Review of Regulated Minimum Piece Rates for Agricultural Hand Harvesters in BC

Final Report

Prepared for:

BC Ministry of Labour, Citizens' Services and Open Government
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Executive Summary

The objective of this study has been to provide information to assist the BC Ministry of Labour, Citizens' Services and Open Government (the Client) in several areas:

- Determine whether the current regulated minimum piece rates for hand harvesters in BC meet minimum wage provisions
- Assess how effective piece rates are in the provision of competitive farm harvest labour for BC farmers
- Gain an understanding of the role of piece rate employment in the various sectors utilizing the practice.

The methodology employed has consisted of interviews about labour employment practices and harvesting trends with farm operators and farm labour contractors who employed piece rate labourers, discussions with agricultural specialists in the affected commodity sectors, and an Internet review of piece rate systems in other jurisdictions. Interpretation of the findings was put into a clearer context by relating labour information to industry characteristics obtained from various statistical sources, including Statistics Canada.

Given the available timeline and budget, a strategic decision was made with the Client to focus on the three major sectors employing piece rate labour (i.e., blueberries, cherries and apples) by choosing 10 farms per sector for interviews and data collection. In the 12 other sectors, an attempt was made to interview 3 operators per sector to gain an understanding of harvest labour conditions and the extent of use of harvest piece rate labour.

Observations

1. Distributions, means, and medians of the piece rate labour rates in the major agricultural sectors were calculated from information received in interviews. Wherever possible, duration of employment (hours) and seasonal hourly wage rate, equivalent of piece rate harvesters, was documented from payroll records and picker records. Piece rate considerations that were examined include:

   - Ratio of farm gate price to piece rate
     - Ranging from a high of 78% of the farm gate price in peas to a low of 11% for apples.
   - Innovation and adoption of harvesting technology
     - New varieties and high density plantings have improved efficiencies
     - Mechanical harvesting is replacing hand picking in a number of crops such as raspberries and blueberries.
   - Pickers earning capacity
     - New varieties and high density plantings in crops such as apples and cherries has increased pickers earning capacity. For example cherry pickers averaged more than $18.50 per hour in the 2011 picking season
     - In the tree fruit and grape sectors, wages averaged from the high in cherries of $18.50 per hour to $15.71 in grapes, $15.66 in pears, and $15.43 in apples
     - Equivalent hourly wages in the Lower Mainland were difficult to determine due to data collection difficulties, however wages in the blueberry sector, which is the largest piece rate sector in the Lower Mainland were calculated to be $9.91 per hour.

   - Demographics of the workforce
o In the tree fruit industry pickers fell in the 35 years old and under or in the 36 to 54 year old categories, with a high percentage being male.

o The Lower Mainland workforce, in particular blueberries, had a high percentage of workers over 55 years of age.

2. Characteristics of BC agricultural harvest piece rate labour use are presented in this report. This information includes observations on:

- Prevalence of regulated piece rates and wage rates in harvesting and factors influencing these decisions in the 15 sectors
  - The use of piece rate vs. hourly wage varied between and within crop sectors. In general, farmers paid hourly wages rather than piece rate wages to attract a higher amount of pickers and to ensure quality picking when piece rates would not provide adequate remuneration.

- Harvest workforce demographic characteristics (discussed in point 1)

- Cost of harvest labour as a proportion of production costs and total labour costs\Impacts of innovation and technology on harvesting
  - Total harvest labour includes all labour inputs e.g. packing and sorting as well as picking
  - Total labour costs ranged from a low of 24% in cherries to a high of 60% in blueberries.

- Methods of supervision and quality control
  - In general less supervision was needed when farmers used piece rate workers rather than hourly
  - Quality control varied, from supervisors regularly checking quality in the field to sophisticated bar code tracking systems that track the pickers’ fruit from the field to the sorting and grading lines.

- Harvesting efficiency changes.
  - Efficiency was driven by more than just changes in technology and plant varieties, but also innovations in plant spacing, supervisory methods, and harvest management.

3. Observations on the agricultural labour market are presented. Each sector utilizes the piece rate workforce differently based on:

- Labour market dynamics
  - The harvest workforce moves between crops depending on the harvest season, pay rates, and the ability of farmers to provide consistent work for the season
  - Wages paid in one commodity influenced the labour availability and expectation in other crops.

- Workforce demographics
  - Domestic harvest labour from eastern Canada is prevalent in the Interior, often predominantly in the younger age groupings
  - Immigrant Asian labour characterizes the harvest labour pool of the Lower Mainland, predominantly in the older age groupings
  - More foreign seasonal harvest workers are being used in most agricultural sectors.

- Robustness of markets and ability to recover labour costs in specific sectors
  - In profitable commodities, labour costs do not account for a high percentage of the farm gate value of the product, and the farmer is able to attract efficient labour with equivalent hourly rates are far above the minimum wage.

- Harvest requirements
• Where the picking season is short and the crop is vulnerable, it is critical that there is adequate labour to meet harvest needs. In many crops the harvest season is less than 30 days but there is the need for a large workforce during this short period of time.
• Some, but not all, sectors are fairly homogenous in who they recruit to do their harvesting

4. Various sectors are adjusting differently to the cost of labour. In some sectors, picking costs are approaching per pound farm gate price. Adjustments include:
• Increasing emphasis on recruitment of efficient harvest piece rate workers due to high input costs and low farm gate prices
• Greater use of foreign seasonal agricultural workers  
  o Lack of domestic farm workers and demographic pressures (aging workforce) has led to an increase in the use of seasonal agricultural workers.
• Declining acreages of some crops  
  o A number of crop types are declining due to low farm gate prices and high input costs.
• Increasing mechanization of harvesting  
  o With the piece rate approaching the farm gate price on some crops, farmers are moving to mechanization to reduce harvest costs.
• Change in market focus from fresh to processing  
  o The move to mechanization forces farmers to sell to the food processing market rather than the fresh market.
• Growing several crops to attract harvest piece rate workers and labour contractors.  
  o Multiple crops extend the harvest season allowing farmers to retain workers.

5. Data gaps and emerging issues include:
• Limited availability and intense competition for harvest workers in the agricultural industry
• Small sample sizes in this study
• Limited availability of hourly data on farms
• Difficulty in verifying reported duration of employment with income, particularly in labour contractor situations
• Variable impact of piece rates on individual crop sectors.
1.0 Introduction

1.1 Background

Regulated piece rates for a broad range of hand harvested agricultural crops have been in effect in British Columbia since 1981. Table 1-1 presents a record of changes in the minimum wage and piece rates in the various agricultural sectors since 1992. It is seen that both the minimum wage and piece rates have increased significantly over the period.

Labour is the single most significant direct cost of production in most agricultural sectors studied and is therefore a critical component in the profitability of farms. The industry is therefore concerned about any actions that would result in upward pressure on the cost of labour to their farms. Factors that are impacting the agricultural sector that in turn impact the ability to pay pickers include; efficiency gains due to new varieties or technology, effective marketing in sectors such as cherries who have developed overseas markets for their products, ability to price products for profit and international competition that puts downward pressure on prices such as taking place in the apple industry.

1.2 Objectives of the Study

The primary objective of this study is to provide information to assist the government in determining if the current regulated minimum piece rates for hand harvesters in BC meet minimum wage provisions for agricultural workers and that theses piece rates assist in the provision of competitive farm labour for BC farmer employers. A secondary objective is to provide the government with a profile of the industry sectors that are covered by the regulated minimum piece rates.

In consultation with the client some of the data needs originally requested were shifted and the methodology changed slightly to meet the realities faced by the researchers. For example in some commodities farmers were hesitant to cooperate as they felt that data collected would be used to their detriment. In sectors such as mushrooms where the supply of labour is barely adequate to meet the needs of the industry, the farmers were reluctant to share information due to the fear that wage data would be used by competitors to steal their workers. In other sectors such as Brussels sprouts all the harvesting is mechanized and there is no piece rate harvest labour.

This study was conducted under contract to the BC Ministry of Labour, Citizens' Services and Open Government (the Client). The observations in this report are the interpretations of the consultants and do not necessarily reflect the views of the Client.
Table 1-1: Piece Rate Changes Compared to Minimum Hourly Wage 1992 to 2011

<table>
<thead>
<tr>
<th>ITEM</th>
<th>PER</th>
<th>1992 Piece Rate (effective Feb 1/92)</th>
<th>1995 Piece Rate (effective Mar 1/95)</th>
<th>1996 Piece Rate (effective Mar 1/96)</th>
<th>1998 Piece Rate (effective Apr 1/98)</th>
<th>1999 Piece Rate (effective Apr 16/99)**</th>
<th>2000 Piece Rate (effective Nov 1/00)</th>
<th>2001 Piece Rate (effective Nov 1/01)</th>
<th>2003 Piece Rate (effective May 15/03)***</th>
<th>2011 Piece Rate (effective May 1, 2011)</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td>$12.05</td>
<td>$13.16</td>
<td>$13.44</td>
<td>$14.46</td>
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<td>$16.18</td>
<td>$15.60</td>
<td>$17.94</td>
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</tr>
<tr>
<td>Apples</td>
<td>bin</td>
<td>$12.05</td>
<td>$13.16</td>
<td>$13.44</td>
<td>$14.46</td>
<td>$15.37</td>
<td>$16.18</td>
<td>$15.60</td>
<td>$17.94</td>
<td>$19.62</td>
</tr>
<tr>
<td>Beans</td>
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<td>$0.295</td>
<td>$0.305</td>
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<td>$0.376</td>
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</tr>
<tr>
<td>Brussels sprouts</td>
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<td>$0.146</td>
<td>$0.154</td>
<td>$0.149</td>
<td>$0.163</td>
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<tr>
<td>Cherries</td>
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<td>$0.16</td>
<td>$0.173</td>
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<td>$0.213</td>
<td>$0.205</td>
<td>$0.224</td>
</tr>
<tr>
<td>Mushrooms</td>
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<td>$0.165</td>
<td>$0.181</td>
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<td>$0.212</td>
<td>$0.223</td>
<td>$0.215</td>
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<tr>
<td>Peas</td>
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<td>$0.230</td>
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<td>$0.263</td>
<td>$0.277</td>
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<td>$0.281</td>
</tr>
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<td>Raspberries</td>
<td>pound</td>
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<td>$0.338</td>
<td>$0.362</td>
<td>$0.396</td>
</tr>
<tr>
<td>Strawberries</td>
<td>pound</td>
<td>$0.225</td>
<td>$0.247</td>
<td>$0.265</td>
<td>$0.271</td>
<td>$0.292</td>
<td>$0.310</td>
<td>$0.326</td>
<td>$0.343</td>
<td>$0.385</td>
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<tr>
<td>Daffodils</td>
<td>bunch</td>
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<td>n/a</td>
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<td>$0.112</td>
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<td>$0.125</td>
<td>$0.125</td>
<td>$0.137</td>
</tr>
<tr>
<td>Min hourly wage</td>
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<td>$5.50</td>
<td>$6.50r*</td>
<td>$7.00</td>
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<td>$7.60</td>
<td>$8.00</td>
<td>$8.00</td>
<td>$8.75</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
* Minimum wage rose to $7.00 per hour October 1, 1995 (27.3% increase over 1992) without increase in piece rates at that time.
** Piece rates were increased by an average of 7.6% effective April 16, 1999 to incorporate 3.6% statutory holiday pay and 4% vacation pay into the rates
*** Piece rates were decreased by an average of 3.6% effective May 15, 2003 as a consequence of the regulatory enactment that exempted farm workers from the statutory holiday provisions of the Employment Standards Act. The 3.6% that had been added to the 1999 piece rate in recognition of statutory holiday pay entitlement was removed in 2003. The piece rates continue to include 4% in recognition of their vacation pay entitlement (except for daffodils).
n/a = not applicable
1.3 Methodology

This report reports on investigations in the following areas.

1.3.1 Industry Profile
Information is presented in the report by sector on total acreage, yields, prices, employment, gross farm receipts, and geographic distribution. This information was obtained from various Statistics Canada publications.

1.3.2 Determination of Average Hourly Wages Paid to Piece Rate Workers
Determination of the average hourly pay rate for workers paid by piece rate was accomplished by reviewing farmers’ payroll records for total wages paid by piece rate and total hours picking by piece rate. For three sectors (blueberries, cherries and apples) 10 farms were chosen for interviews and data collection and for the other sectors only 3 farms were reviewed per sector.

In the tree fruit and grape industry most farms had records that indicated total pounds or bins picked, total paid and number of hours picking. From these records, the average hourly rate per worker was calculated. In the blueberry industry the majority of workers are hired through labour contractors and where possible their records were reviewed for total earnings and estimated hours were determined by interviewing and reviewing records of the drivers who dropped pickers off at various farms. In other sectors cooperation was not forthcoming and only qualitative data was obtained.

1.3.3 Harvest Work Process
The harvest work process which includes extent of piece rate vs. machine harvest, use of technology, efficiency changes, methods of supervision, and quality control is described for each sector based on interviewing farmers and by expert interviews.

1.3.4 Comparison of Harvest Rates, Labour Costs, Production Costs and Prices
Information for the comparison of harvest rates, labour costs, production costs and prices was obtained from grower surveys, and Statistics Canada.

1.3.5 Harvest Labour Policies in Other Jurisdictions
Information is provided in the report on piece rate policies in other jurisdictions. This information was obtained from government documents in each of the jurisdictions and from data provided by the BC Ministry of Labour.

1.3.6 Observations and Gaps
A summary of observations from the investigation is presented.
2.0 Tree Fruit and Grape Sectors

As Table 2-1 shows, the BC tree fruit and grape sectors are centered in the Thompson Okanagan region. As such, they are subject to similar labour environments.

### Table 2-1: Distribution of Tree Fruit and Grape Acreage by Region of BC

<table>
<thead>
<tr>
<th>Region</th>
<th>Cherries</th>
<th>Apples</th>
<th>Apricots</th>
<th>Peaches</th>
<th>Plums</th>
<th>Pears</th>
<th>Grapes</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>1.2%</td>
<td>3.3%</td>
<td>x</td>
<td>x</td>
<td>9.2%</td>
<td>6.3%</td>
<td>6.5%</td>
<td>&gt;1,001</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>1.7%</td>
<td>2.0%</td>
<td>2.3%</td>
<td>1.4%</td>
<td>7.7%</td>
<td>8.5%</td>
<td>1.5%</td>
<td>521</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>80.9%</td>
<td>92.5%</td>
<td>96.2%</td>
<td>96.3%</td>
<td>77.5%</td>
<td>80.7%</td>
<td>91.3%</td>
<td>22,767</td>
</tr>
<tr>
<td>Kootenay</td>
<td>15.9%</td>
<td>2.1%</td>
<td>1.5%</td>
<td>1.7%</td>
<td>5.0%</td>
<td>3.0%</td>
<td>0.6%</td>
<td>889</td>
</tr>
<tr>
<td>Cariboo</td>
<td>x</td>
<td>x</td>
<td>0.0%</td>
<td>0.0%</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>North Coast</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>0.2%</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nechako</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>0.0%</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Peace</td>
<td>0.1%</td>
<td>x</td>
<td>0.0%</td>
<td>0.0%</td>
<td>x</td>
<td>x</td>
<td>0.0%</td>
<td>x</td>
</tr>
<tr>
<td>BC Total (Acres)</td>
<td>3,391</td>
<td>11,045</td>
<td>341</td>
<td>1,452</td>
<td>444</td>
<td>767</td>
<td>7,797</td>
<td>25,237</td>
</tr>
</tbody>
</table>


As Table 2-2 shows, over 66% of grape growing operations generate over 50% of their gross farm receipts (GFRs) from grapes and comprise 95% of the total acreage in grapes.

A relatively higher proportion of cherry and apple acres are associated with operations that generate over 50% of the GFRs from cherries and apples, respectively. In contrast, the other tree fruit crops are grown predominantly on operations on which other tree fruits are the predominant revenue source.

From a labour perspective, it is more difficult to identify hourly harvest piece rate equivalents for individual crops in operations that may shift harvest from crop to crop within a single day. This is the case in the Thompson-Okanagan region, where the vast majority of tree fruit production occurs.
Table 2-2: Distribution of Tree Fruits by those Operations with More than 50% of Gross Farm Receipts (GFRs) Derived From Indicated Crop

<table>
<thead>
<tr>
<th>Crop</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Indicated Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherries</td>
<td>1,079</td>
<td>3,391</td>
<td>350</td>
<td>32.4%</td>
<td>2,256</td>
<td>66.5%</td>
</tr>
<tr>
<td>Apples</td>
<td>1,771</td>
<td>11,045</td>
<td>687</td>
<td>38.8%</td>
<td>8,124</td>
<td>73.6%</td>
</tr>
<tr>
<td>Apricots</td>
<td>386</td>
<td>341</td>
<td>17</td>
<td>4.4%</td>
<td>43</td>
<td>12.6%</td>
</tr>
<tr>
<td>Peaches</td>
<td>663</td>
<td>1,452</td>
<td>55</td>
<td>8.3%</td>
<td>139</td>
<td>9.6%</td>
</tr>
<tr>
<td>Plums</td>
<td>667</td>
<td>444</td>
<td>28</td>
<td>4.2%</td>
<td>42</td>
<td>9.5%</td>
</tr>
<tr>
<td>Pears</td>
<td>585</td>
<td>767</td>
<td>46</td>
<td>7.9%</td>
<td>219</td>
<td>28.6%</td>
</tr>
<tr>
<td>Grapes</td>
<td>686</td>
<td>7,797</td>
<td>454</td>
<td>66.2%</td>
<td>7,410</td>
<td>95.0%</td>
</tr>
</tbody>
</table>


A breakout of gross farm receipts in the tree fruit and grape sectors indicates that cherries, apples and grapes account for about 78% of total GFRs and 75% of the seasonal and temporary paid labour employed in the sectors.¹ Column F of the Table 2-3 shows that the temporary and seasonal labour requirements are considerably higher in the apricot, peach, plum and pear sectors making them more susceptible to labour cost and availability.

¹ Note that in addition to harvest labour, seasonal and temporary labour also includes labour used in non-harvesting work, such as pruning and general field work.
Table 2-3: Distribution of Tree Fruits Operations by Gross Farm Receipts (GFRs) and Paid Weeks of Labour

<table>
<thead>
<tr>
<th>(A) Crop</th>
<th>(B) GFRs ($)</th>
<th>(C) Percent of GFRs</th>
<th>(D) Paid Labour Weeks, Seasonal and Temporary</th>
<th>(E) Percent of Paid Labour Weeks, Seasonal and Temporary</th>
<th>(F) Weeks per Acre</th>
<th>(G) Hours per Acre (5 d/w @8h/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherries</td>
<td>76,495,524</td>
<td>26.5%</td>
<td>30,675</td>
<td>26.9%</td>
<td>9.05</td>
<td>362</td>
</tr>
<tr>
<td>Apples</td>
<td>113,586,937</td>
<td>28.3%</td>
<td>44,961</td>
<td>28.3%</td>
<td>4.07</td>
<td>163</td>
</tr>
<tr>
<td>Apricots</td>
<td>30,116,498</td>
<td>10.4%</td>
<td>13,036</td>
<td>11.4%</td>
<td>38.23</td>
<td>1,529</td>
</tr>
<tr>
<td>Peaches</td>
<td>48,903,386</td>
<td>17.0%</td>
<td>20,579</td>
<td>18.0%</td>
<td>14.17</td>
<td>567</td>
</tr>
<tr>
<td>Plums</td>
<td>31,042,776</td>
<td>10.8%</td>
<td>11,356</td>
<td>10.0%</td>
<td>25.58</td>
<td>1,023</td>
</tr>
<tr>
<td>Pears</td>
<td>35,303,765</td>
<td>12.2%</td>
<td>15,980</td>
<td>14.0%</td>
<td>20.83</td>
<td>833</td>
</tr>
<tr>
<td>Grapes</td>
<td>66,542,311</td>
<td>23.1%</td>
<td>22,479</td>
<td>19.7%</td>
<td>2.88</td>
<td>115</td>
</tr>
</tbody>
</table>


2.1 Cherry Crop Profile

The following sections provide context to the use of harvest labour in the cherry sector and report on the findings of the survey conducted to generate information on the functioning of the piece rate system.

2.1.1 BC Cherry Sector: Size and Distribution

As Table 2-4 shows, the BC cherry sector is concentrated in the Thompson Okanagan region, which accounts for over 80% of total cherry acres. Approximately 67% of the acreage is associated with farming operations that report cherry production as generating over 50% of the gross farm receipts.

The total cultivated area of cherries has increased 215% since 1998, but remained relatively static since 2005. In 2011, the total harvested area of cherries was about 2,859 acres while, including non-bearing area, the cherry sector had 3,264 cultivated acres in total. This means that even if new plantings were to cease, production would increase a further 14% as fields mature into production and demand for harvest labour would intensify.

---

Table 2-4: Distribution of Cherry Operations and Acres in BC

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Cherries</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Cherries</th>
<th>Percent of Acres of Farms with more than 50% of GFRs derived from Cherries</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>101</td>
<td>39</td>
<td>6</td>
<td>13</td>
<td>0.4%</td>
<td>95</td>
<td>25</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>51</td>
<td>57</td>
<td>8</td>
<td>27</td>
<td>0.8%</td>
<td>43</td>
<td>30</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>819</td>
<td>2,743</td>
<td>286</td>
<td>1,719</td>
<td>50.7%</td>
<td>533</td>
<td>1,024</td>
</tr>
<tr>
<td>Kootenay</td>
<td>91</td>
<td>539</td>
<td>49</td>
<td>X</td>
<td>X</td>
<td>42</td>
<td>X</td>
</tr>
<tr>
<td>Cariboo</td>
<td>6</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>North Coast</td>
<td>4</td>
<td>X</td>
<td>0</td>
<td>X</td>
<td>X</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>Nechako</td>
<td>4</td>
<td>X</td>
<td>0</td>
<td>X</td>
<td>X</td>
<td>4</td>
<td>X</td>
</tr>
<tr>
<td>Peace River</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>BC Total</td>
<td>1,079</td>
<td>3,391</td>
<td>350</td>
<td>2,256</td>
<td>66.5%</td>
<td>729</td>
<td>1,135</td>
</tr>
</tbody>
</table>


Figure 2-1 indicates that sweet cherry farm gate prices in BC have been on a positive trend. This is reflected in the sector’s development of markets through quality control, certifications, and varietal improvements. Per pound harvest piece rate represented approximately 13% of farm gate price in 2010, but as much as 17% in 2009.

Cherry yields from harvested acres show an increasing trend in the 1998 to 2010 period. However, yield has exhibited significant variability from year to year (Figure 2-2).
Figure 2-1: Farm Prices of Marketed Production, Cherries, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012

Figure 2-2: Crop Yields and Harvested Area, Cherries, BC, 1998 to 2011

2.1.2 Cherry Grower Survey Findings

Eight cherry growers were interviewed, with a combined cherry picking work force of about 700 pickers and a cherry acreage base of 609 acres. This area represents approximately 18% of the land in crop of the sector.

Q1: Harvest Worker Employment and Earnings

Non-foreign pickers numbered 878 workers of which about 84% picked under the piece rate system.

<table>
<thead>
<tr>
<th>Worker Category</th>
<th>Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canadian Workers paid by piece rate</td>
<td>792</td>
<td>84.4%</td>
</tr>
<tr>
<td>Canadian workers paid by hourly wage</td>
<td>86</td>
<td>0.4%</td>
</tr>
<tr>
<td>Mexican workers</td>
<td>143</td>
<td>15.2%</td>
</tr>
<tr>
<td>Total</td>
<td>938</td>
<td>100%</td>
</tr>
</tbody>
</table>

Hand harvest picker records were examined from six growers, given that the other two growers paid hourly wages.

The proportion of the workforce in the sample paid by piece rate is 79%, with the bulk of the hourly wage harvesting being represented by Mexican labourers. While Mexican workers may be given the opportunity to pick by piece rate, their minimum average hourly wage equivalent is governed by the regulations of the Seasonal Agricultural Worker Program.

Piece rate hand harvesting data is presented in the following charts. While all growers had good records for 2011, the records for previous years were provided by a smaller number of survey participants and are considered less reliable for identifying trends in the sector.
Of the 938 harvest labourers employed by the cherry growers interviewed, employment information on piece rate returns was obtained on 536 workers.

Figure 2-3 indicates roughly 18% of piece rate workers tend to work less than 25 hours during the season. This suggests that a significant proportion of the work force does not anticipate the requirements of the job and quits within 3 or 4 days or are terminated by the employers due to poor quality picking.

Over a six week period of 42 work days and 8 hours per day, there are 336 work hours. On average, individual piece rate workers were employed for 117 hours in this period or for about 35% of the harvest period. The mean employment duration is slightly lower at 105 hours per worker.

Some growers also employ Mexican seasonal agricultural workers and these labourers are brought into the orchard to finish picking after the bulk of the harvest is completed. Piece rate workers tend to leave/move on as volumes and/or picking efficiency declines. Growers will increase the piece rate in these shoulder periods to encourage pickers to stay. The majority of growers also offer bonuses to pickers who will stay the entire season. The bonus system is usually an increase in the piece rate for the entire seasons picking.

![Cherry Pickers: Hours Worked Per Season, 2011](image)

**Figure 2-3: Distribution of Piece Rate Cherry Harvest Workers by Hours Worked in the Harvest Season (N=536)**
Growers with more than one variety will move pickers to different varieties over the course of the season, thereby retaining pickers by enabling them to maintain picking rates.

Some pickers “cherry pick” growers by moving to operations where picking rates can be maximized.

Some pickers are students and preparing to return to school/university. This takes them out of the work force towards the end of the harvest season.

Figure 2-4, below, indicates the distribution of hour wage rate equivalents that the piece rate represents over the picking season. The piece rate hourly equivalents average out to $18.59 per hour while the median of the distribution is $17.09. Approximately 8.4% of the piece rate labour force earned less than $10.25 per hour, which will be the minimum wage standard on May, 2012. Conversely about 92% of the piece rate work force earned more than $10.25 per hour on average and 17% of the piece rate work force earned between $12.00 and $15.00 over the picking season. Almost 75% of the work force achieved a seasonal piece rate exceeding $15.00 per hour.

![Figure 2-4: Distribution of Hourly Wage Equivalents for Cherry Piece Rate Workers (N=536)](chart.png)

Cherry Pickers: Hourly Wage Rate Equivalent, 2011

<table>
<thead>
<tr>
<th>Hourly Wage Rate Category</th>
<th>Percent of Pickers</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;$8.75</td>
<td>3.7%</td>
</tr>
<tr>
<td>$8.75-9.49</td>
<td>2.1%</td>
</tr>
<tr>
<td>$9.50-10.24</td>
<td>2.6%</td>
</tr>
<tr>
<td>$10.25-11.99</td>
<td>7.8%</td>
</tr>
<tr>
<td>$12.00-14.99</td>
<td>17.5%</td>
</tr>
<tr>
<td>$15.00-19.99</td>
<td>32.3%</td>
</tr>
<tr>
<td>$20.00-24.99</td>
<td>19.4%</td>
</tr>
<tr>
<td>$25.00-29.99</td>
<td>8.6%</td>
</tr>
<tr>
<td>$30.00-34.99</td>
<td>1.9%</td>
</tr>
<tr>
<td>$35.00-39.99</td>
<td>2.4%</td>
</tr>
<tr>
<td>$40.00-44.99</td>
<td>0.6%</td>
</tr>
<tr>
<td>$45.00-49.99</td>
<td>0.6%</td>
</tr>
</tbody>
</table>
The data was further sorted to shed light on two additional characteristics of the piece rate workforce:

1. 98 workers, or about 18% of the piece rate workforce, worked less than 25 hours in the season. The average wage of this segment of the workforce is $14.23 per hr, and ranged from a low of $5.96 to a high of $35.63 per hour (see Figure 2-5). The median wage rate equivalent is $12.53. This would suggest that many workers who left the harvest after 25 hours simply did not prefer the work. Nevertheless, 32% (32 individuals) in this grouping would have earned less than the scheduled May 2012 minimum hourly wage.

2. 45 workers earned less than the minimum hourly wage rate scheduled for May, 2012. The average duration of seasonal employment for these workers was 28.2 hours, indicating that they quickly moved on because of their limited ability to pick productively. The total additional wages that would have been required to achieve the minimum hourly rate for these workers would have been $2,227 in 2011. However, if the effective average piece rate wage equivalent were to be raised to the minimum wage standard of $10.25 per hour, more of these less productive workers might be encouraged to stay longer in the sector.

![Bar Chart: Hourly Wage Rate Equivalent of Cherry Pickers Working Less Than 25 Hours, 2011](image)

**Figure 2-5: Distribution of Hourly Wage Equivalents for Cherry Piece Rate Workers Working Less Than 25 Hours (N=98)**
Q2: Hourly vs. Piece Rate Pay
When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:

- Growers indicated that the good pickers demanded piece rate pay so that they could make a high wage
- Growers made the decision to pay pieces rates to attract efficient pickers who also maintained high quality standards
- Growers paying an hourly wage rate for harvesting felt that had better control on quality as the pickers were not rushing to pick.

Q3: Labour as a Proportion of Production Costs
Six growers provided financial information on production and labour costs. On average, hand harvest labour costs represent about 24% of total production costs and piece rate expenditures account for 82% of total harvest labour costs.

Q4: Use of Labour Contractors
All the cherry growers interviewed hired their own labour and there seems to be no labour contractors in the cherry sector.

Q5: Worker Demographic Information
Figure 2-6 indicates that the majority of the pickers (50%) are males under the age of 35, followed by females (27%) under the age of 35. Males comprise 62% of the total workforce.

Figure 2-6: Age Distribution of the Cherry Hand Harvesting Workforce (N=938)
Q6: Length of Season
The season for cherries ranges from 4 to 6 weeks, depending on varieties and weather factors.

Q7: Adjustments in the Shoulder Season
Some growers will adjust the piece rate during the harvest season to compensate pickers for difficult picking conditions and during clean-up when productivity is lower. In other cases, hourly rate employees tend to be used outside of the main picking season.

Some growers adjust the piece rate through the picking season only if required to attract labour.

Q8: Percentage of the Crop Harvested by Hand
About 91% of the cherry crop of surveyed operators is picked under piece rate. The record systems can be elaborate with daily recording of individual volumes and hours spent in the field, bonuses paid, and other human resource management considerations.

Q9a: Supervisory Method for Piece Rate Workers
Many of the cherry growers had some type of method of assigning tags with a number or bar code to each worker that allowed the fruit picked by each picker to be followed to the sorting/packing line. If the pickers’ quality was not to standard they could quickly identify the picker and correct the situation. The ratio of supervisors to workers varies from 1:20 to 1:30.

Q9b: Supervisory Method for Hourly Wage Rate Workers
Some growers use bar coding systems with hourly workers, supervision seems to be higher with hourly pickers. Those interviewed using hourly pickers had 1 supervisor to 10 pickers and 1 supervisor and a helper to 20 pickers.

Where Mexican workers pick alongside piece work employees, similar pick records are maintained for them regardless whether they elect to be paid by piece rate or hourly wage.

Q10a: Quality Control with Piece Rate Workers
Quality control methods ranged from bar code, and numbering systems that traced product to the sorting/packing lines, to supervisors who field sampled. There is also a training component on most farms where pickers are trained in quality that is expected by the grower.

Q10b: Quality Control with Hourly Workers
Quality control methods are much the same as with piece rate workers with some growers using bar code tracking systems, training and interviews.

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
The cherry sector is being affected by technological developments with implications for harvesting efficiency. These include:
- New varieties with larger fruit that results in increased pounds picked per hour
- Introduction of self fertile trees that results in blocks of one variety that ripen at the same time, allowing more efficient harvesting
- Introduction of high density planting with trees much lower growing and closer together. This results in more efficient picking as pickers are not climbing ladders or moving as much
- Some growers use helicopters to dry crops after rains, which reduces splitting and thus provides higher overall quality fruit for picking
• New ladders are lighter and easier for pickers to move
• Growers are also monitoring soil fertility better resulting in increased yields
• Picking totes are lighter and ergonomically designed so that pickers do not tire as easily.

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
The sector critically depends on a reliable work force that is capable of harvesting the fruit efficiently in a short window of opportunity and is responsive to quirks in the weather that may necessitate swift action to extract production. Improvements in harvesting efficiency have dramatically increased the ability of workers to generate higher per hour equivalent wage rates.

There are no technological developments that presently indicate any movement away from hand harvesting in the foreseeable future. The fresh market for cherries continues to drive the sector.

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
It should be noted that some growers have extensive facilities to wash, sort and pack their harvest, where debris and below grade product can be removed. In these situations, quality control starts with monitoring of picking in the orchard and the packing line ensures that the final product meets rigorous standards.

Other producers pack directly in the orchard. In this instance, final quality control is predominantly in the hands of the picker. Two surveyed growers indicated that they preferred workers to be on an hourly rate in the belief that unrushed workers picked a higher quality harvest product.

2.2 Apple Crop Profile
The following sections provide context to the use of harvest labour in the apple sector and report on the findings of the survey conducted to generate information on the functioning of the piece rate system.

2.2.1 BC Apple Sector: Size and Distribution
As Table 2-5 shows, the BC apple sector is concentrated in the Thompson Okanagan region, which accounts for over 92% of total apple acres. Approximately 74% of the acreage is associated with farming operations that report apple production has generating over 50% of the gross farm receipts.

The total cultivated area of apples has dropped 44% since 1998 and 20% since 2005. In 2011, the total harvested area of apples was about 8,291 acres while, including non-bearing area, the apple sector had 8,773 cultivated acres. This means that there are increased acres from high density plantings and new varieties. However, older varieties are becoming increasingly uneconomic and more of that acreage will be taken out of production, resulting in the possibility of little short term growth in the sector.

Table 2-5: Distribution of Apple Operations and Acres in BC

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% GFRs derived from Apples</th>
<th># of Acres of Farms with more than 50% GFRs derived from Apples</th>
<th>Percent of Acres on Farms with more than 50% GFRs derived from Apples</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>352</td>
<td>363</td>
<td>50</td>
<td>145</td>
<td>1.3%</td>
<td>302</td>
<td>218</td>
<td>2.0%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>163</td>
<td>216</td>
<td>25</td>
<td>79</td>
<td>0.7%</td>
<td>138</td>
<td>137</td>
<td>1.2%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>1,149</td>
<td>10,217</td>
<td>590</td>
<td>7,812</td>
<td>70.7%</td>
<td>559</td>
<td>2,405</td>
<td>21.8%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>81</td>
<td>229</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>61</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cariboo</td>
<td>14</td>
<td>10</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>13</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Coast</td>
<td>6</td>
<td>6</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>5</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nechako</td>
<td>4</td>
<td>X</td>
<td>0</td>
<td>X</td>
<td>X</td>
<td>4</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peace River</td>
<td>2</td>
<td>X</td>
<td>0</td>
<td>X</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BC Total</td>
<td>1,771</td>
<td>11,045</td>
<td>687</td>
<td>8,121</td>
<td>73.5%</td>
<td>1,084</td>
<td>2,921</td>
<td>26.4%</td>
</tr>
</tbody>
</table>


Figure 2-7 indicates that apple farm gate prices in BC have been on a positive trend, although prices in the last 4 years have steadily declined. Per pound harvest piece rate represented approximately 11.4% of farm gate price in 2010.
Source: Statistics Canada. Various Years. Fruit and Vegetable Production. Catalogue no. 22-003-X.
http://www.statcan.gc.ca/pub/22-003-x/22-003-x2009002-eng.pdf

Figure 2-7: Farm Prices of Marketed Production, Apples, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012

Apple yields from harvested acres show a slightly increasing trend in the 1998 to 2010 period (see Figure 2-8).
2.2.2 Apple Grower Survey Findings

Ten growers were interviewed, with a combined apple picking work force of 216 pickers, of which 75 persons or 35% were engaged in piece rate picking. The survey represents 458 acres of apple acreage base or approximately 4.1% of the land in crop of the sector.

Hand harvest picker records were provided by 7 growers.

Q1: Harvest Worker Employment and Earnings

Piece rate hand harvesting data is presented in the following charts. Only a limited number of growers had verifiable records for 2011, and the records for previous years were not available. As such, some trends identified in the sector are based mainly on the perceptions of the survey participants.

As Figure 2-9 shows, roughly 7% of piece rate workers worked less than 25 hours during the season.

The harvest period varies from 4 to 9 weeks, depending on varieties grown. On average, individual piece rate workers were employed for 186 hours in this period. The mean employment duration is higher at 203 hours per worker, meaning that the distribution is skewed to the right with about 60% of workers working the average duration or longer.
Figure 2-9: Distribution of Apple Harvest Piece Rate Workers by Hours Worked in the Harvest Season (N=31)

The hourly wage rate equivalent of the piece rate averages out to $15.43 per hour. The median of the distribution is $15.18, indicating the distribution is slightly skewed towards a lower rate. Figure 2-10, below, indicates that 93% of the piece rate labour force earned more than $10.25 per hour, and 58% earned more than $15.00 per hour.

In the overall sample, 59.8% of the apple harvest workforce was paid by piece rate.
The data was further sorted to shed light on additional characteristics of the apple harvest piece rate workforce:

- 2 workers, or about 9% of the piece rate workforce, worked less than 25 hours in the season. The average wage of this segment of the workforce is $21.56 per hr, suggesting that hourly wage equivalent may not have been the reason for the short duration of employment (see Figure 2-11).
Figure 2-11: Distribution of Hourly Wage Equivalents for Apple Harvest Piece Rate Workers Working Less Than 25 Hours (N=2)

Q2: Hourly vs. Piece Rate Pay
When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:
- Colour picking is slower and pickers need to be paid hourly so that they pick accurately
- Hourly picking reduces fruit and tree damage
- Hourly wage enables quality control
- More suitable to pay family workers hourly.

Q3: Labour as a Proportion of Production Costs
Financial data from 8 growers indicates that total labour accounts for roughly 65% of total production costs and harvest labour represents about 51% of total labour cost.

Q4: Use of Labour Contractors
None of the survey participants relied on labour contractors to pick their fruit.
Q5: Worker Demographic Information
Figure 2-12 shows that 86% of the pickers are males and more than one half of these are age 35 years or less. Young females age 35 years or under comprise 10% of the harvest work force. Only 5% of the apple harvest workforce is indicated to be age 55 or over.

Figure 2-12: Age and Sex Distribution of the Apple Harvest Workforce (N=216)

Q6: Length of Season
The season for apples is dependent on the different varieties grown on a particular farm. Colour picking can result in pickers returning to the same tree up to 4 times in a season. The entire harvest period ranges from 4 to 9 weeks, depending on varieties grown and need for colour picking.

Q7: Adjustments in the Shoulder Season
The shoulder season is defined as those periods immediately prior to the main harvest and towards the end of harvest when opportunity to maximize picking poundage declines. Growers will increase the piece rate in shoulder periods to encourage pickers to come or to stay.

One grower indicated a switch from piece rate pay to hourly in the shoulder season.

Q8: Percentage of the Crop Harvested by Hand
100% of the apple crop is harvested by hand.

Q9a: Supervisory Method for Piece Rate Workers
As required, workers are trained the first day and their pick is checked for quality. Piece rate workers are supervised by owners on small operations, who usually operate the tractor pickup. On larger operations, the ratio of supervisor to piece rate worker ranges from 1:8 to 1:13.
Q9b: Supervisory Method for Hourly Wage Rate Workers
Apple growers rely on family and regular pickers to ensure quality.

Q10a: Quality Control with Piece Rate Workers
On smaller farms, owner operators will examine the pick when the apple bins are picked up. On larger operations, supervisors check on pick quality several times through the day.

Q10b: Quality Control with Hourly Workers
Quality control methods are much the same as with piece rate workers. Essentially, close supervision is necessary to ensure that the quality of the pick is maintained. Quality checks occur continuously through the day. On larger operations, bins are tagged to trace back to individual pickers.

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
High density planting has been the most recent development, but that started over 20 years ago. Smaller trees and lighter and smaller ladders have increased work force efficiency. New varieties that need to be colour picked have reduced harvesting efficiency. New and altered varieties are higher yielding. Improved pruning techniques, e.g. centre pruning, have increased picking efficiency by improving access to fruit.

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
Need for quality in colour picking has reduced attractiveness of piece rate work to the owner.

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
Need for quality in colour picking has increased attractiveness of hourly wages to the owner.

2.3  Grape Crop Profile
The following sections provide context to the use of harvest labour in the grape sector and report on the findings of the survey conducted to generate information on the functioning of the piece rate system.

2.3.1  BC Grape Sector: Size and Distribution
As Table 2-6 shows, the BC grape sector is concentrated in the Thompson Okanagan region, which accounts for over 91% of total grape acres. Approximately 95% of the acreage is associated with farming operations that report grape production generating over 50% of the gross farm receipts.

The total harvested area of grapes has increased 144% since 1998. In 2011, the total harvested area of grapes was about 8,329 acres while, including non-bearing area, the grape sector had 9,082 cultivated acres. This means that about 9% of the cultivated area will be entering harvestable age in the near future.

---

### Table 2-6: Distribution of Grape Operations and Acres in BC

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Grapes</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Grapes</th>
<th>Percent of Acres of Farms with more than 50% of GFRs derived from Grapes</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>134</td>
<td>510</td>
<td>66</td>
<td>481</td>
<td>6.2%</td>
<td>68</td>
<td>29</td>
<td>0.4%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>55</td>
<td>120</td>
<td>22</td>
<td>94</td>
<td>1.2%</td>
<td>33</td>
<td>26</td>
<td>0.3%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>471</td>
<td>7,118</td>
<td>357</td>
<td>6,798</td>
<td>87.2%</td>
<td>114</td>
<td>320</td>
<td>4.1%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>22</td>
<td>47</td>
<td>8</td>
<td>x</td>
<td>x</td>
<td>14</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cariboo</td>
<td>2</td>
<td>x</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>x</td>
<td>x</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nechako</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>x</td>
<td>x</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Peace River</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
<td>0</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>BC Total</td>
<td>686</td>
<td>7,797</td>
<td>454</td>
<td>7,410</td>
<td>95.0%</td>
<td>232</td>
<td>387</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

Figure 2-13 indicates that grape farm gate prices in BC have been on a positive trend. Per pound harvest piece rate represented approximately 5% of farm gate price in 2010.


**Figure 2-13: Farm Prices of Marketed Production, Grapes, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012**
Grape yields from harvested acres show a slightly declining trend in the 1998 to 2010 period. However, yield has exhibited significant variability from year to year (Figure 2-14).

![Grapes graph](image)

**Figure 2-14: Crop Yields and Harvested Area, Grapes, BC, 1998 to 2011**

### 2.3.2 Grape Grower Survey Findings
Three growers were interviewed, with a combined grape picking work force of 29 pickers, all of which were engaged in piece rate picking. The survey represents 40 acres of grape acreage base or approximately 1.2% of the land in crop of the sector.

**Q1: Harvest Worker Employment and Earnings**
Piece rate hand harvesting data is presented in the following charts. As Figure 2-15 shows, roughly 3% of piece rate workers worked less than 25 hours during the season.

The harvest period varies from 3 to 13 days, depending on varieties grown. None of the picker sample worked for more than 75 hours in the season. On average, individual piece rate workers were employed for 42 hours in this period. The mean employment duration is higher at 48 hours per worker, meaning that the distribution is skewed to the right with more of the workers working the average duration or longer.
The hourly wage rate equivalent of the piece rate averages out to $15.71 per hour. The median of the distribution is $15.33, indicating the distribution is slightly skewed towards a higher rate. Figure 2-16, below, indicates that 7% of the piece rate labour force (2 workers) earned less than $10.25 per hour, and 58% earned more than $15.00 per hour.
The data was further sorted to shed light on additional characteristics of the apple harvest piece rate workforce:

- 10 workers were employed for less than 25 hours in the season, with an average wage exceeding $16.34 per hour (see Figure 2-17).

![Hourly Wage Rate Equivalent of Grape Pickers Working Less Than 25 Hours, 2011](image)

**Figure 2-17: Distribution of Hourly Wage Equivalents for Grape Harvest Piece Rate Workers Working Less Than 25 Hours (N=10)**

**Q2: Hourly vs. Piece Rate Pay**
When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:
- Piece rate provides incentive to pick faster
- If there is disease pressure and mould has to be avoided in the pick, then use an hourly rate.

**Q3: Labour as a Proportion of Production Costs**
Financial data from 3 growers indicates that total labour accounts for roughly 52.1% of total production costs and harvest labour represents about 52.6% of total labour cost.
Q4: Use of Labour Contractors
None of the survey participants relied on labour contractors to pick their fruit.

Q5: Worker Demographic Information
Figure 2-18 indicates that 53% of the pickers are males and about 90% of these are split between age 35 or less and the 36 to 54 age categories. Young females age 35 years or less comprise 25% and females age 36 to 54 comprise 27% of the harvest workforce. Only 5% of the grape harvest work force is indicated to be age 55 or more.

![Figure 2-18: Age and Sex Distribution of the Grape Harvest Workforce (N=44)](image)

Q6: Length of Season
The season for grapes varies from 0.4 weeks (3 days) to 1.86 weeks (13 days), dependent on the different varieties grown on a particular farm. There is lots of non-harvest work in the sector related to thinning, pruning and tying.

Q7: Adjustments in the Shoulder Season
There is no shoulder period in the grape harvest.

Q8: Percentage of the Crop Harvested by Hand
100% of the grape crop of surveyed operators is harvested by hand.

Q9a: Supervisory Method for Piece Rate Workers
One owner supervises workers, ideally a work force about 12 people (range 9 to 15 persons)
Q9b: Supervisory Method for Hourly Wage Rate Workers
Not applicable

Q10a: Quality Control with Piece Rate Workers
Owner checks quality constantly, walking the field during picking

Q10b: Quality Control with Hourly Workers
Not applicable

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
Some large vineyards are using mechanical pickers

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
None

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
None.

2.4 Apricots, Plums, Peaches, Pears Crops Profile
The other BC hand-picked fruit sectors, consisting of apricots, plums, peaches and pears, have been grouped together for several reasons:
- Commercial operations are concentrated in the Thompson-Okanagan region.
- The farms operate in similar labour environments
- The majority of acres in these sectors are operated by farmers with other more dominant tree fruit crops that drive the regional harvest labour market.

2.4.1 Apricot Sector: Size and Distribution
As Table 2-7 shows, the BC apricot sector is concentrated in the Thompson-Okanagan region. Very few farming operations report apricot production generating over 50% of the gross farm receipts and those operations account for less than 13% of apricot acreage.

The total cultivated area of apricots has decreased 51% since 1998, reaching its lowest levels in the last 3 years. In 2011, the total harvested area of apricots was about 198 acres.\(^5\)

---

Table 2-7: Distribution of Apricot Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Apricots</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Apricots</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Apricots</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>6</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>7</td>
<td>8</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>6</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>353</td>
<td>328</td>
<td>16</td>
<td>x</td>
<td>x</td>
<td>337</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Kootenay</td>
<td>18</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>18</td>
<td>5</td>
<td>1.5%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nechako</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Peace River</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BC Total</td>
<td>386</td>
<td>341</td>
<td>17</td>
<td>43</td>
<td>12.6%</td>
<td>369</td>
<td>298</td>
<td>87.4%</td>
</tr>
</tbody>
</table>


Notes: (1) Some values have been extrapolated based on estimated distribution of acres.
Figure 2-19 indicates that apricot farm gate prices in BC have remained static over the 1998 to 2010 period. Per pound harvest piece rate represented approximately 7% of farm gate price in 2010.

Apricot yields from harvested acres show an increasing trend in the 1998 to 2010 period. However, yield has exhibited significant variability from year to year (Figure 2-20).


**Figure 2-19: Farm Prices of Marketed Production, Apricots, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012**
2.5.2 Plum Sector: Size and Distribution
As Table 2-8 shows, the BC plum sector is concentrated in the Thompson-Okanagan region, which accounts for over 77% of total plum acres. Less than 10% of the acreage is associated with farming operations that report plum production has plums generating over 50% of the gross farm receipts.

The total cultivated area of plums has increased about 11% since 1998. In 2011, the total harvested area of plums was about 270 acres.\(^6\)
### Table 2-8: Distribution of Plum Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Plums</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Plums</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Plums</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island (1)</td>
<td>155</td>
<td>41</td>
<td>4</td>
<td>4</td>
<td>0.9%</td>
<td>151</td>
<td>37</td>
<td>8.3%</td>
</tr>
<tr>
<td>Lower Mainland (1)</td>
<td>77</td>
<td>34</td>
<td>3</td>
<td>3</td>
<td>0.7%</td>
<td>74</td>
<td>32</td>
<td>7.2%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>382</td>
<td>344</td>
<td>21</td>
<td>36</td>
<td>8.1%</td>
<td>361</td>
<td>308</td>
<td>69.4%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>41</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>41</td>
<td>22</td>
<td>5.0%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>5</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>North Coast</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0.2%</td>
</tr>
<tr>
<td>Nechako</td>
<td>1</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Peace River</td>
<td>2</td>
<td>X</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BC Total</td>
<td>667</td>
<td>444</td>
<td>28</td>
<td>42</td>
<td>9.5%</td>
<td>639</td>
<td>401</td>
<td>90.5%</td>
</tr>
</tbody>
</table>


Notes: (1) Some values have been extrapolated based on estimated distribution of acres

---

Figure 2-21 indicates that plum farm gate prices in BC have been on a positive trend. Per pound harvest piece rate represented approximately 9% of farm gate price in 2010.

Plum yields from harvested acres show an increasing trend in the 1998 to 2010 period (Figure 2-22).
Figure 2-21: Farm Prices of Marketed Production, Plums, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Figure 2-22: Crop Yields and Harvested Area, Plums, BC, 1998 to 2011

2.4.3 Peach Sector: Size and Distribution
As Table 2-9 shows, the BC peach sector is concentrated in the Thompson-Okanagan region, which accounts for over 96% of total peach acres. Approximately 10% of the acreage associated with farming operations that report peach production have peaches generating over 50% of the gross farm receipts.

The total cultivated area of peaches has decreased 11% since 1998, but has increased since 2009. In 2011, the total harvested area of peaches was about 960 acres while, not including an additional 10% of non-bearing area.7

---

Table 2-9: Distribution of Peach Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Peaches</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Peaches</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Peaches</th>
<th># of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>35</td>
<td>x</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>34</td>
<td>8</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>16</td>
<td>21</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>15</td>
<td>x</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>582</td>
<td>1,398</td>
<td>52</td>
<td>134</td>
<td>9.2%</td>
<td>530</td>
<td>1,264</td>
</tr>
<tr>
<td>Kootenay</td>
<td>29</td>
<td>24</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>28</td>
<td>x</td>
</tr>
<tr>
<td>Cariboo</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
</tr>
<tr>
<td>Nechako</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Peace River</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>BC Total</td>
<td>663</td>
<td>1,452</td>
<td>55</td>
<td>139</td>
<td>9.6%</td>
<td>608</td>
<td>1,313</td>
</tr>
</tbody>
</table>

Figure 2-23 indicates that peach farm gate prices in BC have been on a modest positive trend. Per pound harvest piece rate represented approximately 9% of farm gate price in 2010.


Figure 2-23: Farm Prices of Marketed Production, Peaches, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Peach yields from harvested acres show an increasing trend in the 1998 to 2010 period. However, yield has exhibited significant variability from year to year in the last 3 years (Figure 2-24).


Figure 2-24: Crop Yields and Harvested Area, Peaches, BC, 1998 to 2011
2.4.4 Pear Sector: Size and Distribution
As Table 2-10 shows, the BC pear sector is concentrated in the Thompson-Okanagan region, which accounts for over 80% of total pear acres. Approximately 24% of the acreage is associated with farming operations that report pear production generating over 50% of the gross farm receipts.

The total cultivated area of pears has decreased 45% since 1998, reaching its lowest level in 2011. In 2011, the total harvested area of pears was about 511 acres.8

### Table 2-10: Distribution of Pear Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Pears</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Pears</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Pears</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island (1)</td>
<td>147</td>
<td>48</td>
<td>7</td>
<td>7</td>
<td>0.9%</td>
<td>140</td>
<td>40</td>
<td>5.2%</td>
</tr>
<tr>
<td>Lower Mainland (1)</td>
<td>77</td>
<td>65</td>
<td>7</td>
<td>x</td>
<td>x</td>
<td>70</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>320</td>
<td>619</td>
<td>30</td>
<td>186</td>
<td>24.3%</td>
<td>290</td>
<td>433</td>
<td>56.5%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>35</td>
<td>23</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>34</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cariboo</td>
<td>3</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Nechako</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Peace River</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BC Total</td>
<td>585</td>
<td>767</td>
<td>46</td>
<td>219</td>
<td>28.6%</td>
<td>539</td>
<td>548</td>
<td>71.4%</td>
</tr>
</tbody>
</table>

Notes: (1) Some values have been extrapolated based on estimated distribution of acres

Figure 2-25 indicates that pear farm gate prices in BC have been on a positive trend. Per pound harvest piece rate represented approximately 6% of farm gate price in 2010.

Pear yields from harvested acres show a decreasing trend in the 1998 to 2010 period (Figure 2-26).

---

Figure 2-25: Farm Prices of Marketed Production, Pears, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012

Figure 2-26: Crop Yields and Harvested Area, Pears, BC, 1998 to 2011

2.4.5 Grower Survey Findings
Three growers were interviewed who were able to provide data and harvest information on pears. A number of the growers who were interviewed for apples and cherries grew small amounts of apricots, peaches and plums. However, stone fruits tended to constitute a small proportion of the growers’ harvest and it was difficult to break out picking data for these fruits. Nevertheless, it is likely that the information provided for pears will hold true for apricots, peaches and plums.
Q1: Harvest Worker Employment and Earnings
Figure 2-27 indicates that most workers picked for the duration of the pear harvest, usually in combination with picking of other fruit in the orchard. The average picker was employed picking pears for 122 hours. The mean employment duration is higher at 140 hours per worker.

Figure 2-27: Distribution of Hourly Wage Equivalents for Pear Piece Rate Workers (N=27)
Figure 2-28, below, indicates the distribution of hour wage rate equivalent paid to pear pickers over the picking season. The hourly wage equivalent averages out to $15.66 per hour while the median of the distribution is $15.07. No workers earned less than the May, 2012 scheduled minimum wage level, while 52% of the piece rate work force earned an average seasonal wage equivalent exceeding $15.00 per hour.

Figure 2-28: Distribution of Hourly Wage Equivalents for Pear Piece Rate Workers (N=37)

Q2: Hourly vs. Piece Rate Pay
The three growers interviewed indicated that the piece rate provides incentive to pick more efficiently. If there are areas of the orchard that are more difficult to pick, such as on hilly terrain, growers provide a top up to the piece rate for picking in these areas.

Q3: Labour as a Proportion of Production Costs
Labour as a percentage of production costs ranged from 50% to 77%.

Q4: Use of Labour Contractors
None of the growers interviewed used labour contractors.

Q5: Worker Demographic Information
In Figure 2-28, it is shown that the majority of the pear pickers (92%) are males. The age distribution is 47% between the ages of 36 and 54 years, 29% 35 years or less, and 16% 55 years of age or more. Only 8% of the workforce is female. Sixteen percent of harvest workers in the pear sector sample were age 55 or more and all of these were males.
Figure 2-27: Age Distribution of the Pear Harvest Workforce (N=38)

Q6: Length of Season
The season for pears is 2 to 3 weeks.

Q7: Adjustments in the Shoulder Season
There is no adjustment in piece rate over the season.

Q8: Percentage of the Crop Harvested by Hand
100% of the crop is hand harvested.

Q9a: Supervisory Method for Piece Rate Workers
There is constant supervision by the owner, who typically drives the tractor to pick up the bins. Supervision ranges from a supervisor-picker ratio of 1:8 to 1:13.

Q9b: Supervisory Method for Hourly Wage Rate Workers
The growers interviewed had no hourly workers for pears.

Q10a: Quality Control with Piece Rate Workers
The supervisor, who is often the owner and the tractor driver, does quality control for piece rate.
Q10b: Quality Control with Hourly Workers
There are no hourly workers.

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
The growers interviewed stated that there have been no technological changes in the pear sector.

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
No changes.

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
No hourly workers.
3.0 Berry Crop Sectors

As Table 3-1 shows, the BC berry sectors, consisting of blueberries, raspberries and strawberries, are centered in the Lower Mainland region. As such, they are subject to similar labour environments.

Table 3-1: Distribution of Tree Fruit and Grape Acreage by Region of BC

<table>
<thead>
<tr>
<th>Region</th>
<th>Blueberries</th>
<th>Raspberries</th>
<th>Strawberries</th>
<th>Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent of Acreage by Region</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vancouver Island</td>
<td>1.2%</td>
<td>1.8%</td>
<td>8.7%</td>
<td>322</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>98.0%</td>
<td>95.6%</td>
<td>75.4%</td>
<td>17,183</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>0.7%</td>
<td>1.9%</td>
<td>10.4%</td>
<td>287</td>
</tr>
<tr>
<td>Kootenay</td>
<td>0.1%</td>
<td>0.3%</td>
<td>3.3%</td>
<td>62</td>
</tr>
<tr>
<td>Cariboo</td>
<td>Tr.</td>
<td>0.2%</td>
<td>0.7%</td>
<td>20</td>
</tr>
<tr>
<td>North Coast</td>
<td>X</td>
<td>Tr.</td>
<td>0.3%</td>
<td>5</td>
</tr>
<tr>
<td>Nechako</td>
<td>X</td>
<td>0.1%</td>
<td>0.2%</td>
<td>8</td>
</tr>
<tr>
<td>Peace</td>
<td>0</td>
<td>0.2%</td>
<td>1.1%</td>
<td>20</td>
</tr>
<tr>
<td>BC Total (Acres)</td>
<td>11,800</td>
<td>5,020</td>
<td>1,086</td>
<td>17,906</td>
</tr>
</tbody>
</table>

Notes: Tr. = trace

As Table 3-2 shows, over 66% of blueberry growing operations generate over 50% of their gross farm receipts from blueberries and comprise 85% of the total acreage in blueberries.

A similar proportion of raspberry acres is associated with operations that generate over 50% of the GFRs from raspberries. In contrast, strawberry crops are grown predominantly on operations on which other berries and/or horticultural crops are the predominant revenue source.

From a labour perspective, it is more difficult to identify hourly harvest piece rate equivalents for individual crops in operations that may shift harvest from crop to crop within a single day. This is the case in the Lower Mainland region, where the vast majority of berry production occurs.
Table 3-2: Distribution of Berries by those Operations with More than 50% of Gross Farm Receipts (GFRs) Derived From Indicated Crop

<table>
<thead>
<tr>
<th>Crop</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Indicated Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blueberries</td>
<td>858</td>
<td>11,800</td>
<td>569</td>
<td>66.3%</td>
<td>10,013</td>
<td>84.9%</td>
</tr>
<tr>
<td>Raspberries</td>
<td>708</td>
<td>5,020</td>
<td>179</td>
<td>25.3%</td>
<td>3,704</td>
<td>73.8%</td>
</tr>
<tr>
<td>Strawberries</td>
<td>401</td>
<td>1,086</td>
<td>66</td>
<td>16.5%</td>
<td>347</td>
<td>32.0%</td>
</tr>
</tbody>
</table>


A breakout of gross farm receipts in the berry sectors indicates that blueberries accounted for about 54% of total GFRs and 53% of the seasonal and temporary paid labour employed in the sectors. Column F of the Table 3-3 shows that the temporary and seasonal labour requirements are considerably higher in the strawberry sector, making them more susceptible to labour cost and availability, and at least partly responsible for weakness in the sector.

Table 3-3: Distribution of Berry Operations by Gross Farm Receipts (GFRs) and Paid Weeks of Labour

<table>
<thead>
<tr>
<th>(A) Crop</th>
<th>(B) GFRs ($)</th>
<th>(C) Percent of GFRs</th>
<th>(D) Paid Labour Weeks, Seasonal and Temporary</th>
<th>(E) Percent of Paid Labour Weeks, Seasonal and Temporary</th>
<th>(F) Weeks per Acre</th>
<th>(G) Hours per Acre (5 d/w @8h/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blueberries</td>
<td>144,495,473</td>
<td>54.2%</td>
<td>50,987</td>
<td>53.1%</td>
<td>4.32</td>
<td>173</td>
</tr>
<tr>
<td>Raspberries</td>
<td>77,316,113</td>
<td>29.0%</td>
<td>28,775</td>
<td>30.0%</td>
<td>5.73</td>
<td>229</td>
</tr>
<tr>
<td>Strawberries</td>
<td>44,612,959</td>
<td>16.7%</td>
<td>16,222</td>
<td>16.9%</td>
<td>14.94</td>
<td>597</td>
</tr>
</tbody>
</table>


Note that in addition to harvest labour, seasonal and temporary labour also includes labour used in non-harvesting work, such as pruning and general field work.
3.1 Blueberry Crop Profile
The following sections provide context to the use of harvest labour in the blueberry sector and report on the findings of the survey conducted to generate information on the functioning of the piece rate system.

3.1.1 BC Blueberry Sector Size and Distribution
As Table 3-4 shows, the BC blueberry sector is concentrated in the Lower Mainland region, which accounts for about 98% of total blueberry acres. Approximately 85% of the acreage is associated with farming operations that report blueberry production generating over 50% of the gross farm receipts.

The total cultivated area of blueberries has increased 346% since 1998 and increased over 70% since 2005. In 2011, the total harvested area of blueberries was about 17,619 acres while including non-bearing area, the blueberry sector had 18,845 cultivated acres. This means that even if new plantings were to cease, production would increase a further 7% as fields mature into production and demand for harvest solutions would intensify.

Table 3-4: Distribution of Blueberry Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Blueberries</th>
<th>Percent of Acres of Farms with more than 50% of GFRs derived from Blueberries</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>134</td>
<td>139</td>
<td>40</td>
<td>0.8%</td>
<td>94</td>
<td>42</td>
<td>0.4%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>663</td>
<td>11,566</td>
<td>511</td>
<td>83.4%</td>
<td>152</td>
<td>1,723</td>
<td>14.6%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>41</td>
<td>81</td>
<td>12</td>
<td>0.6%</td>
<td>29</td>
<td>15</td>
<td>0.1%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>14</td>
<td>12</td>
<td>5</td>
<td>X</td>
<td>9</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cariboo</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Coast</td>
<td>1</td>
<td>x</td>
<td>0</td>
<td>X</td>
<td>1</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nechako</td>
<td>2</td>
<td>x</td>
<td>0</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peace River</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>x</td>
</tr>
<tr>
<td>BC Total</td>
<td>858</td>
<td>11,800</td>
<td>569</td>
<td>84.9%</td>
<td>289</td>
<td>1,787</td>
<td>15.1%</td>
</tr>
</tbody>
</table>


---

Figure 3-1 indicates that blueberry farm gate prices in BC have been on a modest positive trend, but in decline since a peak in 2006. Per pound harvest piece rate represented approximately 39.3% of farm gate price in 2010, pressuring growers to find alternatives to hand harvesting.

Blueberry yields from harvested acres show a declining trend in the 1998 to 2010 period (Figure 2-2). However, it should be noted that a considerable area of immature blueberries is represented in the marketed production and once these field reach maturity, average per acre yields are anticipated to rise rapidly.

Source: Statistics Canada. Various Years. Fruit and Vegetable Production. Catalogue no. 22-003-X.
http://www.statcan.gc.ca/pub/22-003-x/22-003-x2009002-eng.pdf

Figure 3-1: Farm Prices of Marketed Production, Blueberries, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
2.1.2 Blueberry Grower Survey Findings

About 15 blueberry growers were contacted for harvest information. Eight growers and one labour contractor provided interviews, representing a combined blueberry picking work force of 768 pickers, of which 523 persons or 68% were engaged in piece rate picking. The survey represents 1,400 acres of blueberry acreage base or approximately 8% of the land in crop of the sector.

Hand harvest picker records were provided by 3 growers and one labour contractor. One grower also had Mexican workers who picked under hourly wage rate.

Q1: Harvest Worker Employment and Earnings

Piece rate hand harvesting data is presented in the following charts. Only a limited number of growers had verifiable records for 2011, and the records for previous years were not available. As such, some trends identified in the sector are based mainly on the perceptions of the survey participants.

Roughly 17% of piece rate workers worked less than 25 hours during the season (Figure 3-3). This suggests that a significant proportion of the work force does not anticipate the requirements of the job.
and quits within 3 or 4 days or are terminated by the employers due to poor quality picking. Quality of the pick by contract workers was mentioned as a concern by several growers.

**Figure 3-3: Distribution of Piece Rate Blueberry Harvest Workers by Hours Worked in the Harvest Season (N=176)**

Over the 13 week harvest period consisting of 91 work days and 10 work hours per day, there are 910 work hours. On average, individual piece rate workers were employed for 231 hours in this period or for about 25% of the harvest period. The mean employment duration is higher at 295 hours per worker, meaning that the distribution is skewed with 62% of workers working the average duration or longer.

Figure 3-4, below, indicates that the hourly wage rate equivalent of the piece rate averages out to $9.91 per hour. The median of the distribution is $8.86, indicating the distribution is slightly skewed towards a lower rate. About 48% of the piece rate labour force earned less than $8.75 per hour, and 74% earned less than $10.25, which will be the minimum wage standard on May, 2012. Conversely, about 26% of the piece rate work force earned more than $10.25 per hour on average.
The data was further sorted to shed light on additional characteristics of the blueberry piece rate workforce:

3. 30 workers, or about 19% of the piece rate workforce, worked less than 25 hours in the season. The average wage of this segment of the workforce is $7.66 per hr, and ranged from a low of $3.70 to a high of $16.86 per hour (see Figure 3-5). The median hourly wage rate equivalent is $8.44. About 27% of piece rate workers who left the harvest before doing 25 hours of labour earned an hourly wage equivalent that exceeded the scheduled May 2012 minimum wage rate.

4. Overall, 130 workers, or 74% of the piece rate workers for which data was provided, earned less than the minimum wage rate of $10.25 scheduled for May, 2012. The average duration of seasonal employment for these workers was 275 hours, indicating that they stayed on regardless of their ability to pick productively from an average hourly wage perspective.

5. The total additional wages that would have been required to achieve minimum wage rate for the 130 piece rate workers that earned less than $10.25 would have been approximately $63,400 in 2011. Growers indicated that if the effective average piece rate wage equivalent
were to be raised to the minimum wage standard of $10.25 per hour, the uptake of machine harvesting would be dramatic.

6. If the indicated incomes and employment patterns are extrapolated to the blueberry sector as a whole, the earnings shortfall of workers earning below $10.25 per hour would be about $800,000 in 2011.

![Hourly Wage Rate Equivalent of Blueberry Pickers Working Less Than 25 Hours, 2011](image)

**Figure 3-5: Distribution of Hourly Wage Equivalents for Blueberry Piece Rate Workers Working Less Than 25 Hours (N=30)**

Smaller growers generally tend to pay a higher piece rate to attract pickers.

**Q2: Hourly vs. Piece Rate Pay**

When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:

- Piece rate provides a financial incentive for workers to work harder
- Piece rate attracts workers who want to make more money
- Piece rates encourages productivity, which is what the grower is paying for
- Piece rate work requires less supervision
- Hourly wages are useful at the beginning and end of the season, when piece rate productivity is hard to achieve
• Hourly wages are used when stick picking, i.e., the bushes are shaken with sticks to knock ripe berries loose onto a tarp. This method can result in picking rates of 800 to 1,000 lbs per day but quality suffers.
• Workers operating machine harvesters are paid a wage rate.

Q3: Labour as a Proportion of Production Costs
Financial data has been challenging to acquire from growers. Based on a small sample, total harvest costs account for roughly 60% of total production costs and virtually all harvest labour is paid under piece rate arrangement.

Labour expenditures for smaller growers comprise a lower proportion of total production costs because owner/operators appear to contribute unpaid labour to the farm.

Q4: Use of Labour Contractors
50% of the blueberry growers interviewed hired their own labour and 50% also relied on labour contractors. None of the survey participants relied solely on labour contractors to pick their berries.

Q5: Worker Demographic Information
In Figure 3-6, it is shown that the majority of the pickers (56%) are females over the age of 55, followed by males (33%) over the age of 55. Only 12% of the blueberry picking work force is indicated to be under the age of 55. Overall, 64% of the blueberry piece rate workforce is represented by females.

The demographic characteristics of the harvest work force, with the high proportion of older workers, are of concern to growers. A good picker in the age class of 55 years and over can pick between 300 and 500 lbs per 10 hour day, yielding a wage equivalent of between $12 and $20. In reality, many of the domestic workers are capable of picking far less, often due to physical infirmities associated with age.
**Q6: Length of Season**
The season for blueberries is dependent on how many of the different varieties are grown on a particular farm. The Duke variety is typically harvested in the last 3 weeks of July, Bluecrop is harvested over a 7 week period from mid-July through the 1st week of September, and Elliott is harvested from the 1st week of September to mid-October. The entire harvest period lasts about 13 weeks.

**Q7: Adjustments in the Shoulder Season**
The shoulder season is defined as those periods immediately prior to the main harvest and towards the end of harvest when opportunity to maximize picking poundage declines. Growers will increase the piece rate in shoulder periods to encourage pickers to come or to stay.

A majority of survey participants offer bonus to pickers who will stay the entire season. The bonus system can be a higher piece rate or a percentage increase in the poundage picked. In contrast, part-time piece rate workers tend to leave/move on as volumes and/or picking efficiency declines. This type of worker increases management due to unreliability and require more supervision regarding the quality of the pick.

Growers with more than one variety will move pickers to different varieties over the course of the season, thereby retaining pickers by enabling them to maintain picking rates.

**Q8: Percentage of the Crop Harvested by Hand**
Fundamentally, the proportion of blueberry crop harvested by hand in any given year depends on the quality of the crop in any given year and the price of blueberries in the fresh market. Historically, hand-harvested berries have commanded a higher price due to higher quality. Low farm gate prices for berries tend to reduce demand for hand harvest labour. Different growers target different markets, although all operators participate in the hand harvested market to some extent. Overall, about 60% of the crop is reported to be hand harvested. Most recently, the quality of machine harvested berries has improved to the extent that they can compete in the fresh market. One grower estimated that about 50% of the BC blueberry crop is currently harvested by machine.

**Q9a: Supervisory Method for Piece Rate Workers**
Most of the larger blueberry growers use weigh scales and punch cards to record picker poundage. The ratio of supervisors to workers varies from 1:20 to 1:50.

**Q9b: Supervisory Method for Hourly Wage Rate Workers**
Although our sample did not include many growers with hourly wage harvest labour, we asked the question and respondents indicated that hourly workers tended to required more supervision. However, another grower with Mexican hand harvesters under hourly wage reported the need for less supervision.

**Q10a: Quality Control with Piece Rate Workers**
On smaller farms, owner operators will supervise the picking force to ensure quality is maintained at the weigh scale. Picking quality can be an issue, particularly when product arrives at the packers with excessive debris and/or green berries. Because of the shortage of pickers and steady demand for harvest labour, there is a danger to growers that pickers will leave if questioned about quality.

Some growers reported that, with the multi-ethnic composition of the labour contractor work force largely represented by recent immigrants, communication of quality objectives can be an issue.
**Q10b: Quality Control with Hourly Workers**
Quality control methods are much the same as with piece rate workers.

**Q11: Impact of Technology or Crop Changes on Harvesting Efficiency**
The blueberry sector is being affected by technological developments with implications for harvesting efficiency. These include:

- Development of new varieties with enhanced mechanical harvesting characteristics, such as uniform ripening, condensed harvesting period and more easily picked fruit
- Adoption of pruning practices to promote higher yields
- Advancements in harvesting mechanization, such as vibrating harvester heads
- Improved pest control leading to higher yields and improved quality
- More effective fertilization to optimize plant growth
- More intensive planting, increasing plant densities by 30% per acre
- More effective methods of controlling damages from wildlife.

**Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting**
Improvements in harvesting efficiency are having effects on piece rate harvesting. In the short term, increased yields and quality translate into the ability to pick more product in a given time period. However, since harvest labour is such a significant proportion of overall production costs, longer term technological developments to eliminate the need for hand harvesting are also being aggressively pursued. Machine picking technology is capable of competing with hand harvesting on the basis of quality. Packers are adopting electronic colour sorting technology that provides the ability to robotically remove from the harvest impurities and berries that do not meet grade standard.

The trend towards machine harvesting is also being driven by the shortage of labour. With the rapid increase in blueberry acreage, aging of the current labour force and the decrease in immigration, growers anticipate that hand harvesting will eventually disappear in the sector.

**Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting**
Changes in harvesting efficiency will similarly affect the market for hourly rate harvesting by reducing the need for hand pickers in favour of machine and packing line operators. In the interim, however, foreign seasonal agricultural workers are almost three times more productive than the domestic labour force currently involved in the blueberry sector. As such, it is anticipated that more foreign seasonal workers will be brought into the province to work on blueberry farms and the older contract labour force will be displaced because they will be too expensive and inefficient to be used in the sector.
3.2 Raspberry and Strawberry Crop Profile

The following sections provide context to the use of harvest labour in the raspberry and strawberry sectors and report on the findings of the survey conducted to generate information on the functioning of the piece rate system. The survey participants were selected from the Lower Mainland, where the bulk of production occurs.

It should be noted that the blueberry harvest drives the labor market for harvest pickers in the Lower Mainland, because of the size of the sector and the extended length of the harvest period. As such, the other berry sectors fill in gaps in the harvest schedule for blueberries.

While roughly 75% of raspberry acres are operated with raspberries as the farm’s major source of revenues, only a minority of farming operations are strawberry based, i.e., derive the majority of their farming revenues from the crop. The labor work force overlaps into many sectors during the harvest windows for the various crops.

Two of the three raspberry growers have strawberry acres and all have beans and peas acres. In section 3.2.3, below, the labour survey results for the raspberry and strawberry sectors are combined.

3.2.1 BC Raspberry Sector Size and Distribution

As Table 3-5 shows, the BC raspberry sector is concentrated in the Lower Mainland region, which accounts for about 96% of total raspberry acres. Approximately 74% of the acreage is associated with farming operations that report raspberry production generating over 50% of the gross farm receipts.

The total cultivated area of raspberries has decreased 27% since 1998. In 2011, the total harvested area of raspberries was about 3,764 acres while including non-bearing area, the raspberry sector had 3,955 cultivated acres. However, new plantings are barely offsetting acres coming out of raspberries in the last 3 years (see Figure 3-8).

---

Table 3-5: Distribution of Raspberry Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Raspberries</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Raspberries</th>
<th>Percent of Acres of Farms with more than 50% of GFRs derived from Raspberries</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>198</td>
<td>88</td>
<td>13</td>
<td>14</td>
<td>0.3%</td>
<td>185</td>
<td>74</td>
<td>1.5%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>273</td>
<td>4,798</td>
<td>142</td>
<td>3,658</td>
<td>72.9%</td>
<td>131</td>
<td>1,139</td>
<td>22.7%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>150</td>
<td>93</td>
<td>17</td>
<td>23</td>
<td>0.5%</td>
<td>133</td>
<td>70</td>
<td>0.3%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>37</td>
<td>14</td>
<td>2</td>
<td>x</td>
<td>X</td>
<td>35</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Cariboo</td>
<td>26</td>
<td>11</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>25</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Coast</td>
<td>9</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>9</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Nechako</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>x</td>
<td>X</td>
<td>7</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peace River</td>
<td>0</td>
<td>8</td>
<td>2</td>
<td>x</td>
<td>X</td>
<td>4</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BC Total</td>
<td>708</td>
<td>5,020</td>
<td>179</td>
<td>3,704</td>
<td>73.8%</td>
<td>289</td>
<td>1,787</td>
<td>26.2%</td>
</tr>
</tbody>
</table>

Figure 3-7 indicates that raspberry farm gate prices in BC have been on a modest positive trend, but in decline since a peak in 2008. Per pound harvest piece rate represented approximately 41.3% of farm gate price in 2010, pressuring growers to find alternatives to hand harvesting.


Figure 3-7: Farm Prices of Marketed Production, Raspberries, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Raspberry yields from harvested acres show a very marginal increasing trend in the 1998 to 2010 period (Figure 3-8). This would suggest that, to a greater extent, raspberry operators are not investing in new cultivars with higher yield potential and older stands are not being replanted.

![Graph of Raspberries yield and harvested area from 1998 to 2011](image)

**Figure 3-8: Crop Yields and Harvested Area, Raspberries, BC, 1998 to 2011**

### 3.2.2 BC Strawberry Sector Size and Distribution

As Table 3-6 shows, the BC strawberry sector is concentrated in the Lower Mainland region, which accounts for about 75% of total strawberry acres. Approximately 32% of the acreage is associated with farming operations that report strawberries production generating over 50% of the gross farm receipts. This means that the majority of strawberry crops are part of farming operations with other crops and sources of farming income.

The total cultivated area of strawberries has decreased 54% since 1998. In 2011, the total harvested area of strawberries was about 672 acres while including non-bearing area, the strawberry sector had 767 cultivated acres. However, new plantings are barely offsetting acres coming out of strawberries in the last 4 years (see Figure 3-10).

---

Table 3-6: Distribution of Strawberries Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Strawberries</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Strawberries</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Strawberries</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>135</td>
<td>95</td>
<td>14</td>
<td>22</td>
<td>2.0%</td>
<td>121</td>
<td>73</td>
<td>6.7%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>101</td>
<td>819</td>
<td>20</td>
<td>228</td>
<td>21.0%</td>
<td>81</td>
<td>591</td>
<td>54.4%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>96</td>
<td>113</td>
<td>21</td>
<td>71</td>
<td>6.5%</td>
<td>75</td>
<td>42</td>
<td>3.9%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>35</td>
<td>36</td>
<td>6</td>
<td>18</td>
<td>1.7%</td>
<td>29</td>
<td>18</td>
<td>1.7%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>18</td>
<td>8</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>17</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>North Coast</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>X</td>
<td>X</td>
<td>6</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Nechako</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>2</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Peace River</td>
<td>5</td>
<td>12</td>
<td>1</td>
<td>X</td>
<td>X</td>
<td>4</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>BC Total</td>
<td>401</td>
<td>1,086</td>
<td>66</td>
<td>347</td>
<td>32.0%</td>
<td>335</td>
<td>739</td>
<td>68.0%</td>
</tr>
</tbody>
</table>

Figure 3-9 indicates that strawberry farm gate prices in BC have been on a significantly positive trend since 2003. Per pound harvest piece rate represented approximately 21.4% of farm gate price in 2010, among one of the better harvest labour to farm gate price ratios.


**Figure 3-9: Farm Prices of Marketed Production, Strawberries, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012**
Strawberries yields from harvested acres show a marginal decreasing trend in the 1998 to 2010 period (Figure 3-10). Adverse weather has been a factor in several years.

![Strawberries Graph](image)

**Figure 3-10: Crop Yields and Harvested Area, Strawberries, BC, 1998 to 2011**

### 3.2.3 Grower Survey Findings

It is estimated that 85% of the raspberry crop is machine harvested for the processing, with the residual 15% hand harvested for the fresh market. All strawberries in BC are hand harvested.

Three raspberry/strawberry growers were contacted for harvest information, representing a combined picking work force of 178 pickers, of which 68% were engaged in piece rate picking. The survey represents 75 acres of the raspberry acreage base or approximately 2% of the land in crop of the sector. The survey represents 80 acres of the strawberry acreage base or approximately 12% of the land in crop of the sector.

Since picking typically occurs every 3 days, keeping access to the labour force when needed can be a challenge, especially for smaller growers or for those operators without multiple crops to attract workers for extended picking periods to good harvesting conditions.
Hand harvest picker records were not provided. Two of the three growers also had Mexican workers who picked under hourly wage rate. It should be emphasized that all growers used labour contractors whose work force is involved in most agricultural sectors in the BC Lower Mainland.

The survey responses suggest that operators increase harvest piece rates in the raspberry and strawberry sectors to generate the minimum wage, as required and even daily, or resort to the hourly wage to keep workers on the farm between crop harvests. Independent workers and labour contractors will move to where the most money can be made.

Smaller growers generally need to pay a higher piece rate to attract pickers.

**Q1: Harvest Worker Employment and Earnings**
No sector-specific information on worker hours or earnings was obtained.

**Q2: Hourly vs. Piece Rate Pay**
The majority of hand harvest labour is paid under piece rate arrangement. When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:
- Piece rate allows the employment of non-productive workers as long as quality is maintained
- Don’t pay piece rate for strawberry pickers due to quality issues
- The labour contractor is paid the regulated piece rate plus bonuses

**Q3: Labour as a Proportion of Production Costs**
Financial data has been challenging to acquire from growers. Based on the small sample, total harvest costs account for roughly 50% of total production costs.

**Q4: Use of Labour Contractors**
Two of the three raspberry/strawberry farmers interviewed picked 100% of their crop using labour contractors and the third picked 80% with labour contractors and 20% with their own labour force.

**Q5: Worker Demographic Information**
Overall, 58% of the raspberry/strawberry piece rate workforce is represented by males.\(^{13}\) Figure 3-11 indicates that the majority of pickers are over 55 years of age (68%) and that they are evenly split between male (34%) and females (34%). Pickers under 35 years represent 18% of the picking labour force. About 27% of the harvest workforce was comprised of SAWP workers who were paid an hourly wage.

The aging demographic characteristics of the harvest work force, with the high proportion of older workers, are of concern to growers. It was indicated that younger workers tended to perform harvest work more efficiently.

\(^{13}\) Note that some of these operations also had vegetable crops and, as such, there is overlapping harvest employment in the sectors.
Q6: Length of Season
The season for raspberries is dependent on whether summer and/or fall raspberries are grown. The summer season is typically 6 weeks and the fall season 8 weeks, for a total harvest season of 14 weeks. The same is true for strawberries with summer strawberries ranging from 3 to 4 weeks and fall strawberries up to 12 weeks for a total picking season of up to 16 weeks. Due to the length of season strawberry and raspberry picking overlaps with blueberry harvest which results in difficulty in obtaining pickers.

Q7: Adjustments in the Shoulder Season
The shoulder season is defined as those periods immediately prior to the main harvest and towards the end of harvest when opportunity to maximize picking poundage declines. Growers will increase the piece rate in shoulder periods to encourage pickers to come or to stay. With summer and fall raspberries they will adjust the picking piece rate up to $0.80 per pound to ensure workers meet the minimum wage.

Q8: Percentage of the Crop Harvested by Hand
It is estimated that only between 10 and 15% of raspberries are harvested by hand, with the remainder machine harvested. Hand harvest only takes place for fresh market sales and for individual quick frozen (IQF) processing.

Q9a: Supervisory Method for Piece Rate Workers
Most of the larger raspberry and strawberry growers use weigh scales and punch cards to record picker poundage. The ratio of supervisors to workers for the famers interviewed is 1:15-20 pickers.
Q9b: Supervisory Method for Hourly Wage Rate Workers
Although our sample did not include many growers with hourly wage harvest labour, respondents indicated that hourly workers required less supervision as they were more experienced and therefore there were fewer quality issues. One farmer reported a supervisor to picker ratio of 1:40 when workers picked by the hour.

Q10a: Quality Control with Piece Rate Workers
Field supervisors carry out quality control that includes checking rows and inspecting flats for quality and plant debris. The supervisors also ensure that picking cards are punched.

Q10b: Quality Control with Hourly Workers
Quality control methods are much the same as with piece rate workers except that hourly workers tend to be more experienced and/or repeat employees to the farm and therefore need less supervision.

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
The raspberry and strawberry sector is being affected by technological developments with implications for harvesting efficiency. These include:

- Improved cultivars (less foliage, fruit is more accessible, increased berry size)
- For fresh market, the crop is picked directly into retail packs
- Raised bed cultivation is a bit easier on pickers (more ergonomic)
- Planting shorter rows reduces walking
- Adjusting row spacing to maximize yields.

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
Improvements in harvesting efficiency are having effects on piece rate harvesting i.e. cost of harvesting is increasing. In the short term, increased yields and quality translate into the ability to pick more product in a given time period. However, since harvest labour is such a significant proportion of overall production costs, many raspberry growers have moved to machine harvesting of the bulk of their crop for the processing market.

In the US, some growers are using machines as mobile stations in the field for receiving and accumulating packed flats of strawberries. In addition to facilitating the monitoring of quality control, the process allows for immediate delivery within every row, eliminates bottlenecks at a central collection point, and reduces the walking distances of pickers associated with manual conveyance of the berries.14

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
Not applicable

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4.0 Hand Harvested Field Vegetable Crop Sectors

As Table 4-1 shows, the BC hand-picked field vegetable sectors, consisting of peas, beans and Brussels sprouts, are centered in the Lower Mainland region. As such, they are subject to similar labour environments.

Table 4-1: Distribution of Regulated Hand Harvest Field Vegetable Acreage by Region of BC

<table>
<thead>
<tr>
<th>Region</th>
<th>Peas</th>
<th>Beans</th>
<th>Brussels Sprouts</th>
<th>Total Acres</th>
<th>Percent of Total Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>2%</td>
<td>1.4%</td>
<td>1.2%</td>
<td>70</td>
<td>1.4%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>96.6%</td>
<td>96.9%</td>
<td>98.1%</td>
<td>4,830</td>
<td>96.7%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>2%</td>
<td>1.2%</td>
<td>x</td>
<td>68</td>
<td>1.4%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>0.1%</td>
<td>0.2%</td>
<td>x</td>
<td>5</td>
<td>0.1%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>0</td>
<td>0.2%</td>
<td>0.3%</td>
<td>11</td>
<td>0.2%</td>
</tr>
<tr>
<td>North Coast</td>
<td>0</td>
<td>0.1%</td>
<td>x</td>
<td>4</td>
<td>0.1%</td>
</tr>
<tr>
<td>Nechako</td>
<td>X</td>
<td>0.0%</td>
<td>x</td>
<td>2</td>
<td>Tr.</td>
</tr>
<tr>
<td>Peace</td>
<td>x</td>
<td>0.0%</td>
<td>x</td>
<td>1</td>
<td>Tr.</td>
</tr>
<tr>
<td>BC Total (Acres)</td>
<td>1,878</td>
<td>2,434</td>
<td>681</td>
<td>4,993</td>
<td>100%</td>
</tr>
</tbody>
</table>

Notes: Tr. = trace

Table 4-2 shows that only 1.5% of peas, 1.9% of beans, and 2.7% of Brussels sprout growing operations generate over 50% of their gross farm receipts from these crops. There are very few farms involved in major production of these vegetables and in almost all cases these crops are only a small proportion of the farm income and acreage.
Table 4-2: Distribution of Regulated Hand Harvest Field Vegetables by those Operations with More than 50% of Gross Farm Receipts (GFRs) Derived From Indicated Crop

<table>
<thead>
<tr>
<th>Crop</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Indicated Crop</th>
<th>Percent of Acres of Farms with more than 50% of GFRs derived from Indicated Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peas</td>
<td>325</td>
<td>1,878</td>
<td>5</td>
<td>1.5%</td>
<td>63</td>
<td>3.4%</td>
</tr>
<tr>
<td>Beans</td>
<td>428</td>
<td>2,434</td>
<td>8</td>
<td>1.9%</td>
<td>344</td>
<td>14.1%</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>74</td>
<td>681</td>
<td>2</td>
<td>2.7%</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>


A breakout of gross farm receipts in the vegetable sectors indicates that peas and beans each accounted for about 42% of total GFRs. Peas accounted for 39% of the seasonal and temporary paid labour employment in the sector and beans 45%. Brussels sprouts accounted for considerably less GFRs (16%) and labour (17%). 15 Column F of the Table 4-3 shows that the temporary and seasonal labour requirements are considerably higher in peas and beans than Brussels sprouts, making them more susceptible to labour cost and availability, and at least partly responsible for weakness in the sector. Brussels sprouts are almost all mechanically harvested and less dependent on harvest labour availability.

Table 4-3: Distribution of Regulated Hand Harvest Field Vegetable Operations by Gross Farm Receipts (GFRs) and Paid Weeks of Labour

<table>
<thead>
<tr>
<th>(A) Crop</th>
<th>(B) GFRs ($)</th>
<th>(C) Percent of GFRs</th>
<th>(D) Paid Labour Weeks, Seasonal and Temporary</th>
<th>(E) Percent of Paid Labour Weeks, Seasonal and Temporary</th>
<th>(F) Weeks per Acre</th>
<th>(G) Hours per Acre (5 d/w @8h/d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peas</td>
<td>53,401,848</td>
<td>41.9%</td>
<td>14,926</td>
<td>38.6%</td>
<td>7.95</td>
<td>318</td>
</tr>
<tr>
<td>Beans</td>
<td>53,747,981</td>
<td>42.2%</td>
<td>17,283</td>
<td>44.7%</td>
<td>7.10</td>
<td>284</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>20,268,883</td>
<td>15.9%</td>
<td>6,463</td>
<td>16.7%</td>
<td>9.49</td>
<td>380</td>
</tr>
</tbody>
</table>


15 Note that the seasonal and temporary labour also includes labour used in non-harvesting work, such as pruning and general field work.
4.1 Regulated Hand Harvest Field Vegetable Crop Profiles

The following sections provide context to the use of harvest labour in the vegetable sectors and report on the findings of the survey conducted to generate information on the functioning of the piece rate system.

4.1.1 BC Pea Sector: Size and Distribution

As Table 4-4 shows, the BC pea sector is concentrated in the Lower Mainland region, which accounts for about 94% of total peas acres. Only 3.2% of the acreage is associated with farming operations that report pea production generating over 50% of the gross farm receipts. Peas, as legumes, are part of the crop rotation in other types of field crop operations.

The total cultivated area of peas has decreased over 62% since 1998, with a sharp decline since 2008. In 2011, the total harvested area of peas was about 813 acres.16

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Peas</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Peas</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Peas</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island</td>
<td>110</td>
<td>29</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>110</td>
<td>29</td>
<td>1.5%</td>
</tr>
<tr>
<td>Lower Mainland</td>
<td>73</td>
<td>1,815</td>
<td>4</td>
<td>x</td>
<td>3.2%</td>
<td>69</td>
<td>1,697</td>
<td>90.4%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>76</td>
<td>38</td>
<td>1</td>
<td>x</td>
<td>x</td>
<td>75</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Kootenay</td>
<td>21</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cariboo</td>
<td>21</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>21</td>
<td>4</td>
<td>0.2%</td>
</tr>
<tr>
<td>North Coast</td>
<td>10</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>10</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Nechako</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Peace River</td>
<td>7</td>
<td>x</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>BC Total</td>
<td>325</td>
<td>1,878</td>
<td>5</td>
<td>63</td>
<td>3.4%</td>
<td>320</td>
<td>1,815</td>
<td>96.6%</td>
</tr>
</tbody>
</table>


Figure 4-1 indicates that pea farm gate prices in BC have been on a long termer upward trend. However, per pound harvest piece rate represented approximately 78% of farm gate price in 2010, pressuring the viability of growing the crop.

Figure 4-1: Farm Prices of Marketed Production, Peas, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Pea yields show a relatively steep declining trend in the 1998 to 2010 period (Figure 4-2).

**Figure 4-2: Crop Yields and Harvested Area, Peas, BC, 1998 to 2011**

### 4.1.2 BC Green Bean Sector: Size and Distribution
As Table 4-5 shows, the BC bean sector is concentrated in the Lower Mainland region, which accounts for about 97% of total bean acres. Only 14% of the acreage is associated with farming operations that report bean production generating over 50% of the gross farm receipts indicating that beans are part of the crop rotation in other types of field crop operations.

The total cultivated area of beans has increased 72% since 1998, but down 15% from a peak in 2009. In 2011, the total area of beans was about 2,225 acres.17

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### Table 4-5: Distribution of Bean Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Beans</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Beans</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Beans</th>
<th># of All Other Farms</th>
<th># of Acres of All Other Farms</th>
<th>Percent of Acres of All Other Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vancouver Island (1)</td>
<td>159</td>
<td>33</td>
<td>1</td>
<td>4</td>
<td>0.1%</td>
<td>158</td>
<td>28</td>
<td>x</td>
</tr>
<tr>
<td>Lower Mainland (1)</td>
<td>107</td>
<td>2,358</td>
<td>7</td>
<td>340</td>
<td>14.0%</td>
<td>100</td>
<td>2,018</td>
<td>82.9%</td>
</tr>
<tr>
<td>Thompson-Okanagan</td>
<td>91</td>
<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>91</td>
<td>x</td>
<td>1.2%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>25</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>x</td>
<td>0.2%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>24</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>4</td>
<td>0.2%</td>
</tr>
<tr>
<td>North Coast</td>
<td>11</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Nechako</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>Peace River</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>x</td>
<td>0.0%</td>
</tr>
<tr>
<td>BC Total</td>
<td>428</td>
<td>2,434</td>
<td>8</td>
<td>344</td>
<td>14.1%</td>
<td>420</td>
<td>2,090</td>
<td>85.9%</td>
</tr>
</tbody>
</table>


Notes: (1) Some values have been extrapolated based on estimated distribution of acres.
Figure 4-3 indicates that bean farm gate prices in BC have been on a relatively strong upward trend. Per pound harvest piece rate represented approximately 53% of farm gate price in 2010.


Figure 4-3: Farm Prices of Marketed Production, Beans, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Bean yields show a modest increasing trend over the 1998 to 2010 period (Figure 4-4). However, yields have dropped by almost 40% since reaching peaking in 2007.

Figure 4-4: Crop Yields and Harvested Area, Beans, BC, 1998 to 2011

### 4.1.3 BC Brussels Sprouts Sector: Size and Distribution

As Table 4-5 shows, the BC Brussels sprouts sector is concentrated in the Lower Mainland region, which accounts for about 97% of total Brussels sprouts acres. Only 14% of the acreage is associated with farming operations that report Brussels sprouts production generating over 50% of the gross farm receipts indicating that Brussels sprouts are part of the crop rotation in other types of field crop operations.

The total cultivated area of Brussels sprouts has increased 48% since 1998. In 2011, the total harvested area of Brussels sprouts was about 835 acres.  

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18 Source: Statistics Canada. Various Years. Fruit and Vegetable Production. Catalogue no. 22-003-X.  
http://www.statcan.gc.ca/pub/22-003-x/22-003-x2009002-eng.pdf
Table 4-6: Distribution of Brussels Sprouts Operations and Acres in BC, 2005

<table>
<thead>
<tr>
<th>Region</th>
<th># of Farms</th>
<th># of Acres</th>
<th># of Farms with more than 50% of GFRs derived from Brussels Sprouts</th>
<th># of Acres of Farms with more than 50% of GFRs derived from Brussels Sprouts</th>
<th>Percent of Acres on Farms with more than 50% of GFRs derived from Brussels Sprouts</th>
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</thead>
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<td>x</td>
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<td>7</td>
<td>340</td>
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<td>82.9%</td>
</tr>
<tr>
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<td>30</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>91</td>
<td>x</td>
<td>1.2%</td>
</tr>
<tr>
<td>Kootenay</td>
<td>25</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>25</td>
<td>x</td>
<td>0.2%</td>
</tr>
<tr>
<td>Cariboo</td>
<td>24</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>24</td>
<td>4</td>
<td>0.2%</td>
</tr>
<tr>
<td>North Coast</td>
<td>11</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Nechako</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>1</td>
<td>0.0%</td>
</tr>
<tr>
<td>Peace River</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>x</td>
<td>0.0%</td>
</tr>
<tr>
<td>BC Total</td>
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<td>344</td>
<td>14.1%</td>
<td>420</td>
<td>2,090</td>
<td>85.9%</td>
</tr>
</tbody>
</table>

Notes: (1) Some values have been extrapolated based on estimated distribution of acres.
Figure 4-5 indicates that Brussels sprouts farm gate prices in BC have been on a very modest positive trend. Per pound harvest piece rate represented approximately 37% of farm gate price in 2010.


Figure 4-5: Farm Prices of Marketed Production, Brussels Sprouts, BC, 1998-2010 and Scheduled Harvest Piece Rate Changes to 2012
Brussels sprouts yields show an increasing trend in the 1998 to 2010 period (Figure 4-6). While yields may have declined since 2006, yield data is not available for 2006 and 2009.

Figure 4-6: Crop Yields and Harvested Area, Brussels Sprouts, BC, 1998 to 2011

4.1.4 Grower Survey Findings
Three vegetable growers were interviewed for harvest information. These growers represented a combined picking work force of 460 pickers, of which 260 persons or 57% were engaged in piece rate picking. The survey represents 105 acres of peas, and 180 acres of beans. This represents approximately 6% of total pea production and 7% of bean production. Since almost all growers of Brussels sprouts are machine harvesting, there were no interviews to gather piece rate information from this sector.

Q1: Harvest Worker Employment and Earnings
No sector-specific information on worker hours or earnings was obtained.

Q2: Hourly vs. Piece Rate Pay
The three growers interviewed all hand harvested for the fresh market. Two growers paid only piece rate and one grower paid approximately 1/3 of the workforce hourly and the other 2/3 by piece rate.
Q3: Labour as a Proportion of Production Costs
No information available.

Q4: Use of Labour Contractors
Of the three growers interviewed two used labour contractors for 100% of their picking and the other for 50%.

Q5: Worker Demographic Information
Figure 4-7 indicates that the majority of the pickers (88%) are males, with 28% aged 55 years or more, 32% aged 35 or less, and 10% between the ages of 36 and 55. Approximately 40% of the workforce is female and they are all over the age 55.19 About 68% of the harvest workforce is 55 years of age or more.

SAWP workers, paid the hourly wage, represented about 32% of the workforce of the operators interviewed. About 75% of these workers were 35 years of age or less.

Figure 4-7: Age Distribution of the Vegetable Harvest Workforce (N=133)

Q6: Length of Season
The season for peas and beans is dependent on how many of the different varieties are grown on a particular farm and how many crop rotations are grown over the season. In general, the pea and bean harvest season is 12 to 16 weeks.

Q7: Adjustments in the Shoulder Season
The shoulder season is defined as those periods immediately prior to the main harvest and towards the end of harvest when opportunity to maximize picking poundage declines. In vegetable crops, growers wait until 80% of the crop is mature before picking commences to minimize any shoulder season effects.

19 Note that some of these operations also had vegetable crops and, as such, there is overlapping harvest employment in the sectors.
This practice allows the same piece rate to be paid for throughout the season on most farms. For those farms using SAWP workers this is not an issue as the harvest is paid hourly.

**Q8: Percentage of the Crop Harvested by Hand**
All of the processed market is mechanically picked. All of the peas for the fresh market are hand harvested, and most of beans for the fresh market are hand harvested (i.e., more than 70%). A couple of bean growers are harvesting mechanically for the fresh market, however, quality is an issue due to bruising. The majority of the picking labour is supplied by labour contractors.

The proportion of the pea and bean crops hand-picked or machine harvested is strongly correlated with split between fresh and processed market. It is estimated 75% of each of the total pea and bean crops are destined for the processing market and that all of that is machine harvested.

**Q9a: Supervisory Method for Piece Rate Workers**
The vegetable growers interviewed indicated that there was a supervisor to picker ratio of 1:7-20 pickers. The ratio varies depending on the state of the crop, with 1 supervisor to 20 pickers at peak season.

**Q9b: Supervisory Method for Hourly Wage Rate Workers**
There is no difference in supervision between hourly and piece rate workers.

**Q10a: Quality Control with Piece Rate Workers**
Supervisors do the quality control for piece rate and hourly workers.

**Q10b: Quality Control with Hourly Workers**
Quality control methods are the same as with piece rate workers.

**Q11: Impact of Technology or Crop Changes on Harvesting Efficiency**
The vegetable sector is being affected by technological developments with implications for harvesting efficiency. These include:

- Newer varieties of peas and beans are more evenly maturing
- Improved cultivation methods
- Increased row spacing as season progresses, resulting in less seed per acre
- Planting shorter rows for unloading boxes/flats results in less walking
- Smaller packaging
- Trailers closer to pickers
- Adjustment of row spacing to maximize yields

**Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting**
Changes in efficiency have not had any impact on piece rate harvesting.

A local labour trend that impacts vegetable harvesting is that labour availability tightens up when blueberries are in season. Some pea and bean growers stagger their crop maturity around the blueberry harvest to ensure that harvest labour will be available when needed.

**Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting**
There have been reductions in loading and tracking time that has increased worker efficiency.
5.0 Mushroom Crop Profile

The mushroom sector consists of 59 operators, with Lower Mainland farms accounting for 97% of the 2.44 million square feet of BC growing area.\textsuperscript{20} Growing area appears to have increased marginally since 2001 to about 2.45 million square feet.\textsuperscript{21}

5.1 Overview of the BC Mushroom Sector

Virtually all mushroom operations are in the primary business of mushroom production. The sector has been buffeted by changes in currency exchange rate, fuel surcharges, and a shortage of straw for producing growing medium.

The sector generated about $67.5 million in gross farm receipts in BC in 2005 and paid out about 42,000 weeks of labour to temporary, seasonal and year round workers. Mushroom picking is a continuous process and year-round labour accounts for about 86% of total paid work.

The most recent data for mushrooms combines all western Canadian operation for reporting purposes. Per pound harvest piece rate represented approximately 17.5% of average farm gate price in 2010.

While all mushrooms are hand harvested, 95% are eaten fresh and 5% are processed. Over the past 10 years, the processing price has averaged about 82% of the fresh price and the harvest piece rate represents 23% of the processing price.

Agaricus mushrooms, also known as white button mushrooms, are the predominant genus of mushrooms grown in BC. They are spawned 6 times through the course of the year, meaning that each square foot of mushroom bed is harvested 6 times. Based on a yield of 5 lbs per square foot,\textsuperscript{22} harvest labour at the regulated minimum piece rate is estimated at $17.7 million in harvest labour costs in the sector in 2011.

Anecdotal evidence suggests that, on average, growers are paying the piece rate equivalent of about $12.00 per hour, which would represent harvest labour costs of approximately $24.6 million annually. Based on the western Canada industry average data, harvest labour may represent 38% to 52% of total labour costs.

\textsuperscript{20} Statistics Canada. 2006. 2005 Agriculture Census. Statistics on the BC mushroom sector have not been reported independently since 2007.

\textsuperscript{21} Source: Statistics Canada. Various Years. Fruit and Vegetable Production. Catalogue no. 22-003-X. \url{http://www.statcan.gc.ca/pub/22-003-x/22-003-x2009002-eng.pdf} This value is extrapolated from statistics for Western Canada as BC crop area is no longer reported separately.

\textsuperscript{22} This is the average yield for Western Canada in 2010.
**5.2 Mushroom Labour Survey**

Two growers were interviewed. The sector is highly concentrated in terms of its affiliation to marketing agencies. The high level of competition for labourers in this sector discouraged growers to divulge their wage rates or incentive practices. Labour supply is barely adequate and growers are concerned that any information on labour returns could lead to perceptions in the sector that could cause labour supply movement/instability.

Piece rate hand harvesting data was not obtained. As a general comment, all harvesting is by piece rate and there is no reason for employers to track hours. At least one mushroom operator accesses the Temporary Foreign Worker Program\(^\text{23}\) for labour needs.

**Q1: Harvest Worker Employment and Earnings**

No sector-specific information on worker hours or earnings was obtained.

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However, the hourly wage rate equivalent of the piece rate averages is believed to average out above the minimum regulated rate, at about $12.00 per hour. A further comment is that the standard deviation of the distribution about the average is thought to be quite small.

Growers indicated that if a better rate or employment terms are offered by a competing mushroom operation, workers will leave. Growers attempt to provide picking conditions that optimize the picking rate.

Q2: Hourly vs. Piece Rate Pay
When growers were asked the reasons for paying piece rate or hourly rate the following responses were obtained:
- Piece rate keeps costs variable
- Piece rate rewards good work.

Q3: Labour as a Proportion of Production Costs
Labour accounts for about 55% of total production costs and harvest labour accounts for roughly 50% of total labour cost. Where mushroom operations are also marketing agencies, the breakout of labour is more complicated and is not tracked as a matter of routine.

Q4: Use of Labour Contractors
None of the survey participants relied on labour contractors to pick mushrooms.

Q5: Worker Demographic Information
The majority of the piece rate workforce is female. Overall, more than 75% of the pickers are between the ages of 35 and 54 years, with the residual roughly evenly split between the younger and older categories.

More effective workers tend to be of small physical stature. Small hands are also more suited to mushroom picking.

Q6: Length of Season
The season for mushroom picking is continuous.

Q7: Adjustments in the Shoulder Season
There is no shoulder season.

Q8: Percentage of the Crop Harvested by Hand
100% of the mushroom crop is harvested by hand.

Q9a: Supervisory Method for Piece Rate Workers
The pick is checked continuously for quality. The ratio of supervisor to piece rate worker is about 1:25.

Q9b: Supervisory Method for Hourly Wage Rate Workers
Not applicable. However, there is knowledge of operations using an hourly wage rate in other jurisdictions (e.g. Alberta) where the supervisor to worker ratio is closer to 1:12, indicating that wage workers require more supervision to maintain productivity.

Q10a: Quality Control with Piece Rate Workers
The supervisor manning the scale weighs the pick and inspects quality. Every worker is assigned to a section and the pick from that section that is collected by the pick-up wagon is traceable to the picker. Supervisors have mushroom templates to assist workers to pick for specific size.

**Q10b: Quality Control with Hourly Workers**
Not applicable.

**Q11: Impact of Technology or Crop Changes on Harvesting Efficiency**
Grazing picking is being utilized. This procedure is where fewer pickers are put into a mushroom bed to pick for a period of hours. The longer pick results in increased production as the worker harvests the bed selectively as the mushrooms grow to desired size (mushrooms grow in size 4% per hour).

**Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting**
Increased harvesting rate of workers is dependent on mushroom growers that know how to maximize yield. Competition for piece rate worker is high among mushroom farms and good harvesting conditions attract and keep workers.

**Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting**
Not applicable
6.0 Daffodil Crop Profile
The number of daffodil producers in the province is small.

6.1 Overview of the BC Daffodil Sector
There is little information on the daffodil sector. Due to the highly concentrated nature of the sector, it was not possible to obtain the minimum sample size that would have allowed reporting out on detailed information for the sector.

Sectoral data is not collected at either the provincial or national level.

6.2 Daffodil Labour Survey
One grower in the Lower Mainland responded to the survey. The workforce was hired under the SAWP program and workers tended to stay for their contracted periods.

Q1: Harvest Worker Employment and Earnings
Sector-specific information on worker hours and earnings was obtained, but is not reported due to protect confidentiality.

All workers earned in 2011 more than the May, 2012 scheduled minimum wage level. The average hourly wage equivalent exceeds $15.00 per hour.

Q2: Hourly vs. Piece Rate Pay
The grower uses the SAWP program and pays an hourly rate. However, if more bunches than a minimum bunching rate is picked, the hourly rate is topped up by a piece rate.

Q3: Labour as a Proportion of Production Costs
Labour accounts for about 56% of total production costs and harvest labour accounts for roughly 56% of total labour cost.

Q4: Use of Labour Contractors
The survey participant does not use labour contractors.

Q5: Worker Demographic Information
The SAWP work force is predominantly in the 36-54 years age category.

Q6: Length of Season
The season for daffodil picking is 3 weeks.

Q7: Adjustments in the Shoulder Season
There may be thin picking at the start of the day, but the picking gets thicker as the day advances and temperature rises. Wage reverts back to hourly rate.

Q8: Percentage of the Crop Harvested by Hand
100% of the daffodil crop is harvested by hand.

Q9a: Supervisory Method for Piece Rate Workers
There are two supervisors and two stackers/transporters per 60 workers.
Q9b: Supervisory Method for Hourly Wage Rate Workers
Not applicable.

Q10a: Quality Control with Piece Rate Workers
Supervisors throw out poor quality bunches in front of picker and translates to lost revenue for the picker.

Q10b: Quality Control with Hourly Workers
The supervisor inspects quality.

Q11: Impact of Technology or Crop Changes on Harvesting Efficiency
Biggest impact on picking is having more motivated pickers (i.e., access to SAWP workers). Workers tie cutting knife to wrist to facilitate transition from cutting to bunch tying and back when picking bunches.

The farm uses a data tracking system to track varieties and 1st vs. 2nd year daffodils plots in the field and then applies the information to direct pickers more efficiently.

Q12a: Effect of Changes in Harvesting Efficiency on Piece Rate Harvesting
Workers are able to pick more efficiently.

Q12b: Effect of Changes in Harvesting Efficiency on Hourly Rate Harvesting
Not applicable.
7.0 Piece Rate Systems in Other Jurisdictions

Incentive pay, also known as pay for performance, is a system that is attractive to farmers because of its potential ability to increase worker performance behavior. The attraction to workers is that more effort under productive conditions can lead to hourly wage rate equivalents that are significantly higher than minimum wage rates. US research indicates that piece rate paid wages can produce labour cost savings to the agricultural operator of up to 40%.

Essentially there are two systems of incentive pay: casual and structured incentives. With structured incentives, workers know in advance the monetary relationship between performance and the incentive. Structured incentives provide the employer with cost certainty and cost savings. Other structured incentives are also commonly used in combination with piece rates including:

- Allowing workers to go home when a job is completed
- Providing an end-of-season bonus for those who stay to the end
- Quality and/or production incentives
- Bonus on picking as harvest thins
- Bonus for reducing production costs
- Profit sharing.

A criticism of some of these incentives is that the factors triggering then may be unpredictable and the rate setting mechanism may not be transparent to the picker.

Significant research on piece rates has been undertaken in the US, where it is applied to various activities within and outside of agriculture. Research indicates that the design of an effective piece rate is key to its success as employers need to build piece rate systems that make more money for the enterprise as well as enable workers to earn higher wages. A common concern in other jurisdictions is that performance by workers at full potential can lead to reduced employment and lower employment benefits.

Workers are divided about the attractiveness of incentive pay. The primary concerns of workers with piece rates include:

- Piece rate is too low
- Pace of hourly work is more preferred
- Other benefits are associated with hourly rates, e.g., eligibility for employment insurance.

With the exception of mushrooms, those sectors that attract harvest labour under the piece rate system have short employment seasons, ranging from 2 days (grapes) to 16 weeks (peas and beans).

7.1 US Agricultural Labour Standards

US agricultural workers are regulated by several laws, depending on the source of the labour, that are geared to provide workers with minimum wage or prevailing wage equivalents.

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The Fair Labor Standards Act (FLSA) is the federal law which sets minimum wage, overtime, recordkeeping, and child labor standards for agriculture. Employees who are employed in agriculture as that term is defined in the Act are exempt from the overtime pay provisions.

Any employer in agriculture who did not utilize more than 500 "man days"\(^2\) of agricultural labor in any calendar quarter of the preceding calendar year is exempt from the minimum wage and overtime pay provisions of the FLSA for the current calendar year.

Additional exemptions from the minimum wage and overtime provisions of the Act for agricultural employees apply to the following:

- Agricultural employees who are immediate family members of their employer
- Those principally engaged on the range in the production of livestock
- Local hand harvest laborers who commute daily from their permanent residence, are paid on a piece rate basis in traditionally piece-rated occupations, and were engaged in agriculture less than thirteen weeks during the preceding calendar year
- Non-local minors, 16 years of age or under, who are hand harvesters, paid on a piece rate basis in traditionally piece-rated occupations, employed on the same farm as their parent, and paid the same piece rate as those over 16.

Typical Problems encountered in enforcing the Act include:\(^3\)

- Not keeping/maintaining records of the names and permanent addresses of temporary agricultural employees, dates of birth of minors under age 19, or hours worked by employees being paid on a piece rate basis.
- Failing to pay overtime to employees whose jobs are related to agriculture but which do not meet the definition of agriculture contained in the Act.
- Agricultural employers who utilize the services of a farm labor contractor are almost always in a situation of joint employment with the contractor in regard to the employees. Joint employment means that both the contractor and the farmer are responsible for complying with the minimum wage, overtime, recordkeeping and youth employment provisions of the law. If either party fails to comply with the law both parties may be held liable.

Most agricultural employers, agricultural associations, and farm labor contractors are subject to the Migrant and Seasonal Agricultural Worker Protection Act. The MSPA provides employment-related protections to migrant and seasonal agricultural workers and is administered and enforced by the Wage and Hour Division of the US Department of Labor.

Basic provisions required of the farm labor contractor, agricultural employer, or agricultural association includes the following:\(^4\)

- Provide disclosure of the terms and conditions of employment
- Post information about worker protections at the worksite

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\(^2\) A "man day" is defined as any day during which an employee performs agricultural work for at least one hour.


• The farm labor contractor, agricultural employer and agricultural association must provide each migrant or seasonal agricultural worker a written payroll statement at the time of payment for each pay period which must be no less often than every two weeks (or semi-monthly).
• Making and keeping payroll records for each employee for three years
• Registration of farm labour contractor
• Pay workers the wages owed when due and provide an itemized statement of earnings and deductions.

Under Section H-2A of the Immigration and Nationality Act (INA), an H-2A visa allows a foreign national entry into the U.S. for temporary or seasonal agricultural work and establishes a means for agricultural employers who anticipate a shortage of domestic workers to bring nonimmigrant foreign workers to the U.S. to perform agricultural labor or services of a temporary or seasonal nature. Currently in the United States there are about 30,000 temporary agricultural workers under this visa program. All of these workers are supposed to be covered by US wage laws, workers' compensation and other standards.

The wage or rate of pay must be the same for US workers and H-2A workers. The hourly rate must also be at least as high as the applicable Adverse Effect Wage Rate (AEWR), federal or state minimum wage, or the applicable prevailing hourly wage rate, whichever is higher. The AEWR is established every year by the Department of Labor for every state except Alaska. If the prevailing hourly wage or piece rate is adjusted during a work contract and is higher than the highest of the Adverse Effect Wage Rate (AEWR), the prevailing wage, the agreed-upon collective bargaining wage, or the Federal or State minimum wage, in effect at the time the work is performed, the employer must pay that higher prevailing wage or piece rate.

There are also H-2A labour contractors who employ workers entering the US under H-2A visa provisions.

The US Department of Labour requires that the piece rate “...shall be no less than the piece rate prevailing for the activity in the area of intended employment. If the piece rate does not result at the end of the pay period in average hourly piece rate earnings during the pay period at least equal to the amount the worker would have earned had the worker been paid at the appropriate hourly rate, the worker’s pay shall be supplemented at that time so that the worker’s earnings are at least as much as the worker would have earned during the pay period if the worker had been paid at the appropriate hourly wage rate for each hour worked.”

The Agricultural Online Wage Library presents prevailing piece rates for various crops in California, Washington and Oregon, including pears, apples, cherries, raspberries, strawberries, and grapes. There are 12 states that have piece rates for agricultural harvesting. In general, the rates are comparable to the rates paid in BC

### 7.2 Ontario Agricultural Labour Standards

Ontario’s agricultural workers are governed under the provisions of the Ontario Employment Standards Act. There are four categories of agricultural worker in Ontario:

• Farm worker – a person employed on a farm whose work is directly related to primary production of certain agricultural products

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• Harvester – a person employed on a farm to harvest, bring in, crops of fruit, vegetables for marketing or storage
• Near farmers
• Landscape gardeners.

Minimum standards apply to harvesters
• Minimum wage – there are different minimum wage rates for general and student workers. As of March 31, 2010, the general minimum wage is $10.25 per hour and the student minimum wage is $9.60 per hour
• Vacation with pay
• Public holidays
• Equal pay for equal work.

Minimum standards that do not apply to harvesters include:
• Hours of work and eating periods
• Daily rest period
• Time off between shifts
• Overtime pay.

Treatment of piece work pay is outlined in the special rules for harvesters of fruit, vegetables and tobacco.29 Employers paying employees on a piece work basis are considered to be in compliance with the minimum wage requirement, even if a particular employee earns less than the minimum wage, as long as the piece work rate is customarily and generally recognized in the area where the work is being done as being high enough that an employee using reasonable effort could earn at least the minimum wage.

In the case of students under the age of 18 years who work more than 28 hours a week, if they are paid on a piece work basis and their piece work earnings amount to less than the minimum wage, the employer must pay them the minimum wage even if their piece work rate is customarily and generally recognized in the area where the work is being done as being high enough that an employee using reasonable effort could earn at least the minimum wage.

7.3 Observations for BC

The theory behind harvest piece rate based wages pay practice is extensive, with pros and cons expressed in the literature and by both employers and workers. In this short review of other jurisdictions, assessments of the performance of piece rate systems were not located. Nevertheless, some cursory observations provided.

Employer benefits:
• Provides a way for workers to exert more effort to increase hourly equivalent earnings
• Allows inefficient workers that can meet quality standards to be employed

Employer costs:
• Causes the worker to hurry resulting in reduced quality

• Workers move from employer to employer seeking peak harvest conditions
• Workers leave early once income threshold is reached.

Worker benefits:
• Increases per hour equivalent earnings
• Increased flexibility in work schedule.

Worker cost:
• Used as a mechanism/rationale by the employer to average out hourly earnings to the minimum regulated wage rate
• Piece rates can be a gamble and how it will pay is directly correlated to the quality of the harvest.

Twelve US states have piece rates for agricultural harvesting. In general, the rates are comparable to the rates paid in BC but also vary in relation to prevailing rates for labour in the different jurisdictions.

In those jurisdictions where piece rates are employed in paying agricultural workers, we note the following:
• Employment record keeping and auditing are key components of monitoring the ability of the incentive pay system to generate average minimum wages
• US federal law generally requires agricultural employers who utilize the services of a farm labor contractor to be in a situation of joint employment with the contractor meaning that both the contractor and the farmer are responsible for complying with the minimum wage, overtime, recordkeeping and youth employment provisions of the law.
• The piece rate is supported by the minimum prevailing wage in the US region where the work is taking place
• The averaging period for determining the average wage rate is the pay period, which is usually bi-weekly
• Ontario has provisions that allow employers to employ workers that may not have the ability to pick at the average piece rate, without the requirement to top-up to minimum wage.
8.0 Report Summary

The overarching questions that this investigation seeks to address are:

Are the current regulated minimum piece rates for agricultural hand harvesters working for the harvesters and the producers? Are they set at levels such that most harvesters with reasonable effort can earn at least the equivalent of the general minimum wage? Do they provide affordable and competitive farm labour for farming employers?

The following discussion summarizes the BC piece rate labour situation, outlines considerations, and identifies gaps and outstanding issues.

8.1 Piece Rate Labour Situation

The piece rate labour workforce is represented by several distinct segments. Each sector utilizes the piece rate workforce differently based upon labour market demand, workforce demographics, sector robustness, and harvest requirements. Some, but not all, sectors are fairly homogenous in who they recruit to do their harvesting.

8.1.1 Characteristics of the Workforce

The piece rate labour workforce is represented by several distinct segments. The BC Interior piece rate workforce consists primarily of seasonal labourers in the under 35 and under and 36 to 54 age year categories employed in the tree fruit (apples, cherries, peaches, apricots, pears, plums) and grape sectors, many from eastern Canada who arrive seasonally year after year. Smaller orchards are often picked by family and neighbours in a broader age range that includes seniors.

The Lower Mainland piece rate workforce is involved in the hand picking of berries (blueberries, raspberries, strawberries) and vegetables (peas, beans, Brussels sprouts) and consists primarily of workers over 55 years of age, many of Indo-Canadian ethnicity. In the majority of situations, the labour is organized and managed by labour contractors. The piece rate workforce in the mushroom sector is comprised of a South East Asian population demographic, mostly middle aged, and recruited from BC and through the Temporary Foreign Workers Workers Program, and primarily in the 36 to 54 age category.

Harvest labour in all areas of the province is supplemented by seasonal agricultural labourers recruited from Mexico and the Caribbean under the Seasonal Agricultural Worker Program (SAWP). SAWP workers wage rates are set by the program and these workers tend to be used in the shoulder seasons when harvest productivity is lowest. Nevertheless, many employers will provide additional incentive pay for more productive harvesting. SAWP workers are predominantly in the 36 to 54 wage category.

Piece rate labour in other areas and sectors (daffodils) may be fulfilled by a combination of local labour, contractors, and SAWP workers.
8.1.2 Piece Rate Labour Market Dynamics
The demand for piece rate labour in the Interior is centered in the cherry and apple sectors. The cherry harvest drives the labour market because of its increased ability to provide good picking conditions and superior bonuses. A combination of new varieties, high prices and effective marketing has resulted in growers making profits that support higher picker wages. Top cherry pickers are making up to $300 per day and these pay rates result in high expectations by pickers that are difficult to meet in other tree fruit sectors such as apples or pears.

In the Lower Mainland, the blueberry sector drives the piece rate labour market as blueberries provide the most jobs, the longest seasonal picking opportunity, and the greatest opportunity for higher picking rates. When blueberries are at peak harvest it is difficult for other smaller sectors to obtain picking labour or it results in very high premiums paid to contractors to provide labour. In addition, labour contractors manage their workforces among the sectors using the blueberry crop as their primary focus.

8.1.3 Picking Quality
The demand for piece rate labour varies among operations depending on their markets, harvesting system, and size of operation.

Where high quality of the product is of concern, e.g., varieties of apples that must be picked based on colour, soft fruits that bruise easily, or picking directly for retail sales, the trend is to pay the pickers hourly so that they are not rushing when picking the crop. Generally growers try to hire more experienced pickers for hourly picking or use SAWP workers. Where more experienced labourers are employed, owners tend to be more comfortable in allowing these workers to work at an hourly rate with less supervision.

8.1.4 Robustness of the Sectors
Some sectors, such as cherries, grapes, and blueberries have greater opportunities due to the robustness of their markets. Other sectors, such as apples, strawberries, and peas, are struggling to cover operating costs due to low returns caused by international competition and the impact of relatively higher labour costs. In some sectors, there are concerns that increased labour costs will eventually lead to the demise of the sector as the picking costs exceed the per pound selling price.

8.1.5 Length of Harvest
The length of the harvest for sectors using piece rate picking varies from 3 days (grapes) to 16 weeks (peas and beans). The tree fruit picking season varies from 4 to 9 weeks. The berry harvests extend from 3 to 13 weeks. The daffodil sector seldom lasts longer than 3 weeks. In contrast, mushroom harvesting occurs year-round.

In general, longer harvests across more sectors at a specific farm give the farm operator some leverage in negotiating labour contractor rates. Small, single sector, operators almost always have to pay high piece rates for labour because the proportion of crop that will be picked at peak rate will be lower.

8.2 Piece Rate Considerations
To assist in understanding the functioning of the piece rate system in the various agricultural sectors, several indicators have been fashioned.

8.2.1 Changes in Piece Rates, Minimum Wage, Farm Input Price Index and Farm Gate Prices
The contribution of harvest labour to total production costs varies for each sector and its impact on the operation is determined by the ratio of the piece rate to farm gate price. As Table 8-1 indicates, harvest
costs approach or exceed 50% of the production costs for the berry sectors. Existing piece rates as a proportion of farm gate prices, seriously affect returns for berries and vegetables.

While tree fruit piece rates are a significantly lower proportion of farm gate prices, harvest costs can still represent a substantial portion of total production costs (e.g. apples). It should be noted that some sectors have a mix of orchard varieties and ages, each with different farm gate pricing, and that it may be uneconomic to pick less marketable varieties or ages in any given year.

### Table 8-1: Harvest Labour as a Proportion of Production Costs and Regulated Agricultural Piece Rate Sectors as Percent of Farm Gate Price, BC, 2010

<table>
<thead>
<tr>
<th>Item</th>
<th>Sector</th>
<th>Harvest Labour as % of Total Production Costs</th>
<th>Piece Rate as % of Farm Gate Fresh Price</th>
<th>Piece Rate as % of Farm Gate Processed Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cherries</td>
<td>24%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Apples</td>
<td>33%</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Grapes</td>
<td>27%</td>
<td>5%</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Apricots</td>
<td>n/a</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Plums</td>
<td>n/a</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Peaches</td>
<td>n/a</td>
<td>9%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Pears</td>
<td>19%</td>
<td>6%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Blueberries</td>
<td>60%</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Raspberries</td>
<td>50%</td>
<td>41%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Strawberries</td>
<td>50%</td>
<td>21%</td>
<td>67%</td>
</tr>
<tr>
<td>11</td>
<td>Peas</td>
<td>n/a</td>
<td>78%</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Beans</td>
<td>n/a</td>
<td>53%</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Brussels sprouts</td>
<td>n/a</td>
<td>37%</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Mushrooms</td>
<td>28%</td>
<td>18%</td>
<td>27%</td>
</tr>
<tr>
<td>15</td>
<td>Daffodils</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
</tbody>
</table>

Notes: n/a = not available

Between 1998 and May, 2010, piece rates increased between 22.3% (daffodils) to 27.3% (beans, Brussels sprouts). Apples, apricots, blueberries, grapes, peaches, pears, peas, plums, raspberries, mushrooms, and raspberries had intermediate increases of 26.6% while the piece rates for cherries and strawberries experienced increases of 26.6%. In the same 1998 to 2011 period, the minimum wage increased 22.4%, or less than the piece rate in all sectors except daffodils (see Table 8-2).

Table 8-2 shows the Farm Input Price Index (FIPI) increased 46.7% in the 1998-2011 period while the average farm gate price for the fresh market products grown in the sectors (49.6%) rose slightly more than the cost of inputs. Thus, the average revenue margin increased about 6% ((49.6-46.7)/49.6= 5.9%).

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30 The farm Input Price Index is an indicator of Canadian farmers input costs. The values presented in Table 8-2 are for BC since 2002 and for Western Canada from 1998 to 2001, inclusive.
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Piece rate (1)</td>
<td>Apples</td>
<td>$12.05</td>
<td>$13.44</td>
<td>$17.06</td>
<td>26.9%</td>
<td>64.7%</td>
</tr>
<tr>
<td></td>
<td>Apricots</td>
<td>$12.81</td>
<td>$15.46</td>
<td>$19.62</td>
<td>26.9%</td>
<td>46.8%</td>
</tr>
<tr>
<td></td>
<td>Cherries</td>
<td>$0.16</td>
<td>$0.177</td>
<td>$0.224</td>
<td>26.6%</td>
<td>167.7%</td>
</tr>
<tr>
<td></td>
<td>Grapes</td>
<td>$12.81</td>
<td>$14.29</td>
<td>$18.13</td>
<td>26.9%</td>
<td>46.5%</td>
</tr>
<tr>
<td></td>
<td>Prunes/plums</td>
<td>$13.56</td>
<td>$15.13</td>
<td>$19.21</td>
<td>27.0%</td>
<td>21.5%</td>
</tr>
<tr>
<td></td>
<td>Peaches</td>
<td>$12.81</td>
<td>$14.29</td>
<td>$18.13</td>
<td>26.9%</td>
<td>68.9%</td>
</tr>
<tr>
<td></td>
<td>Pears</td>
<td>$13.56</td>
<td>$15.13</td>
<td>$19.21</td>
<td>27.0%</td>
<td>5.8%</td>
</tr>
<tr>
<td></td>
<td>Blueberries</td>
<td>$0.295</td>
<td>$0.312</td>
<td>$0.396</td>
<td>26.9%</td>
<td>36.0%</td>
</tr>
<tr>
<td></td>
<td>Raspberries</td>
<td>$0.235</td>
<td>$0.281</td>
<td>$0.357</td>
<td>27.0%</td>
<td>82.9%</td>
</tr>
<tr>
<td></td>
<td>Strawberries</td>
<td>$0.225</td>
<td>$0.271</td>
<td>$0.343</td>
<td>26.6%</td>
<td>49.6%</td>
</tr>
<tr>
<td></td>
<td>Peas</td>
<td>$0.19</td>
<td>$0.230</td>
<td>$0.292</td>
<td>27.0%</td>
<td>35.5%</td>
</tr>
<tr>
<td></td>
<td>Beans</td>
<td>$0.15</td>
<td>$0.184</td>
<td>$0.234</td>
<td>27.2%</td>
<td>76.6%</td>
</tr>
<tr>
<td></td>
<td>Brussels sprouts</td>
<td>$0.105</td>
<td>$0.128</td>
<td>$0.163</td>
<td>27.3%</td>
<td>14.3%</td>
</tr>
<tr>
<td></td>
<td>Mushrooms</td>
<td>$0.165</td>
<td>$0.185</td>
<td>$0.235</td>
<td>27.0%</td>
<td>-20.6%</td>
</tr>
<tr>
<td></td>
<td>Daffodils</td>
<td>n/a</td>
<td>$0.112</td>
<td>$0.137</td>
<td>22.3%</td>
<td>n/a</td>
</tr>
<tr>
<td>Minimum wage (2)</td>
<td></td>
<td>$5.50</td>
<td>$7.15</td>
<td>$8.75</td>
<td>22.4%</td>
<td></td>
</tr>
<tr>
<td>Farm Input Price Index (1998=100) (3)</td>
<td></td>
<td>84.4</td>
<td>100</td>
<td>146.7</td>
<td>46.7%</td>
<td></td>
</tr>
<tr>
<td>Average Farm Gate Prices (1998=100) (4)</td>
<td></td>
<td>n/a</td>
<td>100</td>
<td>149.7</td>
<td>49.7%</td>
<td></td>
</tr>
</tbody>
</table>

Notes: (1) See Table 1-1, above; (2) See Table 1-1, above; (3) Statistics Canada CANSIM Table 328-0014. [http://www.statcan.gc.ca/imdb-bmdi/document/2305_D2_T9_V2-eng.pdf](http://www.statcan.gc.ca/imdb-bmdi/document/2305_D2_T9_V2-eng.pdf); (4) This is the average of the farm gate price change across all sectors in Section 2, above, for the period 1998 to 2010; (5) These are the changes in farm gate price by sector as reported in Section 2, above.

n/a = not available

Based on survey findings that harvest labour (on average) may represent about 40% of total production costs (see Table 8-1), the 26.6% average increase in harvest piece rate in the 1998-2011 period is calculated to have represented about 10.7% of added production costs in hand harvest operations over the period (26.6*0.4= 10.65%).

It is also important to note that all sectors did not perform similarly. While cherry farm gate prices increased more than 167% in the period, mushroom farm gate prices declined and pears showed a modest increase in price of only 5.8% (see Table 8-2, last column). As such, the impact of changes in hand harvest labour rates on farm costs and returns has likely varied significantly by sector.

### 8.2.2 Innovation and Adoption of Harvesting Technology

The sectors vary in terms of their uptake of innovations that might improve harvesting efficiency or technologies that might reduce the need for hand harvesting. As Table 8-3 indicates, several sectors have adopted improved varieties that also increase picking efficiency positively. For example, larger cherries make possible higher picking rates while colour picking of apples reduces picking efficiency.
### Table 8-3: Innovation and Adoption of Harvesting Technology

<table>
<thead>
<tr>
<th>Sector</th>
<th>Innovation</th>
<th>Innovation Impact on Piece Rate Harvesting</th>
<th>Technology</th>
<th>Technology Impact on Piece Rate Harvesting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherries</td>
<td>New, improved varieties, larger fruit Harvest management efficiencies (bar coding)</td>
<td>+</td>
<td>Cherry sorting machines</td>
<td>+</td>
</tr>
<tr>
<td>Apples</td>
<td>New improved varieties Improved pruning Colour picking</td>
<td>+</td>
<td>Two story harvest wagons</td>
<td>+</td>
</tr>
<tr>
<td>Grapes</td>
<td>Varietal improvements</td>
<td>+</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apricots</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peaches</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plums</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pears</td>
<td>?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blueberries</td>
<td>New improved varieties Improved pruning Punch cards</td>
<td>+</td>
<td>Machine harvesters Infrared sorting machines</td>
<td>-</td>
</tr>
<tr>
<td>Raspberries</td>
<td>Varietal improvements</td>
<td>+</td>
<td>Machine harvesters</td>
<td>-</td>
</tr>
<tr>
<td>Strawberries</td>
<td>Shorter rows, shorter carrying distances</td>
<td>+</td>
<td>Field packing machines</td>
<td>+</td>
</tr>
<tr>
<td>Peas</td>
<td>More evenly ripening varieties</td>
<td>+</td>
<td>Machine harvesters</td>
<td>-</td>
</tr>
<tr>
<td>Beans</td>
<td>More evenly ripening varieties</td>
<td>+</td>
<td>Machine harvesters</td>
<td>-</td>
</tr>
<tr>
<td>Brussels sprouts</td>
<td>?</td>
<td></td>
<td>Machine harvesters</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td><a href="#">machine harvesters</a></td>
<td></td>
<td>[not in BC yet]</td>
<td></td>
</tr>
<tr>
<td>Mushrooms</td>
<td>Improved harvesting practices</td>
<td>+</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Daffodils</td>
<td>Improved harvesting practices Harvest management efficiencies (data and field management )</td>
<td>+</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Sectors experiencing decline in acreage currently indicate less adoption of new varieties and other innovations.

Depending on sector, adoption of technology may improve the efficiency of hand picking or obviate the need for it. Brussels sprouts are now predominantly machine harvested as technology has been developed that eliminates the need for hand harvesting. Blueberry machine harvesters have been significantly improved allowing more of the harvest to be mechanically picked and still sold into the
fresh market. As labour becomes more scarce and higher priced, farmers will continue to replace labour with mechanized harvesting.

In sectors such as cherries and blueberries, infrared sorting technology has the ability to extract impurities and grade picked product by size and colour for specific market destinations. Assuming quality is unaffected, pickers may be able to pick a more generic product more quickly.

### 8.2.3 Pickers Earnings Capacity

Table 8-4 indicates that pickers’ earnings capacity varies across the sectors. Earning capacity is strongest in the cherry sector (denoted with an A), averaging more than $18.50 per hour over the season. Other sectors paying hourly age equivalent piece rates greater than $15.00 (and for which evidence was collected) include apples, grapes, pears, and daffodils. It is believed that other tree fruit sectors in the Interior also fall into category B.

In the Lower Mainland, the blueberry sector is indicated, on average, to pay hourly wage equivalents that were at slightly higher than the minimum wage during the 2011 pickling season. However, the average hourly wage equivalent is calculated to have been below the minimum wage (category D in Table 8.3) in comparison to the piece rate as of November, 2011 and scheduled piece rate for May, 2012. Since the raspberry, strawberry, pea and bean sectors all derive their piece rate labour from the same labour pool as the blueberry sector and some blueberry grower participants also harvested these other crops under similar arrangements, it may be a safe to assume that average hourly wage equivalents are probably the same as for blueberries.

<table>
<thead>
<tr>
<th>Item</th>
<th>Sector</th>
<th>Average Rate Indication (1)</th>
<th>Proportion of Harvesters Earning Average Wage Greater than $10.25 per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cherries</td>
<td>A</td>
<td>92%</td>
</tr>
<tr>
<td>2</td>
<td>Apples</td>
<td>B</td>
<td>93%</td>
</tr>
<tr>
<td>3</td>
<td>Grapes</td>
<td>B</td>
<td>93%</td>
</tr>
<tr>
<td>4</td>
<td>Apricots</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Plums</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>6</td>
<td>Peaches</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>7</td>
<td>Pears</td>
<td>B</td>
<td>100%</td>
</tr>
<tr>
<td>8</td>
<td>Blueberries</td>
<td>D</td>
<td>26%</td>
</tr>
<tr>
<td>9</td>
<td>Raspberries</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>10</td>
<td>Strawberries</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>11</td>
<td>Peas</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>12</td>
<td>Beans</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>13</td>
<td>Brussels sprouts</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>14</td>
<td>Mushrooms</td>
<td>C</td>
<td>n/a</td>
</tr>
<tr>
<td>15</td>
<td>Daffodils</td>
<td>B</td>
<td>100%</td>
</tr>
</tbody>
</table>

Notes: n/a = not available
(1) A= greater than $17.50; B=Greater than $15.00; C=Greater than $10.25; D=Less than $10.25
8.2.4 Demographics of the Workforce
The demographic profiles of the piece rate workforce vary considerably among different regions of the province.

In the Interior, the seasonal harvest pickers tend to be predominantly in the two youngest age categories, although smaller operations may rely more on family, neighbours and friends within a wider range of ages (see Table 8-5).

In the Lower Mainland, the largest proportion of the domestic piece rate workforce is in the oldest category, 55 years of age or more

<table>
<thead>
<tr>
<th>Item</th>
<th>Sector</th>
<th>Predominant Source of Piece Rate Labour</th>
<th>Predominant Age Category (1)</th>
<th>Percent Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cherries</td>
<td>Domestic seasonal migratory SAWP</td>
<td>A</td>
<td>60%</td>
</tr>
<tr>
<td>2</td>
<td>Apples</td>
<td>Domestic seasonal migratory</td>
<td>B</td>
<td>100%</td>
</tr>
<tr>
<td>3</td>
<td>Grapes</td>
<td>Domestic</td>
<td>D</td>
<td>50%</td>
</tr>
<tr>
<td>4</td>
<td>Apricots</td>
<td>Domestic seasonal migratory</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Plums</td>
<td>Domestic seasonal migratory</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>6</td>
<td>Peaches</td>
<td>Domestic seasonal migratory</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>7</td>
<td>Pears</td>
<td>Domestic seasonal migratory</td>
<td>B</td>
<td>92%</td>
</tr>
<tr>
<td>8</td>
<td>Blueberries</td>
<td>Domestic</td>
<td>C</td>
<td>37%</td>
</tr>
<tr>
<td>9</td>
<td>Raspberries</td>
<td>Domestic</td>
<td>C</td>
<td>58%</td>
</tr>
<tr>
<td>10</td>
<td>Strawberries</td>
<td>Domestic</td>
<td>A-B</td>
<td>88%</td>
</tr>
<tr>
<td>11</td>
<td>Peas</td>
<td>Domestic</td>
<td>A-B</td>
<td>88%</td>
</tr>
<tr>
<td>12</td>
<td>Beans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Brussels sprouts</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>14</td>
<td>Mushrooms</td>
<td>Domestic TFWP</td>
<td>B</td>
<td>25%</td>
</tr>
<tr>
<td>15</td>
<td>Daffodils</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

n/a = not available
Notes: (1) Category A - 35 years or less; Category B – Between 35 and 54; Category C – 55 years or more; Category D – No predominant category
In other areas of the province (and in particular on Vancouver Island), the harvest workforce may be sourced from a combination of local domestic workers, contracted labour, and SAWP, as available.

SAWP workers are recruited for all areas and are used throughout the harvest period in a variety of ways, ranging from picking to general farm work. SAWP workers tend to fall more predominantly into the middle age category, i.e., between 35 and 54 years of age.

The aging picker workforce is a two-fold concern for farmers. First, older workers do not pick as fast, (though they tend to be very good at high quality picking) and therefore there are concerns that any changes to the present piece rate structure might result in the elimination of these people from the workforce. Second, farmers have concerns that the existing agricultural workforce will soon completely disappear due to its present age distribution and impending retirement.

The aging workforce may also be correlated with the lower hourly wage equivalent observed for piece rate workers in the Lower Mainland.

8.3 Gaps and Emerging Issues
There were a number of gaps identified during the process of collecting data from farms and during the data analysis phase of this project.

8.3.1 Availability of Hourly Data
The most significant data collection gap was the inability in some of the sectors to determine the actual hours worked by piece rate workers from picker records. This made it difficult or impossible to determine what the real picker hourly rate was for harvest piece rate work.

8.3.2 Small Sample Sizes in Most of the Sectors
The small sample size is an issue as the statistical representation of the sample was not achieved, especially in the sectors where only 3 farms were chosen for data collection and interviews.

8.3.3 Verification of Reported Employment with Income
In sectors where labour contractors provide the majority of the piece rate harvest labour, it is not possible to correlate what the farm pays on piece rate to the contractor to what the worker is being paid. In these sectors there is not enough information collected on actual hours worked by individual pickers to determine a true hourly rate per picker. It should be noted that in the sectors such as tree fruits where labour contractors are not involved, the farms maintain employment records that includes number of hours worked by their piece rate workers.

8.3.4 Impact of Piece Rate Changes on Individual Sectors
This study has shown that a number of agricultural sectors, in particular tree fruits, are paying on average well above the minimum wage based on the present piece rate system. In the Lower Mainland, piece rates not only average significantly lower but also constitute a sizable proportion of the farm gate price in several sectors. This suggests that higher piece rates wage equivalent can be more easily supported in some sectors than in others. More careful review of the sectors individually may be required to gain sensitivity for and full appreciation of sectoral circumstances.