previous section lends itself to another area of competitive advantage: traceability from the tree or vine to the consumer. Because Canada’s producers, packers and processors together exercise control over the supply chain, Canadian-grown tree fruits and grapes can be effectively traced to the point of origin, providing consumers with enhanced assurance of food safety.

## **2.4 Satisfy The Customer**

The demographics of Canada’s population are constantly changing. The indigenous population is, on average, growing older and the immigrant population is contributing to greater ethnic diversity. The industry will constantly monitor consumer needs and seek to identify long-term trends in tree fruits and grapes in both fresh and processed formats. One of the challenges is that the cycle time for a major swing in consumer preferences may be shorter than the cycle time for planting and growing the fruit. For

this reason, it is important also to monitor innovation and trends occurring in competing countries. The first entrants in any market generally obtain above average returns in the first part of the product life cycle. Canadian producers will ensure that they are leaders in innovation and capture the first stages of the product life cycle as often as possible, rather than reacting to innovation in other producing countries, and seeking to catch up once its market acceptance in Canada has been established. The national competitiveness strategy will undertake a nationally coordinated consumer marketing research initiative that profiles different regional preferences across Canada. Part of the national marketing research and intelligence initiative will include investigating consumer perceptions of current grading standards and seeking changes in terminology that better inform the consumer.

The grocery retail landscape in Canada and the rest of the world is changing too. There is more consolidation of ownership of banners and more centralized distribution to achieve economies of scale. Canada's packers and processors will need to form more alliances in order to have sufficient supply for the needs of large scale buyers. The national marketing strategy development and implementation will contribute to developing more national approaches to addressing challenges in the domestic market.

There is a growing body of clinical evidence that shows how beneficial tree fruit and grapes are in contributing to human health and nutrition. An ancient observation made by Hippocrates, the father of the western medical tradition, has proven to be remarkably accurate: "Let your food be your medicine, and your medicine be your food." Recent clinical studies indicate that tree fruits and grapes contain nutrients and phytochemicals that make a significant contribution to human health and wellness:<sup>1</sup>

- Soluble and insoluble fibre that have been clinically shown to contribute to the lowering of cholesterol levels and the removal of heavy metal toxins from the body

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<sup>1</sup> The following information is taken from The World's Healthiest Foods website, [www.whfoods.com/eathealthy](http://www.whfoods.com/eathealthy), a website supported by George Mateljan Foundation in the United States to offer the latest scientific information about the benefits of the World's Healthiest Foods and the specific nutrients they provide. Much more detailed information, including reference to specific clinical studies, is provided on the website.

- Flavonoids that lower the risk of heart disease and boost the immune system's defences against cancer because of their anti-oxidant attributes
- Phenols that naturally enhance the skin's protection against ultra-violet radiation
- Carotenoids found in fruits like apricots and grapes can protect against severe forms of age-related macular degeneration which causes vision loss

As more clinical work is done to document the health benefits of tree fruits and grapes, it will contribute to increased consumer demand. An increasingly important role of "satisfying the consumer" will lie in communicating the health benefits gained from eating tree fruits and grapes in both fresh and processed forms. It also opens up research opportunities to assess whether the beneficial properties of tree fruits and grapes are greater if allowed more time to ripen on the tree or vine, thus potentially conferring an advantage on Canadian grown product over product imported from Asia or the southern hemisphere, which must be picked at an earlier stage to ship long distances.

Strengthening the capacity of the domestic food supply to provide products that are healthful for Canadians is in the public interest. By implementing the national competitiveness strategy for tree fruits and grapes, the Canadian public will be assured of long-term access to domestically sourced healthy food. In addition, the development of bio-products from tree fruits and grapes including parts of the crop such as grape seeds or sour cherry pits that may now be going to waste, opens opportunities for emerging high value niche industries with global scope.

Canada's processors and wineries are important downstream customers for apples, other tree fruits and grapes. Significant value is added by the production of such important products as award-winning wines, apple slices, juices, sauces, and purées. The national competitiveness strategy will include their participation to ensure that enhancements to varieties and production technologies are responsive to their needs.

## 2.5 Summary – National Competitiveness Strategy

Strategic Initiative	Goals	Actions
<b>Plant It Right</b>	Achieve renewal of 25% of tree fruits and grapes in the ground over seven years from 2006 to 2012	Public-Private Industry Infrastructure Renewal Program
<b>Grow It Right</b>	Integrated Fruit Production (IFP) system adopted and in use by over 90% of Canada's tree fruit and grape producers	Continuing education of growers to encourage adoption of the program
<b>Deliver It Right</b>	After gathering market intelligence and undertaking original consumer market research, develop and deliver a national marketing strategy with a focus on how tree fruits and grapes contribute to health and wellness	Formation of a national marketing task force with value chain representation from grocery distributors, packers and grower organizations
<b>Satisfy the Customer</b>	Through market research, gain a better understanding of consumers' preferences in both the domestic and targeted export markets, and utilize that understanding to hold and gain market share for the long-term.	<p>Development of the profile of Canadian consumers in relation to trends in their consumption of tree fruits and grapes through targeted market research</p> <p>Reconnaissance in international countries competing in the domestic market to keep informed about their innovations in cultivars and technology and how they could be utilized by Canadian growers</p> <p>Development of a national plan for expanding export sales of tree fruits and grapes in both fresh and processed forms</p>

In the balance of this report, the further elaboration of this strategy is only concerned with the Public-Private Industry Infrastructure Renewal Program. The reason for this emphasis is that this strategic initiative is listed first because all of the other elements of

the strategy depend on it. Without a concerted plan to renew the infrastructure of the industry, the remaining elements of the strategy cannot fully succeed.

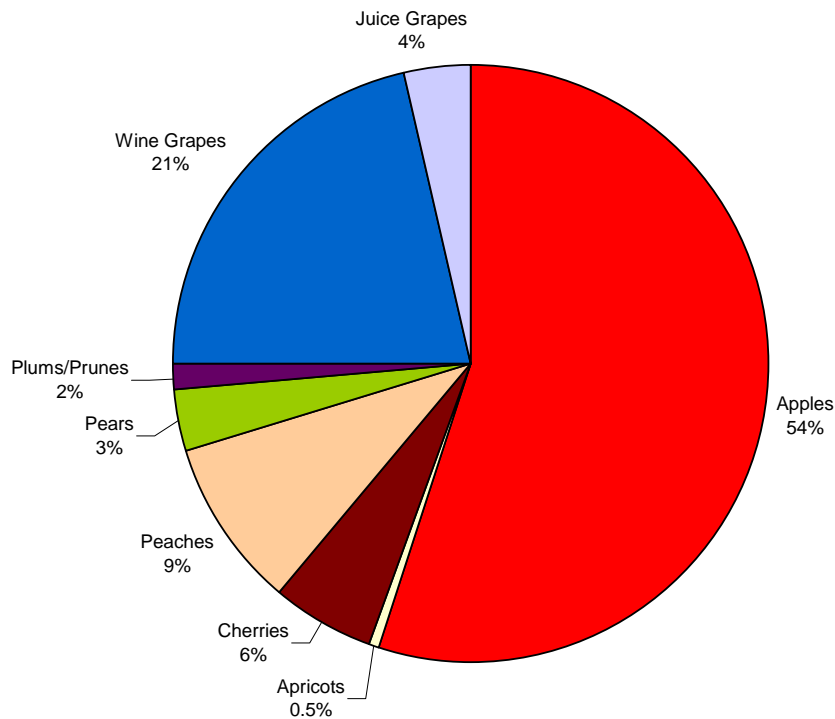
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## 2.6 Definition – What Are Tree Fruits And Grapes?

Based on preliminary 2004 Statistics Canada data, there were approximately 103,000 bearing and non-bearing acres of tree fruits and grapes in Canada, in the proportions illustrated by the pie chart below. [Data for labrusca grapes, which are primarily used for juice and jam applications and not allowable for wine production, has been taken from the Area, Production and Farm Value of Specified Commercial Fruit Crops 2004, Ontario Ministry of Agriculture and Food website].

**Chart 2.1 Proportion of Tree Fruits and Grapes in Canada Based on Bearing and Non-Bearing Acres**



## 3. Public-Private Infrastructure Renewal Program

The starting point for implementation of the national competitiveness strategy is implementation of an industry-government partnership to provide economic incentives for renewing the orchard and vineyard infrastructure of Canadian tree fruit and grape producers.

### 3.1 Why The Infrastructure Renewal Program Is Needed

Although the reasons for other tree fruits and grapes are similar, the explanation of the need for this program will focus on apples as the commodity representing over 50% of total Canadian acreage of tree fruits and grapes.

**Table 3.1 World Apple Production – The Top Twenty-Five Countries**

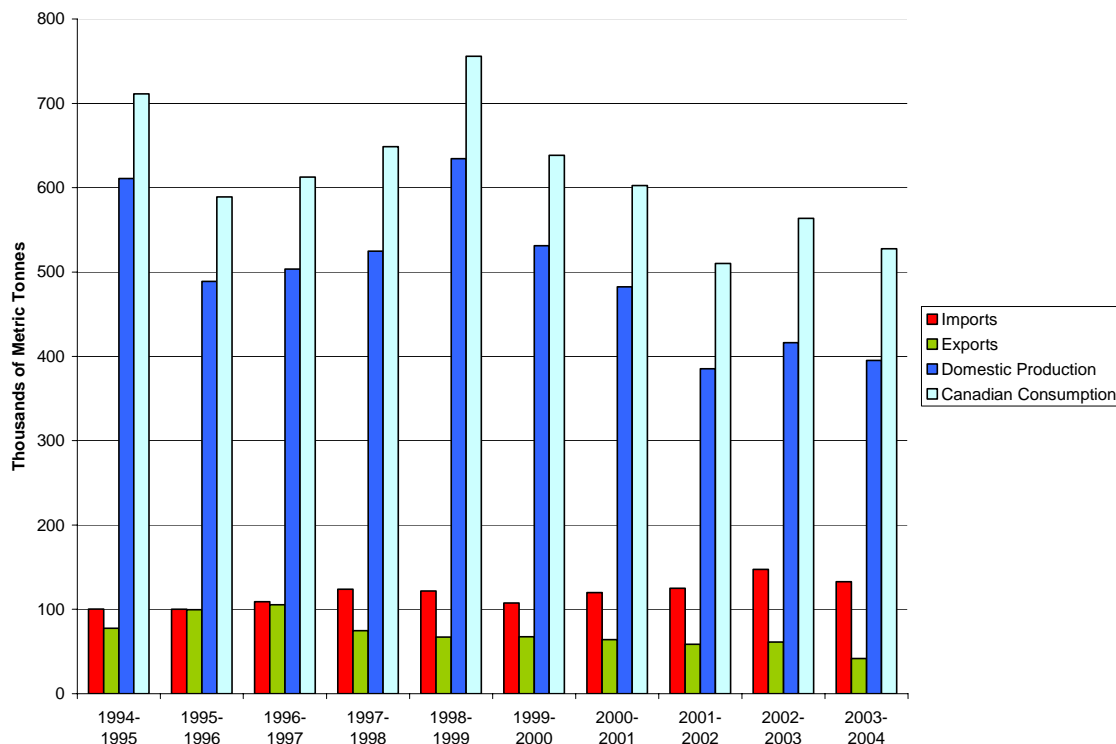
Country	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	04 / 03
<b>Volume (*000 Metric Tonnes)</b>											
China	14,017	17,060	17,228	19,491	20,810	20,437	20,023	19,251	21,105	20,503	-3%
United States	4,798	4,709	4,682	5,283	4,822	4,682	4,277	3,866	3,907	4,290	10%
Turkey	2,100	2,200	2,550	2,450	2,500	2,400	2,450	2,200	2,500	2,300	-8%
France	2,516	2,446	2,473	2,210	2,166	2,157	2,397	2,432	2,137	2,400	12%
Iran	1,990	1,925	1,998	1,944	2,137	2,142	2,353	2,334	2,358	2,350	0%
Italy	1,940	2,071	1,966	2,143	2,344	2,232	2,341	2,199	1,945	2,012	3%
Poland	1,288	1,952	2,098	1,687	1,604	1,450	2,434	2,168	2,428	2,500	3%
Germany	1,459	2,162	1,602	2,296	2,268	3,137	1,779	1,471	1,578	1,600	1%
Russia	1,200	1,800	1,500	1,330	1,060	1,832	1,682	1,900	1,800	1,900	6%
India	1,200	1,300	1,308	1,321	1,380	1,050	1,230	1,160	1,470	1,470	0%
Argentina	1,146	1,219	1,118	1,034	1,116	833	1,429	1,157	1,307	1,262	-3%
Chile	850	950	845	975	1,175	805	1,135	1,050	1,100	1,100	0%
Japan	963	899	993	879	928	800	931	926	842	881	5%
Brazil	686	701	794	791	938	1,153	716	857	835	978	17%
Ukraine	1,046	1,041	1,898	568	297	648	475	522	871	850	-2%
Spain	816	899	984	736	988	814	917	651	791	614	-22%
North Korea	630	630	630	640	650	650	660	660	660	660	0%
South Africa	512	617	538	576	618	578	580	579	652	701	8%
Romania	457	660	664	365	315	490	507	492	811	810	0%
New Zealand	527	549	567	523	545	620	474	531	501	550	10%
Hungary	353	552	500	482	445	695	605	527	508	680	34%
South Korea	716	651	652	459	491	489	404	433	365	350	-4%
<b>Canada</b>	<b>599</b>	<b>513</b>	<b>504</b>	<b>489</b>	<b>632</b>	<b>543</b>	<b>465</b>	<b>382</b>	<b>379</b>	<b>382</b>	<b>1%</b>
Netherlands	560	637	420	518	570	461	408	354	359	359	0%
Mexico	413	427	629	370	450	338	443	428	488	503	3%
Other	7,479	7,678	8,297	7,138	6,790	7,689	6,714	7,272	6,991	6,961	0%
<b>World</b>	<b>50,262</b>	<b>56,248</b>	<b>57,438</b>	<b>56,697</b>	<b>58,039</b>	<b>59,125</b>	<b>57,829</b>	<b>55,802</b>	<b>58,690</b>	<b>58,967</b>	<b>0%</b>

\*Sort based on total of last 10 years

FAO (FAOSTAT)

Table 3.1 shows that Canada ranks # 23<sup>rd</sup> in the world in terms of tonnes of apples produced and has experienced a 56% average decline over the past ten years from 599 tonnes in 1995 to 382 tonnes in 2004. At the same time, Chile, South Africa and China – all countries that export apples to Canada – have experienced double-digit production growth. In China’s case, as the world leader in production, the growth alone over the past ten years has been seventeen times what Canada produces in total. China’s growth has come in part from Pacific Rim export markets that were previously served by apples from Washington State and Canada. With their traditional Asian markets drying up, Washington State packers have increasingly looked to Canada as a market in which to move their surplus.

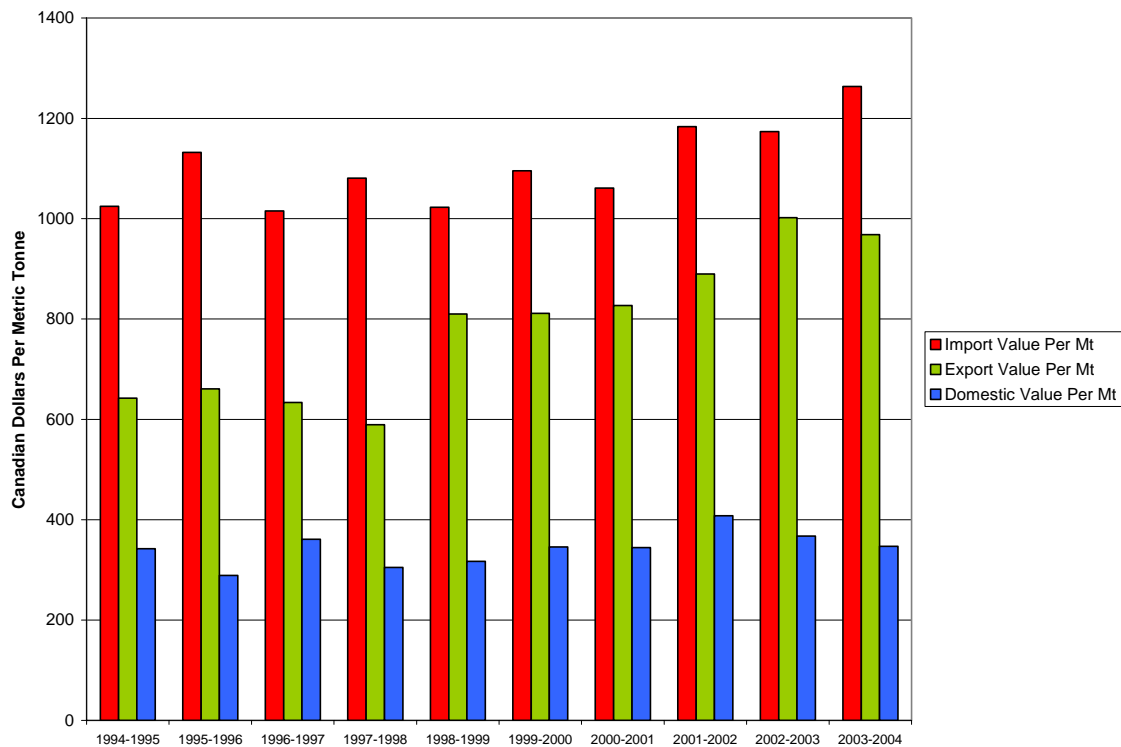
**Chart 3.2 Canada’s Relative Trade Position In Apples 1995 - 2004**



The chart above shows that Canadian production of apples has been declining over the past ten years at the same time that imported apples have gained share. Even more significant, however, is the overall decline in the total Canadian consumption of apples. This is also reflected in the per capita consumption data which shows a drop from 9 kg. in 1998 to 6.7 in 2002. This drop in consumption represented greater volume than the

total volume of imports over the same period. The consumer market research initiative of the national competitiveness strategy will seek to understand what factors, such as relative price and availability of substitutes, cause material fluctuations in consumer per capita consumption and how to influence consumers to sustain consumption at high levels. Canadian per capita consumption lags the US by 20% and is less than one-third of European per capita consumption levels.<sup>2</sup>

**Chart 3.3 The Relative Value of Apples Imported, Exported and Domestically Produced**



While there has been a steady upward trend in the value of imports and exports on a metric tonne basis, the relative value per tonne for domestically grown apples has not shown sustainable increases. Because this value includes both apples for the fresh market and for processing, it is understandably less than import and export values, as

<sup>2</sup> According to information on the Washington Apple Commission website, [www.bestapples.com/facts](http://www.bestapples.com/facts), US consumption is 19.6 pounds per capita and European consumption is 46 pounds per capita. In equivalent units of measure, Canadian consumption is only 14.8 pounds per capita.

they are primarily for fresh markets only. This graph shows, however, there is significant opportunity to raise the value per tonne received by domestic producers. To achieve meaningful increases, domestic producers will need to produce apples more comparable to imported apples in terms of quality and variety and this, in turn, requires a renewal of their orchard infrastructure.

While it is not the purpose of this analysis to examine the relationship between Canada's apple production capacity, on the one hand, and the average returns per metric tonne, on the other hand, at the level of detail of specific varieties, a general statement of this relationship can be made. Canada has too many trees in the ground bearing traditional varieties such as McIntosh and Red Delicious at a time when the market is moving towards newer varieties such as Royal Gala and Honey Crisp. In order to effectively compete with imports and capture a higher return per metric tonne, Canadian producers need to shift their production capacity from traditional varieties to newer varieties that secure higher prices due to their consumer popularity and less abundant supply.

The goal of the industry infrastructure renewal program is to provide an incentive to producers to accelerate this transition and position the Canadian industry for long-term, sustainable growth. The benefits to be gained by replacing existing orchards and vineyards with replanted ones are summarized in the following table.

**Table 3.1 Benefits of the Industry Infrastructure Renewal Program**

<b>Statement of Benefit</b>	
1	<p>Replanting will enable the new orchard or vineyard to provide producers with <b>higher returns per acre</b>, thus alleviating the farm income issue in a proactive way, as a result of:</p> <p><u>Higher revenue</u></p> <ul style="list-style-type: none"> <li>- Bringing into production varieties that are more in demand from consumers and for which the marketplace is willing to pay a premium resulting in higher unit prices</li> <li>- greater yields achieved as a result of higher density planting systems, enhanced cultivar selections and innovative cultural practices</li> </ul> <p><u>Lower costs</u></p> <ul style="list-style-type: none"> <li>- greater efficiency in the use of labour resulting from improved planting techniques (pruning, thinning, harvesting, etc.)</li> <li>- less crop protection material application per unit as a result of more efficient orchard or vineyard layout (higher density planting)</li> </ul>

<b>Statement of Benefit</b>	
2	Replanting will be <b>beneficial for the environment</b> . Newly laid out orchards and vineyards will require less crop protection material per tonne of production and new cultivar selections may show improved disease tolerance. Replanting also allows for more efficient irrigation systems, conserving the use of water.
3	Sustaining a vibrant horticultural industry across Canada is <b>important to economic development in rural Canada</b> and has a major role in agri-tourism. Orchards full of blossoms or vineyards full of maturing grapes are among the factors that draw urban Canadians and foreign visitors to regions such as the Okanagan Valley in British Columbia, the Annapolis Valley in Nova Scotia, the eastern Townships of Quebec, the St. John Valley in New Brunswick or the Niagara Region of Ontario. Every dollar spent by visiting tourists has a multiplier benefit for the whole region. The unique character of these regions of Canada depends on a vibrant horticultural industry.
4	In order to <b>attract the next generation of farmers</b> into horticulture, it is essential that they perceive it is a sector with a bright and vibrant future. The industry infrastructure renewal program is a tangible signal of joint government/industry commitment to sustainable renewal.

### **3.2 Goal Of The Program**

The goal of the program is to achieve renewal of 25% of Canada's orchards and vineyards over the seven year period beginning in 2006. With current Canadian bearing acreage at approximately 100,000 acres, the program will achieve replanting of nearly 25,000 acres of Canada's orchard and vineyard infrastructure.

The goal is readily measurable by compiling the number of acres temporarily taken out of production each year for replanting. Outcomes which the program is seeking to leverage, such as increases in domestic market share and increases in the value of production, can also be tracked over time to measure the overall success of the investment. While the industry is proposing this arrangement as a seven year program, it is also proposing that the program's impact be assessed at the end of the first five year period.

### **3.3 Costs Of The Program**

While there are regional differences and differences depending on the commodity, the average cost of replanting per acre is estimated at \$12,000. This cost includes (a) removal of the existing orchard or vineyard and disposal of the contents (b) preparation

of the land for replanting including planting a short term cover crop (c) purchase of high quality nursery stock (d) planting and initial care for the young trees or vines (e) trellises or other growing methods requiring installation of posts and equipment. The producer also has an opportunity cost, which is not factored in to the total direct cost, for those years in which the land is not producing any revenue while the trees or vines are non-bearing.

The total cost to replant 25,000 acres is therefore \$300,000,000. The national competitiveness strategy proposes that the federal government cover 1/3 of this cost, with the remaining two-thirds to be covered by producers and provincial governments. Under this proposal, the federal government's share of the total program cost will be \$100,000,000 over a seven year period. Through their provincial associations, the industry intends to seek provincial participation in the program, ideally at the one-third level comparable to the federal share, so that producers also cover one-third of the total cost. The actual amount of provincial commitment will vary from province to province and must not be made a condition of federal funding, as producers will fund that portion not covered by public funds from federal and provincial combined sources.

Costs of program management, including auditing of producer claims, distribution of government funds, program assessment and performance measurement are expected to be in the range of 2.5% of total federal government investment or \$2.5 million over the seven year term of the program. The administrative allocation to each province will be based on its relative share of the replant acres. Each Province will have its own arrangement for the administration and delivery of the program but will conform to common national criteria concerning such things as producer eligibility and minimum and maximum acreages. The costs of program administration are included in the \$100,000,000 total program cost.

Also included in the \$100,000,000 is an allocation of \$5,000,000 over seven years for national marketing activities. These activities are expected to include consumer market research to understand Canadian consumers' perception of Canadian-grown tree fruit and grapes as well as a national marketing strategy around the health benefits gained by their consumption. After allowing for the marketing component and the program

management component, the funds available for replanting cultivars will be \$92.5 million. This level of investment would enable 23,125 acres to be replanted over the next seven years, allowing between 3% and 4% of the production base to enter the renewal cycle every year. In the early years of the program, the level of producer utilization may be less, because it will take time to expand the availability of nursery stock for planting.

### **3.4 Why A National Approach Is Needed**

The federal government needs to take the lead role in facilitating the implementation of the national competitiveness strategy to drive market-responsive growth and raise producer incomes. Piecemeal approaches by provinces lack the coordination and consistency necessary to foster the kind of national initiative and leadership that are necessary for the industry's future success. In the absence of a national initiative, smaller producing provinces such as New Brunswick and Prince Edward Island may be left without any support for their growers since the role of tree fruits and grapes in those provinces is not as proportionately significant. A national program provides equal access for all Canadian growers and from a trade perspective is most defensible.

Canadian farm incomes have been hard hit by depressed commodity prices. Canada's tree fruit and grape producers have been no exception. Prices for Canadian-produced apples in 2004 have been among the lowest on record in the past five years and carryover stocks in North American storage are currently among the highest for this point in the year. The situation for incomes from other commodities included in the national competitiveness strategy, such as juice grapes, is similar. The Public-Private Infrastructure Renewal Program provides a proactive way of responding to this crisis by directing reinvestment to the sector in a way in which it will have the greatest long-term impact in contributing to better producer incomes.

## **4. Questions And Answers About The Public-Private Infrastructure Renewal Program Initiative**

### **4.1 What are the benefits gained, for example, when an acre of standard size apples trees is removed and replaced with a newer variety in a high density planting?**

The move to high density dwarf fruit tree plantings from old-style plantings of apple trees makes a big difference to the productivity of the orchard. Traditional orchards have 108 trees per acre, with tree spacing 20 by 20 feet and tree height up to 25 feet. In newer apple orchards, high-density dwarf trees are often planted at a spacing of 3 by 9 feet (1,600 trees per acre), with tree height up to 12 feet. Due to the higher number of trees, each tree needs to produce far less than in a low-density planting. A dwarf tree reaches its mature production at a much earlier stage – 5 or 6 years compared with 12 to 15 years for low-density planting systems.

Another benefit is the improved risk management that higher density plantings provide in terms of adopting future cultivar innovation. High density plantings can be ‘top-worked’ to graft new varieties and be back in full production within 3 years. This ability to achieve relatively rapid production of new varieties is a key factor in the decision to replant. The faster time-to-full-production reduces variety obsolescence and allows for faster adoption in future years of new cultivars, ensuring that the industry’s capacity to innovate is significantly enhanced at much less cost per acre than replanting.

When planted to high densities, fruit trees are more compact in their growth habits than trees planted to conventional densities. More accurate and controlled application of pesticides is possible, using ‘tower sprayers’ which have spray nozzles closer to the tree area sprayed. Also, the use of ‘tree-row-volume’ equations, which optimize the use of pesticides for high density plantings, further refines the application of pesticides. As a result, growers estimate that pesticide usage per acre is reduced by 25 to 50% from

conventional-style planting densities. The reduction in pesticide use will benefit the environment and reduce conflict between farms and urban residents concerned about pesticide drift.

In arid production areas, high density planting of tree fruits require more precise application of water to the tree root area, due to the compact root systems. When replanting to higher density, installation of new irrigation systems is standard practice. These systems employ drip or, more often, microjet irrigation technology. The amount of water applied to trees, compared to overhead irrigation or hand-moved irrigation, is substantially reduced. Growers estimate water conservation at 30% for microjet irrigation systems over hand-move systems. The conservation of water in arid regions of Canada like the Okanagan Valley in BC is an important current issue. The Infrastructure Renewal Program will facilitate the increased installation of water-conserving irrigation systems because it makes good economic sense to address the irrigation requirements at the same time as replanting.

The same benefits that apply to apples from higher density planting also apply to other tree fruits and grapes.

#### **4.2 Why can growers not finance the infrastructure renewal program from their own resources, if it is the right thing for them to do?**

Under the proposed public-private infrastructure renewal program, growers will have a major stake in financing the program from their own resources. Depending on the degree of provincial commitment in the region where they are located, growers are expected to invest a minimum of one-third of the initial capital required for replanting as well as the bearing the entire economic cost of foregone revenue while the new orchard or vineyard is coming to a breakeven level of production over six to ten years.

There is an important role for public funds in replanting orchards and vineyards for the following reasons:

1. The up-front cost of undertaking the replant activity, which is estimated to cost on average \$12,000 per acre, is a barrier to moving ahead at the pace of renewal which the industry needs – public investment will enable the extent and pace of infrastructure renewal to be accelerated.
2. There is a period of at least three years following replant when the acre is not generating any revenue, until the trees or vines come into bearing production, and then a further ramp-up period of two to five more years follows until they reach commercial production levels. (These times may vary slightly depending on the commodity). This represents a significant risk to growers and requires a long-term commitment to the national competitiveness strategy.
3. Public policy in Canada has adversely impacted grower returns. For example, growers in other jurisdictions with which Canadian growers compete in the domestic market have access to crop protection materials that are not available in Canada. A case in point is the registration of streptomycin for control of fire blight, a bacterial disease that affects apples and pears. Uncertainty surrounding the availability of this material increases the risk to growers of making long-term decisions.

While financial institutions such as Farm Credit Corporation have been supportive in structuring loans that take into consideration growers' needs during the replant investment window, without government's sharing this risk with growers, the level of replant activity will remain far below the 25%, seven year goal of the national competitiveness strategy.

The proposed Public-Private Industry Infrastructure Renewal Program (IRP) breaks a Catch-22 type cycle. On the one hand, due to reduced incomes from declines in market returns, Canada's tree fruit and grape producers do not have the working capital resources to make significant investments in replanting; and on the other hand, without replanting to shift production to higher-returning varieties and higher productivity

infrastructure, the industry has little scope with which to raise its income since it is left with over-supplied varieties and obsolete orchard configurations.

#### **4.3 Is the infrastructure renewal program (IRP) in the best interests of the entire value chain?**

As indicated by their letters, the program proposal has support from major processors of tree fruits and grapes in all parts of Canada. While the program may lead to less cull fruit for processing from improved pack-out ratios at packing houses, it also provides opportunities for processors to make arrangements with growers for expanding their long-term supply requirements. A case in point is Kraft Canada Inc.'s plant in the Niagara Region of Ontario which has a need for an increased supply of processing pears and peaches. The IRP could enable growers of apples, for example, to convert a portion of their acreage to pears in order to supply Kraft in future.

Canadian retailers and food service distributors will also benefit from access to a sustainable, consistent domestic supply of top quality, newer varieties that consumers are seeking. Sourcing Canadian-grown product provides retailers with enhanced assurance as to the traceability and safety of the tree fruits and grapes they offer for sale in both fresh and processed forms and the dependability of their supply.

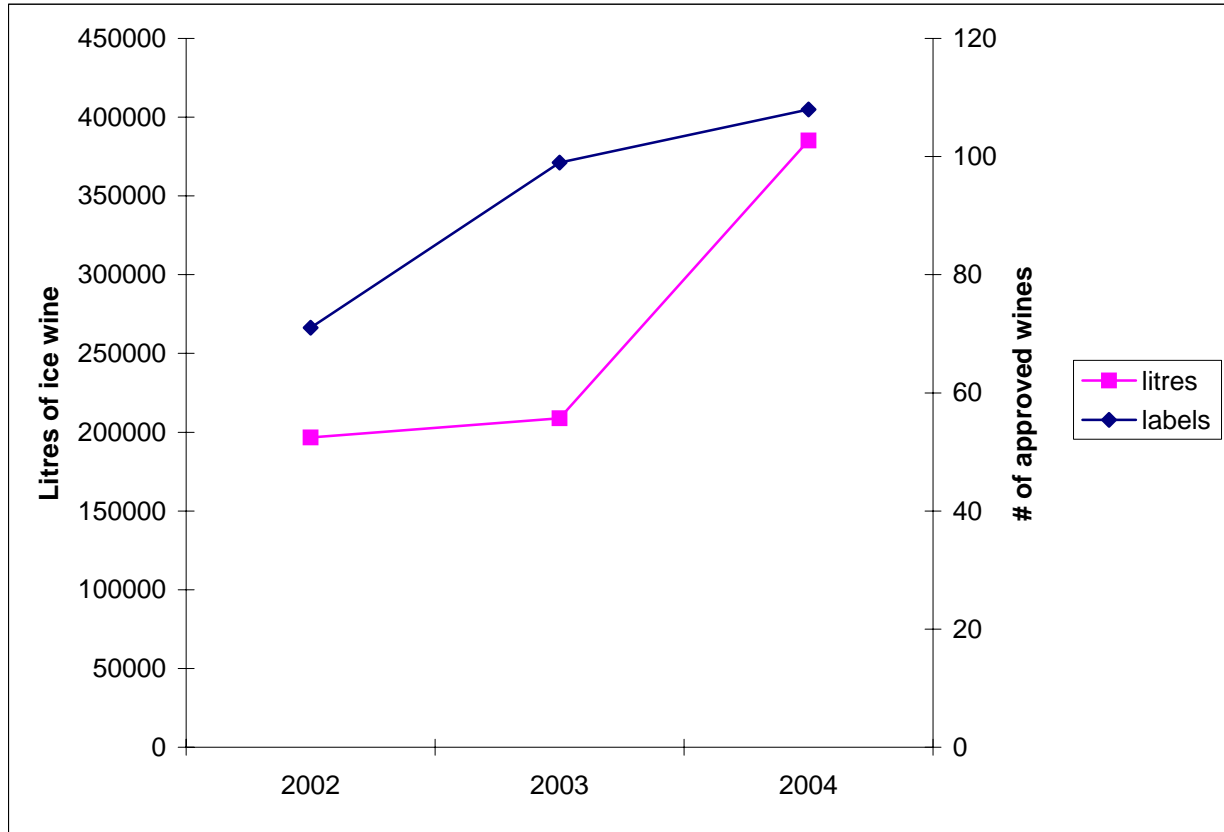
#### **4.4 Why are grapes included in the program? Did the grape sector not already receive significant replant assistance seventeen years ago?**

The Canadian grape sector received assistance at the time the Canada-US trade agreement was signed. This assistance led to a major restructuring of the industry, with the removal of labrusca grapes and increases in planting of vinifera and French Hybrid grapes, to support the wine industry. This assistance made the difference in turning away dire predictions of the industry's collapse in the wake of the free trade agreement and reinvented Canadian wines as award-winning, world class in stature. It was the right policy decision seventeen years ago and provided an excellent return on the taxpayer investment in the industry.

Grape Growers of Ontario has recently completed a comprehensive study of the future of labrusca grapes for juice and other non-wine processing applications, *A Secure Future For Ontario's Commercial Concord And Niagara Grape Growers*, Juice Grape Industry Task Force Report 2005. One of the recommendations arising out of that extensive study is, "Senior levels of Government provide a replanting program that will assist growers in the high costs of the establishment of vineyards and orchards as a means of revitalizing the industry." Where soil conditions permit, juice grape growers will be able to use the IRP to identify opportunities for other grapes and remove their existing labrusca grape vines in favour of more viable long-term alternatives.

On the larger wine grape side of the Canadian grape industry, there have been shifts in consumer taste leading to the need to increase plantings of certain cultivars and reduce plantings of others, to bring the infrastructure more in line with market needs. One of the unique products of Canadian wineries is ice wine, utilizing French hybrid varieties like Vidal. The demand for Canadian ice wine has been steadily increasing and is expected to continue to grow as a result of the opening of the European market in 2004. More grapes to supply this niche sector, in which Canada is a world leader, will be needed.

**Chart 4.1 Growth in VQA Ice-Wine**



Source: VQAO Annual Reports. Years cover the twelve month period from April of the previous year to March of the indicated year.

In addition, particularly severe winters in Ontario in the early part of this decade have demonstrated that certain varieties lack sufficient winter hardiness to enable consistent yields from year to year. The replanting option provided by the IRP will enable growers with significant winter injury experience and risk exposure to move to rootstocks and varieties with greater winter hardiness attributes. Based on samples from 1,500 acres in Ontario taken in April, 2005 for the winter of 2004/2005, the percentage of bud survival was:

**Table 4.1 Winter Survival Rates of Grape Species in Ontario 2004/2005**

Species Type	Percent Bud Survival
Labrusca (juice grapes)	67%
French Hybrids (wine grapes – ice wine)	37%
Vinifera (wine grapes)	33%

Source: Grape Growers of Ontario

The above data means that vineyards with significant bud loss will have inadequate yields. For grape producers, the IRP will allow more careful selection of cultivars to lower the risks of bud damage and thus achieve consistently higher yields. The Grape Growers of Ontario have recently completed a mapping project where the GPS coordinates of each vineyard in the Province are recorded. This level of information will enable detailed tracking of yield data, combined with micro-climate weather data, to further enhance the tools by which grape producers can choose varieties best suited to their conditions.

#### **4.5 Why is a national program needed if individual Provinces (BC, NS) have undertaken their own targeted replant programs?**

The Provincial Programs are important because they demonstrate the value of infrastructure renewal programs to the rejuvenation of the industry. Because it has been running longer, the BC program demonstrates the value of infrastructure renewal in contributing to a stronger industry and the quantifiable return on taxpayer investment. It also provides a model for determining certain of the administrative details of the national program.

## **4.6 What are other countries doing for their tree fruit and grape producers?**

Among the programs of the US government, it regularly purchases apples for donation to school lunch programs across the country. According to a press release dated April 18, 2005, “The Department of Agriculture (USDA) is planning to purchase up to 78 million pounds of apples and apple products for donation to child nutrition and other domestic food assistance programs, according to Secretary Mike Johanns.” To put that volume in context, it represents nearly 10% of Canada’s total annual apple crop. This kind of national leadership from the USDA is a “win/win” -- it serves the school population of the US well by ensuring that students have access to nutritious, healthy snacks and it serves the growers well by providing an alternative marketing channel that can be used particularly for varieties in surplus supply. In addition to purchases of fresh apples, the USDA also purchases apple products such as apple juice from US processors.

In 2002, the United States Department of Agriculture made payments in excess of US\$87 million to Washington State apple producers under the Apple Marketing Loss Assistance Program for economic assistance for market losses. The national competitiveness strategy for tree fruits and grapes proposed for Canada is not an analogous disaster relief program. On the contrary, it is an investment program to renew infrastructure to contribute towards a long-term sustainable industry. It is a uniquely Canadian solution designed to meet the needs of Canada’s tree fruit and grape producers in a fiscally responsible way.

## 5. Case Study – Infrastructure Renewal Success In Canadian Horticulture

The longest running infrastructure renewal program in Canadian horticulture was established by the BC government in 1990 and has been extensively studied and analyzed in order to quantify the cost/benefit.

The verdict is in: “An independent economic assessment has shown the Okanagan Valley Tree Fruit Authority’s Program to be a net economic contributor to BC’s provincial economy.”<sup>3</sup> The reason why the economic benefit exceeds the cost is that grower revenues increase after their replanted acres come into production – and that economic benefit multiplies throughout the rural economy for even greater gain.

A key to understanding why infrastructure renewal programs work lies in the differential margins based on varieties. In the case of apples, the BC data makes the point:

**Table 5.1 Relative Margins For Different Varieties of BC Apples, 1998**

<b>Grower Costs &amp; Returns On A Variety Basis</b>			
<b>Cents Per Pound, 5 Year Average, 1994-1998</b>			
<b>Variety</b>	<b>Average Returns</b>	<b>Average Costs</b>	<b>Average Contribution Margin</b>
Fuji	.3401	.1142	.2260
Gala	.4247	.1142	.3105
Red Delicious	.1197	.1142	.0055
<b>McIntosh</b>	<b>.1083</b>	<b>.1142</b>	<b>(.0313)</b>

Source: Okanagan Production/Grower Profile Background Paper 1, November, 1999, p. 26

<sup>3</sup> *The Impact of Revitalization: An Economic Profile of BC'S Tree Fruit Industry*, Okanagan Valley Tree Fruit Authority, 1996

There are no significant variety-specific differences in the cost of production but there are significant differences in what the grower receives per pound of fruit. The key is to continuously move production from the lower returning, established varieties such as McIntosh and Red Delicious to the higher returning, newer varieties such as Fuji and Gala because it makes a very significant difference to grower incomes. The Fuji and Gala varieties are not expected to be in the leading position in 2012 that they held in 1998 – newer varieties such as Ambrosia and Honey Crisp might be expected to move to top of the curve and command the best returns at the early stages of their product life cycle. The Canadian industry must continually innovate in order to take advantage of the varieties that offer the best returns while in the early stages of their product life cycle. To achieve this kind of innovation requires government funding – an investment in future economic gains that the government will recover through the tax system.

The program has been so successful that successive BC governments have reviewed it and committed to funding it again. The last major review of the program was completed in 1999/2000. The program is currently funded until 2005/2006.

**Table 5.2 The BC Replant Program Profile 1991 – 1999**

	Applications for replant	2,267
	Replant grants paid	\$15,249,733
<b>Acres</b>	Apples	3,674
	Cherries	826
	Peaches	340
	Apricots	158
	Pears	76
	Nectarines	73
	Plums	43
	<b>Total</b>	<b>5,190</b>
	Number of producers	800
	Percentage of producers	72%

Source: *Economic Analysis of Orchard Replanting*, November, 1999, Produced by Universal Management Consulting Firm for the British Columbia Ministry of Agriculture & Food as *Orchard Replant/Industry Revitalization Consultation Background Paper 4*, p. ii

During the five years from 1995 to 1999, the farmgate value of the BC tree fruit crop exceeded projections. It reached \$96 million in 1997, well ahead of the 1999 target of \$77 million. The increase resulted from two factors: the increased volume of production as a result of high density plantings and the increase value of production resulting from choosing better returning varieties.

**Table 5.3 Actual Versus Projected Farmgate Revenues**

<b>Year</b>	<b>Revenues</b>
1995 Actual	\$50 million
1999 Projected	\$77 million
1997 Actual	\$96 million

Source: *Ibid*, p. 41

A similar pattern of revenue growth on a national scale will enable the Canadian industry to reach the farmgate value goal of the national competitiveness strategy, namely, \$450 million in 2020.

## **6. Moving Forward : From Strategy To Action**

The most essential first step in the implementation of the national competitiveness strategy is securing federal government commitment to the Public-Private Industry Infrastructure Renewal Program.

In September, 1999 when the BC Minister of Agriculture and Food, Hon. Corky Evans, announced the provincial government's intention to extend the orchard replant program at a cost of \$25 million for five years, it set in motion a series of actions that led to tangible results.

With the Minister's commitment in hand, a series of stakeholder consultations were held with growers, packers and processors, to work out the details of the program design.

This report is a similar "call to action" for the federal government to commit funding to the industry infrastructure renewal program at a level of \$100 million over seven years beginning in 2006 and ending in 2012. The national working group will then convene, in conjunction with the Canadian Horticultural Council, Agriculture and Agri-Food Canada, and provincial representatives, to finalize the program criteria and request matching provincial support. There is a need for a rapid response from the federal government for the following reasons:

- The industry's need is urgent and requires attention without delay – every month lost in adopting and implementing the national competitiveness strategy makes the industry's turnaround more challenging to effect
- While the IRP is under public discussion, it may cause growers to take no action until the program is implemented and represent, in effect, a freeze on activity until the national competitiveness strategy is in place
- It takes time for the producers of nursery stock to increase the quantity of trees and vines available for planting and therefore the sooner the commitment is made, the sooner the capacity of planting materials can be expanded

This proposal contemplates that \$2.5 million will be used to fund program management and \$5 million for funding national marketing initiatives, leaving \$92.5 million of federally committed funding to be used for the public-private infrastructure renewal program. This program will be demand-driven, depending on growers to determine the level of uptake according to their needs. The program proposal has sufficient flexibility to allow Canadian producers of tree fruits and grapes to diversify their production across newer cultivars. The enhanced diversification, which this program will enable, provides better risk management.