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Economics of Southwest British Columbia Food Systems 1: Overview of Farming Operations

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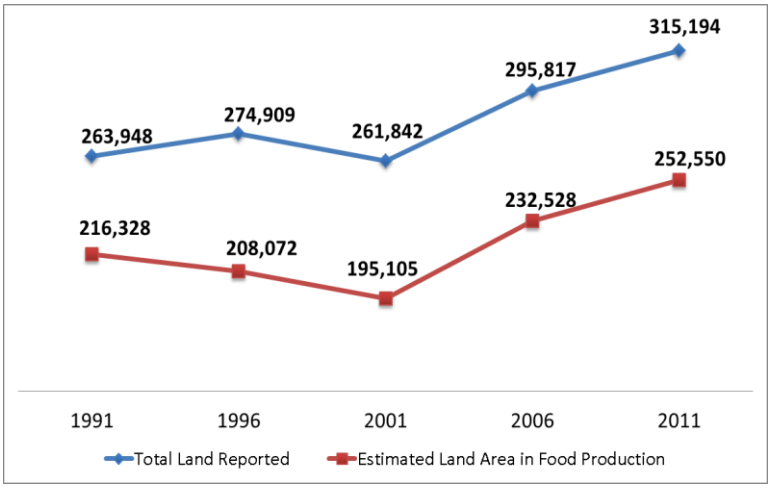
Primary agriculture, the production of crops and animals, is a central component of food systems. Regional production of food contributes directly to regional economic growth, food self-reliance and food security. In British Columbia (BC), the contribution of primary agriculture to provincial gross domestic product (GDP) accounts for less than one percent and is declining (Statistics Canada, 2013). However, regional food production linked to other elements of the supply chain is increasingly recognized as important in creating a sustainable food system.

This research brief presents an overview of farming operations in Southwest British Columbia (SWBC), focusing on several socio-economic aspects such as land area, farm size, farm finances and employment opportunity. The SWBC region consists of five census divisions: Fraser Valley Regional District, Metro Vancouver Regional District, Powell River Regional District, Squamish-Lillooet Regional District, and Sunshine Coast Regional District.

Estimated Land Area in Food Production and Number of Farms

Figure 1: Total land reported and estimated land area in food production (acres), 1991-2011



Data source: Statistics Canada, Census of Agriculture, 1991-2011.

Land area in food production has been increasing slowly. Approximately 18 to 25% of total agriculture land reported has not been utilized for food production.

'Total land reported' is the amount of land allocated for agriculture operations each year as reported in the Census of Agriculture. It consists of workable land for food production and non-workable land such as area in Christmas trees, woodlands and wetlands. 'Estimated land area in food production' only includes land in crop production[1], land in summer fallow[2], improved (tame or seeded) pasture[3], pastured natural land[4] and areas in greenhouse vegetables and mushrooms. The Lower Mainland continues to be an important BC agriculture region with 82% of SWBC total land area reported to be in food production. This is concentrated in the regions of Fraser Valley and Greater Vancouver.

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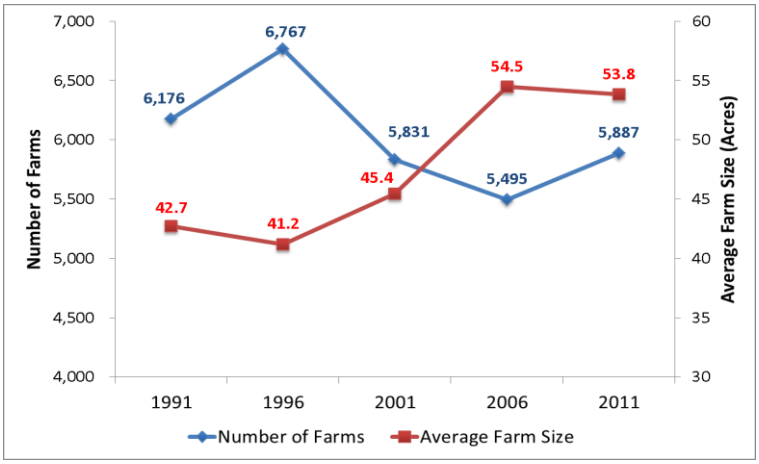
Figure 2: Number of farms vs. average farm size, 1991-2011



Data source: Statistics Canada, Census of Agriculture, 1991-2011

The farming sector in SWBC is consolidating. Since 1991, the number of farm operations has declined while the average farm size has increased.

Even though the total land area reported has increased, the number of farms has declined by 4.7% compared to 20 years ago while the average size per farm has increased by six percent.

Table 1: Number of farms by farm size, 1991-2011

Farm Size (Acres)	1991	1996	2001	2006	2011
Under 10	2,505	3,035	2,282	2,211	2,556
10 to 69	2,757	2,843	2,628	2,376	2,488
70 to 129	477	463	466	444	380
130 to 179	190	166	169	156	146
180 to 239	90	107	111	118	116
240 to 399	98	96	101	101	103
400 to 559	28	31	45	44	42
560 to 759	10	8	15	15	23
760 and more	21	18	14	30	33
Total	**6,176**	**6,767**	**5,831**	**5,495**	**5,887**

Data source: Statistics Canada, Census of Agriculture, 1991-2011

Of the total number of farms in this region in 2011, 86% were less than 70 acres in size. Over the past 20 years, the number of large farm operations has doubled.

The temporary rise in the number of farms in 1996 (Figure 2) was due to the increase in the number of smaller farms (less than 70 acres); however, small farms also experienced a big decline in 2001. Medium-sized farms (between 70 and 400 acres) showed a 13% decrease in the past 20 years. On the other hand, farms larger than 400 acres have increased by more than 50% in number since 1991.

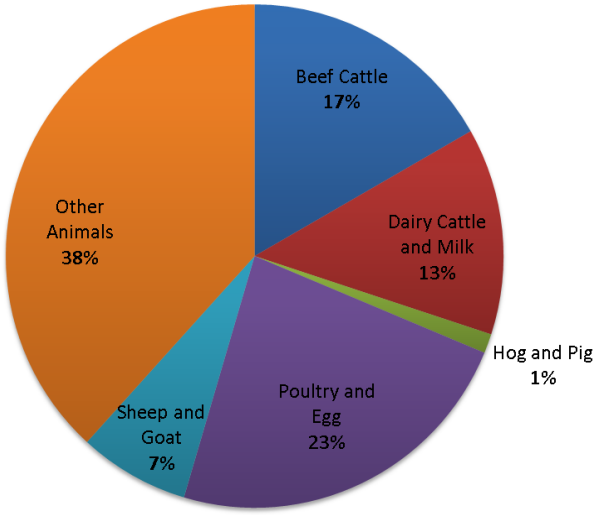
Farm Types

In SWBC there were a total of 2816 farms in livestock production and 3071 farms in crop production in 2011. Compared to 2006, the total number of livestock farms declined by three percent, mainly in the beef and dairy sectors. Crop farms saw an increase of 19 percent, mainly in the fruit and tree nut, vegetable and hay sectors.

Leading livestock industries by number of farms in 2011 were 1) poultry and egg, 2) dairy cattle and milk and 3) beef cattle.

The fastest growing segment of the livestock industry was poultry and egg which grew by 22% between 2006 and 2011. The beef cattle and dairy cattle and milk industries experienced a decline in the number of farms. The majority of poultry and egg farms and dairy farms were concentrated in the Fraser Valley. Beef cattle operations were equally spread out between Fraser Valley and Greater Vancouver. Other livestock operations included farms in equine, goats, llamas and alpacas, rabbits, bison, elk, deer, wild boars and mink.

Figure 3: Proportion of livestock farms, 2011

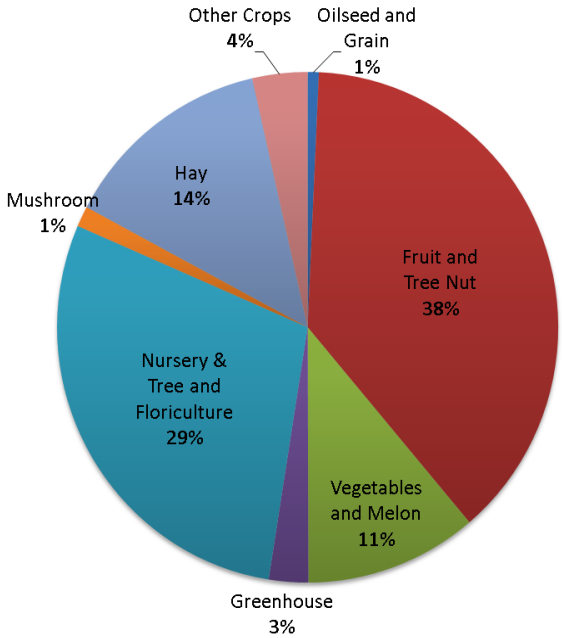


Data source: Statistics Canada, Census of Agriculture, 2011

Leading crop industries number of farms in 2011 were 1) fruit and tree nut, 2) nursery, tree and floriculture and 3) hay.

Fruit and tree nut farms increased by 27% between 2006 and 2011, while vegetable farms increased 31%. Fruit and tree nut farms have an equal presence in the Fraser Valley and Greater Vancouver; whereas 60% of vegetable farms were located in Greater Vancouver. Greenhouse operations, a high-value industry, accounted for three percent of the total number of crop farms. The total area of greenhouse operation increased from 2.5 million square feet in 2001 to 28 million square feet in 2011. Other crop farms included fruit and vegetable combinations, maple trees and other miscellaneous crops.

Figure 4: Proportion of crop farms, 2011

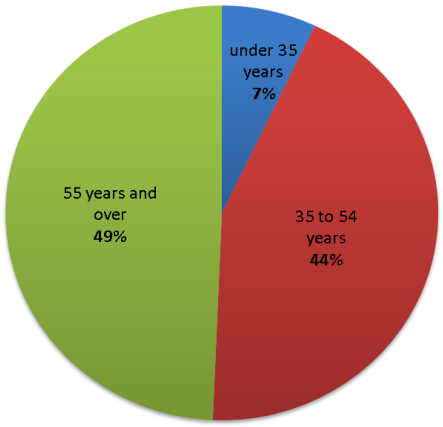


Data source: Statistics Canada, Census of Agriculture, 2011

Farm Operators

There were a total of 8,935 farm operators in 2011, an increase of nine percent from 2006. Of the total, 66% were male, while 34% were female.

Figure 5: Proportion of farm operators by age group, 2011



Data source: Statistics Canada, Census of Agriculture, 2011

Farm operators in SWBC are getting older. Fewer young adults are inclined to inherit or pursue a career in agriculture.

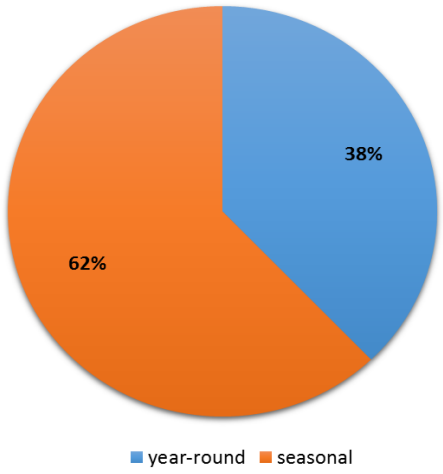
The aging population of farm operators is a worldwide trend. For BC, the average age of farm operators increased by seven years to 56 years in the two decades preceding 2011. Since 2001, the average age of farm operators in SWBC has increased from 50.6 to 54.2 years.

The number of farm operators under 54 years of age has declined steadily since 1991. In 2011, almost half of the farm operators consisted of farmers 55 years of age and older. Between 2006 and 2011, the number of farm operators 55 years and older increased by 29% while the number of farmers younger than 35 years old increased by only eight percent. The significant rate of increase in the 55 years and over age group is disproportionate to the rate of increase for younger age groups.

Farm Employment

In 2010, farms in SWBC hired 24,112 employees. The total number of farm employees hired in SWBC made up 53% of farm employees hired in the province. Eighty-one percent of all employees (19,591 employees) were employed in crop farms while 19% (4,521 employees) worked in livestock farms.

Figure 6: Percentage of year-round and seasonal/temporary employees, 2010

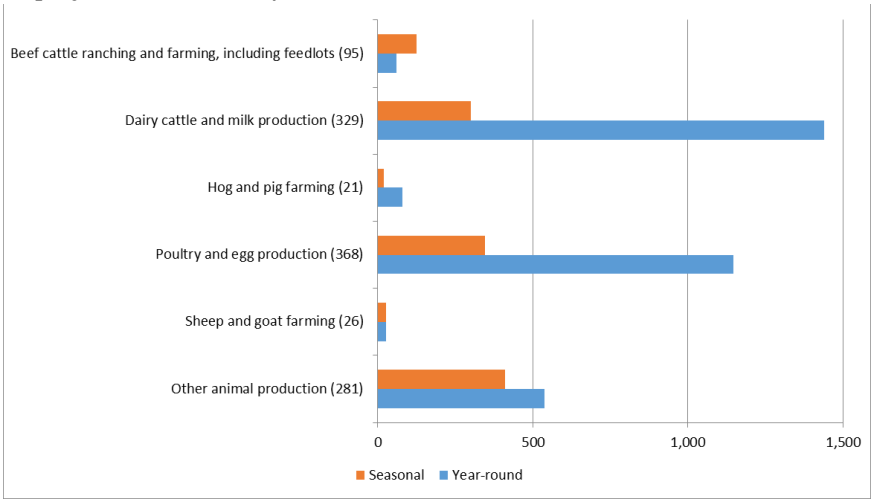


Data source: Statistics Canada, Census of Agriculture, 2011

Seasonal/temporary employees represent the majority of employees hired.

Out of the total 24,221 employees, 38% were year-round employees while 62% were seasonal/temporary employees. By production type, crop farms hired more seasonal/temporary employees while livestock farms hired more year-round employees. Crop farms such as fruit and potato farms often require a substantial number of workers for short periods of time, especially during harvest seasons. On the other hand, livestock farms require year-round workers to tend animals on a regular basis (Statistics Canada, 2012). The average number of working weeks for a year-round employee was 43 weeks while a seasonal/temporary employee worked on average 15 weeks.

Figure 7: Total number of year-round and seasonal/temporary employees in livestock farms, 2010

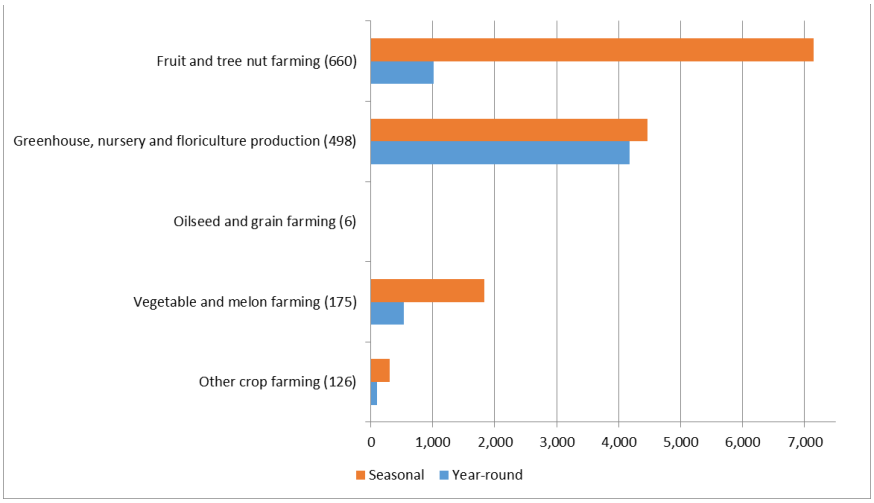


Data source: Statistics Canada, Census of Agriculture, 2011

The number of year-round employees was greater than the number of seasonal/temporary employees for livestock farms.

The number in parentheses (in Figure 7) indicates the number of farms reported to have hired employees. Dairy cattle and milk production farms hired the highest number of year-round employees even though the number of farms was slightly smaller than poultry and egg production farms.

Figure 8: Total number of year-round and seasonal/temporary employees in crop farms, 2010



Source: Statistics Canada, Census of Agriculture, 2011

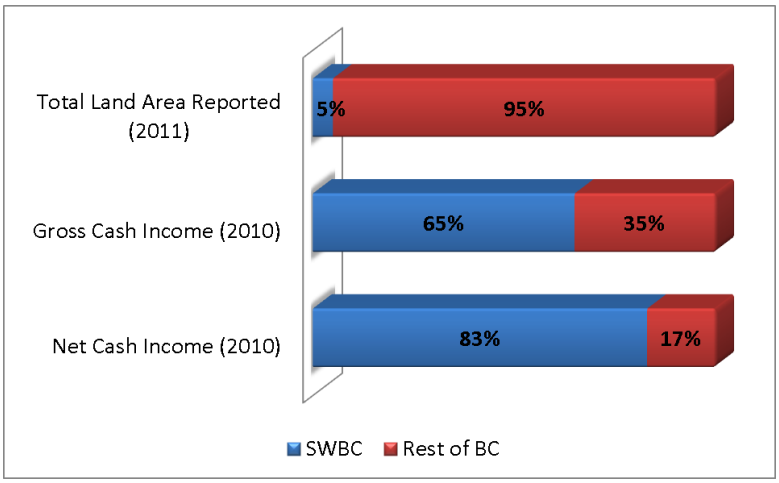
The number of seasonal/temporary employees was greater than the number of year-round employees for crop farms.

In contrast to livestock farms, crop farms hired a greater number of seasonal employees than year-round employees. The greatest difference was in fruit and tree nut farms where the number of seasonal/temporary employees was about 7 times higher. This is because fruit farming requires more seasonal labour during harvest time.

Farm Finance Statistics

For the purposes of this brief the economics of farm operations will be measured by gross and net cash income. 'Gross cash income' is the total farm cash receipts from all agricultural product sales while 'net cash income' is gross cash income less operating expenses. Hence, net cash income is the net revenue that farm operators receive from their farm operations.

Figure 9: Estimated land area in food production, gross cash income and net cash income of SWBC compared to other regions

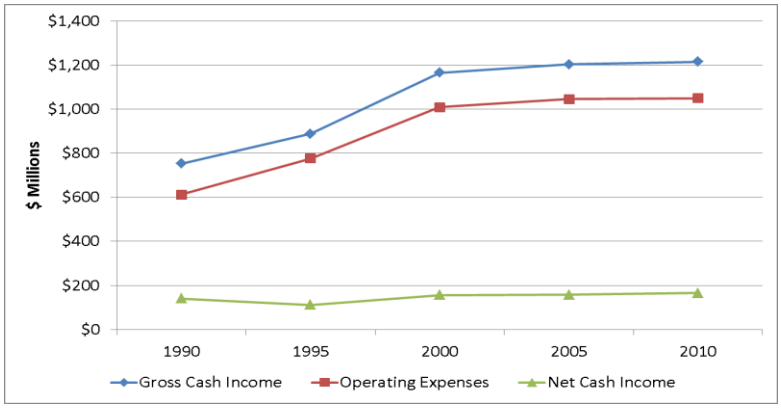


Data source: Statistics Canada, Census of Agriculture, 2011.
Note: Financial and employment information is collected for the year (2010).

SWBC's agriculture activities contribute the majority of gross cash income and net agricultural cash income to the province

The amount of income generated in the region is not exclusively dependent on the amount of land in productivity but more reflective of land/operation productivity and the value of the product. SWBC only accounts for five percent of total provincial farmed land but garnered 65% and 83% of gross and net farm income respectively. Most of the farms in the region are in the Fraser Valley and Metro Vancouver. These two sub-regions grossed the highest amount of cash income with 58% from the Fraser Valley and 41% from Metro Vancouver. Gross cash income from the other three sub-regions accounted for less than one percent of total SWBC receipts.

Figure 10: Farm gross cash income, operating expenses and net cash income (1990 values), 1990-2010



Data source: Statistics Canada, Census of Agriculture, 1991-2011. Table 326-0021 Consumer Price Index (CPI), 2011 basket, annual.

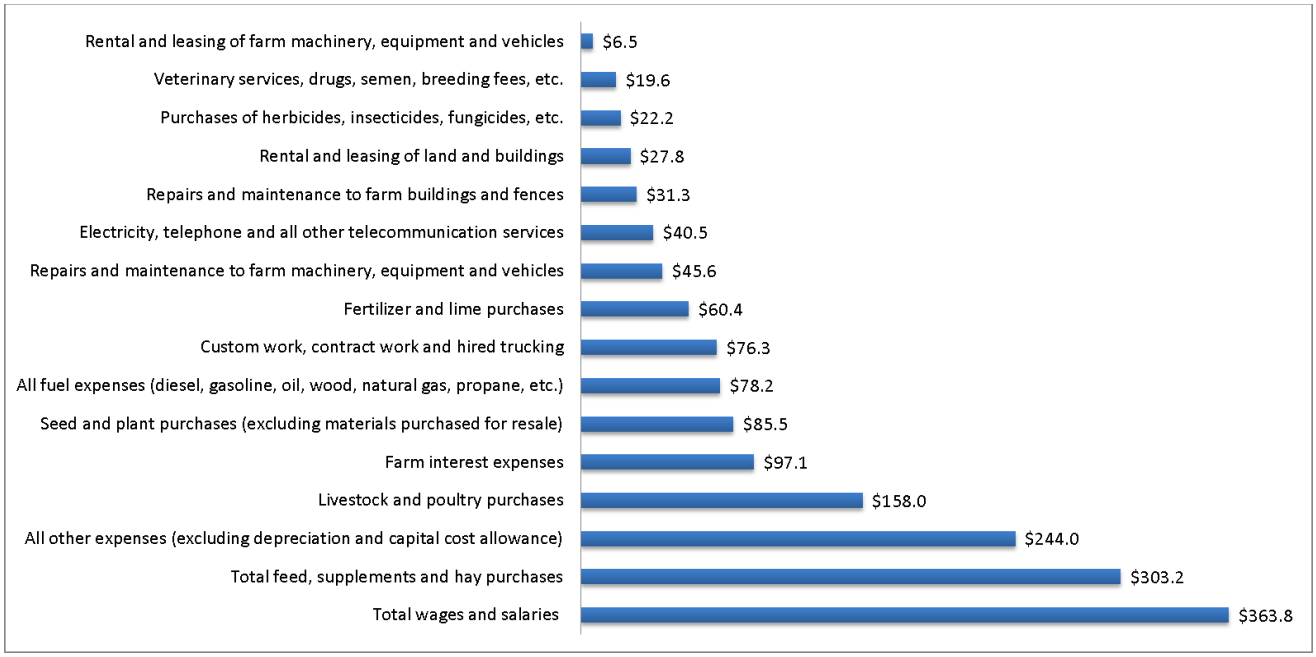
Due to high operating expenses, net cash income has not increased significantly for the past 20 years. Since 1995, the proportion of net cash income of gross cash income has not surpassed 15%.

Note that all the values have been adjusted for inflation using 1990 as the base year. Since 1990, gross cash income in the region has increased 1.6 fold. The largest increase occurred in 2000 with a 31% increase from 1995. Since then, gross cash income has risen slowly. Similarly, operating expenses also had an increasing trend. Operating expenses accounted for a substantial 80 - 85% of farm gross cash income. As a result, net cash income remained much lower than gross cash income. During the past two decades, net cash income has risen at a slower rate than gross cash income with an average real increase of only six percent.

Wages and Salaries account for the largest production expense.

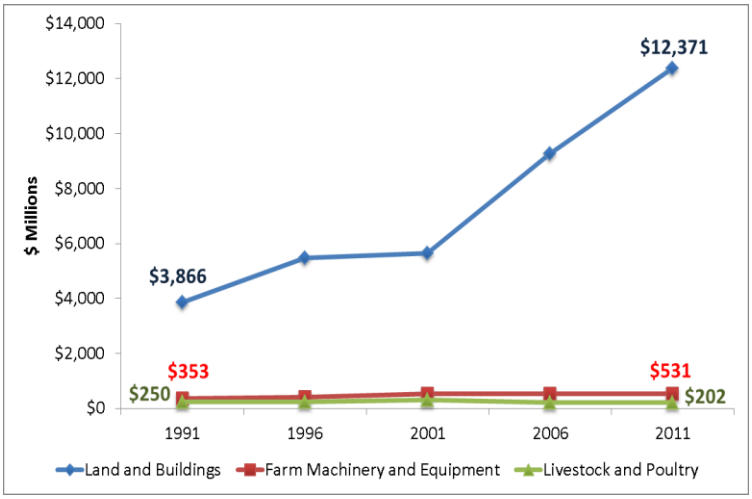
Total operating expenses in SWBC region in 2011 amounted to approximately $1.6 billion. By expense category, 22 % of the total was paid out in wages and salaries to farm workers. The next highest was feed, supplements and hay purchases which accounted for 18% of the total. Other expenses include property taxes, packaging material, crop insurance premium, legal and accounting fees etc.

Figure 11: Operating expenses of all farms, 2010



Data source: Statistics Canada, Census of Agriculture, 2011

Figure 12: Initial capital costs of all farm types (2001 values), 1991-2011



Data source: Statistics Canada, Census of Agriculture, 1991-2011. Table 326-0021 Consumer Price Index (CPI), 2011 basket, annual. CANSIM

The value of land and buildings in SWBC tripled in the past two decades.

Note that the values in Figure 12 have been adjusted for inflation using 2001 as the base year. Since 2001, the value of land and buildings has risen sharply. The values for machinery and equipment, and livestock and poultry have stayed steady since 1991.

Conclusion

Based on the 2011 census of agriculture, 75% to 85% of total agricultural land in SWBC was devoted to some sort of food production. Over the past 20 years, the number of farms has declined, while the average farm size has increased. There are slightly more crop production than livestock production operations in the region; poultry and egg, and fruit and tree nut farms have the highest numbers in each group respectively. Half of the farm operators are 55 years and older and this proportion is increasing. The majority of farm employees were hired on a seasonal basis, mostly for crop farming. The SWBC region continues to be an economic driving force for this sector as it contributed 65% in gross cash production agriculture income of the provincial total. However, net cash income accounted for no more than 15% of gross cash income. In 2010, the region's gross cash income was $1.9 billion while net cash income only amounted to about $260 million.

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Endnotes

[1] Sum of all areas reported for field crops and hay, vegetables, fruits, berries and nuts
[2] Includes chemfallow
[3] Does not include areas to be harvested for hay, silage, or seed
[4] Includes woodland used as pasture