

Regional District of Nanaimo

Agricultural Area Plan

Phase 1: Background Report



Farm near Parksville, 1947 (BC Archives)

February 17, 2012



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Executive Summary

The purpose of this report is to provide the informational basis upon which to build an Agricultural Area Plan for the Regional District of Nanaimo (RDN). This report (Phase 1) includes historical and statistical information that is required to inform the plan. The AAP (Phase 2) will include recommendations and implementation and funding strategies.

The RDN is the second most heavily populated regional district on Vancouver Island, after the Capital Region, and accounts for 18% of the total population. Agriculture and aquaculture operations have been important contributors to the local economy for at least the past 200 years. Both sectors experience significant challenges; however improvements to the sector can be made to help enhance regional productivity and profitability.

The RDN is blessed with a moderate coastal climate and generally has soils of high agricultural capability. However, challenges to farming exist in the forms of transportation costs, labour shortages, and a lack of local processing opportunities. While local farmers markets are successful, there is no venue for a year-round market currently available.

Farming in the RDN can best be characterized as small-medium scale and non-intensive. The most widespread crops grown are hay, forage, berries, and fruit trees. Beef cattle, small-scale poultry, and sheep are the most common livestock found in the region. A few dairy and pork operations also remain.

Within the RDN, farms in Electoral Areas A and E (including Cedar and Nanoose Bay) are slightly more profitable per hectare than farms in other subregions. In comparison to other regions on Vancouver Island, farms in the RDN are more profitable per hectare than Port Alberni but less profitable than farms in the Capital Region and Cowichan Valley. Farms in the Comox Valley are on par with those in the RDN in terms of revenue per hectare.

Aquaculture in the RDN is found along the coast with the most licences located in the Nanoose Bay and Qualicum areas. A number of land-based finfish licences are granted in the region however no land-based aquaculture activities were observed when a Land Use Inventory was conducted in 2011. Ocean-based shellfish operators are productive however significant regulatory impediments exist to their expansion and development.

Introduction

Agriculture Area Plans (AAPs) recognize agriculture as the highest and best use of agricultural land, and develop strategies to support a viable agricultural industry at the local level (Smith, 1998). These plans act as sub-area plans of Official Community Plans (OCP) and/or Regional Growth Strategies (RGS) and provide a high level of detail specific to the issues relevant to farming. Local governments develop AAPs with the participation of the farming community, the general public, and community organizations in the planning process.

A food system is local when it allows farmers, seafood producers, processors, distributors, retailers, and their customers to interact face-to-face. AAPs are often complex because the issues facing the community such as production, processing, sales, health agencies, consumers and landowners, are multi-faceted.

Benefits of a localized or regionalized food system include:

- *Development of a stronger and more sustainable local economy.* Food dollars remain in the community to circulate from buyers to sellers and back again. Enhanced local production to meet local food needs also results in more local jobs.
- *Reduction of “food miles” through closer-to-home production.* The shorter the distance that food travels to reach the table, the less is its corresponding environmental impacts. It can also reduce packaging, increase composting and reduce waste going to local landfills.
- *Creation of a greater awareness of food-related issues.* Supporting opportunities for community members to connect around food — such as farmers’ markets, community gardens or advocacy to improve access to healthy foods — builds stronger partnerships and social networks.

In BC, local governments are uniquely positioned to take action in strengthening local food systems. Governments at the municipal and regional levels are traditionally closer to their constituents’ needs, and are able to be more responsive in addressing citizen’s concerns.

Local and regional AAPs can (Curran, 2005):

- Provide a status report on the agriculture and aquaculture industry and resource base within the plan area;
- Identify the opportunities and constraints facing agriculture and aquaculture in a particular area;
- Consider the interaction between agriculture, aquaculture, resource management, climate change, and the protection of environmentally sensitive areas;
- Create recommendations to deal with water-related issues;
- Address transportation and servicing issues;
- Address economic development challenges to agriculture/aquaculture and opportunities to develop a stronger industry;
- Create a detailed implementation plan with specific resource and timeline allocations;
- Establish a monitoring regime that measures ongoing progress towards plan implementation; and
- Provide linkages to the OCP, RGS, and recommend appropriate zoning bylaw amendments.

The purpose of this report is to provide the informational basis upon which to build an Agricultural Area Plan for the Regional District of Nanaimo (RDN). This report (Phase 1) includes objective historical and

statistical information that is required to inform the plan. The AAP (Phase 2) will include recommendations, as well as implementation and funding strategies.

Overview of the Regional District of Nanaimo

The RDN is the second most heavily populated regional district on Vancouver Island, after the Capital Region, and accounts for 18% of the total population with an area of 208,410 ha². There are four incorporated municipalities in the RDN (City of Nanaimo, District of Lantzville, City of Parksville, and Town of Qualicum Beach) and seven unincorporated electoral areas (Area A, B, C, D, E, F, G, and H). For the purposes of this study Electoral Area B (Gabriola Island) was not included.

About 74% of the RDN's population lives within the incorporated municipalities, 26% within the Electoral Areas, and 1% on First Nation reserves.

Table 1. Population distribution in the RDN (MAL 2008).

Community	2006 Population	2006 %	Growth 2001-2006	Rate %
City of Nanaimo	78,692	57	5,692	8
City of Parksville	10,993	8	670	6
Town of Qualicum Beach	8,502	6	653	8
District of Lantzville	3,661	3	8	0
Electoral Areas	35,948	26	4,484	14
First Nations Reserves	835	1	108	15

History of Local Agriculture

The Snuneymuxw of the Central Coast Salish were the region's first inhabitants. Nanaimo is the corruption of the name they gave the area, meaning "gathering place" (Canadian Encyclopedia, 2011). The Hudson's Bay Company (HBC) established a fortified post in 1849, and the discovery of coal in 1852 led to permanent settlement. In 1854, 24 families arrived from England to settle in Colville Town, the name first given the settlement, after Andrew Colville, governor of the HBC. In 1862 the Vancouver Coal Mining and Land Company bought out the HBC mines and expanded operations. Once the easily accessible coal was mined, however, it became increasingly dangerous and expensive to extract the fuel and by the early 1950s the city turned to forest products. A pulp and paper mill was built in 1950 at Harmac outside the municipal limits (Canadian Encyclopedia, 2011).

Farming in BC initially began during the Fraser River gold rush to feed the growing population, although domestic production of agricultural products did not exceed imports until around 1911. The first agricultural regions included Vancouver Island, the Fraser Valley, and Lytton. Relative to total residents, BC's farming population has declined substantially over the last hundred years. By 2006, it represented less than 2% of the provincial population, down from 15% in 1931 (BC Stats, 2008).

The following is an estimate of the financial expenditures required to establish a small, unspecialized farm at that time (BC Stats, 2008):

- House: \$575
- Barns: \$240
- Furniture: \$150
- Wagons and Implements: \$150
- Horses: \$220
- Cattle: \$100
- Pigs and Chickens: \$25
- Fruit, Trees and Seeds: \$125
- Fencing and Gates: \$50
- Miscellaneous: \$50
- Total: \$1,685

The first immigrants to the Cedar and Cranberry areas arrived in the early 1860s from the British Isles and Northern Europe (Johnson-Cull, 1980). Nanaimo was an attractive destination due to jobs associated with the coal mines, and the fertile soil south of Nanaimo was abundant in game, fish, wild fruit, and the possibility of crop cultivation for homesteading. The first farmers in the area were multi-skilled and acted as their own veterinarians, mechanics, butchers, and builders. Many farm supplies were shipped from Nanaimo to Cedar via Nanaimo River on rafts operated by First Nations.

In the late 1800s and early 1900s all farmers were involved in “mixed” farming to some degree. Much of the land was still being cleared for livestock and most farmers worked outside the farm for extra income. Farming in BC changed dramatically during the 1900s - although most farms in 1901 were larger than a hundred acres, by 1911, most were smaller than fifty acres (BC Stats, 2008). The diversity of farm products also fluctuated in the first half of last century. While the share of field crops diminished between 1900 and 1930, animal products became increasingly important to the total value of farm products.

Some local food prices in 1869 (Johnson-Cull, 1980):

- Eggs: \$0.50 per dozen
- Bacon: \$0.205 per pound
- Lard: \$0.30 per pound

Notable first farmers in the RDN were James Gordon, who ferried produce across the Nanaimo River on a raft to be sold in Nanaimo; the Haslam family who bought the hundred-acre “Cedar Farm” from the Richardson brothers for the handsome price of \$850 in 1865; and the Fiddick family, whose grandchildren continue to own and operate farms in the area today (Johnson-Cull, 1980). In the 1870s one of the first meat processors in the area was Ed Quennell. He served as the Mayor of Nanaimo for two years and a council member for 12 years. The Quennells bought longhorn cattle from the BC Interior, who were shipped to Nanaimo by boat and corralled to the butcher on horseback. By 1903 Ed Quennell owned 425 acres of land, two butcher shops in Nanaimo, and had 12 employees. He ranched 50 head of cattle and 200 head of sheep (Johnson-Cull, 1980). The land which is now the Nanaimo Airport was first owned and operated by Tom Cassidy and his wife, who came from Iowa. James Patterson later owned this land and at the turn of the century was a market gardener producing strawberries and raspberries.

Food processing, such as canning, became an important contributor to the local economy during the first half of the twentieth century (BC Stats, 2008). The first dairy in the Cedar area was opened in 1869

(Johnson-Cull, 1980). Mr. Sam Fiddick would take milk to Nanaimo and sell it door-to-door. By the early 1900s milk was delivered in metal gallon containers and deliveries were made to Nanaimo daily due to a lack of refrigeration. Many Chinese settlers grew field vegetables and fruits and delivered these to Ladysmith and Nanaimo, walking up and down streets and selling them door-to-door. Quennell started his butcher business, “Quennell and Sons”, in 1880 and his grandson and great-grandsons were also butchers (Johnson-Cull, 1980).

In 1913, a group of farmers from Saanich settled in the Hilliers area, and held a fall fair to showcase products that could be grown and raised in this area (Johnson-Cull, 1980). Among them were Mr. & Mrs. George Moore, Mr. & Mrs. J.J. Clarke and son Dick, Mr. H. Burgoyne, Mr. & Mrs. Hilliers, Mr. Jack Boyd, and Mr. & Mrs. Stevens, who owned the Hilliers store at one time. Since then, only World War II interrupted an otherwise annual event. In 1921 the Arrowsmith Fall Fair was held in Parksville, and then in 1924 the fair was moved to what is now the Coombs Fairgrounds. The association that ran the fair at that time was called the Cameron, Nanoose, Newcastle District Agricultural Fair (Arrowsmith Agricultural Association, 2011). In 1947, a new hall was built in Arrowsmith by volunteer labour. In 1948 and 1968 more land was acquired, bringing the property back to Burgoyne Road, and the association name was changed to the Arrowsmith Agricultural Association, as it is known today. The fair is held annually at the Coombs Fairgrounds on the second weekend in August.

History of Local Aquaculture

Aquaculture is an industry with a long history in British Columbia. Long before Europeans arrived on Vancouver Island, salmon and shellfish provided sustenance and cultural significance for First Nations people living along coastal areas of the region. The commercial cultivation of the Pacific oyster dates back to the beginning of the 1900s. Finfish farming in the province has developed more recently, and together with shellfish farming, is now a significant force within the fisheries and aquaculture sector.

British Columbia’s commercial seafood canning industry first began to take form on the Fraser River, where about 2,000 salmon filled 300 cases of cans during the summer of 1871. Ten years later, 42,000 cases were shipped and a year later, that number tripled (BC Stats, 2008). The completion of CPR construction enabled the province to ship frozen fish to eastern Canada and the US. BC’s fishing industry expanded dramatically in the last decades of the nineteenth century. The total yield of fisheries in the province increased from just over \$100,000 in 1876 to almost \$5 million in 1900. Consequently, BC’s share of Canadian fishery value shot up from less than 1% to 23% (BC Stats, 2008).

Salmon was by far the most important catch, accounting for 70% of total provincial value. Halibut was valued second highest, followed by herring. At the turn of the nineteenth century, there were about 20,000 British Columbians employed in primary fishing operations, or 14% of the provincial population (BC Stats, 2008).

John Brenton and David Page were engineers from England who chose to stay and start oyster businesses in Oyster Bay in the early part of the 20th century (Johnson-Cull, 1980). These shellfish were sold in Nanaimo. In the late 1920s a clam cannery was set up, but just as shipments started the market crashed and cases of clams were left on the shelves to rust away (Johnson-Cull, 1980).

While commercial oyster culture dates back to the 1900s, the BC commercial aquaculture industry was

born in the 1950s with the introduction of trout farming and oyster culture (DFO, 2010). The current aquaculture industry has grown to include farm-raising finfish, shellfish, aquatic plants or other aquatic animals, using some form of intervention in the rearing process to enhance production (i.e. captivity, regular stocking, feeding and protection from predators) (MFCR, 2000). With the successful development of salmon farming, the industry took off and increased more than four-fold between 1990 and 2006 (DFO, 2010). The output of BC seafood products increased from 40,000 to 170,000 tonnes, while the farm gate value increased from \$195 million to just over \$900 million in that period. During the latter half of the 1990s, due to weakness in the commercial fishery and fish processing sectors, the aquaculture industry experienced significant challenges and decline in production (MFCR, 2001). By 2007, BC's contribution to the Canadian fishery value had fallen to 16%. Additionally, only 0.3% of provincial employment was attributed to fishing and related activities (including hunting, trapping, and seafood production and packaging), down from 0.6% in 1990. At the same time, the industry's share of GDP fell from 0.61% to 0.17% (BC Stats, 2008).

Biophysical Resources of the RDN

Weather

The climate in the RDN can be described as coastal maritime, with mild wet winters and warm dry summers. Total annual rainfall is 1,077.9 mm and total annual snowfall is 80.9 cm. The majority of the precipitation (70%) falls between October 1 and March 31 every year. From an agricultural perspective, this means that there is often too much water in the winter and not enough in the summer, requiring both drainage and irrigation systems to be kept in place. Other climatic characteristics based on climate normals data from 1970-2001 at a weather station in Nanaimo at 28 m elevation (Environment Canada, 2012) include:

Table 2. Weather characteristics of Nanaimo (Environment Canada, 2012).

Days per year with minimum temperatures less than 0°C	80.2
Days per year with maximum temperatures greater than 30°C	7.4
Days per year with maximum temperatures greater than 0°C	362.0
Days per year of rain	167.2
Days per year of snow	12.9
Degree days greater than 10°C	924.2
Degree days greater than 5°C	2032.0
Hours of bright sunshine per year	1903.4
Days per year of measurable bright sunshine	294.4
Percent possible daylight hours (%)	39.8
Average relative humidity (1500LST) (%)	65.7

Growing degree days are a measure of heat accumulation to predict plant development rates. The following monthly GDDs are calculated for Nanaimo using a base temperature of 10°C.

Table 3. Growing degree days for Nanaimo.

January	0
February	0
March	0.45
April	2.05
May	3.90
June	5.25
July	7.90
August	7.95
September	5.45
October	2.30
November	0
December	0

Hydrology

Farmers rely on both surface water and groundwater for irrigation, animal watering, and drainage. Aquifers located in the region are generally sand and gravel-based, which means they are highly vulnerable to surface contamination. The RDN has a detailed and interactive website that allows the user to peruse reports, maps, and other technical information regarding watersheds and aquifers. These online resources are extremely valuable to farmers.

- Watershed and Aquifers of the RDN: <http://www.rdn.bc.ca/cms.asp?wpID=2407>
- RDN Interactive WaterMap: <https://rdnweb.com/WaterMap/WebPages/Map/FundyViewer.aspx>

Watersheds and Aquifers

There are six watersheds located within the RDN, which are described below through information obtained on the RDN Watershed and Aquifers webpage (Fig. 1).

1) Big Qualicum River, Nile Creek, Thames Creek, and Rosewall Creek Watersheds

There is a “monitoring” well located in Deep Bay/Bowser that measures the level of groundwater in the aquifer throughout the year. Aquifer levels in this area appear to follow precipitation trends, which is common for those derived from sand and gravel-based deposits due to the fast movement of water on the surface to the subsurface through the coarse substrate materials.

2) Little Qualicum River Watershed

The Little Qualicum River has been designated by the Ministry of Environment as a 'Sensitive Stream' that requires special management attention, under the *Fisheries Protection Act*, due to inadequate water flows and other habitat concerns. It is also designated as a 'community watershed' because a local community has a license on it to supply drinking water. This watershed is extremely important for many different species of fish. Cameron Lake's outlet into the Little Qualicum River has been controlled since 1978.

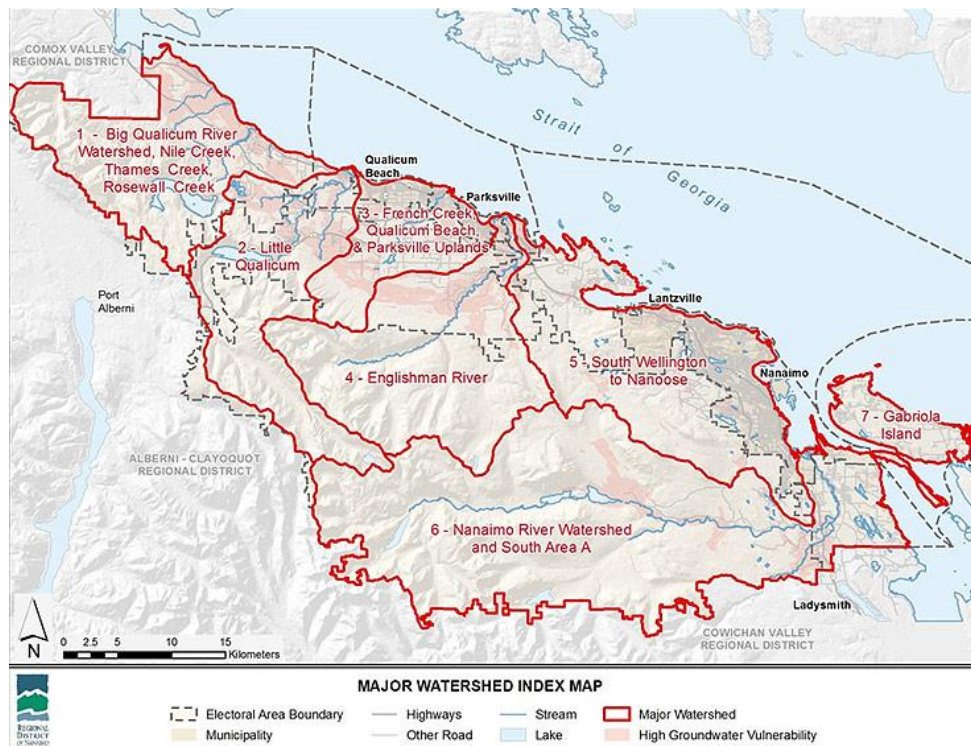


Figure 1. Watershed map of the Regional District of Nanaimo (RDN, 2012).

3) French Creek and Grandon Creek Watershed

Unlike other nearby watersheds, most of French Creek watershed area is at a very low elevation resulting in naturally low summer flows. Human activities are responsible for poor fish habitat conditions and there is concern that excessive water extractions from the river and aquifers may be causing critically low summer water levels (RDN, 2012). French Creek is considered to be a sensitive stream under the *Fisheries Protection Act*, and the watershed is a designated community watershed. Many of the aquifers in the French Creek watershed area are showing signs of stress and long term declines in water levels. In wet winter months, full streams replenish groundwater in aquifers. In dry summer months groundwater is the main contributor to base river flow. Dropping groundwater levels may mean that less groundwater is available to supply the stream in the summer.

4) Englishman River Watershed

The Englishman River is an important fisheries watershed, and, through the Arrowsmith Water Service, provides additional summer water supply for the City of Parkville and the Nanoose area. Water is stored behind a dam in Arrowsmith Lake and released as needed. The Englishman River is identified as a 'Sensitive Stream' requiring special management attention under the *Fisheries Protection Act*. It is also designated as a Community Watershed for drinking water. Several aquifers in this watershed area are showing signs of stress. Water levels in aquifers in the south and east parts of Coombs/Errington have been dropping over the past several years. Surface water and groundwater are connected in this watershed, and in the summer dropping groundwater levels means lower flows in streams, and decreased fish health.

5) South Wellington to Nanoose Watershed

This watershed, which includes the City of Nanaimo and District of Lantzville, has been greatly impacted by urban development. Many aquifers in this area are bedrock aquifers made of compacted mud and stone layers, about six kilometers thick. The rock contains coal deposits, fossils, and cracks or fractures that can hold water. Communities such as Lantzville, Nanoose Bay, and Benson Meadows that rely on these bedrock aquifers for their water supply have to be particularly careful to conserve water, especially in dry summer months. There is a new monitoring well in the Benson Meadows Park.

6) Nanaimo River and South Area A Watershed

The Nanaimo River is the City of Nanaimo's drinking water source and is also used widely by the community for recreation such as swimming and kayaking. In dry summer months, groundwater from local aquifers flows into the Nanaimo River to help maintain flow even when there is no rain or snow melting. The major water user in this region is the Harmac pulp mill. There are some concerns that small lakes in the Yellow Point area may face eutrophication, as excessive nutrients from failing septic systems and fertilizers cause excessive plant growth that takes oxygen from fish. The Cassidy and Yellow Point aquifers are unique groundwater systems. The Cassidy aquifer is a highly vulnerable sand and gravel aquifer. The Yellow Point aquifer is composed of compacted mud and sandstone layers. Yellow Point aquifer is less vulnerable than the Cassidy aquifer, but has a limited ability to store and produce water and has a very long recharge rate.

Active Water Wells

The BC Water Resources Atlas (2012) contains an online database of registered wells in the province. The following image indicates wells in the RDN that have been registered for domestic and/or irrigation usage. Clearly the dominate source of water for farmers and rural residents is ground water.

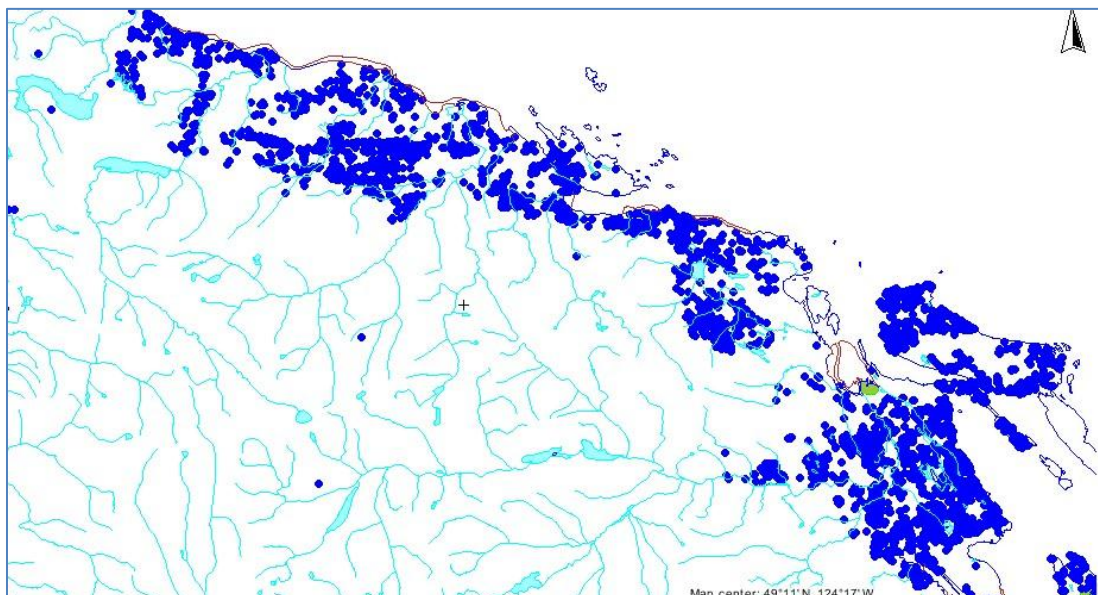


Figure 2. Active water wells within the Regional District of Nanaimo (MoE , 2012).

Surficial Geology

Vancouver Island is a mountainous landscape constructed of landforms resulting primarily from the recent glaciation, which covered the entire island and ended 10,000 – 20,000 years ago. Consequently, soil parent materials are mainly of glacial origin and consist of tills, glaciofluvial materials, marine deposits, interglacial sediments, organic, and recent fluvial deposits (Keser and St. Pierre, 1973).

Soil Types

Soil types are categorized based on distinguishing characteristics and criteria that dictate soil management techniques. Soil classification facilitates the organization and communication of information about soils, as well as the understanding of relationships between soils and environmental factors. Differences in soils are the result of the interaction of many factors: climate, organisms, parent material, topography and time. The soils of the RDN region are primarily comprised of Podzols and Gleysols:

Podzols: Podzols are found in forested areas on sandy glacio-fluvial deposits with high levels of annual precipitation. Typically they occur under coniferous, mixed, and deciduous forest vegetation, but may also occur under shrub and grass vegetation (AAFC, 1998).

Gleyso!: Gleysols are poorly drained soils, which develop under wetlands or poorly-drained forest vegetation. Their colour and mottling indicate prolonged periods of intermittent or continuous saturation with water from either a high groundwater table or temporary accumulation of water above a relatively impermeable layer, or both (AAFC, 1998).

The following table includes data on soils in the RDN adapted from Keser and St. Pierre (1973).

Table 4. Geologic and soil characteristics of the RDN (Keser and St. Pierre, 1973).

Location	Soil Name	Topography	Drainage	Soil Texture	Parent Material	Soil Type
Along the coast from Cedar to Bowser	Arrowsmith	Depressional	Poor to moderate, high water table.	Peat	Deep undecomposed organic material	Peat
Along the coast from Cedar to Bowser	Bowser	Gently sloping	Imperfect. Permeability is rapid-moderate.	Loamy sand	Coarse marine sediments underlain by glacial till or marine clay	Podzol
Scattered along fast-moving streams	Cassidy	Level to gently sloping	Rapid with some areas poorly drained	Complex sandy mix	Coarse alluvium	Alluvial
Scattered along the coast	Chemainus	Level to gently sloping	Variable	Complex mix	Moderate to fine alluvium	Alluvial
In pockets from Parksville to Bowser	Cowichan	Very gently sloping to level	Poor	Clay loam	Fine	Gleysol
Qualicum Bay and Bowser	Custer	Level to gently undulating	Imperfect, subsoil is moist	Loamy sand	Coarse	Podzol
In pockets around Parksville	Fairbridge	Very gently to gently sloping	Well drained	Silt loam	Fine textured marine sediments	Podzol
Around Nanaimo	Haslam	Ridges/knolls with gentle to steep slopes	Well drained	Complex mix	Glacial scoured consolidated shale and sandstone	Podzol
In small areas around Parksville and Nanaimo	Merville	Gently sloping	Moderately well drained, saturated during winter months	Loam	Medium-fine marine sediments underlain by marine clay or glacial till	Podzol
Qualicum Beach area	Parksville	Level	Poor, receives seepage from higher elevations	Sandy loam	Coarse marine sediments underlain by glacial till or marine clay	Gleysol mix
Parksville area	Puntledge	Very gentle to undulating	Moderate to imperfect, saturated in the winter	Silt loam	Medium to fine marine sediments	Podzol
Throughout the region	Qualicum	Gently undulating to rolling	Rapid	Loamy sand	Coarse	Brown Podzol
Cedar, Cassidy, Nanaimo	Shawnigan	Rolling to steep	Well drained	Gravelly sandy loam	Compact gravelly sandy loam glacial till with stones	Podzol
Around Qualicum Beach	Tolmie	Level to depressional	Poor	Sandy clay loam	Medium-fine marine sediments underlain by marine clay or glacial till	Gleysol

Agricultural Capability of RDN Soils

The Agriculture Capability rating system is a method designed to enable consistent and objective assessment of land based on inherent limitations for crop production (Department of Regional Economic Expansion, 1969). It was developed in the 1960s as part of the Canada Land Inventory (CLI). Agriculture Capability ratings are based on soil, landscape, and climate properties, not crop yield data, and limitations may or may not be altered by management (ALC, 2010). Agriculture Capability ratings can be used to help determine appropriate crop choices, realistic target yields and assess and mitigate site-specific risks such as flooding, stoniness, steep slopes, or nutrient loss.

In this classification, mineral and organic soils are each grouped into seven classes on the basis of soil and climate characteristics according to their potential for agricultural use. Lands in Classes 1 to 4 inclusive are considered capable of sustained agricultural production of most crops. Class 5 lands are considered capable of producing forage crops or specially adapted crops. Class 6 lands are capable of providing only pasture for livestock. Class 7 lands generally are incapable of use for either crops or livestock (they are usually rocky outcrops or wetlands). However, it is important to note that many successful farms in BC are located on Class 7 soils, indicating that some crops may be suited to sites that many others are not. In particular, cranberries and vineyards can often do well in Class 6 and 7 soils. Soils labeled with the letter “O” before the class number indicate organic (peat) soils.

Unimproved ratings are based on the conditions that exist at the time of the survey, without irrigation or other management systems in place.

Improved ratings indicate the potential capability after existing limitations and/or hazards have been adequately alleviated. Improvements may include land grading, drainage, irrigation, diking, stone removal, salinity alleviation, subsoiling, and/or the addition of fertilizers or other soil amendments.

Other important assumptions that are made based on the classification system (BC Ministry of Agriculture and Food, 1983) include:

- The soils will be managed and cropped under a largely mechanized system.
- Water is available for irrigation.
- The following are not considered in the classification: distance to market, available transportation facilities, labour, location, farm size, type of ownership, cultural patterns, skill or resources of individual operators, and hazard of crop damage by storms.
- The classification does not include capability ratings for trees, fruit orchards, vineyards/grapes, ornamental plants, recreation, or wildlife.

In BC, most soils were mapped for agricultural capability ratings in the 1980s, and these maps remain in use throughout the province. The associated Computer Assisted Planning, Assessment, and Map Production (CAPAMP) system (Kenk and Sondheim, 1987) has since been translated into Geographic Information System database files.

The following table lists the improved agricultural capability ratings for all subregions of the RDN, listed from North to South. In general, the soils in the RDN are well-suited to a range of agricultural activities and could host a greater diversity of crops than is currently being cultivated. Limitations are mainly due to excess water (winter) or seasonal drought (summer), stoniness, and topography – all of which can be managed to varying degrees depending on capital and labour inputs.

Table 5. Agricultural capability ratings in the RDN.

Location	Agricultural Capability: Improved Classification Numbers	Limitations
Deep Bay, Bowser, Nile Creek	Good to Moderate: 3, 4, 5 and some organic	Soil moisture deficiency (seasonal) Topography Stoniness
Qualicum Bay	Very Good: 2, 3 Moderate in some smaller areas: 4, 5	Soil moisture deficiency (seasonal) Stoniness Fertility
Horne Lake, Spider Lake, Dunsmuir	Good to Moderate: 3, 4, and 5	Soil moisture deficiency (seasonal) Topography Stoniness
Dashwood	Good to Moderate: 3, 4, and 5	Soil moisture deficiency (seasonal) Topography Stoniness
Qualicum Beach	Very Good: 2 Good to Moderate: 3, 4, and 5	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal)
Cameron Lake	Very Good to Moderate: 2, 3, and 4 around Little Qualicum River Moderate: 4 and 5 west towards Mt Arrowsmith as soils become steep and stony	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure Some topography
Little Qualicum River and Big Qualicum River	Excellent to Good: 1, 2, 3	Soil moisture deficiency (seasonal) Topography Stoniness Excess water (seasonal)
Whisky Creek and Hilliers	Very Good to Moderate: 2, 3, 4, and 5 Some organic (peat) soils around Little Qualicum Falls	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure
Coombs/Errington to Nanoose	Excellent to Good: 1, 2, 3, and 4 in Errington west of Englishman River Excellent to Good: 1, 2, and 3 east of Englishman River towards Nanoose	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure Some exposed bedrock in isolated areas

Location	Agricultural Capability: Improved Classification Numbers	Limitations
French Creek	Excellent to Good: 1, 2, and 3 Small amounts of Class 5	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure
Parksville south	Very Good to Moderate: 2, 3, some 5, some organic soils	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal)
Englishman River area and Craig Bay	Very Good: 2, 3 Moderate to Poor: 5 and 7 closer to Craig Bay	Soil moisture deficiency (seasonal) Stoniness, Excess water (seasonal) Exposed bedrock (isolated)
East Nanoose Bay and Nanoose Harbour	Good to Poor: 3, 4, 5 and some 7 around Dolphin Peninsula Very Good: 2, 3 in Nanoose Bay Good to Poor: 3, 5, and 7 in Nanoose Harbour	Soil moisture deficiency (seasonal) Stoniness (minimal) Excess water (seasonal) Steep slopes in Nanoose Harbour
Lantzville Area	Very Good: 2, 3 Moderate in some minor areas: Classes 4, 5	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure
Wellington around Brannen Lake and Long Lake	Good to Moderate: 3 and 5, some 2	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Topography Exposed bedrock (isolated)
West Nanaimo and Extension	Good to Poor mix: 3, 4, 5, 6, and 7 and pockets of organic	Soil moisture deficiency (seasonal) Topography Exposed bedrock
Harewood Plains and Chase River	Good to Moderate: 3, 4, 5 and some 2	Soil moisture deficiency (seasonal) Stoniness Exposed bedrock Topography
South Wellington	Moderate to Poor: 5, 6, and 7 (better towards Nanaimo River)	Soil moisture deficiency (seasonal) Topography Excess water (seasonal) Exposed bedrock

Location	Agricultural Capability: Improved Classification Numbers	Limitations
Nanaimo River to Haslam Creek	Moderate to Poor: 5 and 7 Good in some small areas at the mouth of the Nanaimo River: 2, 3	Topography Exposed bedrock Excess water (seasonal) Poor soil structure
Cedar	Excellent to Good: 1, 2, 3 Some pockets of Moderate to Poor: 4, 5, 7	Soil moisture deficiency (seasonal) Topography, Stoniness Exposed bedrock
Cassidy and Nanaimo Airport	Good: 2, 3, 4	Soil moisture deficiency (seasonal) Stoniness Excess water (seasonal) Poor soil structure
Quennell Lake area	Moderate: 4, 5, 7, organic Very Good" 2 and 3 in some small areas	Topography Exposed bedrock Excess water (seasonal) Poor soil structure Stoniness

Climate Change

Agricultural producers are accustomed to weather conditions influencing their activities on a regular basis; therefore decision-making in the face of weather variations is a constant element of farming life. However, climate change adaptation involves a more systematic assessment and response. Agriculture is highly vulnerable to changes in climatic conditions and even small shifts could have significant consequences for food production and the livelihoods of farmers. Despite the challenges with applying broad climate models, some general patterns are anticipated in North America. During the 2010-2039 period, warming of approximately 1–3°C is expected to occur. BC is expected to experience warmer winters and hotter, drier summers. However, specific impacts will vary by region. The following broad changes are expected:

- Increasing climate variation and more extreme weather events with an increase in the associated damage costs (NRC, 2007);
- Shrinking of glaciers with many expected to disappear within 100 years resulting in serious impacts on water availability and hydrology (NRC, 2007);
- Reduction of snow accumulations, particularly at lower elevations (NRC, 2007);
- By 2050 summer precipitation on Vancouver Island is expected to decrease by approximately 10% along the southeastern coast (Rodenhuis et al., 2007);
- Decreased river runoff can be expected in late summer, leading to increased levels of summer drought (Whitfield and Taylor, 1998);
- Increased summer drought, coupled with decreasing water resources, will create challenges for Warming by 2–7°C by 2080 – impacting sea levels, precipitation patterns and ecosystems;
- Increasing frequency and severity of wildfires (NRC, 2007);
- Increasing frequency and severity of pest, disease and invasive plant outbreaks (NRC, 2007);
- irrigation needs (Zebarth et al, 1997; Neilsen et al., 2004);
- Sea-level rise may result in saltwater intrusion into freshwater aquifers, affecting the quality and quantity of irrigation water supplies (Liteanu, 2003; Allen, 2004).

Although there is general consensus regarding the direction of climate change, how this will impact specific microclimates is uncertain - yet this is the most critical information for agricultural producers who are primarily concerned with changes to climate and precipitation in their specific locations.

Socio-Economic Overview

Sector Overview: Agriculture, Food, and Fisheries

Those working in agriculture and related activities, such as processing, (including food and beverage) comprise just under 3% of total employment in the province, relatively the same share as in 1990. Meanwhile, activities related to agriculture contributed slightly more to provincial GDP in 2007 (2.5%) than in 1990 (2.0%) (BC Stats, 2008).

Job sectors that are most prominent in the RDN region relative to the rest of BC are fishing/aquaculture, health care and social assistance, and construction. The greatest number of job losses from 2001-2006 was in the Forestry sector (Vannstruth, 2009). The Agriculture and Food sector statistical data includes farming as well as all food and beverage manufacturing, with the exception of seafood manufacturing. Finfish and shellfish farming are included as part of the Agriculture sector in all employment figures, however there are no marine finfish farms operating in the RDN. Census employment data for agriculture is also limited because it does not capture the fact that many small farmers have additional jobs off the farm.

Table 6. Characteristics of agriculture and food workforce on Vancouver Island, 2006 (Vannstruth, 2009).

Median Age (years)	43.3
% Age <25	18
% Age > 25	23
% Male	62
% Female	38
% University/College Degree	10
% University/College/Trades Diploma/Certificate	30
% Highschool	36
% Less than Highschool	24
% Self-employed	23
% Worked Full-time/Full-year	41
Average Employment Income	\$23,416
Full-year/Full-time Average Employment Income	\$33,786

By the end of 2010 there were 528 businesses operating in the RDN under the Forestry, Hunting, Agriculture and Fisheries industry category. The majority of these businesses (382) listed no employees, indicating that they were likely operated as sole proprietorships or partnerships.

Table 7. Total number of agriculture and fishing businesses by employee size, 2010 (BC Stats, 2011).

Industry	Total Number of Businesses by Employee Size					% of Total Businesses in the RDN
	0 employees	<20 employees	20-49 employees	50-199 employees	>200 employees	
Agriculture, Forestry, Fishing, and Hunting	382	139	4	2	1	2.7

The RDN compares favourably with the Comox Valley when it comes to farming and aquaculture jobs, but has a higher proportion of food manufacturing jobs than the Comox Valley. The Cowichan Valley has nearly twice as many farming and aquaculture jobs when compared to the RDN.

Overall, jobs on the farm have decreased by almost 20% in the RDN between 2001 and 2006, indicating a struggling industry and/or a lack of available farm labour.

Table 8. Employment by regional district, 2006 (Vannstruth, 2009).

Region	Farming and Aquaculture Jobs	Regional Share	Food Manufacturing Jobs	Regional Share	Total Agriculture and Food Sector Jobs	Regional Share
RDN	505	11%	220	12%	725	11%
Cowichan Valley	845	18%	210	11%	1,055	16%
Comox Valley	600	13%	125	7%	725	11%
Vancouver Island	4,620	100%	1,910	100%	6,530	100%

Table 9. Employment in the RDN by industry 2001-2006 (BC Stats, 2007).

Industry	2001 Jobs	2006 Jobs	% Change	% of Total RDN Jobs (2006)
Agriculture, Food and Beverage	1,085	920	-15.2	1.4
(Farms only)	730	585	-19.9	0.9
Fishing and Fish Processing – excluding seafood products manufacturing	620	600	-3.2	0.9

Socio-Economic Overview of Aquaculture

Aquaculture production in BC is higher than in other provinces and typically accounts for approximately 50% of the total production value nationwide (DFO, 2010). Aquaculture is a thriving industry that contributes greatly to the Vancouver Island economy. Employment statistics are difficult to interpret for the aquaculture sector in the RDN, as they are categorized within the agriculture data presented above (Table 9), with the exception of the seafood manufacturing industry. Currently, the industry hosts 205 jobs in the RDN, representing 17% of seafood manufacturing jobs in the economic region of Vancouver Island, Sunshine Coast, and Central Coast.

There are significant challenges facing the aquaculture sector in BC. Most notably, the regulatory structure currently in place has slowed the process for new applications and sector growth. Additionally, land use conflicts for the desirable foreshore area on Vancouver Island have arisen with the social pressure to limit growth of the sector for aesthetic and environmental reasons (DFO, 2010). The perception of marine finfish systems causing detrimental effects on the native salmon population with the spread of sea lice further adds to the hurdles facing the industry.

Despite these challenges, there is still potential for growth and development of the aquaculture industry in the RDN. An increasing market demand for seafood products will continue as the world population expands and developing countries become more affluent (Vannstruth, 2009). Also, aquacultural production may be limited in its ability to expand in the foreshore region, but there are other opportunities for land-based aquacultural systems, as well as seafood manufacturing and processing. Innovative advances, such as multi-tropic systems comprising of finfish, shellfish and marine plants may replace some of the existing marine finfish systems and could also lead to the production of highly specialized, desirable products.

Agricultural and Aquacultural Profiles of the RDN

Land Use Inventory

In August 2011, members of the consulting team undertook a detailed inventory of all lands within the ALR and those outside the ALR granted ‘Farm Status’ within the RDN, in order to determine both the quantitative and qualitative characteristics of farmland in the region. Aquaculture operations were also included. The methodology included using GIS-based orthophoto maps and performing windshield surveys of all farms. Observations were entered into a database to collect information regarding:

- Crops currently being grown;
- Animal husbandry practices, including equine;
- Irrigation systems and usage;
- Aquaculture activities;
- Farmland covered by woodlots and other natural areas
- Alienated and/or unusable farmland.

It is worth noting that only properties located within the Electoral Areas of the RDN were examined. Electoral Area “B” (Gabriola Island) is governed by the Islands Trust in terms of land use regulations, and was therefore not included. Similarly, member municipalities have independent land use regulations and zoning bylaws. The intent of the Land Use Inventory is to take stock of agricultural activities within the RDN and to encourage member municipalities to become informed about the regional context in order to better be able to support local food production, agriculture, and aquaculture in local policies. Therefore, any farms located within the jurisdictional boundaries of Town of Qualicum Beach, City of Parksville, District of Lantzville, and/or City of Nanaimo were excluded from the Land Use Inventory. Similarly, while there were some unique farms on the southern boundary of Electoral Area “A”, including a cranberry farm, organic blueberry farm, and corn maze, these were technically located within the District of Ladysmith and are therefore not included in the Land Use Inventory.

Some land highlights include:

- A total of 19,998 ha of land, or 1,518 individual properties, were examined;
- Over 11,000 ha was forested naturally or being used for logging;
- Less than 6,000 ha was being used for farms and/or hobby farms;
- Many of the properties outside the ALR but granted Farm Status by BC Assessment had no obvious signs of agricultural activities;
- Over 2,000 ha of ALR land was alienated from farming due to rural residential development (small plots with a large household footprint).

It is interesting to note that less than 30% of the ALR in the RDN is being used for farming purposes. Furthermore, 178 properties visited (totalling 1,092 ha) had a horse and some pasture or hay, but no other signs of agricultural activity occurring on the property. An additional 5 properties could be categorized as medium-large equine operations.

Of the properties that did have agricultural activities, the following livestock were observed (note that many properties had more than one type of livestock, e.g. beef, sheep, and poultry, therefore the property numbers are not discrete). Also, some landowners will lease out pasture land for cattle or

sheep grazing. Therefore the number of properties noted with livestock does not indicate the actual total number of livestock operators.

Table 10. Number of livestock operations observed in the RDN, 2011.

Livestock Type	Confirmed Properties (animals seen on site)	Probable Properties (signs of animals seen on site)
Cattle	61	10
Poultry, small (<100)	48	-
Sheep	19	-
Dairy	16	1
Alpacas and/or Llamas	11	-
Goats	9	-
Poultry, large (>100)	3	-
Pigs	2	2

The most dominant crop, by far, was hay/grass. Forage and pasture (managed and/or unmanaged) also plays a dominant role in farmland coverage. While hay is a productive use of farmland from the perspective of manure management, it does not directly contribute to the diversity of local food production. Overall, the diversity of crops being grown in the RDN is very low. The top 10 crops are listed below. It is important to note that, for ease of calculation, total hectares are a maximum estimation based on total property size. For example, a farm growing corn was categorized by area as all corn, regardless of houses, driveways, or barn structures.

Table 11. Type and amount of crops in the RDN, 2011.

Crop Type	Hectares
Hay/grass	3,807
Forage/pasture	377
Berries and grapes	219
Mixed vegetables	156
Fruit trees (some unmanaged)	129
Hoophouses (mixed)	108
Tree farms	84
Corn (mostly silage)	50
Turf grass	49
Flowers	39
Total	5,018

There were little signs of irrigation within RDN farmland. While this may have been due to a wetter-than-usual summer, it is also a characteristic of the types of crops being grown. A few travelling guns were noted in hay fields and turf grass fields, as were occasional green hay and grass fields amongst drier fields. It was assumed that berry crops were receiving irrigation, likely in the form of drip lines or sprinklers.

There were 40 properties with farm gates sales, although not all were active at the time of observation. The majority of farm gate products included eggs, mixed vegetables, nursery products, and hay.

There was one land-based property that appeared to have finfish tanks located on it; however they appeared to be abandoned. At least five shellfish operations were observed, both in the south (near Cedar) and north of Qualicum Beach.

Detailed Agricultural Profile

A profile of agriculture in the Regional District of Nanaimo (RDN) has been developed to provide a snapshot of agricultural production in the region and examine issues such as farm profitability, diversity of agricultural commodities and the area of land under production. Agriculture in the entire study region (RDN) has been examined as well as the individual Consolidated Census Areas (CCSs) comprising municipalities and electoral areas.

Electoral Areas and Municipalities: Agricultural Comparisons

Statistics Canada identifies the RDN by combining the electoral areas and municipalities within the Census Division “Nanaimo” into subsequent Census Consolidated Subdivisions (CCS) as follows:

Nanaimo: City of Nanaimo and Electoral Area A: *Cassidy, Cedar, Yellowpoint, South Wellington*

Nanaimo C: Electoral Area C: *Extension, Arrowsmith-Benson, East Wellington, Pleasant Valley*

Nanaimo E: City of Lantzville and Electoral Area E: *Nanoose Bay*

Nanaimo F: Electoral Area F: *Coombs, Hilliers, Errington*

Nanaimo G: City of Parksville, Town of Qualicum Beach and Electoral Area G: *French Creek, Dashwood, Englishman River*

Nanaimo H: Electoral Area H: *Shaw Hill, Qualicum Bay, Deep Bay, Bowser*

The latest available data from Statistics Canada was the 2006 Census of Agriculture (Statistics Canada, 2006). Therefore, the focus of this agricultural profile is on data gathered between 1996 and 2006. Some of the tables contain an ‘x’ to indicate disclosure control. Statistics Canada is prohibited from releasing data which could divulge information relating to any identifiable person, business or organization without consent. The use of the ‘x’ is applied to eliminate the potential for identification when samples sizes are small.

Agricultural Production in the RDN

The agricultural production in the RDN has declined over the past 20 years with the increase in age of farm operators, cost of inputs and transportation and new regulations limiting the ease of processing farm products. Some of the specific indicators for the region have been examined below.

Demographics of Farm Operators

The RDN’s farm population was estimated at 1% of the total 2006 population, based on the BC average of 3 persons per farm. In the past 10 years the average age of farm operators has steadily increased in all regions of the RDN (Fig. 3), with an average age of 55 in 2006.

Table 12. Overview of Farm Economic and Labour Characteristics within the RDN and in comparison to Vancouver Island and BC (Stats Canada, 2006).

	BC	Vancouver Island	RDN	Nanaimo	Nanaimo C	Nanaimo E	Nanaimo F	Nanaimo G	Nanaimo H
Total Number of Farms Reporting	7,659	940	148	73	13	10	32	9	2
Total Wages and Salaries \$	498,116,928	38,438,175	4,932,014	2,907,326	X	534,159	558,343	208,442	X
Number of Farms Employing Family Members	4,360	454	71	29	8	8	15	10	5
Total Wages and Salaries to Family Members	157,580,850	13,594,073	1,556,880	956,126	X	127,676	192,057	X	X
Number of Farms Employing Other Persons	5,786	734	117	62	8	5	27	33	18
Total Wages and Salaries to Other Persons	340,536,078	24,844,102	3,375,134	1,951,200	x	406,483	366,286	129,686	62,126
Seasonal or Temporary Paid Work – Number of Farms	5,519	701	121	63	9	7	27	10	5
Seasonal or Temporary Paid Work - # of Weeks	336,354	25,705	4,066	2,701	179	x	580	300	x
Year Round Paid Work – Number of Farms Reporting	3,440	380	54	23	7	5	11	7	1
Year Round Paid Work: # weeks	570,463	41,793	4,404	2,344	506	x	518	274	X
Total weeks of paid work – Number of Farms Reporting	7,659	940	148	73	13	10	32	15	5
Total Weeks of Paid Work - # of Weeks	906,817	67,498	8,470	5,045	685	730	1,098	574	338
# of farms by total farm capital									
< \$100,000	441	85	11	2	3	1	3	2	0
\$100-199,999	1,215	173	36	15	6	4	5	5	1
\$200 – 349,999	2,841	438	76	41	9	4	16	4	2
\$350 - \$499,999	2,629	476	86	38	11	4	20	7	6
\$500 - \$999,999	6,139	1,014	151	63	25	9	35	10	9
\$1 - 1,999,999	3,746	437	70	34	8	3	13	10	2
>\$2,000,000	2,833	232	31	17	2	5	3	2	2
# of farms by total gross farm receipts									
< \$10,000	9,466	1,834	299	138	46	18	58	23	16
\$10-24,999	3,194	419	71	32	5	5	16	7	3
\$25-49,999	2,037	218	29	11	3	1	7	3	2
\$50-99,999	1,592	123	22	10	3	1	6	2	0
\$100 - \$249,999	1,536	111	17	7	1	2	5	2	0
\$250 - 499,999	889	64	12	7	0	2	1	2	0
\$500,000-999,999	618	49	7	2	1	1	1	1	1
\$1,000,000-1,999,999	328	30	4	3	0	0	1	0	0
>\$2,000,000	184	7	0	0	0	0	0	0	0

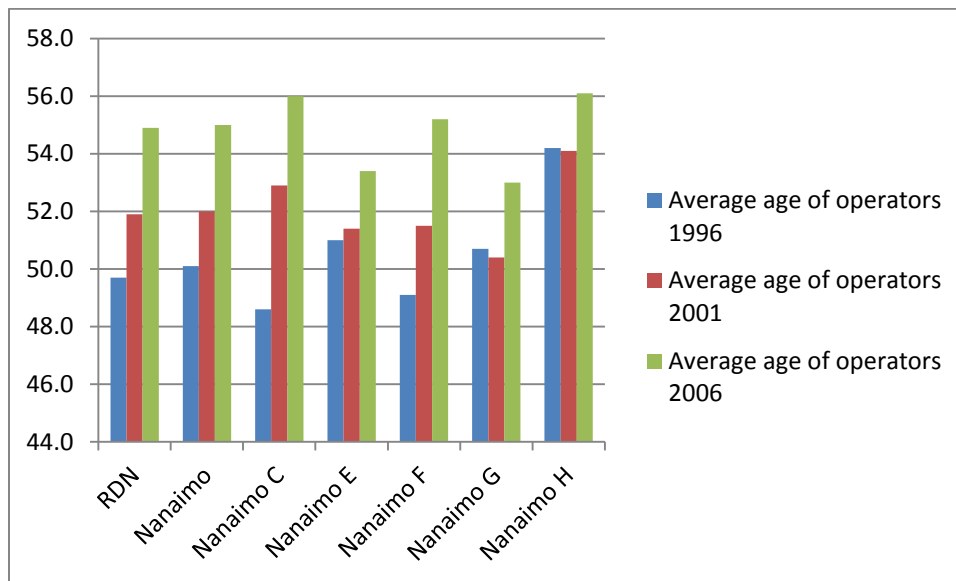


Figure 3. Average age of farm operators in the RDN 1996-2006 (Stats Canada, 2006).

The ratio of male to female farm operators has remained stable throughout the past 10 years, despite the decline in number of operators, at 60% male and 40% female. This trend is consistent across all regions, with a slight increase in male operators over female operators in Nanaimo G.

Table 13. Gender of farm operators in the RDN and subregions (Stats Canada, 2006).

	1996 Males	1996 Females	Males as % of 1996 Total	2001 Males	2001 Females	Males as % of 2001 Total	2006 Males	2006 Females	Males as % of 2006 Total
RDN	450	305	60%	425	305	58%	405	275	60%
Nanaimo	170	115	61%	190	150	55%	175	125	59%
Nanaimo C	115	75	61%	70	40	64%	55	35	61%
Nanaimo E	25	20	50%	25	20	56%	25	15	63%
Nanaimo F	80	55	59%	70	60	54%	85	75	55%
Nanaimo G	45	25	60%	45	25	64%	45	20	69%
Nanaimo H	10	10	40%	20	15	57%	15	15	50%

As the age of farm operators has increased over the past 10 years, the number of farm operators has decreased with a percent change of -9.3% since 1996. Table 16 shows the number of hours that farm operators spent working for the operation each week. A total of 41% of the operators spent less than 20 hours per week working on the farm, which indicates that they may be working off the farm or farming crops that require minimal attention.

Table 14. Number of hours/week working on farm (Stats Canada, 2006).

	1996	2001	2006	% in 2006	% change
# Operators reporting	750	730	680		-9.3%
Less than 20	345	320	280	41%	-19%
20 - 40	230	235	220	32%	-4%
More than 40	175	175	175	26%	0%

Table 15 shows that the majority (46%) of farm operators were getting paid for working more than 20 hours per week off the farm and that the number of operators working off the farm has increased since 1996. Farm profitability is explored later in this section, but the minimal profits generated from farming may be a leading factor for the increase in the number of operators looking to supplement their income from their farming operation.

Table 15. Number of hours/week of paid off-farm work (Stats Canada, 2006).

	1996	2001	2006	% in 2006	% change
Total operators	750	730	680		
None	500	330	280	41%	-44%
Less than 20	40	90	80	12%	100%
20 – 40	135	175	170	25%	26%
More than 40	90	130	140	21%	56%

Only 2% of the province’s workforce was employed in agriculture in 1997 with more than half as self-employed without any paid help (Ministry of Finance, 1999). This was a similar case in 2006 with 52% of farm operators paying for year-round paid labour and 48% paying for seasonal labour (MAL, 2008).

Total Number of Farms

As the number of farm operators has decreased since 1996, so has the total number of farms in the RDN. The total number of farms has decreased from 493 to 461 in the RDN; however, the total number of farms increased in electoral areas A, F and H (Fig. 4). This could be due to the subdivision of larger farm parcels into smaller parcels in those areas.

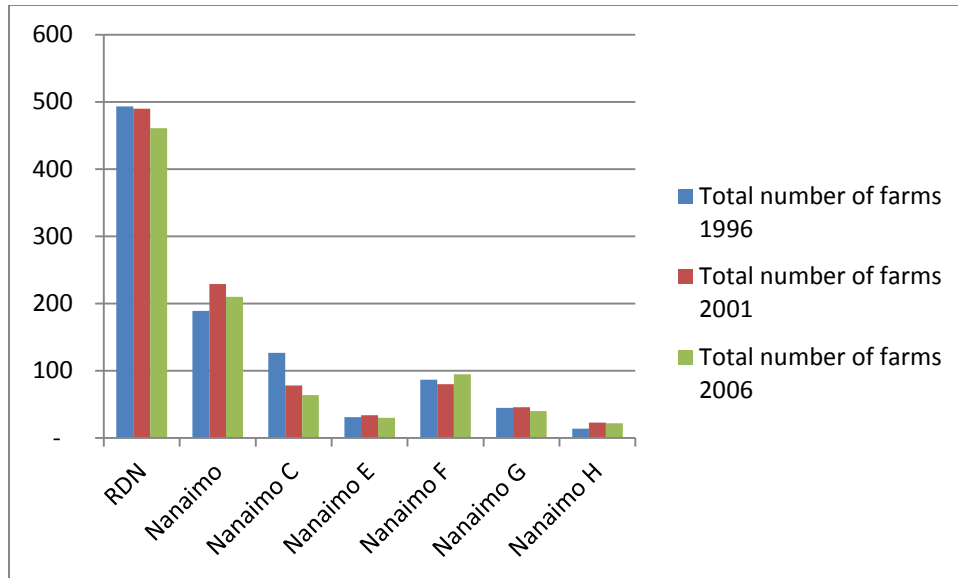


Figure 4. Total number of farms in the RDN and subregions 1996-2006 (Stats Canada, 2006).

Total Area of Farms

The total area farmed in the RDN has declined since 2001. This could be due to a number of interacting factor such as increased transportation costs, new restrictions on beef exports, and/or new meat inspection regulations.

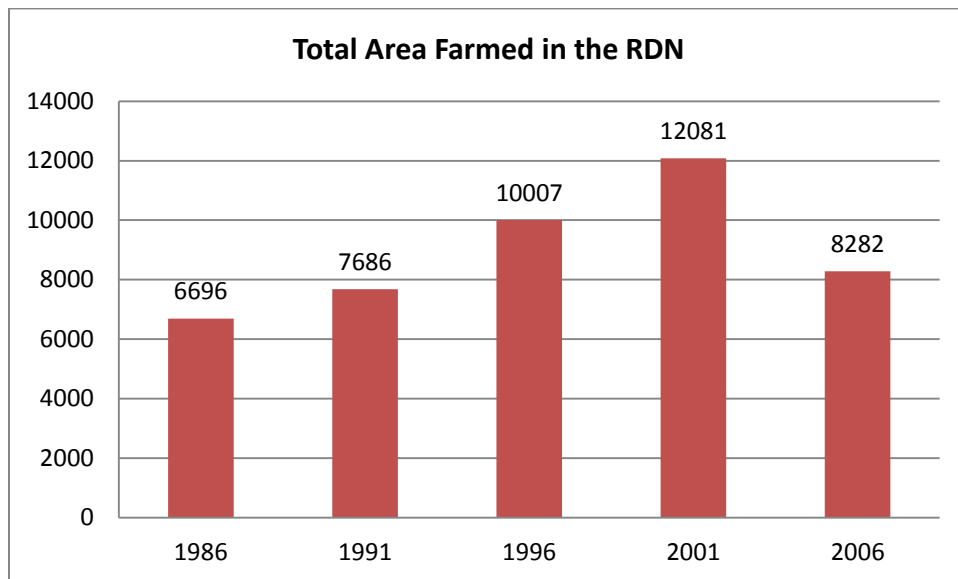


Figure 5. Total area (ha) farmed in the RDN 1986-2006 (Stats Canada, 2006).

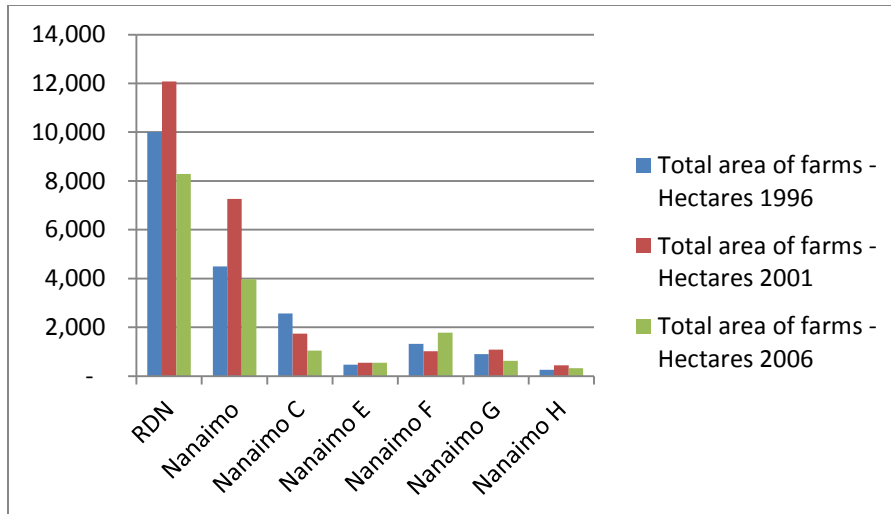


Figure 6. Total area (ha) of a farms in the RDN and subregions 1996-2006 (Stats Canada, 2006).

The total area of land within the ALR in the RDN is 18,726 ha, which is equivalent to 18% of the land ALR land on Vancouver Island. It is important to note that only 8,282 ha of land was farmed in 2006, confirming results from the Land Use Inventory and indicating that agricultural land in the RDN is underutilized with potential for expansion of agricultural production. Interestingly, the total area farmed increased in electoral areas F and H, which is encouraging for agricultural production as a whole in the region.

Table 16 shows the proportion of different land use types (MAL, 2008). The largest proportion is land in crops with a large amount of land also under other land cover such as Christmas trees. The cells marked with an 'x' indicate that there were farms reporting, but no further data was provided.

Table 16. Broad categories of ALR land use in the RDN 1996-2006(Stats Canada, 2006).

	1996	2001	2006
ALR			18,726
Total area farmed	10,007	12,081	8,282
Land in crops	3,235	4,050	3,333
Summerfallow	440	110	x
Tame or seeded pasture	945	1,389	x
Natural land for pasture	1,731	2,690	1,564
All other land (including Christmas trees)	3,656	3,842	2,599

The average farm size in the RDN has remained somewhat static with an increase in farm size in the 1990s and early 2000s (Table 17). Overall, the average farm size has decreased in the RDN and on Vancouver Island, while the size of farms has increased elsewhere in the province. This could be due to subdivision of small parcels on Vancouver Island to accommodate a larger population on a limited land base.

Table 17. Average farm size (ha) in the RDN 1986-2006 (MAL, 2008).

	1986	1991	1996	2001	2006
RDN	19.2	19.4	20.3	24.7	18.0
Vancouver Island	23.8	22.8	19.1	21.6	18.1
British Columbia	126.5	124.4	115.8	127.5	142.9

Types of Crops (hectares)

The total amount of land in crops has increased since 1986, but the number of field crops decreased from 2001 to 2006 (Table 18). The region has seen steady growth in fruits, berries and nuts since 1986, as well as an increase in vegetable production. When investigating crop production it was apparent that there was minimal diversity in all crop types. A total of 74% of field crops fell into the tame hay and fodder crop category, with a small amount of oats, barley, corn for silage and potatoes also produced. There were a number of berry and fruit crops grown in the region, but a limited diversity of vegetable production. The most common crops were sweet corn, potatoes, cucumbers, tomatoes, beans, peas, beets and squash.

Table 18. Area of land in crop production (ha) by crop type (MAL, 2008).

	1986	1991	1996	2001	2006
Field Crops ¹	2219	2308	2671	3716	2662
Tree Fruits	24	37	40	na	na
Berries & Grapes ²	16	28	22	na	na
Fruits, Berries & Nuts	na	na	na	69	83
Vegetables	38	30	55	38	49
Other ³	132	105	447	227	539
Total	2429	2508	3235	4050	3333

¹ Note: In the case of hectares in Field Crops, a total was not provided. In some cases, individual field crop area figures were not provided for reasons of confidentiality. As a result, the figures provided equal only the sum of those individual field crops in which Statistics Canada provides an area figure.

² In 1986, 1991 and 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1986, 1991 and 1996.

³ "Other" Crops also account for area figures not provided due to confidentiality.

The total number of farms has decreased since 1986, but some farm enterprises have fluctuated dramatically throughout that period, or have increased (Table 19).

Table 19. Total number of farm enterprises by number of farms and area (ha) or number of animals (Stats Canada, 2006).

	1986	1986	1991	1991	1996	1996	2001	2001	2006	2006
	Farms	Ha/#	Farms	Ha/#	Farms	Ha/#	Farms	Ha/#	Farms	Ha/#
Field Crops	na	2,219	na	2,308	na	2,671	na	3,716	na	2,662
Fruits/Berries/Nuts	89	40	84	65	110	62	78	69	79	83
Vegetables	34	38	35	30	65	55	68	38	58	49
Nursery	12	28	24	34	46	55	56	56	38	49
Poultry	260	98,421	270	116,299	255	162,380	285	146,783	239	96,349
Cattle and Calves	199	4,614	206	5,003	208	4,912	179	5,787	138	3,326
Pigs	54	3,140	50	3,628	62	3,457	44	921	30	267
Sheep and Lambs	50	1,399	73	1,682	71	1,775	91	2,140	69	1,645
Horses and Ponies	103	389	117	489	133	625	127	676	119	632

Figure 7 demonstrates the change in farm enterprises from 1986 to 2006 in the RDN. All farm crops (nursery, vegetables, fruits, nuts, berries and field crops) have increased in hectares since 1986, while swine (pigs), poultry and cattle production have decreased. This is likely due to the increased cost of feed and feed supplements and the introduction of new meat slaughter regulations, requiring animals to be slaughtered at federally-inspected facilities. Sheep and lamb production, in addition to horse and pony rearing, have increased since 1986. This could be caused by an increase in residential properties in the agricultural area and an increase in recreational horse-related activities. The enterprise that experienced the largest growth was nursery production.

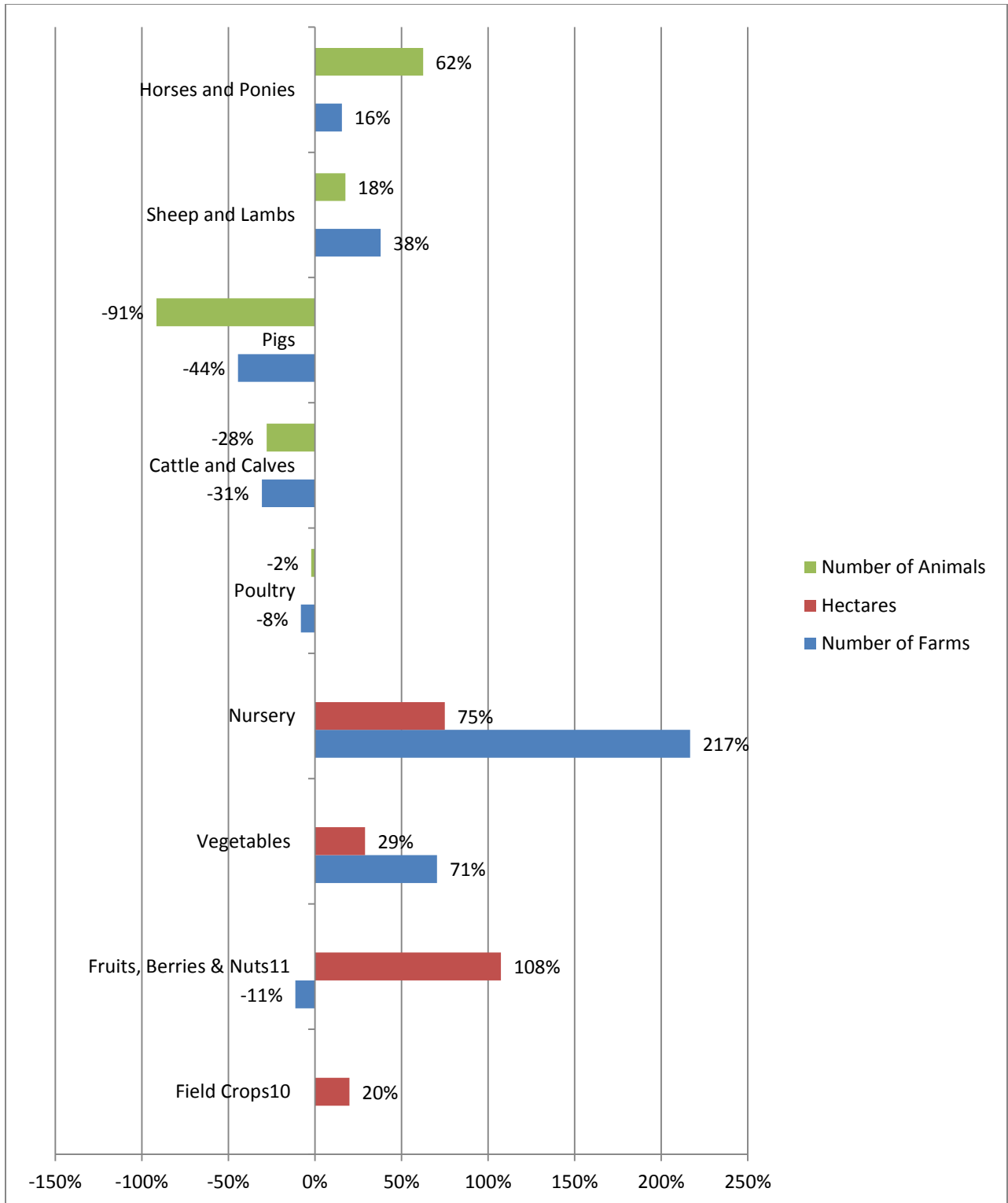


Figure 7. Change in farm enterprises in the RDN 1986-2006 (Stats Canada, 2006).

Total Operating Expenses

As is expected with inflation and rising fuel costs throughout the world, the total operating expenses of all farms in the RDN has increased since 1996 from \$18,317,094 to \$21,274,867 (Fig. 8). Electoral areas C and G reported a reduction in operating expenses, which could be related to the decrease in the number of farms in those areas.

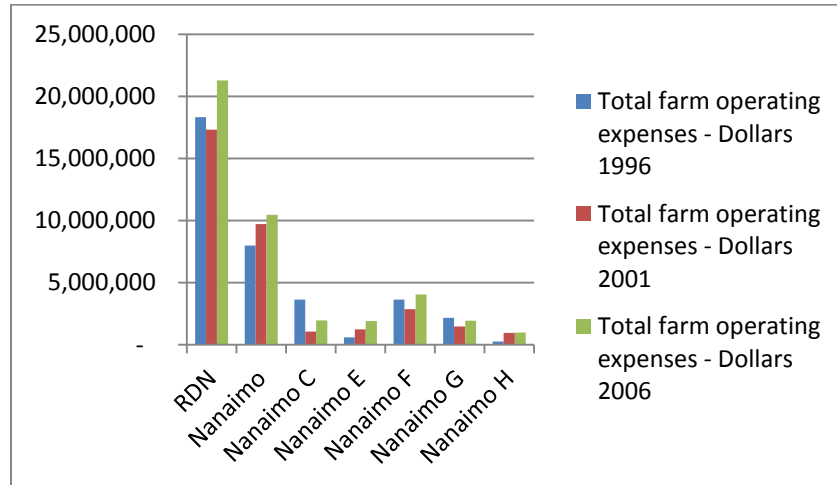


Figure 8. Total farm operating expenses in the RDN and subregions (\$) 1996-2006 (Stats Canada, 2006)

Total Gross Farm Receipts

Total gross farm receipts also increased from 1996 to 2006 in the RDN from \$17,508,293 to \$21,186,317, which could be due to inflation and an overall increase in the cost of food around the globe. Electoral areas C and G showed a reduction in gross farm receipts, likely also due to the decrease in the number of farms in these areas.

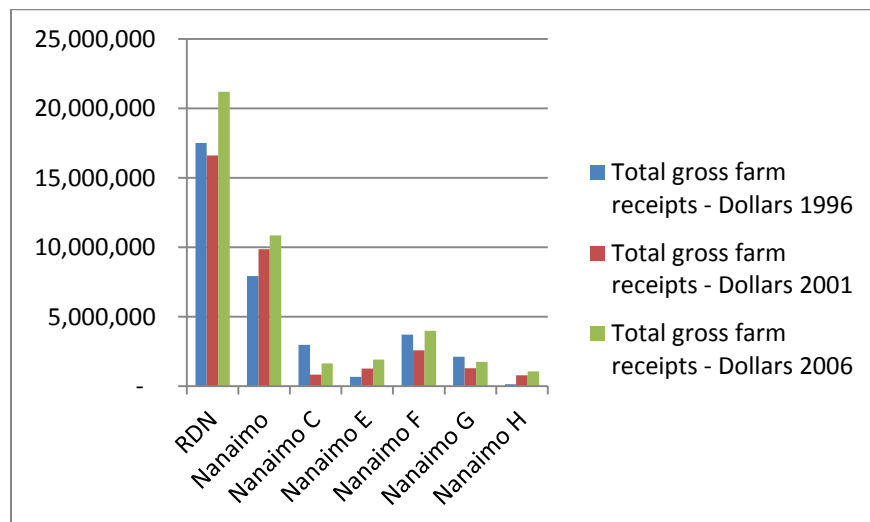


Figure 9. Total gross farm receipts in the RDN and subregions (\$) 1996-2006 (Stats Canada, 2006).

Farm Profitability

Farms in the RDN are experiencing a near break-even point in profitability overall (Table 20). In 2006 the gross margin for farms in the RDN was 0%, indicating that gross farm receipts matched total operating expenses. It is important to note, however, that this represents the gross receipts and not the net revenue, which may be much lower. In general, farms on Vancouver Island are less profitable than elsewhere in the province. The gross margin for farms overall on Vancouver Island is 5.3%, whereas the average in BC is 11.3% (Vannstruth, 2009). This could be due in part to the high transportation costs of shipping farm products off the island to markets on the mainland and overseas. It could also be a result of the smaller scale of farms in production on Vancouver Island.

Table 20. Gross margin of farm operations in the RDN and subregions 1996-2006 (Stats Canada, 2006)

Area	Gross Farm Receipts (\$)			Total Operating Expenses (\$)			Gross Margin (%)		
	1996	2001	2006	1996	2001	2006	1996	2001	2006
RDN	\$17,508,293	\$16,612,719	\$21,186,317	\$18,317,094	\$17,323,886	\$21,274,867	-5%	-4%	0%
Nanaimo	\$7,922,481	\$9,865,823	\$10,856,270	\$7,989,166	\$9,710,889	\$10,452,957	-1%	2%	4%
Nanaimo C	\$2,964,303	\$824,006	\$1,623,891	\$3,644,326	\$1,068,543	\$1,956,387	-23%	-30%	-20%
Nanaimo E	\$673,117	\$1,265,446	\$1,920,997	\$602,328	\$1,242,989	\$1,902,572	11%	2%	1%
Nanaimo F	\$3,708,446	\$2,582,042	\$3,973,100	\$3,648,469	\$2,877,061	\$4,045,002	2%	-11%	-2%
Nanaimo G	\$2,112,531	\$1,294,003	\$1,752,576	\$2,165,694	\$1,473,655	\$1,939,505	-3%	-14%	-11%
Nanaimo H	\$127,415	\$781,399	\$1,059,483	\$267,111	\$950,749	\$978,444	-110%	-22%	8%

As the total farm area decreases in the RDN, the revenue per hectare is increasing. Despite a low gross margin shown in Table 20, Table 21 demonstrates an average of \$2,558 per hectare in revenue. In the Regional Economic Analysis commissioned by the Vancouver Island Economic Alliance (2009) they found that Vancouver Island generates a higher revenue per hectare than in BC overall. With the average revenue per hectare increasing over the past 10 years it is an indication that farms are intensifying their production as their agricultural land base decreases.

Table 21. Average revenue per farm and per hectare in the RDN (\$) 1996-2006 (Stats Canada, 2006)

Year	# of Farms	Gross Receipts (\$)	Average per Farm (\$)	Total Farm Area (Hectares)	Average per Hectare (\$)
1996	493	\$ 17,508,293	\$ 35,513	10,007	\$ 1,750
2001	490	\$ 16,612,719	\$ 33,903	12,081	\$ 1,375
2006	461	\$ 21,186,317	\$ 45,957	8,282	\$ 2,558

Table 22 compares the average revenue per hectare in different areas within BC. The revenue experienced in the RDN is similar to other regions on Vancouver Island, but is much lower than the revenue generated in the Fraser Valley and Metro Vancouver. Again, this could be due to the high transportation costs of shipping products and the proximity to markets with a large consumer base.

Table 22. Average revenue per farm and per hectare in other Vancouver Island regions 2006 (Vannstruth, 2009).

Regional District	Average Revenue/Farm (\$)	Average Revenue/ha (\$)
Capital	54,754	4,001
Cowichan Valley	67,935	4,114
Alberni-Clayoquot	61,702	1,732
Nanaimo	45,957	2,558
Comox Valley/Strathcona/Mt Waddington	66,349	2,558
BC	56,347	935

Overall, the level of agricultural production and the revenue generated from agricultural operations in the RDN has room for growth and diversification. Based on the Ministry of Agriculture’s Agriculture Overview, only 44% of the ALR land in the RDN was in production in 2006, which indicates there is potential for expansion of agricultural land (MAL, 2006). This number differs from the 30% ALR production noted during the 2011 Land Use Inventory. This difference can be attributed to a number of factors: the five year time difference (2006 Census data vs. 2011 Land Use Inventory observation data); the fact that an over-reporting of farm area production may be occurring for Census and tax-related purposes; the inability for every acre of land to be clearly viewed during the Land Use Inventory; and the omission of single-horse only properties (totaling approximately 1,000 ha) from the category of “farm” during the Land Use Inventory. It will be worthwhile noting the amount of land in production based on the upcoming release of 2011 Census of Agriculture data.

The gross margin of farms is on the rise, which is a positive indicator of potential food sales. With the current local food trend sweeping Vancouver Island, this is the optimum time to market local RDN agricultural products and develop niche value-added markets (Vannstruth, 2009).

The following sections explore the specific regions within the RDN to identify further insight into the farming community and production levels.

Nanaimo – City of Nanaimo and Electoral Area A

The “Nanaimo” Consolidated Census Subdivision (CCS) includes both the City of Nanaimo and Electoral Area A. This geographical area is the most populated subregion (due to the City of Nanaimo) with the highest number of farms and farming activity.

Of the total farm area in the RDN (8,282 ha), Nanaimo CCS took up 48% at 3,965 ha in the 2006 Agricultural Census with nearly half the number of farms (Table 23). The average farm size was also slightly larger than the average farm size in the RDN.

Table 23. Farm size and total farm area (ha) of Nanaimo CCS (Stats Canada, 2006).

	RDN	Nanaimo CCS	RDN	Nanaimo CCS	RDN	Nanaimo CCS
	1996	1996	2001	2001	2006	2006
Total Farm Area	10,007	4,491	12,081	7,257	8,282	3,965
Number of Farms	493	189	490	229	461	210
Average Farm Size	20.3	23.8	24.7	31.7	18	18.9
Total Area Owned	8,768	4,051	10,485	6,226	7,633	3,875
Total Area Rented or Leased	1,239	441	1,596	1,031	x	641

The vast majority of farms (82%) were under 69 acres in size with only 1 farm reporting over 1,120 acres in 2006 (Table 24).

Table 24. Average farm size (ha) in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

	1996	2001	2006	% of total (2006)
Under 10 acres	82	97	90	43%
10 – 69 acres	74	85	82	39%
70 – 129 acres	15	20	23	11%
130 – 179 acres	9	9	5	2%
180 – 239 acres	2	5	2	1%
240 – 399 acres	5	4	5	2%
400 – 559 acres	1	4	2	1%
560 – 759 acres	-	-	-	0%
760 – 1119 acres	-	-	-	0%
1120 – 1599 acres	-	3	1	0%
1600 – 2239 acres	-	2	-	0%
2240 – 2879 acres	-	-	-	0%
2880 and over	1	-	-	0%

124 of the 210 farms in the Nanaimo CCS in 2006 were owned and operated by a sole proprietor, while 57 farms were owned as a partnership with no written agreement (Table 25). There are a variety of farm ownership options, which could be explored further to ease the entry of new farmers into agricultural production in the RDN.

Table 25. Farm business structures in Nanaimo CCS 1996-2006 (Stats Canada, 2006)

	RDN	Nanaimo CCS	RDN	Nanaimo CCS	RDN	Nanaimo CCS
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	101	276	131	279	124
Partnership with written agreement	23	10	12	0	9	6
Partnership with no written agreement	161	59	141	63	119	57
Family corporation	41	13	51	23	46	19
Non-family corporation	13	5	8	3	7	3
Other (institution, community, pasture, etc.)	2	1	2	1	1	1

Types of Farms and Production

Field crops and poultry were the largest commodities in Nanaimo CCS. Other common agricultural products were berries, cattle, pigs and horses. Of the cattle raised in this region, only 3 farms reported dairy production.

Table 26. Number of farms listed as farm type in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo CCS	RDN	Nanaimo CCS	RDN	Nanaimo CCS
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	102	na	142	Na	113
Tree fruit, berries & nuts ²	110	na	78	Na	79	40
Berries	na	31	na	35	Na	51
Vegetables	65	31	68	27	58	31
Nursery, Sod & Christmas Trees	71	27	73	30	64	33
Greenhouse	45	15	57	17	54	23
Cattle	208	81	179	90	138	46
Poultry	255	89	285	128	239	99
Sheep & lambs	71	30	91	49	69	32
Llamas & alpacas	6	4	12	3	27	10
Pigs	62	127	44	243	30	47
Horses	133	44	127	65	119	53
Goats	35	11	28	15	25	11
Bee Colonies	21	10	29	17	23	14

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

Farm Practices

In general, farms in the RDN are managed without the use of chemicals. Out of the 210 farms reported in the Nanaimo CCS only 30% reported using commercial fertilizer, while less than 8% reported the use of pesticides (Table 27). 48 farms reported irrigating crops, while 20 farms spread solid manure on their land. Only 16 – 18% of the farms in this area reported rotating crops, using grassed waterways or windbreaks.

Table 27. Farm management practices in Nanaimo CCS (number of farms reporting) 1996-2006 (Stats Canada, 2006).

Farm Practice	1996	2001	2006
Irrigation	60	57	48
Commercial fertilizer use	74	94	64
Herbicide use	21	27	17
Insecticide use	13	15	5
Fungicide use	9	14	7
Solid manure spread	76	71	20
Irrigated manure	1	1	0
Liquid manure spread on surface	9	5	0

Liquid manure injected	0	0	1
Crop Rotation	28	38	34
Grassed waterways	3	7	36
Windbreaks or shelterbelts	7	10	39

Farm Profitability

Farms in the Nanaimo CCS were slightly more profitable per hectare than in the RDN as a whole. The average revenue per farm per year was \$51,696, based on gross farm receipts.

Table 28. Gross receipts, average revenue per farm, and average revenue per hectare in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average Revenue/Farm	Total Farm Area (ha)	Average Revenue/ha	RDN Avg. Revenue/ha
1996	189	\$7,922,481	\$41,917	4,491	\$1,764	\$1,750
2001	229	\$9,865,823	\$43,082	7,257	\$1,359	\$1,375
2006	210	\$10,856,270	\$51,696	3,965	\$2,738	\$2,558

The value of total farm capital is captured by Statistics Canada on a yearly basis in order to administer and evaluate agricultural policies and programs. Total farm capital represents the value of capital used in the production of agricultural commodities, regardless of whether the capital is owned or leased. While farm capital has increased for the land and buildings, it has decreased for machinery and equipment and for livestock and poultry (Table 29). This is consistent with the decrease in livestock production on Vancouver Island and in the RDN.

Table 29. Total farm capital and market value in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo CCS	RDN	Nanaimo CCS	RDN	Nanaimo CCS
	1996	1996	2001	2001	2006	2006
Total farm capital	\$241,929,105	\$88,797,175	\$249,031,421	\$122,472,242	\$369,169,959	\$181,969,878
Land and buildings	\$218,963,494	\$78,338,900	\$215,891,639	\$105,721,570	\$340,664,601	\$169,734,174
Machinery and equipment	\$16,870,035	\$7,697,458	\$23,204,345	\$11,841,927	\$24,138,529	\$10,358,961
Livestock and poultry	\$6,095,576	\$2,760,817	\$9,935,437	\$4,908,745	\$4,366,829	\$1,876,743

The highest operating expenses for farmers in the Nanaimo CCS were for feed and feed supplements (Table 30). Seeds and seedlings were also a substantial cost, as was machinery, fuel, oil and lubricants.

Table 30. Farm operating expenses in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$ 278,918	\$ 549,242	\$ 651,549
Machinery repairs and maintenance	\$ 346,316	\$ 532,236	\$ 539,126
Fertilizer and lime	\$171,317	\$ 385,834	\$ 367,640
Chemicals	\$ 55,081	\$ 118,472	\$ 142,612
Seeds and seedlings	\$ 204,901	\$ 353,869	\$ 839,861
Feed and feed supplements	\$ 2,263,753	\$ 1,719,021	\$ 1,390,962
Livestock and poultry	\$ 558,297	\$ 460,563	\$ 299,931
Veterinary services	\$ 136,947	\$ 154,852	\$ 135,545

Electricity	\$ 169,872	\$ 334,287	\$ 329,754
Building repairs and maintenance	\$ 288,689	\$ 278,484	\$ 219,948
Farm interest expenses	\$ 547,381	\$ 535,217	\$ 417,980
Other expenses	\$ 724,482	\$ 1,551,308	\$ 1,719,577

Age of Farm Operators

In Nanaimo CCS, the proportion of farm operators under 35 years of age was 5%, while 49% of farm operators were over the age of 55 (Table 31).

Table 31. Number of farm operators by age in Nanaimo CCS 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo CCS	RDN	Nanaimo CCS	RDN	Nanaimo CCS
	1996	1996	2001	2001	2006	2006
Total farm operators	750	280	730	345	680	295
Under 35 years	70	25	65	45	35	15
35 – 54 years	435	155	375	160	315	140
55 years and over	250	105	290	140	330	145

Nanaimo C - Electoral Area C

Nanaimo C encompasses Electoral Area C and areas west of the City of Nanaimo. This is the third largest farming region in the RDN with 64 farms (Table 32). The average farm size in this region was also smaller at 16.3 ha, compared to 18 ha in the RDN overall.

Table 32. Farm size and total farm area (ha) in Nanaimo C 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo C	RDN	Nanaimo C	RDN	Nanaimo C
	1996	1996	2001	2001	2006	2006
Total Farm Area	10,007	2,567	12,081	1,743	8,282	1,040
Number of Farms	493	127	490	78	461	64
Average Farm Size	20.3	20.2	24.7	22.3	18	16.3
Total Area Owned	8,768	2,125	10,485	1,493	7,633	920
Total Area Rented or Leased	1,239	442	1,596	251	x	150

As in other regions, the majority of the farms were under 69 acres with only one farm reporting a size of over 400 acres (Table 33).

Table 33. Number of farms by farm size in Nanaimo C 1996-2006 (Stats Canada, 2006).

Total Farm Area (# of farms)	1996	2001	2006	% of total (2006)
Under 10 acres	72	35	33	52%
10 – 69 acres	40	28	22	34%
70 – 129 acres	7	3	2	3%
130 – 179 acres	3	4	2	3%
180 – 239 acres	1	3	2	3%
240 – 399 acres	2	4	2	3%
400 – 559 acres	0	0	1	2%
560 – 759 acres	0	1	0	0%
760 – 1119 acres	0	0	0	0%
1120 – 1599 acres	2	0	0	0%

Over 56% of the farms in Nanaimo C were operated by a sole proprietor, while 31% was operated by a partnership with no written agreement (Table 34).

Table 34. Farm business structures in Nanaimo C 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo C	RDN	Nanaimo C	RDN	Nanaimo C
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	65	276	48	279	36
Partnership with written agreement	23	6	12	0	9	0
Partnership with no written agreement	161	43	141	23	119	20
Family corporation	41	7	51	7	46	8
Non-family corporation	13	5	8	0	7	0
Other (institution, community, pasture, etc.)	2	1	2	0	1	0

Types of Farms and Production

Similarly to Nanaimo CCS, the predominant farm types in Nanaimo C were field crops and poultry (Table 35). Specialty crops, such as nursery, sod and Christmas trees, were also common, along with cattle and horse rearing. This region had very few berry and vegetable farms, unlike Nanaimo CCS.

Table 35. Number of farms listed as farm type in Nanaimo C 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo C	RDN	Nanaimo C	RDN	Nanaimo C
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	55	na	44	na	32
Tree fruit, berries & nuts ²	110	na	78	na	79	6
Berries	na	14	Na	18	Na	8
Vegetables	65	11	68	12	58	7
Nursery, Sod & Christmas Trees	71	17	73	9	64	15
Greenhouse	45	5	57	7	54	5
Cattle	208	50	179	33	138	16
Poultry	255	62	285	50	239	37

Sheep & lambs	71	16	91	9	69	6
Llamas & alpacas	6	1	12	2	27	2
Pigs	62	12	44	10	30	7
Horses	133	34	127	20	119	17
Goats	35	10	28	5	25	5
Bee Colonies	21	7	29	3	23	3

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

Few farms report rotating crops or using grassed waterways, but a larger proportion report the use of windbreaks or shelterbelts. This could be due to the area's location near Mount Benson, where it is often windy.

Table 36. Farm management practices by number of farms reporting, Nanaimo C 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Irrigation	28	18	25
Commercial fertilizer use	55	28	21
Herbicide use	15	7	7
Insecticide use	4	1	1
Fungicide use	5	1	1
Solid manure spread	39	21	3
Irrigated manure	-	-	1
Liquid manure spread on surface	-	-	-
Liquid manure injected	-	-	-
Crop Rotation	11	11	6
Grassed waterways	3	3	4
Windbreaks or shelterbelts	4	1	15

Farm Profitability

Revenue per hectare in Nanaimo C was much lower than in the RDN or the Nanaimo CCS with a reduced average revenue per farm (Table 37). This could be due to a number of factors including less direct farm marketing, smaller farm sizes with reduced production capacity and specialty crop production with a lower profit margin. The soil capability of this region was rated good to poor, which could account for the prevalence of specialty crop production and lower than average revenues per farm.

Table 37. Gross receipts and average revenue per farm and per hectare in Nanaimo C 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average Revenue/Farm	Total Farm Area (ha)	Average Revenue/ha	RDN
1996	127	\$2,964,303	\$23,341	2,567	\$1,155	\$1,750
2001	78	\$824,006	\$10,564	1,743	\$473	\$1,375
2006	64	\$1,623,891	\$25,373	1,040	\$1,561	\$2,558

Unlike in Nanaimo CCS, total farm capital has decreased in Nanaimo C, even in the category of land and buildings (Table 38). The land in this region may have decreased in value since 1996; however, there has been an increase in farm capital since 2001, so the largest decline occurred between 1996 and 2001.

Table 38. Total farm capital and market value in Nanaimo C 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo C	RDN	Nanaimo C	RDN	Nanaimo C
	1996	1996	2001	2001	2006	2006
Total farm capital	\$241,929,105	\$56,914,796	\$249,031,421	\$31,667,714	\$369,169,959	\$41,421,143
Land and buildings	\$218,963,494	\$52,919,673	\$215,891,639	\$27,819,000	\$340,664,601	\$38,050,800
Machinery and equipment	\$16,870,035	\$3,099,855	\$23,204,345	\$2,302,204	\$24,138,529	\$2,880,901
Livestock and poultry	\$6,095,576	\$895,268	\$9,935,437	\$1,546,510	\$4,366,829	\$489,442

The largest proportion of farm operating expenses in Nanaimo C occur in machinery, fuel, oil and lubricants, feed and feed supplements and machinery repairs and maintenance (Table 41). Farmers in this region spend less on seeds and seedlings than in Nanaimo CCS, likely due to the variation in crop types between the two regions.

Table 39. Farm operating expenses in Nanaimo C 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$ 140,778	\$ 128,638	\$ 272,951
Machinery repairs and maintenance	\$ 127,606	\$ 111,977	\$ 155,455
Fertilizer and lime	\$ 167,298	X	x
Chemicals	\$ 44,036	X	\$ 5,028
Seeds and seedlings	\$ 190,700	\$ 21,735	\$ 61,731
Feed and feed supplements	\$ 285,870	\$ 114,306	\$ 161,986
Livestock and poultry	\$ 130,781	\$ 72,338	\$ 61,693
Veterinary services	\$ 61,789	\$ 33,422	\$ 24,701
Electricity	\$ 82,444	\$ 60,680	\$ 82,157
Building repairs and maintenance	\$ 158,343	X	\$ 86,496
Farm interest expenses	\$ 204,249	\$ 103,567	\$ 142,641
Other expenses	\$ 605,888	\$ 147,295	\$ 539,141

Age of Farm Operators

As in Nanaimo CCS, only 6% of the farm operators are under the age of 35, while an equal proportion of farmers are in the 35-54 years and 55 years and over categories (Table 40).

Table 40. Age of farm operators in Nanaimo C 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo C	RDN	Nanaimo C	RDN	Nanaimo C
	1996	1996	2001	2001	2006	2006
Total farm operators	750	190	730	110	680	90
Under 35 years	70	25	65	5	35	5
35 – 54 years	435	115	375	55	315	45
55 years and over	250	55	290	45	330	45

Nanaimo E – City of Lantzville and Electoral Area E

Nanaimo E includes the City of Lantzville and Electoral Area E. This is second smallest farming region with only 30 farms. The average farm size, however, is 18.3 ha, which is similar to the average size in the whole of the RDN and larger than Nanaimo C (Table 41).

Table 41. Average farm size and farm area (ha) in Nanaimo E (Stats Canada, 2006).

	RDN	Nanaimo E	RDN	Nanaimo E	RDN	Nanaimo E
	1996	1996	2001	2001	2006	2006
Total Farm Area	10,007	471	12,081	540	8,282	549
Number of Farms	493	31	490	34	461	30
Average Farm Size	20.3	15.2	24.7	15.9	18	18.3
Total Area Owned	8,768	X	10,485	459	7,633	412
Total Area Rented/Leased	1,239	X	1,596	81	x	x

As in other subregions, the majority of farms in Nanaimo E are under 69 acres with only 1 farm over 400 acres (Table 42).

Table 42. Number of farms by farm size category, Nanaimo E 1996-2006 (Stats Canada, 2006).

	1996	2001	2006	% of total (2006)
Under 10 acres	13	15	12	40%
10 – 69 acres	13	12	11	37%
70 – 129 acres	2	4	5	17%
130 – 179 acres	2	2	1	3%
180 – 239 acres	1	0	0	0%
240 – 399 acres	0	1	0	0%
400 – 559 acres	0	0	1	3%

63% of farms in Nanaimo E are owned by a sole proprietor with only a few other ownership structures.

Table 43. Farm business structures in Nanaimo E 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo E	RDN	Nanaimo E	RDN	Nanaimo E
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	15	276	19	279	19
Partnership with written agreement	23	1	12	0	9	2
Partnership with no written agreement	161	10	141	11	119	5
Family corporation	41	5	51	4	46	3
Non-family corporation	13	0	8	0	7	1
Other (institution, community, pasture, etc.)	2	0	2	0	1	0

Types of Farms and Production

In Nanaimo E, the largest farm types are poultry, field crops and horses (Table 44). This region has a couple of very large poultry operations and many horse properties in the Rocking Horse Ranch area in

Nanoose Bay. There are also a few berry operations, but very little production in the other farming categories. In 1996 there were many more cattle operations in this region than in 2006, which could be due to the high cost of transporting animals to slaughter or the cost of feed and feed supplements.

Table 44. Number of farms listed as farm type in Nanaimo E 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo E	RDN	Nanaimo E	RDN	Nanaimo E
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	12	na	15	na	14
Tree fruit, berries & nuts ²	110		78		79	
Berries		4		5		8
Vegetables	65	2	68	1	58	3
Nursery, Sod & Christmas Trees	71	5	73	6	64	3
Greenhouse	45	4	57	4	54	2
Cattle	208	15	179	9	138	4
Poultry	255	11	285	21	239	15
Sheep & lambs	71	3	91	3	69	1
Llamas & alpacas	6	-	12	-	27	-
Pigs	62	5	44	2	30	2
Horses	133	14	127	9	119	10
Goats	35	-	28	-	25	-
Bee Colonies	21	1	29	3	23	2

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

As in other regions, only 30% or fewer farms in Nanaimo E reported commercial fertilizer use, irrigation and grassed waterways or windbreaks (Table 45). Only one farm reported pesticide use, solid manure spreading and crop rotation. The majority of these numbers decreased from 1996, but there was an increase in grassed waterways and windbreaks in 2006.

Table 45. Farm management practices by number of farms reporting, Nanaimo E 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Irrigation	11	14	8
Commercial fertilizer use	17	12	9
Herbicide use	1	1	1
Insecticide use	1	1	0
Fungicide use	2	1	1
Solid manure spread	9	9	1
Irrigated manure	0	0	0
Liquid manure spread on surface	0	0	0
Liquid manure injected	0	0	0
Crop Rotation	1	4	1
Grassed waterways	1	4	6
Windbreaks or shelterbelts	2	2	8

Farm Profitability

The average revenue per hectare is much higher in this region than in other regions within the RDN at \$3,499 (Table 46). The average revenue per farm is also much higher at \$64,033. This could be due to the prevalence of large scale poultry operations in the region that have the capacity to generate a higher income than some other farm types.

Table 46. Gross receipts, average revenue per farm, and average revenue per hectare in Nanaimo E 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average per Farm	Total Farm Area	Average per Hectare	RDN
1996	31	\$ 673,117	\$ 21,713	471	\$ 1,429	\$1,750
2001	34	\$ 1,265,446	\$ 37,219	540	\$ 2,343	\$1,375
2006	30	\$ 1,920,997	\$ 64,033	549	\$ 3,499	\$2,558

The total farm capital in Nanaimo E has increased since 1996 in all categories (Table 47). The land prices may have risen in this region, contributing to the increase in farm capital.

Table 47. Total farm capital and market value in Nanaimo E 1996-2006 (Stats Canada, 2006).

	RDN 1996	Nanaimo E 1996	RDN 2001	Nanaimo E 2001	RDN 2006	Nanaimo E 2006
Total farm capital	\$241,929,105	\$25,813,132	\$249,031,421	\$20,895,786	\$369,169,959	\$30,729,577
Land and buildings	\$218,963,494	\$24,529,600	\$215,891,639	\$18,919,300	\$340,664,601	\$28,390,170
Machinery and equipment	\$16,870,035	\$934,900	\$23,204,345	\$1,555,100	\$24,138,529	\$1,985,600
Livestock and poultry	\$6,095,576	\$348,632	\$9,935,437	\$421,386	\$4,366,829	\$353,807

Farm operating expenses in Nanaimo E are highest for feed and feed supplements, livestock and poultry and other expenses (Table 48). This is consistent with the number of poultry and horse properties in this area.

Table 48. Farm operating expenses in Nanaimo E 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$17,642	\$96,684	\$109,578
Machinery repairs and maintenance	\$31,146	\$81,845	\$61,347
Fertilizer and lime	\$32,713	\$26,462	\$52,526
Chemicals	X	\$2,202	X
Seeds and seedlings	X	\$21,706	\$70,732
Feed and feed supplements	\$102,544	\$222,624	\$361,783
Livestock and poultry	\$23,660	\$120,675	\$188,277
Veterinary services	\$16,383	X	x
Electricity	\$20,483	\$47,686	\$84,792
Building repairs and maintenance	\$31,059	\$35,677	\$26,897
Farm interest expenses	\$48,540	\$88,493	\$86,540
Other expenses	x	\$202,821	\$263,414

Age of Farm Operators

The age of farm operators under 35 years is slightly higher in Nanaimo E at 13% (Table 49). It is interesting to note that 63% of farm operators were between the ages of 35 and 54 years of age, which is higher than in other regions.

Table 49. Number of farm operators by age in Nanaimo E 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo E	RDN	Nanaimo E	RDN	Nanaimo E
	1996	1996	2001	2001	2006	2006
Total farm operators	750	50	730	45	680	40
Under 35 years	70	5	65	5	35	5
35 – 54 years	435	25	375	25	315	25
55 years and over	250	15	290	15	330	20

Nanaimo F - Electoral Area F

Nanaimo F contains the communities of Coombs and Errington. This is the second largest farming area in the RDN with 95 farms. The farm size is also slightly larger than Nanaimo E and the RDN at 18.7 ha (Table 50).

Table 50. Farm size and total farm area (ha) of Nanaimo F (Stats Canada, 2006).

	RDN	Nanaimo F	RDN	Nanaimo F	RDN	Nanaimo F
	1996	1996	2001	2001	2006	2006
Total Farm Area	10,007	1,314	12,081	1,018	8,282	1,773
Number of Farms	493	87	490	80	461	95
Average Farm Size	20.3	15.1	24.7	12.7	18	18.7
Total Area Owned	8,768	1,269	10,485	x	7,633	1,533
Total Area Rented or Leased	1,239	45	1,596	x	x	x

As in other areas in the RDN, the majority of farms are under 69 acres, but more farms have been reported to be above 70 acres in size in Nanaimo F than in other regions (Table 51). 3% of the farms were between 130 and 179 acres and 4% of farms were between 240 and 399 acres. Also, one farm was reported to be over 560 acres in size.

Table 51. Number of farms by farm size category, Nanaimo F 1996-2006 (Stats Canada, 2006).

	1996	2001	2006	% of total (2006)
Under 10 acres	11	17	25	26%
10 – 69 acres	63	52	52	55%
70 – 129 acres	6	8	9	9%
130 – 179 acres	6	3	3	3%
180 – 239 acres	0	0	1	1%
240 – 399 acres	1	0	4	4%
400 – 559 acres	0	0	0	0%
560 – 759 acres	0	0	1	1%

Similar to other regions in the RDN, the largest proportion of farms in Nanaimo F were owned by a sole proprietor (Table 52). It is important to note that 26% of farms in Nanaimo F were owned in a partnership structure with no written agreement, which is higher than in other areas.

Table 52. Farm business structures in Nanaimo F 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo F	RDN	Nanaimo F	RDN	Nanaimo F
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	43	276	46	279	62
Partnership with written agreement	23	3	12	2	9	0
Partnership with no written agreement	161	31	141	24	119	24
Family corporation	41	8	51	7	46	8
Non-family corporation	13	2	8	1	7	1
Other (institution, community, pasture, etc.)	2	0	2	0	1	0

Types of Farms and Production

Similar to Nanaimo E the predominant farm types are poultry, field crops, horses and berries (Table 53). In 1996 there were many more cattle operations than in 2006, which was the case in Nanaimo E as well.

Table 53. Number of farms listed as farm type in Nanaimo F 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo F	RDN	Nanaimo F	RDN	Nanaimo F
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	49	na	48	na	39
Tree fruit, berries & nuts ²	110		78		79	
Berries		19		16		25
Vegetables	65	15	68	16	58	13
Nursery, Sod & Christmas Trees	71	11	73	15	64	7
Greenhouse	45	15	57	18	54	13
Cattle	208	39	179	24	138	17
Poultry	255	61	285	46	239	58
Sheep & lambs	71	13	91	17	69	20
Llamas & alpacas	6	1	12	5	27	11
Pigs	62	16	44	11	30	9
Horses	133	26	127	20	119	25
Goats	35	9	28	6	25	6
Bee Colonies	21	1	29	3	23	3

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

Between 24 and 32% of farms in Nanaimo F report irrigating their crops or using commercial fertilizers (Table 54). A very small proportion of farms in this region report the use of pesticides, while approximately 20% of farms report environmental best management practices such as crop rotations, grassed waterways and windbreaks.

Table 54. Farm management practices by number of farms reporting, Nanaimo F 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Irrigation	32	26	23
Commercial fertilizer use	38	28	30
Herbicide use	10	9	6
Insecticide use	5	5	0
Fungicide use	5	4	0
Solid manure spread	34	26	8
Irrigated manure	0	0	0
Liquid manure spread on surface	3	2	0
Liquid manure injected	0	0	0
Crop Rotation	17	16	19
Grassed waterways	6	11	19
Windbreaks or shelterbelts	8	7	21

Farm Profitability

Revenue per hectare and revenue per farm are slightly lower in Nanaimo F than in the RDN and much lower than in Nanaimo E (Table 55). This could be due to the size of farm parcels in this region.

Table 55. Gross receipts, average revenue per farm, and average revenue per hectare in Nanaimo F 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average per Farm	Total Farm Area	Average per Hectare	RDN
1996	87	\$ 3,708,446	\$ 42,626	1,314	\$ 2,822	\$1,750
2001	80	\$ 2,582,042	\$ 32,376	1,018	\$ 2,536	\$1,375
2006	95	\$ 3,973,100	\$ 41,822	1,773	\$ 2,241	\$2,558

Total farm capital in this area has increased since 1996, but has decreased for livestock and poultry by \$32,358 (Table 56).

Table 56. Total farm capital and market value in Nanaimo F 1996-2006 (Stats Canada, 2006).

	RDN 1996	Nanaimo F 1996	RDN 2001	Nanaimo F 2001	RDN 2006	Nanaimo F 2006
Total farm capital	\$241,929,105	\$37,632,020	\$249,031,421	\$33,835,179	\$369,169,959	\$68,152,544
Land and buildings	\$218,963,494	\$33,669,020	\$215,891,639	\$28,508,509	\$340,664,601	\$61,625,000
Machinery and equipment	\$16,870,035	\$2,771,222	\$23,204,345	\$3,661,725	\$24,138,529	\$5,368,024
Livestock and poultry	\$6,095,576	\$1,191,778	\$9,935,437	\$1,664,945	\$4,366,829	\$1,159,520

Farmers in Nanaimo F have the largest expenses in the feed and feed supplements, farm interest expenses, other expenses and the seeds and seedlings categories (Table 57). This is consistent with the larger proportion of poultry farms and field crop production than in other areas.

Table 57. Farm operating expenses in Nanaimo F 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$113,656	\$222,449	\$266,552
Machinery repairs and maintenance	\$229,671	\$163,807	\$253,459
Fertilizer and lime	\$146,111	\$84,222	\$104,285
Chemicals	\$48,872	\$11,954	\$15,445
Seeds and seedlings	\$99,978	\$156,827	\$299,516
Feed and feed supplements	\$739,555	\$443,160	\$657,468
Livestock and poultry	\$105,578	\$151,586	\$113,563
Veterinary services	\$73,185	\$66,418	\$104,820
Electricity	\$95,646	\$137,267	\$142,020
Building repairs and maintenance	\$114,755	\$132,203	\$186,201
Farm interest expenses	\$317,139	\$212,733	\$398,255
Other expenses	\$459,106	\$463,987	\$778,992

Age of Farm Operators

Only 3% of the farm operators in Nanaimo F are under the age of 35 with the majority of farmers over the age of 55 (Table 58).

Table 58. Number of farm operators by age in Nanaimo F 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo F	RDN	Nanaimo F	RDN	Nanaimo F
	1996	1996	2001	2001	2006	2006
Total farm operators	750	135	730	130	680	155
Under 35 years	70	10	65	5	35	5
35 – 54 years	435	90	375	75	315	70
55 years and over	250	40	290	45	330	75

Nanaimo G - Electoral Area G, City of Parksville and Town of Qualicum Beach

Nanaimo G encompasses the City of Parksville, the Town of Qualicum Beach and Electoral Area G. This is a widespread area, also known as Oceanside. This region is the third smallest area with 40 farms and the smallest average farm size at 15.7 ha (Table 59). This area has limited highly fragmented ALR land, which could contribute to the size of farms in this region.

Table 59. Farm size and total farm area (ha) of Nanaimo G (Stats Canada, 2006).

	RDN	Nanaimo G	RDN	Nanaimo G	RDN	Nanaimo G
	1996	1996	2001	2001	2006	2006
Total Farm Area (ha)	10,007	903	12,081	1,084	8,282	628
Number of Farms	493	45	490	46	461	40
Average Farm Size	20.3	20.1	24.7	23.6	18	15.7
Total Area Owned (ha)	8,768	715	10,485	940	7,633	570
Total Area Rented or Leased	1,239	188	1,596	144	x	58

In Nanaimo G all of the farms are under 400 acres with the majority under 60 acres (Table 60). 9% of the farms in this region were between 130 and 399 acres.

Table 60. Number of farms by farm size category, Nanaimo G 1996-2006 (Stats Canada, 2006).

	1996	2001	2006	% of total (2006)
Under 10 acres	16	15	14	35%
10 – 69 acres	19	17	18	45%
70 – 129 acres	5	8	5	13%
130 – 179 acres	2	2	1	3%
180 – 239 acres	0	1	1	3%
240 – 399 acres	3	3	1	3%
400 – 559 acres	0	0	0	0%

55% of the farms in Nanaimo G are a sole proprietorship with 28% of the farms run by a partnership with no written agreement (Table 61).

Table 61. Farm business structures in Nanaimo G 1996-2006 (Stats Canada, 2006)

	RDN	Nanaimo G	RDN	Nanaimo G	RDN	Nanaimo G
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	20	276	20	279	22
Partnership with written agreement	23	2	12	2	9	1
Partnership with no written agreement	161	15	141	14	119	11
Family corporation	41	7	51	7	46	5
Non-family corporation	13	1	8	2	7	1
Other (institution, community, pasture, etc.)	2	0	2	1	1	0

Types of Farms and Production

The most common farm types in Nanaimo G were berries, poultry and field crops (Table 62). As with other regions the number of farms has decreased with a large reduction in cattle operations and field crop production. This could be due to subdivision of farms into smaller parcels or other factors such as the increase in the cost of feed and feed supplements.

Table 62. Number of farms listed as farm type in Nanaimo G 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo G	RDN	Nanaimo G	RDN	Nanaimo G
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	26	na	30	na	16
Tree fruit, berries & nuts ²	110		78		79	7
Berries		10		12		18
Vegetables	65	5	68	8	58	8
Nursery, Sod & Christmas Trees	71	8	73	7	64	2
Greenhouse	45	5	57	5	54	6
Cattle	208	16	179	15	138	9
Poultry	255	21	285	19	239	18
Sheep & lambs	71	9	91	8	69	8
Llamas & alpacas	6	-	12	-	27	3
Pigs	62	6	44	2	30	3
Horses	133	13	127	11	119	9
Goats	35	1	28	-	25	3
Bee Colonies	21	2	29	3	23	0

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

40% of farms in Nanaimo G reported using commercial fertilizers, which is higher than in other regions in the RDN (Table 63). Also, 33% of farms report that they irrigated their crops in 2006, which is consistent with the high number of berry farms in the area. 23% of farms reported rotating their crops and 25% reported using windbreaks or shelterbelts.

Table 63. Farm management practices by number of farms reporting, Nanaimo G 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Irrigation	20	17	13
Commercial fertilizer use	21	19	16
Herbicide use	7	7	3
Insecticide use	3	1	2
Fungicide use	3	3	2
Solid manure spread	15	14	2
Irrigated manure	0	0	0
Liquid manure spread on surface	5	3	1
Liquid manure injected	0	0	0
Crop Rotation	7	11	9
Grassed waterways	4	4	6
Windbreaks or shelterbelts	2	4	10

Farm Profitability

The revenue per hectare in Nanaimo G is slightly higher than in the RDN as a whole and the revenue per farm is also slightly higher at \$43,814 (Table 64). The soil capability for this region has been rated at very good in many parts, which could lead to higher levels of production.

Table 64. Gross receipts, average revenue per farm, and average revenue per hectare in Nanaimo G 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average per Farm	Total Farm Area	Average per Hectare	RDN
1996	45	\$ 2,112,531	\$ 46, 945	903	\$ 2,339	\$ 1,750
2001	46	\$ 1,294,003	\$ 28,131	1,084	\$ 1,193	\$ 1,375
2006	40	\$ 1,752,576	\$ 43, 814	628	\$ 2,791	\$ 2,558

Total farm capital has increased in all categories in Nanaimo G, except for livestock and poultry (Table 65).

Table 65. Total farm capital and market value in Nanaimo G 1996-2006 (Stats Canada, 2006).

	RDN 1996	Nanaimo G 1996	RDN 2001	Nanaimo G 2001	RDN 2006	Nanaimo G 2006
Total farm capital	\$241,929,105	\$26,897,202	\$249,031,421	\$30,314,484	\$369,169,959	\$30,137,230
Land and buildings	\$218,963,494	\$24,137,801	\$215,891,639	\$26,621,160	\$340,664,601	\$27,570,457
Machinery and equipment	\$16,870,035	\$1,961,800	\$23,204,345	\$2,562,139	\$24,138,529	\$2,186,743
Livestock and poultry	\$6,095,576	\$797,601	\$9,935,437	\$1,131,185	\$4,366,829	\$380,030

Expenses in this area were highest in feed and feed supplements; other expenses; machinery, fuel, oil and lubricants and machinery repairs and maintenance (Table 66). This is expected with the high number of poultry operations in Nanaimo G.

Table 66. Farm operating expenses in Nanaimo G 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$53,857	\$112,082	\$129,686
Machinery repairs and maintenance	\$92,765	\$90,230	\$115,802
Fertilizer and lime	\$77,415	\$93,830	\$67,045
Chemicals	\$12,122	x	\$16,007
Seeds and seedlings	\$37,181	\$47,401	x
Feed and feed supplements	\$562,908	\$188,008	\$230,937
Livestock and poultry	\$98,370	\$66,642	x
Veterinary services	\$30,406	x	\$32,499
Electricity	\$55,214	\$93,182	\$65,539
Building repairs and maintenance	\$72,127	\$68,302	\$70,054
Farm interest expenses	\$135,509	\$232,356	\$61,923
Other expenses	\$228,104	\$145,331	\$508,736

Age of Farm Operators

There were 8% of farm operators in Nanaimo G under the age of 35 in 2006 (Table 67). Similar to Nanaimo F, a larger proportion of operators were between 35 and 54 as opposed to over 55.

Table 67. Number of farm operators by age in Nanaimo G 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo G	RDN	Nanaimo G	RDN	Nanaimo G
	1996	1996	2001	2001	2006	2006
Total farm operators	750	75	730	70	680	65
Under 35 years	70	10	65	10	35	5
35 – 54 years	435	45	375	35	315	35
55 years and over	250	20	290	25	330	30

Nanaimo H - Electoral Area H

Nanaimo H, which contains Qualicum Bay, Bowser and Deep Bay has the smallest number of farms in the RDN and the smallest average farm size at 14.8 ha (Table 68).

Table 68. Farm size and total farm area (ha) of Nanaimo H (Stats Canada, 2006).

	RDN	Nanaimo H	RDN	Nanaimo H	RDN	Nanaimo H
	1996	1996	2001	2001	2006	2006
Total Farm Area (ha)	10,007	261	12,081	439	8,282	326
Number of Farms	493	14	490	23	461	22
Average Farm Size	20.3	18.6	24.7	19.1	18	14.8
Total Area Owned (ha)	8,768	x	10,485	x	7,633	323
Total Area Rented or Leased	1,239	x	1,596	x	x	x

In Nanaimo H the vast majority of farms were under 69 acres with only one farm larger than 240 acres

and only 2 farms between 70 and 129 acres (Table 69).

Table 69. Number of farms by farm size category, Nanaimo H 1996-2006 (Stats Canada, 2006).

	1996	2001	2006	% of total (2006)
Under 10 acres	4	10	9	41%
10 – 69 acres	7	9	10	45%
70 – 129 acres	1	1	2	9%
130 – 179 acres	1	1	0	0%
180 – 239 acres	1	1	0	0%
240 – 399 acres	0	1	1	5%

Almost all farm operations were established as sole proprietorships in 2006 with 3 farms operated as a family corporation (Table 70).

Table 70. Farm business structures in Nanaimo H 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo H	RDN	Nanaimo H	RDN	Nanaimo H
	1996	1996	2001	2001	2006	2006
Sole Proprietor	253	9	276	12	279	16
Partnership with written agreement	23	1	12	0	9	0
Partnership with no written agreement	161	3	141	6	119	2
Family corporation	41	1	51	3	46	3
Non-family corporation	13	0	8	2	7	1
Other (institution, community, pasture, etc.)	2	0	2	0	1	0

Types of Farms and Production

Nanaimo H has a small number of farms, but the most predominant farm types were poultry, field crops and vegetables in 2006 (Table 71). This is expected with the small farm parcels reported in this region.

Table 71. Number of farms listed as farm type in Nanaimo H 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo H	RDN	Nanaimo H	RDN	Nanaimo H
Farm Type ¹	1996	1996	2001	2001	2006	2006
Field crops	na	3	na	8	na	6
Tree fruit, berries & nuts ²	110		78		79	4
Berries		1		5		5
Vegetables	65	1	68	4	58	6
Nursery, Sod & Christmas Trees	71	3	73	6	64	4
Greenhouse	45	1	57	6	54	5
Cattle	208	7	179	8	138	2
Poultry	255	10	285	21	239	12
Sheep & lambs	71	-	91	5	69	2

Llamas & alpacas	6	-	12	2	27	1
Pigs	62	2	44	2	30	0
Horses	133	2	127	2	119	5
Goats	35	4	28	2	25	0
Bee Colonies	21	-	29	-	23	1

¹ Note: Statistics Canada does not report total number of farms for each category. Some farms may produce multiple crops and livestock.

² In 1996, data was split between 'Tree Fruits' and 'Berries & Grapes'. In 2001 and 2006, this data was grouped as Fruits, Berries & Nuts resulting in no data being available (na) in this category in 1996 and limited data available in 2001 and 2006.

Almost half of the farmers in Nanaimo H reported irrigating their crops and the same amount reported utilizing best management practices such as crop rotations, grasses waterways and windbreaks or shelterbelts (Table 72). With the larger proportion of vegetable production in this region it is expected that there were higher rates of irrigation.

Table 72. Farm management practices by number of farms reporting, Nanaimo H 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Irrigation	6	11	10
Commercial fertilizer use	8	7	4
Herbicide use	1	3	1
Insecticide use	1	2	1
Fungicide use	1	2	1
Solid manure spread	8	10	0
Irrigated manure	0	0	0
Liquid manure spread on surface	1	0	0
Liquid manure injected	0	0	0
Crop Rotation	2	5	7
Grassed waterways	1	2	6
Windbreaks or shelterbelts	1	5	9

Farm Profitability

Despite the small average farm size in Nanaimo H the average revenue per hectare is much higher than in the RDN and most other regions (Table 73).

Table 73. Gross receipts, average revenue per farm, and average revenue per hectare in Nanaimo H 1996-2006 (Stats Canada, 2006).

Year	Number of Farms	Gross Receipts	Average per Farm	Total Farm Area	Average per Hectare	RDN
1996	14	\$ 127,415	\$ 9,101	261	\$ 488	\$ 1,750
2001	23	\$ 781,399	\$ 33,974	439	\$ 1,780	\$ 1,375
2006	22	\$ 1,059,483	\$ 48,158	326	\$ 3,250	\$ 2,558

All farm capital categories increased substantially from 1996 to 2006 (Table 74). This could be due to an increase in land prices in the Nanaimo H CCS.

Table 74. Total farm capital and market value in Nanaimo H 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo H	RDN	Nanaimo H	RDN	Nanaimo H
	1996	1996	2001	2001	2006	2006
Total farm capital	\$241,929,105	\$5,874,780	\$249,031,421	\$9,846,016	\$369,169,959	\$16,759,587
Land and buildings	\$218,963,494	\$5,368,500	\$215,891,639	\$8,302,100	\$340,664,601	\$15,294,000
Machinery and equipment	\$16,870,035	\$404,800	\$23,204,345	\$1,281,250	\$24,138,529	\$1,358,300
Livestock and poultry	\$6,095,576	\$101,480	\$9,935,437	\$262,666	\$4,366,829	\$107,287

Many of the items were not disclosed as expenses in the 2006 Census, but the largest expenses were in machinery repairs and maintenance and other expenses (Table 75).

Table 75. Farm operating expenses in Nanaimo H 1996-2006 (Stats Canada, 2006).

	1996	2001	2006
Machinery, fuel, oil and lubricants	\$15,560	\$51,213	\$62,126
Machinery repairs and maintenance	\$24,505	\$77,880	\$94,381
Fertilizer and lime	\$4,698	x	x
Chemicals	x	x	X
Seeds and seedlings	x	\$25,064	x
Feed and feed supplements	\$70,530	\$41,474	\$64,406
Livestock and poultry	\$6,528	\$35,081	x
Veterinary services	\$4,461	x	x
Electricity	\$16,020	\$33,662	\$37,071
Building repairs and maintenance	\$25,526	x	\$35,766
Farm interest expenses	\$10,314	\$48,483	\$35,766
Other expenses	x	\$217,574	\$174,551

Age of Farm Operators

No farm operators were reported to be under 35 years of age in Nanaimo H and 67% of farm operators were over the age of 55, much higher than in other regions of the RDN (Table 76).

Table 76. Number of farm operators by age in Nanaimo H 1996-2006 (Stats Canada, 2006).

	RDN	Nanaimo H	RDN	Nanaimo H	RDN	Nanaimo H
	1996	1996	2001	2001	2006	2006
Total farm operators	750	25	730	35	680	30
Under 35 years	70	0	65	0	35	0
35 – 54 years	435	10	375	20	315	10
55 years and over	250	5	290	15	330	20

Aquaculture Profile

Aquaculture production in BC is highest than in other provinces and typically accounts for approximately 50% of the total production value nationwide (DFO, 2010).

Table 77. Final product value of aquaculture in Canada (\$000s) in 2010 (DFO, 2010).

Province	Finfish	Shellfish	Total
British Columbia	522,600	37,100	559,700
Ontario	17,000	-	17,000
Quebec	12,700	1,000	13,700
New Brunswick	272,900	7,000	279,900
Nova Scotia	43,000	10,000	53,000
Prince Edward Island	1,900	56,000	57,900
Newfoundland and Labrador	38,800	5,600	44,400
Total	908,900	116,700	1,025,600

The production of BC seafood in 2010 was 264,400 tonnes with a landed value of \$863.8 million. The landed value is the price paid to the commercial fishers and aquaculture operators for the whole product, also known as the farm gate value. Of this production, 90,600 tonnes and \$533.8 million was generated through aquaculture, as opposed to commercial fisheries (MAL, 2011). In 2010, BC seafood was served in approximately 2 billion meals in 74 countries, making it a product with international acclaim. Cultured shellfish production saw an increase of 30% with oysters, crabs and sea urchins among the highest ranking species. There has been sustained growth in the sector with an increase in market demand for seafood products worldwide (Table 78).

Table 78. Seafood production and landed value from 1997-2010 in BC (DFO, 2010).

Seafood Type	1997-1999 Average		2004-2006 Average		2008-2010 Average		Growth 1997-2010	
	Volume ('000 tonnes)	Landed Value (\$ millions)	Volume ('000 tonnes)	Landed Value (\$ millions)	Volume ('000 tonnes)	Landed Value (\$ millions)	Volume ('000 tonnes)	Landed Value (\$ millions)
Farmed Fish	48.9	241.2	79.9	334.2	87.2	452.8	78%	88%
Wild Salmon	42.8	231.8	70.1	317	78.8	434.4	84%	87%
Shellfish	6.1	9.4	9.8	17.3	8.4	18.4	38%	96%

With a decline in forestry and commercial fisheries over the past 20 years, salmon and shellfish aquaculture have become an important contributor to the local economy on Vancouver Island. Key players in the salmon farming industry are based in Campbell River, along with many of the companies supplying goods and services to the sector (DFO, 2010). Marine finfish aquaculture is located, almost exclusively, in areas north of Campbell River, while land-based finfish aquaculture can be found on all parts of Vancouver Island. Shellfish aquaculture is largely located in the Baynes Sound region in the southern part of the Comox Valley Regional District.

Finfish Aquaculture

The Province of BC provides aquatic land tenures for the cultivation of finfish in both freshwater and marine aquatic Crown land by application and public competition (MFLNRO, 2012). There are two types of aquatic land tenures for the cultivation of finfish: lease or licence of occupation. A 5-year licence of occupation is generally issued until the site is determined to be viable by the Province, at which time a 20 or 30-year lease may be offered. A management plan must be submitted with each application and the applicant may be required to advertise a finfish application in the local newspaper where the Crown land is located. Applicants must also notify, in writing, all landowners within a 1 kilometre radius of their intent to apply for the use of Crown land for aquaculture.

There are currently no marine finfish aquaculture licence holders in the RDN. With the moratorium on new finfish farms on the North Coast, there is limited likelihood that any farms will be established in the near future (MFLNRO, 2012). There are, however, 13 land-based operations occurring in the RDN (DFO, 2012a):

Table 79. Land-based finfish aquaculture licences in the RDN.

Reference Number	Tenure	Licence Holder	Location	Species/Farm Type
164	14000	Island Scallops Ltd.	Qualicum Bay	Finfish Hatchery
1583	14000	Island Scallops Ltd.	Qualicum Bay	Sablefish
1866		Coombs Country Campground	Coombs	Rainbow Trout
1346		1700 Grafton Ave.	Errington	Unknown
235	2020	Carl and June Rosen	Nanoose Bay	Rainbow Trout
628		James Walkus Fishing Co. Ltd.	Nanoose Bay	Unknown
1301		Dwayne Morris	Lantzville	Rainbow Trout
1625		Unique Seafarms	Nanaimo	Unknown
1594	32280	McGarrigle Cr./Jameson Rd.	Nanaimo	Unknown
1740	1000	Levin Crescent	Nanaimo	Unknown
260			Cinnabar Valley	Unknown
275	33500	Unique Seafarms	Cedar	Marine Farm
1582	3240	Unique Seafarms	Cedar	Unknown

Salmonid Enhancement Facilities

In 1979, the Salmonid Enhancement Program (SEP) was launched in response to the declining salmonid populations in BC. Fish hatcheries (enhancement facilities) were established along many major rivers, as were fishways and spawning channels, to help increase the freshwater survival of Coho (*Oncorhynchus kisutch*), Chinook (*Oncorhynchus tshawytscha*), pink (*Oncorhynchus gorbuscha*) and chum (*Oncorhynchus keta*) salmon (DFO, 2009). Hatcheries collect eggs from broodstock, which are then fertilized, incubated and released as fry (DFO, 2010). Fish hatcheries are open to the public to provide educational and volunteer opportunities. The RDN is home to 6 hatcheries of varying sizes:

Table 80. Salmon hatchery licences in the RDN.

Licence Number	Licence Holder	Site	Operating Group	Species
SEP-AQ126a	Community Advisor, Central west coast of Vancouver Island, east to Nanaimo, south to Chemainus	Nanaimo R-Stewardship Soc	Nanaimo River Stewardship Society	Chinook, Chum, Coho, Pink
SEP-AQ6022	Community Advisor, Central portion, east coast of Vancouver Island and adjacent mainland inlets	Englishman Enh	Community Fisheries Development Centre	Chinook, Pink
SEP-AQ126	Community Advisor, Central west coast of Vancouver Island, east to Nanaimo, south to Chemainus	Nanaimo R	Chemainus First Nation	Chinook, Chum, Coho, Pink
SEP-AQ1933	Community Advisor, Central west coast of Vancouver Island, east to Nanaimo, south to Chemainus	Malaspina Coll	Vancouver Island University	Coho
SEP-AQ100	Watershed Manager, Big Qualicum River Project	Big Qualicum R	Fisheries and Oceans Canada	Chinook, Chum, Coho
SEP-AQ100	Watershed Manager, Big Qualicum River Project	L Qualicum R	Fisheries and Oceans Canada	Chinook, Chum

To further educate the public and preserve salmon habitat in BC, the Salmonids in the Classroom program was developed through SEP. Schools can set up incubators in their classrooms to raise salmon for release into local streams. Resources are available from Fisheries and Oceans Canada and educators can be brought in to assist with the learning components and release of fry. School incubators can be found in two school districts in the RDN:

Table 81. Salmonids in the classroom programs in the RDN.

Licence Number	Licence Holder	Operating Group	Species
SEP-AQ2610	Community Advisor, Central portion, east coast of Vancouver Island and adjacent mainland inlets	District # 69, Qualicum	Various Salmon species
SEP-AQ1313	Community Advisor, Central west coast of Vancouver Island, east to Nanaimo, south to Chemainus	District # 68, Nanaimo-Ladysmith	Various Salmon species

Shellfish Aquaculture

Shellfish aquaculture involves the commercial seeding, growing and harvesting of marine molluscs, shellfish and other invertebrates in a natural or manufactured environment (MFLNRO, 2012). Shellfish aquaculture can be divided into three activities: seed collecting and stocking, grow-out and processing. In 1998, the Province launched the Shellfish Development Initiative to double the shellfish industry's land base to ensure growth of the sector. New applications to the Province are only being accepted for tenures in areas where a community consultation process has been completed to determine suitability of shellfish aquaculture (MFLNRO, 2012). In order to improve existing shellfish operations a *Land Act* tenure must be obtained and improvements may involve the following:

- building floating or permanent structures for feed;
- constructing equipment storage;
- preparing for harvesting activities;
- setting up environmental monitoring stations,

- developing processing facilities; and
- building other related infrastructure on aquatic lands and upland areas.

Since Fisheries and Oceans Canada has jurisdiction over all fisheries management aspects of aquaculture, an aquaculture licence is required before a site can be stocked or seeded with shellfish (MFLNRO, 2012).

The following species are currently being produced in the RDN:

- Pacific Oyster (*Crassostrea gigas*),
- Manila Clam (*Tapes philippinarum*),
- Pacific Scallop (*Patinopecten x*),
- Geoduck Clam (*Panope abrupta*),
- Eastern Blue Mussel (*Mytilus edulis*),
- Eastern Oyster (*Crassostrea virginica*),
- European Oyster (*Ostrea edulis*),
- Gallo Mussel (*Mytilus galloprovincialis*),
- Giant Rock Scallop (*Crassadoma gigantea*),
- Green Sea Urchin (*S. droebachiensis*),
- Kumamoto Oyster (*Crassostrea sikamea*),
- Red Sea Urchin (*S. franciscanus*),
- Weathervane Scallop (*Patinopecten caurinus*),
- Nuttall's Cockle (*Clinocardium nuttallii*),
- California Sea Cucumber (*P. californicus*),
- Dungeness Crab (*Cancer magister*),
- Spot Prawn (*Pandalus platyceros*),
- Sea Scallop (*Placopecten magellanicus*),
- Purple Sea Urchin (*s. purpuratus*),
- Horse Clam (*Tresus capax*),
- Varnish Clam (*Nuttalia obscurata*),
- Littleneck Clam (*Protothaca staminea*), and
- Butter Clam (*Saxidomus giganteus*)

This diversity in products is encouraging for the sector and contributes to the stability of shellfish production in the RDN. There are currently 27 shellfish licences in the RDN (DFO, 2012b):

Table 82. Shellfish licences in the RDN.

Licence Number	Landfile Number	Tenure	Licence Holder	Expiry Date	Site	Species
AQSF 490	278737	24380	Odyssey Shellfish Ltd.	02/28/12	Deep Bay	Pacific Oyster, Manila Clam, Varnish Clam, Geoduck Clam, Eastern Oyster, European Oyster, Kumamoto Oyster
104372	1407063	10000	Odyssey Shellfish Ltd.	02/28/12	Deep Bay	Pacific Oyster, Manila Clam, Pacific Scallop, Geoduck Clam, Eastern Blue Mussel, Eastern Oyster, European Oyster, Gallo Mussel, Giant Rock Scallop, Green Sea Urchin, Kumamoto Oyster, Red Sea Urchin, Weathervane Scallop, Nuttall's Cockle

Licence Number	Landfile Number	Tenure	Licence Holder	Expiry Date	Site	Species
AQSF 104361	319716	3900	Tan Van and Sinh Thi Tran	02/28/12	Deep Bay	Pacific Oyster, Manila Clam
AQSF 128	278739	8500	Warren C. Cook & Bruce C. Cook	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam, Varnish Clam
AQSF 129	278734	15744	Warren C. Cook & Bruce C. Cook	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam, Varnish Clam, Geoduck Clam
AQSF 1882	1411195	5090	Bruce C. Cook & Warren Cook	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam
AQSF 127	1403139	1320	Warren Cook/Lorindale Holdings Ltd	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster
AQSF 1491	1408485	6410	Luan and others Nhuyen	02/28/12	Deep Bay	Pacific Oyster, Manila Clam, Varnish Clam
AQSF 15	1400483	1500	Paradise Oyster Company Ltd.	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam
AQSF 92	278741	10900	Taylor Shellfish Canada ULC	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam, Geoduck Clam
AQSF 94	278744		Taylor Shellfish Canada ULC	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam
AQSF 93	278742	29500	Taylor Shellfish Canada ULC	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Manila Clam, Varnish Clam, Geoduck Clam
AQSF 91	278740	4860	Taylor Shellfish Canada ULC	02/28/12	Deep Bay, Baynes Sound	Pacific Oyster, Littleneck Clam, Manila Clam, Varnish Clam, Geoduck Clam
AQSF 1826	1411153	10800	Vancouver Island University	02/28/12	Deep Bay	Pacific Oyster, Manila Clam, Pacific Scallop, Geoduck Clam, Eastern Blue Mussel, Gallo Mussel
AQSF 104492	-		Island Scallops Ltd.	03/31/12	Between Bowser and French Creek south of Qualicum River	Pacific Oyster, Manila Clam, Pacific Scallop, Geoduck Clam, Eastern Blue Mussel, European Oyster, Gallo Mussel, Giant Rock Scallop, California Sea Cucumber, Green Sea Urchin, Red Sea Urchin, Weathervane Scallop, Dungeness Crab, Spot Prawn, Sea Scallop, Purple Sea Urchin, Horse Clam
AQSF 104584	1403176	2000	Maplestar Seafood Ltd.	03/31/12	South side of Nanoose Harbour	Pacific Oyster, Manila Clam, Pacific Scallop, Eastern Blue Mussel, Gallo Mussel
AQSF 1922	1411204	16553	Snaw'naw'as First Nation	03/31/12	Head of Nanoose Harbour Lot	Pacific Oyster, Littleneck Clam, Manila Clam, Varnish Clam
AQSF 1942	1411209	18300	Snaw'naw'as First Nation	03/31/12	Nanoose Harbour	Manila Clam
AQSF 1921	1411203	2813	Snaw'naw'as First Nation	03/31/12	Maelstrom Cove, Nanoose Harbour	Pacific Oyster, Littleneck Clam, Manila Clam, Varnish Clam
	1411205	12961	Fronting Snaw'naw'as First Nation		Nanoose Bay	

Licence Number	Landfile Number	Tenure	Licence Holder	Expiry Date	Site	Species
AQSF 1119	1401656	14910	Lucky 1's Oyster Co. Ltd	03/31/12	Nanoose Bay	Pacific Oyster, Manila Clam, Pacific Scallop, Geoduck Clam, Eastern Blue Mussel, Eastern Oyster, European Oyster, Gallo Mussel, Giant Rock Scallop, Kumamoto Oyster, Western Blue Mussel
AQSF 104485	-	8000	Roland & Sheila Nilsson	03/31/12	Lot 119 Nanoose Bay	Manila Clam, Geoduck Clam
AQSF 104497	194920	15910	Joseph P. & Shirley A. McLellan	03/31/12	Nanoose Bay	Pacific Oyster, Manila Clam, Geoduck Clam
AQSF 880	1405339	8100	Joseph P. & Shirley A. McLellan	03/31/12	Nanoose Bay	Pacific Oyster
AQSF 101	204395	6500	Madrona Shellfish Ltd.	03/31/12	Nanoose Bay	Pacific Oyster, Manila Clam
AQSF 1337	1407176	11080	Snuneymuxw First Nation	03/31/12	False Narrows Between Gabriola/Mud ge	Pacific Oyster, Manila Clam
AQSF 1582	-		Unique Sea Farms Ltd.	03/31/12	Cedar, South of Nanaimo	Pacific Oyster, Manila Clam, Pacific Scallop, Geoduck Clam, Eastern Blue Mussel, Gallo Mussel, California Sea Cucumber, Green Sea Urchin, Red Sea Urchin, Nuttall's Cockle, Horse Clam, Butter Clam

Aquaculture Processing and Retail

Under the Ministry of Agriculture's Commercial Fisheries Program, licences can be granted for other forms of aquaculture including: fish processing, cold-storage, fish buying, fish vending, fish brokering, cultivating of marine plants and harvesting of wild oysters (MAL, 2012). Processing is defined in the *Fisheries Act* and *Fish Inspection Act* as eviscerating, filleting, icing, freezing, canning, packaging, smoking, salting, cooking, pickling, drying, preserving or preparing for market. Processing facilities that are engaged in interprovincial and international trade also require a licence under the federal *Fish Inspection Act*. The following shellfish processors are located in the RDN (Table 83).

Table 83. Shellfish processors in the RDN BCSGA, 2012.

Facility Name	Address	Website
Evening Cove Oysters	1360 Stewart Avenue Nanaimo, BC, V9S 4E1	www.eveningcoveoysters.com
Island Scallops	5552 West Island Highway Qualicum Beach, BC, V9K 2C8	www.islandscallops.com/
Stellar Bay Shellfish Ltd.	7400 West Island Highway, Site 138, C33 RR1, Bowser, BC, V0R 1G0	www.stellarbay.ca/

Competitive Analysis of Agriculture and Aquaculture in the RDN

Growing Conditions

Southeastern Vancouver Island from the Saanich Peninsula north to the Comox Valley, is an area of fertile soil, abundant fresh water, and a favourable climate featuring the longest growing season in Canada. The biophysical resources, if managed properly for drainage and irrigation, do not impose a constraint on the industry.

Labour

While the median age of agriculture and food workers is 43.3 years, the average age of farm workers across Vancouver Island is 55 (with the average age in each regional district falling in the 53-55 year range). This indicates a looming problem with farm succession as the challenges of farming may not attract younger people to take over operations. The Comox Valley has been actively attempting to attract people from Europe to purchase farms in their region in order to help solve this problem. Other challenges related to farm labour include the fact that it is generally low-paying, seasonal, and physically challenging. Attracting seasonal workers from Latin America or the Caribbean is one possible solution used by some farming regions.

Costs

Vancouver Island is a high-cost operating environment, requiring the production of higher-value goods in order to stay financially viable. Transportation costs have risen along with fuel costs, and the nature of a ferry-based transportation system inherently adds additional costs for farms wishing to sell products on the mainland of BC. Transportation of goods within Vancouver Island is further inhibited by a single linear highway with limited alternative routes.

Additional pressures on land for retirement and recreation fuel speculation of conversion of ALR land to non-farm uses, which drives up land prices to levels beyond what can be justified by its agricultural potential alone. The cost of land creates a serious barrier to entry for new farmers.

Land Use

The Vancouver Island Regional Economic Analysis (Vannstruths, 2009) estimates that only about half of land protected by the ALR is currently being used for agricultural purposes. On the one hand, this is due to the fact that some people like the ambience of living rurally without having to farm and some who do try to farm find it too challenging to pursue on a large scale. On the other hand, the under-utilization suggests an incredible amount of potential for production increases. As long as profitable opportunities can be identified and acted up, then significant potential for increasing agricultural operations in the region exists.

Supply Management

Supply management systems, such as quotas and marketing boards, are a fact of life for many producers in the region. In particular, dairy (cow's milk) and egg production are controlled by quota. Many small and medium farmers on Vancouver Island have not been able to access production quota for some time, which would allow them to profitably expand their operations. This quota system has had some negative repercussions across the food processing industry. For instance, a new chicken processing facility recently opened in Cowichan Bay, but is struggling to source enough chickens to be successful because chicken farmers on Vancouver Island can only access quota to supply 20% of the chickens consumed in the region. While quota holders may be benefitting from this type of marketing board, value-added processors, small-scale farmers, and consumers may be negatively affected by a reduced supply and higher prices.

Marketing

The RDN is home to some highly successful agricultural operations. These businesses have capitalized on promotion of their products to a local community that is very supportive of the local farming community. Through careful brand development and the creation of high quality, specialized products they have established a loyal following amongst their customers. Most of these farms have incorporated an agritourism component that allows consumers to get an understanding of how these products are produced. The following are a few of the local success stories:

Little Qualicum Cheeseworks

Established in 2001, Little Qualicum Cheeseworks, owned and operated by Nancy and Clarke Gourlay, manages a mixed herd of Holstein, Ayrshire, Brown Swiss and Canadienne dairy cows and creates high quality washed-rind cheeses. All of their cheese is made from the milk produced by their cows on the farm and they were the first dairy farm in BC to become SPCA certified. They create a variety of firm, fresh and soft cheeses that can be found throughout BC at specialty retail operations. They invite people to come to their farm to taste their cheese and visit the MooBerry Winery seven days a week. (Website: <http://www.cheeseworks.ca/>)

Island Scallops

Located in Qualicum Bay, Island Scallops is Canada's largest private marine research hatchery and a specialized aquaculture producer. They are the world's sole producer of the Pacific Scallop and have been in production since 1989. The company owns over 16% of all the shellfish culture area in BC, the majority of which is located within the RDN. Island Scallops offers retail sales on their site from Monday to Friday. (Website: <http://www.islandscallops.com/index.html>).

Nanoose Edibles Organic Farm

Barbara and Lorne Ebell have owned and operated Nanoose Edibles Organic Farm for almost 30 years. They produce a variety of fresh vegetables and fruit, but are well known for their salad greens and berries. Nanoose Edibles sells to the local restaurant industry in Nanaimo and offers a Community Supported Agriculture (CSA) program on their farm where customers provide a financial investment at the beginning of the season and receive a weekly box of produce. This farm is in a beautiful location in Nanoose Bay with a small farm market open 6 days per week. The farm has been Certified Organic for many years and belongs to The Land Conservancy's Conservation Partners Program.

Silver Meadows Farm

Owned and operated by Jason and Elaine Fox, Silver Meadows Farm is located in Errington and is the site of an annual Fall Harvest Fest. They host a market stand on their location as well as a large, and very popular, corn maze during the growing season. The corn maze is available for entry by donation and the proceeds go to support the BC Childrens' Hospital.

Springford Farm

Springford Farm, located in Nanoose Bay, is owned and operated by the Springford Family. They raise mainly Hereford beef cattle that are free of nitrates, growth hormones and antibiotics. The cattle are raised on a grass-based diet and intensively rotated to reduce the impact on the local environment. They have a small farm market where they sell small cuts of beef, chicken and eggs and an active email list that they market larger items to, such as custom and standard meat packs. (Website: <http://springfordfarm.com/>).

Farmers Markets

The RDN has a strong selection of farmers markets serving most of the communities in the region. The Cedar and Qualicum Beach Farmers Markets are well established and attract a significant customer base. Parksville does not currently host a farmers market, due to its proximity to the Qualicum Beach Farmers Market, but some community members are working on establishing a market in the downtown core. The following table provides a summary of the farmers markets in the RDN:

Table 84. Farmers markets within the RDN.

Community	Location	Seasonality	# of Vendors	Products
Cedar	Cedar Farmers Market Crow and Gate Pub 2313 Yellow Point Road	Sundays 9:00am – 2:00pm May 9 th to October 31st	50 vendors (25 selling farm products)	Produce Meat & Fish Plants & Flowers Baked Goods Eggs/Milk/Cheese Processed Foods Crafts
Nanaimo	Bowen Road Farmers Market VlEx Fairgrounds 2300 Bowen Road	Wednesdays 4:00pm – 6:30pm May 4 th to October 26 th	40 vendors (18 selling farm products)	Produce Meat & Fish Plants & Flowers Baked Goods Eggs/Milk/Cheese Processed Foods Crafts
Nanaimo	Nanaimo Downtown Farmers Market 90 Front Street	Fridays 10:00am – 2:00pm May to October	50 vendors (12 selling farm products)	Produce Meat & Fish Plants & Flowers Baked Goods Eggs/Milk/Cheese Crafts

Community	Location	Seasonality	# of Vendors	Products
Errington/ Coombs	Errington Farmers Market Errington Community Park	Saturdays 10:00am – 1:00pm May to September	45 vendors	Produce Meat & Fish Plants & Flowers Baked Goods Eggs/Milk/Cheese Processed Foods Crafts
Qualicum Beach	Qualicum Beach Farmers Market Veterans Way	Saturdays 8:30am – 12:00pm May to December 3 rd	45 vendors (18 selling farm products)	Produce Meat & Fish Plants & Flowers Baked Goods Eggs/Milk/Cheese Processed Foods Crafts

Overview of Regulatory Framework

Agriculture Regulatory Framework

Canadian agriculture is governed by several levels of government, and as a result, producers in the RDN are subject to municipal, provincial and federal government policies. Furthermore, food is not an issue that fits within one department, one piece of legislation, or even a single level of government. Some regulations are wide in scope and far-reaching, such as national and international trade agreements, while others are site specific, such as zoning or meat processing regulations. This is in part due to a variety of agency mandates as well as the specialized knowledge of scientists and government staff. As a result, no one piece of legislation has the capacity to address agricultural issues in an integrated and holistic manner.

Federal Policies

Agriculture is included in federal policy through trade agreements, food safety and inspection, food labelling, and the promotion of quality of life through healthy eating.

Agriculture and Agri-Food Canada focuses on domestic and international trade, farm income stabilization, research and development, and the regulation of animals and plants. It provides information, research and technology, and policies and programs towards the security of the food system, health of the environment and innovation for growth. Partners include the Canadian Dairy Commission, Canadian Food Inspection Agency, Canadian Grain Commission, Farm Credit Canada, and the Farm Products Council of Canada (AAFC, 2010)

The Canadian Food Inspection Agency regulates food products, packaging and labelling. It is responsible for testing food products, setting requirements on traded goods, and protecting plants from pests and diseases (CFIA, 2010).

The Department of Fisheries and Oceans is responsible for protecting aquatic ecosystems and administers the *Fisheries Act*, which is potentially one of the strongest pieces of environmental legislation in Canada, though its lack of enforcement has been criticized. DFO strives to work with commercial, recreational and First Nations fisheries to support sustainable aquaculture (DFO, 2010).

Health Canada regulates agriculture indirectly by tracking outbreaks and diseases and overseeing environmental health programs. The Public Health Agency of Canada, together with Health Canada and the Canadian Food Inspection Agency, work cooperatively with health authorities to protect the public from food contamination outbreaks (HC, 2010).

Provincial Policies

The Province of BC shares a mandate for the promotion of agriculture and health with the federal government. Detailed descriptions of the provincial agencies and associated legislation involving farming and agricultural land use are provided below. They include the Ministry of Agriculture (formerly the Ministry of Agriculture and Lands), the Agricultural Land Commission, and the Ministry of Community, Sports, and Cultural Development (formerly the Ministry of Community and Rural Development). In

addition, several other areas of jurisdiction have food-related legislative authority and a brief description of each is provided.

Ministry of Agriculture

The Ministry of Agriculture is responsible for providing a balanced approach that will promote economic and social development objectives with those of environmental sustainability for the agriculture, aquaculture and food sectors in B.C. In addition, the Ministry funds the Agricultural Land Commission and the B.C. Farm Industry Review Board (MAL, 2010). A wide variety of legislation that involves or affects agricultural land, farm workers, and farm activities is administered by the Ministry of Agriculture, including:

- *Agri-Food Choice and Quality Act*
- *Agricultural Produce Grading Act*
- *Agrologists Act*
- *Animal Disease Control Act*
- *Bee Act*
- *British Columbia Wine Act*
- *Farm Income Insurance Act*
- *Farm Practices Protection (Right to Farm) Act*
- *Farming and Fishing Industries Development Act*
- *Fish Inspection Act*
- *Fisheries Act*
- *Food Products Standards Act*
- *Fur Farm Act*
- *Game Farm Act*
- *Greenbelt Act*
- *Insurance for Crops Act*
- *Land Act*
- *Land Reserve Commission Act*
- *Land Title and Survey Authority Act*
- *Livestock Act*
- *Local Government Act* (sections 916-919 only)
- *Milk Industry Act* (ss. 1-11, s.12 in respect of tank milk receivers licenses, ss. 13-43)
- *Natural Products Marketing (BC) Act*
- *Plant Protection Act*
- *Seed Potato Act*
- *Veterinarians Act*
- *Water Utility Act*
- *Weed Control Act*

Agricultural Land Commission

The Agricultural Land Commission (ALC) was created in 1973 to preserve agricultural land as an issue of provincial concern. At the time, thousands of acres of prime farmland were being lost to non-farm uses every year. The ALC's mandate has three objectives (ALC, 2010):

- To preserve agricultural land;
- To encourage farming on agricultural land in collaboration with other communities of interest;

- To encourage local governments, first nations, the provincial government and its agents to enable and accommodate farm use of agricultural land and uses compatible with agriculture in their plans, bylaws, and policies.

The ALC administers the *ALC Act* and is responsible for the Agricultural Land Reserve (ALR), a provincial zone in which agriculture is recognized as the priority use. The purpose of the ALR is to ensure that the province's agricultural land base is preserved and available for farm uses both now and in the future. The ALR is unique in Canada and the envy of jurisdictions across North America. Only Quebec's *Loi sur la protection du territoire et des activités agricoles (LPTAA)* and the *Greenbelt Act* in Ontario (which only applies to a sub-region of that province) have similar agricultural land protection objectives (Commission de la protection du territoire agricole, 1996 and Ontario Municipal Affairs and Housing, 2005).

The *ALC Act* requires that agricultural land within the ALR not be used for non-farm uses unless specifically permitted by the Act or its associated regulations. The *ALC Act* takes precedence over other provincial legislation and local bylaws and policies. Applications regarding changes to the ALR are considered by a regional panel of three members that carry out the duties of the Commission. There are six panel regions in BC, and Denman Island is located within the ALC's Island Panel Region. These three panel members are responsible for deciding the fate of exclusion, inclusion, subdivision, and non-farm use applications within the Island Region.

Farm Practices Protection Act

Working in tandem with the ALR is the *Farm Practices Protection (Right to Farm) Act (FPPA)*, which is administered by the *Farm Industry Review Board (FIRB)* and protects farmers from liability related to nuisance complaints relating to odour, noise, dust or other disturbances resulting from normal farm operations on ALR land. The purpose of this legislation is to safeguard farmers from lawsuits from local governments or individuals in near-residential areas (RSBC, 1996). Unless farm practices contravene existing provincial or federal legislation, they are considered to be "normal farm practices" and they supersede local bylaws that would otherwise infringe upon those activities (Curran, 2005). The only method to restrict farm activities at the local level is through a *Farm Bylaw*, which requires provincial approval.

Key Players in Food Health and Safety

The BC Ministry of Health Services (MHS) administers the *Public Health Act* and *Food Safety Act* and establishes standards and procedures aimed at protecting public health. The *Food Safety Act* was established in 2002 to consolidate food safety aspects of the *Milk Industry Act*, *Meat Inspection Act*, and *Health Act* under one statute administered by MHS (BCMHS, 2010).

Regional Health Authorities administer the *Food Premises Regulation* under the *Health Act* and licence, inspect, and respond to complaints regarding food facilities under their jurisdiction. The Vancouver Island Health Authority (VIHA) is responsible for the inspection and enforcement of food safety regulations in the Gulf Island communities. In addition to the *Food Premises Regulation*, VIHA administers the FOODSAFE training program (which teaches safe food handling procedures to those in the food services industry) and the Food Security Program (VIHA, 2010).

The BC Centre for Disease Control (BCCDC) operates the Food Protection Services division under the Provincial Health Services Authority (PHSA), which addresses public health concerns regarding food and food protection by providing scientific expertise to the Regional Health Authorities and to the BCMHS (BCMHS, 2010). BCCDC is responsible for the inspection and licensing of provincial dairies and abattoirs

and for providing food safety guidelines, training and information, and laboratory services to Public Health Inspectors.

In 2006, the Federal government provided BC with \$2.64 million to enhance and promote food safety systems in the food processing industry (BCCDC, 2010). The partnership included:

- BC Centre of Disease Control
- Regional Health Authorities
- Small Scale Food Processing Association
- BC Food Processors Association
- Food processing industry
- BC Ministry of Agriculture and Lands

The Provincial Meat Inspection Regulation

The Meat Inspection Regulation (MIR) sets out construction, inspection and other requirements for provincially licensed slaughter facilities in BC. The regulation came into force in 2004, compliance became mandatory in September of 2007 and significant changes to licence classes were made in April 2010 (BC Laws, 2004). The number of licensed slaughter plants in B.C. has increased from 12 in 2004 to 37 in 2010 (BCMHS, 2010a).

Until the 2010 amendments, the MIR included three class levels of licensing for meat sold in the province:

Class A - facilities providing slaughter and cut-and-wrap services;

Class B - facilities only providing slaughter services; and

Class C - facilities operating without inspection until upgrades to full licensing are completed. This was introduced as a temporary measure in 2007 and is now being phased out.

The language of the regulation allows for innovative approaches, such as mobile slaughter facilities that can provide services to several rural communities. However, many small scale producers criticized the move as restricting their ability to slaughter their animals in areas not served by provincially-licensed facilities. This created high costs associated with meat processing for farmers in more remote communities, such as the Gulf Islands, Sunshine Coast, and Central Coastal areas.

In 2009, a MIR Transition Strategy was announced to further support operators in the transition to full licensing under the MIR. The strategy included collaboration with small rural operators to determine minimum food safety requirements and a viable licensing approach for producers in isolated areas with limited capacity to establish a fully licensed abattoir. As a part of the Transition Strategy, two new categories of licences (Class D and Class E) were introduced in April 2010 to better serve remote and rural communities (BCMHS, 2010a). Class E (Direct Sales) allows direct producer sales to consumers from the producer's farm (farm gate sales). Production is limited to 10 animal units per year (approximately 4,540 kg live weight) and the permit allows only the slaughter of the licence holder's own animals. Prior to being eligible to apply for a Class E license, operators must complete and submit a feasibility study clearly demonstrating a lack of slaughter capacity. Applications are reviewed on a case-by-case basis and guidelines are being developed to assist farmers in completing the feasibility study.

Ministry of Environment

The BC Ministry of Environment (MoE) manages and delivers a wide range of programs and services that support the Province's environmental and economic goals. The Ministry is a leader in implementing the

government's climate change initiatives and also promotes recreational opportunities, such as hunting, fishing and exploring BC's parks. MoE is responsible for a wide variety of legislation that involves or affects agricultural activities including the *Drainage, Ditch and Dike Act*, *Environmental Management Act*, *Fish Protection Act*, *Integrated Pest Management Act*, *Water Protection Act*, and *Wildlife Act* (MoE, 2010). MoE's role in sustainable environmental management and stewardship includes implementation of B.C.'s Climate Action Plan and Living Water Smart Plan.

Agricultural Waste Control Regulation: The Agricultural Waste Control Regulation (AWCR) is enforced under the *Environmental Management Act* (EMA). Agricultural waste discharges require authorization and can be regulated by a code of practice. Minor amendments were made to the AWCR in 2004 and 2008, to establish consistent rules for all boilers used in agriculture, as well as emission standards for biomass (wood-fired) boilers used in agriculture. In October 2009 the MoE announced a review of the AWCR, which is still underway, to harmonize the standards in this regulation with other regulations, update handling and disposal of agricultural technologies regarding agricultural wastes, and for compliance and enforcement issues (BC Laws, 2008).

Riparian Areas Regulation: The Riparian Areas Regulation (RAR) was enacted under Section 12 of the *Fish Protection Act* in 2004, and calls on local governments to protect riparian areas during residential, commercial, and industrial development by ensuring that proposed activities are subject to a science based assessment conducted by a Qualified Environmental Professional (QEP) (MoE, 2010a). Riparian areas are defined as linking water to land along the border of streams, lakes, and wetlands.

The RAR applies only to communities on the east side of Vancouver Island, the Lower Mainland and the Southern Interior, as these are the parts of the province that are experiencing the most rapid urban growth. Local governments must ensure that its bylaws and permits under Part 26 of the *Local Government Act* provide a level of protection that is comparable to or exceeds that of RAR (MWLAP, 2006). Part 26 of the *Local Government Act* includes:

- (a) removal, alteration, disruption or destruction of vegetation;
- (b) disturbance of soils;
- (c) construction or erection of buildings and structures;
- (d) creation of non-structural impervious or semi-impervious surfaces;
- (e) flood protection works;
- (f) construction of roads, trails, docks, wharves and bridges;
- (g) provision and maintenance of sewer and water services;
- (h) development of drainage systems;
- (i) development of utility corridors;
- (j) subdivision as defined in section 872 of the *Local Government Act*;

The RAR does not apply to agricultural activities, however, the construction of residential structures or other "development" activities within agricultural areas (such as within the ALR), would be subject to the RAR. It also applies to non-farming activities on non-ALR lands that may otherwise be used, designated, or zoned for agriculture. Other aquatic-related regulations also still apply to agricultural activities, such as the *Water Act* and *Fisheries Act*, and practices to encourage stewardship in agricultural lands are highly recommended (MWLAP, 2006). The Islands Trust has a legal obligation to implement the RAR, even in lands currently designated for agriculture.

Ministry of Community, Sport, and Cultural Development

Formerly the Ministry of Community and Rural Development, the BC Ministry of Community, Sport, and Cultural Development (MCSCD) is responsible for the administration and maintenance of a number of statutes establishing the legal framework for local governments in BC. The purpose of the MCSCD is to equip communities across BC to build strong, competitive economies (MCSCD, 2010). The four key pieces of policy and legislation administered by the MCSCD affecting agricultural land use at the local level are the *Community Charter*, the *Local Government Act*, the *Assessment Act* and the *Land Title Act*.

Community Charter: The *Community Charter* came into effect in 2004 and establishes the legal framework for core municipal powers (BC Laws, 2003). The purposes of the *Charter* are to provide municipalities and their councils with:

- (a) A legal framework for the powers, duties and functions that are necessary to fulfil their purposes;
- (b) The authority and discretion to address existing and future community needs; and
- (c) The flexibility to determine the public interest of their communities and to respond to the different needs and changing circumstances of their communities.

Local Government Act: The *Local Government Act (LGA)* establishes the legal framework for regional districts and contains important local government regulations concerning planning and land use. Under the *Local Government Act* and *Community Charter* local government is responsible for the development and application of official community plans (OCPs), land use zoning and other land use bylaws.

- The LGA provides several directions toward farming through local land use planning, including (RSBC, 1996):
- Section 878 (1) stipulates that local governments may include in OCPs “policies...respecting the maintenance and enhancement of farming on land in a farming area or in an area designated for agricultural use the community plan”;
- Section 903(5) states that “...a local government must not exercise the powers under this section to prohibit or restrict the use of land for a farm business in a farming area unless the local government receives the approval of the minister responsible for the administration of the *Farm Practices Protection (Right to Farm) Act*.”
- Section 917 provides the authority for local governments to adopt farm bylaws to regulate farm management activities in farm areas, subject to approval from the Ministry of Agriculture;
- Section 919.1 (1) provides local governments with the authority to designate a development permit area (DPA) for the “protection of farming.”

Assessment Act: The *Assessment Act* is administered by BC Assessment, a provincial Crown Corporation responsible for the classification of properties in B.C. for property assessment and tax purposes (RSBC, 1996a). Farm classification is a voluntary program that provides the benefit of a low tax rate for assessed properties.

Even though property may be zoned as agricultural land, or in the provincial ALR, farm classification will only be granted if the land (or at least a portion of it) is being actively used for primary agricultural production and it meets the other requirements of the Regulation. Only land can be classified as farm land - buildings (residences and outbuildings) are classified separately, typically as residential.

Land qualifies for farm classification under the following conditions:

- The land is used for “primary agricultural production”;
- The land is the site of “a farmer’s dwelling”;

- The land is used for training and boarding horses in a horse rearing operation;
- The land otherwise contributes to primary agricultural production such as land used for drainage, irrigation, buffers and windbreaks.

Agricultural production for purely on-site consumption and the breeding and raising of pets, other than horses, do not qualify. A certain minimum amount of income must be produced from the primary agricultural production, and these requirements vary depending on the total land area. For example, a minimum annual value of \$2,500 is required for land between 8,000 m² and 4.0 ha and \$10,000 if the total land area is less than 8,000 m².

The Assessment has been criticized in the past as creating an unfair burden to small lot farmers and farmers who operate outside of the ALR. In 2009, the Farm Assessment Review Panel provided a report to the Provincial Government recommending a number of changes to the farm assessment process and Regulation 411/95 (Farm Assessment Review Panel, 2009). Prior to the review, assessment policy dictated that within a parcel of land, only that portion that was actually in agricultural production would be classed as farm, with the remainder of the parcel was classed as residential by default. This approach is commonly referred to as “split classification” of farm land, and it applied to farms both in and outside of the ALR. At the time of the review there were about 8,000 farms that were “split classified” around the province and was of particular concern for smaller farms in the rural areas of southern Vancouver Island, the Gulf Islands, and the Lower Mainland, where property values are very high.

Some of the Panel’s recommendations have been incorporated since the review, including the elimination of the split classification of farm properties in the ALR that are not used for other purposes and for non-ALR properties where at least 50% of the property is in, or contributes to, production, or 25% is in production and meets a higher income threshold (\$10,000). For leased land, only the land actually in production will be classed as farm.

Land Title and Survey Authority Act: The Land Title and Survey Authority of BC (LTSA) is a statutory corporation responsible for managing the land title and survey systems of BC and its mandate and responsibilities are set out in the *Land Title and Survey Authority Act*. The mandate of the LTSA is to create confidence by delivering assured land title and land survey systems essential to the property market and economic foundation of the province (LTSA, 2010).

As pertaining to agriculture, the LTSA provides specific directions regarding subdivision through the *Land Title Act* (RSBC, 1996b). Section 86 (1) states that an approving officer may refuse to approve a subdivision if:

- (ix) the subdivision is unsuited to the configuration of the land being subdivided or to the use intended, or makes impracticable future subdivision of the land within the proposed subdivision or of land adjacent to it;
- (x) the anticipated development of the subdivision would unreasonably interfere with farming operations on adjoining or reasonably adjacent properties, due to inadequate buffering or separation of the development from the farm, or;
- (xi) despite subparagraph (ix), the extent or location of highways and highway allowances shown on the plan is such that it would unreasonably or unnecessarily increase access to land in an agricultural land reserve.

Under section 219 of the *Land Title Act* states that a municipality or regional district may register a covenant on the title to land to protect specific characteristics of land in or adjacent to the ALR.

Regional Growth Strategies

Regional Growth Strategies (RGSs) are an agreement between a regional district and its member municipalities on social, economic and environmental goals and priority actions. The RGS's objectives are to coordinate action on housing, transportation, infrastructure, and economic development in recognition that collaboration on a regional level will make individual municipal action more effective. All regional district bylaws and all OCPs of member municipalities must be consistent with an RGS. Each municipality internalizes an RGS by adopting a Regional Context Statement in its OCP. The statement sets out how the municipality will meet the goals of the RGS through policies and bylaws. All zoning and infrastructure decisions must be consistent with the RGS.

RGSs can include policies of support for maintaining existing agricultural lands and enhancing the farm economy. This directly helps to reduce speculation around farmlands conversion to other uses through support for exclusion or non-farm use applications (Curran, 2005). Local governments can similarly ensure that they and other municipalities will protect farmland by insisting on the inclusion in RGSs of policies that agriculturally-zoned land will not be subject to rezoning to allow non-farm uses except in limited, defined circumstances.

Official Community Plans (OCPs)

The purpose of an OCP is to guide and direct land use and development decision-making within a municipality, or in the case of Denman Island, a local trust committee. It also clearly states the community's values and goals through a vision statement that steers growth management, servicing, transportation, climate change mitigation, environmental protection, the promotion of agriculture and a variety of other issues.

An OCP affects agriculture and the use of land adjacent to agriculture in several ways, primarily by defining the type of present and proposed agricultural land uses within the jurisdiction. The OCP may contain policies of the local government respecting the maintenance and enhancement of agriculture, which can include water supply, recreation near farmland, supporting for the agricultural industry, and safeguarding the ALR.

Once an OCP is in place, local government decisions to amend existing regulations and approval requirements must be consistent with the OCP. Finally, local governments may designate development permit areas for the protection of farming in the OCP, and establish guidelines for how development may occur adjacent to the ALR.

Some examples of OCP policies that promote both agriculture and the ALR include (Curran, 2005 and Smith, 1998):

- Providing for a full range of agricultural uses in the ALR and in agriculturally-zoned areas;
- Encouraging value-added activities that can improve farm viability;
- Providing edge planning through setbacks and buffers when developing land adjacent to agricultural areas;
- Limiting subdivision through the use of large minimum lot sizes;
- Recognizing and protecting the needs and activities of farm operations when considering adjacent and nearby land uses;
- Preserving contiguous areas of agricultural land and avoiding severance by recreation, parks, and transportation and utility corridors; and

- Encouraging partnerships with the agricultural community, senior governments and private enterprise to promote the development of the agricultural sector.

Local governments may also use the OCP to commit to creating and implementing an Agricultural Strategy or Agriculture Area Plan.

Zoning Bylaws

Zoning allows local governments to control the use, density, nature and siting of development. Zoning bylaws also typically regulate how far buildings and uses must be setback from lot lines, the height of buildings, signage, and parking. Zoning provides the regulatory ‘teeth’ to complement broader land use planning and policies (such as RGSs and OCPs).

Zoning regulations that support the ALR and agricultural uses, backed up by strong OCP and RGS statements can lessen the expectations of changes in land use, and can ensure that land is not converted to non-farm uses even if it is removed from the ALR (Smith, 1998). If land is removed from the ALR but zoned at the local level for agriculture, use of that land is still limited to agricultural activities as regulated in the local land use bylaw (Curran, 2005). Zoning regulations can also help to mitigate the cumulative impacts of farm-related activities, such as residential, marketing, processing and agri-tourism, on farmland productivity (MAFF, 1998). Zoning standards also help to prevent too much of an activity from becoming a nuisance to neighbours or interfering with agriculture. For example, recreational uses on one farm parcel may result in trespass and crop damage on adjacent parcels or a community festival might generate too much traffic and noise for an adjacent dairy herd. Zoning regulations may mitigate these impacts by directing where these types of activities may occur, and their extent.

Provincial regulations allow certain land uses and activities to occur in the ALR, but the regulations also allow local governments to regulate or prohibit these same activities and uses. These uses include accommodation for agri-tourism, Bed and Breakfasts, kennels, and gravel pits.

Local governments must ensure that zoning bylaws are consistent with the *ALC Act*, regulations, and other orders of the ALC. The most important restrictions on zoning are found in sections 2 and 3 of the Agricultural Land Reserve Use, Subdivision and Procedure Regulation where Section 2 designates certain uses as farm uses that can be regulated, but not prohibited by local government, including farm retail sales; wineries, cideries and ancillary uses; greenhouses; on-farm processing; storage and application of fertilizers; intensive agriculture; mushroom farming and seasonal agri-tourism. Many of the designated farm uses are subject to important restrictions such as limits on the size of retail sales operations.

The most important zoning considerations relating to agriculture include (Curran, 2005):

- Large minimum lot sizes and as few zones as possible for ALR land;
- Contiguous areas of agricultural land where other uses do not interfere with farming;
- Regulation of accessory and non-farm uses on agricultural land (such as maximum lot coverage and the appropriate siting of buildings, driveways and parking lots close to access roads); and
- Edge planning techniques such as buffering and setbacks to decrease conflicts at the agriculture/non-agriculture interface.

Aquaculture Regulatory Framework

Governance of the sector is highly complicated with many different agencies regulating specific aspects of the production, processing and sale of seafood products. There are 73 pieces of federal and provincial legislation governing aquaculture in BC, which could inevitably lead to inefficiencies and duplications (Vannstruth, 2009). This slow regulatory process limits the addition of new operations or amendments to existing leases leading to small, unproductive and potentially high cost sites (DFO, 2010). Timelines can be further slowed down with the need to consult and accommodate First Nations' rights and title interests that take precedence over all other fisheries (Vannstruth, 2009).

Federal Policies

On December 19, 2010, the management and regulation of aquaculture transferred from provincial to federal jurisdiction. Fisheries and Oceans Canada is now responsible for most aspects of the regulatory framework including: licencing sites, production volumes, species to be produced, fish health, sea lice levels, fish containment and waste control (DFO, 2012). Other federal agencies involved in regulating aquaculture are: Environment Canada, Health Canada, the Canadian Food Inspection Agency and the Canadian Environmental Assessment Agency. These agencies play specific roles in the regulatory framework (AGRI, 2012):

Fisheries and Oceans Canada – Responsible for the management of all tidal commercial fisheries in and off the coast of BC, as well as non-tidal anadromous fisheries.

Environment Canada – Responsible for monitoring water quality of shellfish growing areas and classification of these areas with respect to harvesting under the Shellfish Water Quality Protection Program.

Health Canada – Responsible for establishing policies, setting standards and providing advice and information on the safety and nutritional value of food. Promoting nutritional health and well-being of Canadians by collaboratively defining, promoting and implementing evidence-based nutrition policies and standards. Administering the *Food and Drugs Act* (Health Canada, 2011).

Canadian Food Inspection Agency (CFIA) – Responsible for the licencing and regulation of federally approved fish processing facilities under the federal *Fish Inspection Act*. CFIA develops and verifies compliance with appropriate product and process standards that contribute to the acceptable quality, safety and identity of fish and seafood products that are processed in federal establishments or imported into Canada (CFIA, 2011). Activities include:

- registration of federal fish processing establishments;
- inspection of imported fish and fish products;
- developing and maintaining international arrangements with countries with recognized inspection systems;
- inspection and enforcement of regulations, including enforcing label regulations; and
- residue testing.

Canadian Environmental Assessment Agency (CEAA) - To better integrate Canada's environmental goals with its economic, social and cultural values, the Agency (CEAA, 2011):

- Manages the environmental assessment process for most major projects subject to the *Canadian Environmental Assessment Act*.
- Provides funding to support public participation in environmental assessments.
- Serves as the coordinator for consultation with Aboriginal groups during the environmental assessments for projects it manages.
- Advances the science and practice of environmental assessment through research and development.
- Promotes high-quality assessment through training and guidance.
- Promotes the use of strategic environmental assessment as a key tool to support sustainable decision making.

Provincial Policies

The Province of BC remains responsible for issuing tenures where operations take place in the marine or freshwater environment within Provincial Crown Land, licencing marine plant cultivation and managing the business aspects of aquaculture such as work place health and safety (DFO, 2012). The Commercial Fisheries Program was established through the Ministry of Agriculture to administer the *Fisheries Act*, *Fisheries Act Regulations*, *Fish Inspection Act* and the *Fish Inspection Regulation*. (MAL, 2012). The responsibility of the program is to receive, adjudicate and issue commercial seafood licences and permits for:

- commercial seafood activities, including fish buying stations, fish and marine plant processing and cold storage facilities; fish vendors and fish brokers; and
- commercial harvests of wild marine plants and wild oysters.

The Commercial Fisheries Program also is responsible for monitoring, inspecting and reporting on commercial fisheries. This program works closely with two other provincial agencies (MAL, 2012):

Ministry of Environment – Responsible for administration of the *Environmental Management Act*, as well as the enforcement and licencing of non-tidal recreational fisheries.

Ministry of Health – Responsible for the regulation of food safety under the *Health Act* and inspection of processing facilities trading solely within the province.

Local governments also have a role to play and are responsible for zoning, business licencing, development permits and bylaw enforcement (MAL, 2012).

Fisheries and Oceans Canada is responsible for licencing all aquaculture facilities in BC. Companies and organizations are required to obtain separate licences for different production sites and may be required to obtain additional licences for importing eggs or transferring fish within certain areas (DFO, 2012a).

Conclusion

This report provides the historical, bio-physical, and socio-economic context regarding agriculture and aquaculture in the RDN. It is intended to serve as a background document towards the development of an Agricultural Area Plan for the region.

The agricultural industry in the RDN has room to grow. From both a diversity of products and revenue-generating perspective the productivity of farms is lower than in other Vancouver Island regions such as the Cowichan Valley and the Capital Region. Opportunities include good soil, climate, and fairly abundant water resources as well as a general public keen to purchase and consume more locally-grown foods as evidenced by the number and success of farmers markets in the region. Challenges include the relatively small scale of most farms, which means that leveraging labour, marketing, and processing needs can take extra effort, along with rising costs of inputs and transportation. The multi-faceted and multi-jurisdictional regulatory environment is also problematic for farmers wishing to create more value-added products within the region (examples of barriers include regulations controlling small-scale meat processing and egg grading). Supply management constraints, such as quota, also limit the amount and diversity of production in the region.

The aquaculture industry, in particular shellfish production, has been doing comparatively better than agriculture from an economic perspective, however the greatest constraint to growth appears to be regulatory inertia as a result of the amount red tape that needs to be completed in order to expand existing operations or develop new operations. A number of land-based licences for finfish farming have been issued in the region, however no signs of active land-based aquaculture was observed during the Land Use Inventory. While water-based fish farming has received a negative reputation among some food consumers, there are no current fish farms based in the RDN, nor will there likely be any fish farms developed in the region in the future. A significant barrier to public approval of local land-based finfish aquaculture and coastal shellfish operations appears to be a lack of public information and marketing. This contextual information is critical to understand in order to develop appropriate, relevant, and timely recommendations to grow this industry regionally in both the short and long term.

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