Background Report

Comox Valley Regional District Agricultural Plan Update

February 2023

Prepared for:

Comox Valley Regional District

Prepared by

upland agricultural consulting

In association with

URBAN FOOD STRATEGIES

Acknowledgments

The consulting team is grateful to acknowledge the contribution of Dr. Jesse Morin, Archaeologist, Ethnohistorian, a Heritage Consultant. Dr. Morin is an Adjunct Professor at Simon Fraser University's Department of Archaeology and an Adjunct Professor at University of British Columbia's Institute for the Oceans and Fisheries. Dr. Morin authored the section of the report on the history of K'omoks First Nation.

This project is funded in part by the Local Government Partnership Program, with funding provided by Agriculture and Agri-Food Canada and the Government of British Columbia through programs delivered by the Investment Agriculture Foundation of B.C.

DELIVERED BY: FUNDING PROVIDED BY:

IAF Investment Agriculture Foundation

British Columbia

Canada

Disclaimer: Agriculture and Agri-Food Canada, the B.C. Ministry of Agriculture Food and Fisheries and the Investment Agriculture Foundation of BC, are pleased to participate in the production of this plan. We are committed to working with our industry partners to address issues of importance to the agriculture and agri-food industry in British Columbia. Opinions expressed in this report are those of the authors and not necessarily those of the Investment Agriculture Foundation, the B.C. Ministry of Agriculture or Agriculture and Agri-Food Canada.

Executive Summary

Project Background

It has been over 20 years since the development of one of the first innovative Agricultural Plans in the province, the Comox Valley Agricultural Plan (CVAP). Due to the evolving nature of the agriculture and food sector and the regulations surrounding land-use planning policies, the CVRD has embarked on a project to update the 2002 document. Over the course of 2022-2023 the CVAP is being updated and modernized. The project process to update the CVAP includes background research and analysis, a high-level overview of policies relevant to agriculture, and extensive engagement with the agriculture sector and the public, which will culminate in a Comox Valley Regional District Agricultural Plan (the "Plan"). The primary objective of the project is to produce a comprehensive agricultural planning document that focuses on the CVRD jurisdiction and provides guidance in identifying opportunities to strengthen the regional agricultural sector and contribute to its long-term sustainability. The Plan will propose recommended actions that anticipate future changes and challenges specific to the CVRD to support regional planning efforts. This Background Report provides the foundational knowledge about the agricultural sector and biophysical characteristics of the Comox Valley to help inform the development of the Plan.

Traditional Indigenous Plant Food Management Systems in the Comox Valley[1]

The Pentlatch ancestors of the K'ómoks First Nation who occupied the area now known as the Comox Valley practised an array of ecosystem management techniques to increase the abundance of preferred plant and animal species in the local area. Early historical records, archaeological data, and ethnographic information can be used to infer traditional Pentlatch plant harvesting and landscape management techniques. This evidence indicates that the open prairies of the Comox Valley as described by settlers in the 1860s were an anthropogenic environment that was closely managed and tended by local Pentlatch people for millennia, and these prairies were undoubtedly owned by specific Pentlatch lineages. The Tsolum River prairie, the open parkland environment encountered by colonists in the mid-19th century in the Comox Valley were anthropogenic environments that were regularly and carefully managed by local Pentlatch people. These prairies were the northern extent of the Garry Oak ecosystem and hosted a range of plant species that were important to traditional Pentlatch diets. These species included camas (*Camassia quamash*), bracken fern (*Pteridium aquilinum*), blueberry (*Vaccinium sp.*), and saskatoon berry (sp). The primary way Pentlatch people maintained these Garry Oak ecosystems and associated prairies was through the use of controlled burns. By burning these prairies, Pentlatch people maintained their extent and increased the productivity of desired plant species and deer.

Post European Settlement Agricultural History

Comox Valley was settled in the 1860's after it was identified as holding great potential for agricultural production due to fertile soils and a favourable climate. The first pioneers of Comox Valley came to farm the land, which they acquired through pre-emption, a process of acquiring land for free from the government under the condition of breaking or clearing the land and farming it. Parcels of land settled through pre-emption were usually around 160 acres. Much of the land within the Comox Valley was

[1] Content provided by Dr. Jesse Morin

pre-empted by 1899. Early farmers in the Comox Valley produced a diversity of foods including grain, silage corn, milk and other dairy products, beef, sheep, hogs, poultry (meat and eggs), peas, potatoes, tree fruits (apples, pears, plums and prunes)[2]. Dairy was the main agricultural sector in the area and culminated into a farmers cooperative creamery called the Comox Creamery which operated for 67 years before dwindling in membership and eventually joining the Fraser Valley Dairy Cooperative in 1968 (now Dairyland).

Biophysical Context and Agricultural Capability

The Comox Valley gets an average of eight frost free months, and moderate temperatures year-round, making it a favourable location for a diversity of agricultural production. Lands in the Comox Valley have been classified through agricultural capability ratings as having high potential for agricultural production, due to good soils and relatively flat topography. Approximately 14% of the CVRD's total land area is within the Agricultural Land Reserve.[3] The 2013 Agricultural Land Use Inventory found that of the 23,400 ha of ALR in the CVRD, only 23% was being actively farmed. Thirty-eight percent of land was otherwise unusable for farming due to infrastructure (roads, houses, barns etc.), pre-existing residential infrastructure, waterbodies, wetlands, or its status as a park or reserve.

The Census of Agriculture data from 2021 indicates that out of 9,148 ha of farmed land in the Comox Valley, 975 ha (10%) of is being irrigated. As summers grow longer and hotter with a changing climate, the need for irrigation is increasing. This will apply additional pressure to watersheds which experience significant differences between wet and dry seasons, often bringing floods and high water in the winter and springs, followed by very low water levels in July through October when it is needed the most for agricultural production. The following table highlights other challenges to agriculture due to climate change.

Table 1. Potential agricultural impacts of climate change in Comox Valley.[4]

Climate Change Condition	Potential Agricultural Impacts
Changing Hydrological systems	Increased flows in shoulder seasons with risk of flooding, Reduction in water supply during growing seasons, increase in need for water storage infrastructure, negative impacts on non-irrigated croplands.
Increasing temperatures across all seasons	Increased pressures from pests and diseases, increased potential for drought and extreme heat and resulting damage to crops, increased evapotranspiration and damage to crops.
Changes conditions favourable to pests, diseases and invasive species	Increased winter survival rates, more frequent and increased damage to crops, inability to rely on previous pest management practices, increase in costs of pest and disease management.
Increased occurrence of extreme precipitation events	Increased potential for floods and run off, wet soils hindering access to land and productivity of land, increased risk of erosion in fields and riparian areas, potential flooding and resulting infrastructure damage.
Increased risk of wildfires in hot, dry summers	Stunting impacts of smoke and ash on crop production, impacts to livestock and human health, increased damage to agriculture infrastructure, long term impacts on soil and hydrological systems after severe burns, competing water needs between firefighting and agriculture use, psychological effects on producers.

[2] Comox Valley Agriculture Plan; Background Report. 2000
[3] BC Ministry of Agriculture. Comox Valley Regional District Agricultural Land Use Inventory. 2014.
[4] Climate and Agriculture Initiative BC. Regional Adaptation Strategy: Vancouver Island. 2020.

Increased seasonal variability	Reduced predictability of weather patterns, changes to production scheduling and an increased need for adaptability, unpredictable frost days, unpredictable timing of bloom and changes to pollinator behaviour.
Increased growing degree days and frost-free days	Potential for additional cuts of hay, opportunities for new varieties of crops, inconsistent yield and quality from previous crops.

Economic Profile of Comox Valley Agriculture

In 2021, the Census of agriculture reported 351 farms in the CVRD. Thirty seven percent (35%) are under 10 acres in size, 42% are 10-69 acres and 21% are over 70 acres. The most common type of farming operation in the CVRD is fruit and tree nut production, and cattle ranching, with both types remaining common over the past decade. Hay production is also common, although it has been experiencing a steady decrease since 2011, as has hog and pig farming. The only sectors to have experienced an increase in the decade between 2011 and 2021 were poultry and egg production, and vegetable production. There are also a number of horse farms in the Comox Valley. Total farm capital (land and buildings, livestock and poultry, farm machinery, and farm equipment) across the Comox Valley has increased from $530.9 million in 2016 to $691.1 million in 2021. Thirteen percent (47 farms) generated above $100,000 in gross farm receipts in 2021, 35% (122 farm) generated between $10,000-$99,999, while 52% (182 farms) generated under $10,000. Average gross margins of farms in the Comox Valley was estimated at 4.3% in 2021. The average age of farmers in the Comox Valley is 59 and 82% of land being farmed is owned.

Like most agricultural sectors on Vancouver Island, access to transportation, water and waste management, and distribution infrastructure is required to reach the larger domestic and export markets through the Lower Mainland. The CVRD is located within the north-central area of Vancouver Island and is well-served by several transportation nodes including major roads and highways, ferries and airports. Support systems and infrastructure for distributing food to major retail markets have long been established and operate efficiently at the provincial and national levels (Sysco, Gordon Food Services, and Overwaitea are examples). However, many producers in the Comox Valley may have difficulty accessing this distribution system because their operations and yields are too small to meet production requirements of larger scale retail outlets. Additionally, there may be information gaps around labelling, quality control, traceability, and food safety. Approximately 55% of farm businesses sell their products directly to consumers through farmer's markets, subscription product boxes, and/or at the farm gate. The Comox Valley has a very active agri-tourism sector with many farms offering agritourism activities such as u-pick, events and cycle tours, and several resources available for locating farms. There are also many non-profit organizations involved in the agriculture and food sector in the region.

There are three local abattoirs located in the Comox Valley that process chicken and turkey and one abattoir that processes red meat (including hogs, cattle, sheep and other livestock). A local abattoir allows farmers to get their animals processed in a timely and humane manner and cut and wrap shops (butchers) allow farmers to sell their products in cuts that are tailored to the appropriate market. Food processing services and resources are a critical part of a diversified food system, offering opportunities for producers to create value-added products, build their businesses in new directions and extend their season through preserves and storage crops. The 2021 Census of Agriculture reported 33 farms selling value-added products. There are a few commercial/commissary kitchens available for rent in the

Comox Valley and a food hub feasibility study was completed for the CVRD. A business strategy has been developed for the establishment of a local food hub and the CVRD is moving forward with the first step of recommendations in the implementation plan.[5]

Local Government Policies and Agriculture

Agriculture in Canada and BC is governed by a network of Federal, Provincial, and Local governments, each playing a specific role in regulating the use of agricultural land, the making and distribution of food products, and ensuring the health and safety of the food system. Other entities and departments within levels of government focus on the economics of agriculture and farming in Canada. Others yet, focus on the interface between environmental protection, climate change and agriculture. Examples of Government of Canada Acts related to the agriculture and food sectors include the Agricultural Products Marketing Act, Farm Income Protection Act, Health of Animals Act, Plant Protection Act, and Safe Food For Canadians Act, to name a few. At the provincial level important acts include the Agricultural Land Commission Act, Farm Practices Protection (Right to Farm) Act, Water Sustainability Act, Environmental Management Act, and Assessment act, along with many others.

Regional districts play a role in region-wide planning by developing a Regional Growth Strategy (RGS) and other Plans and Strategies that link or coordinate the otherwise independent planning and land use regulation choices of the member municipalities. The CVRD RGS was adopted in 2011. There are eight goals areas in the RGS, and the agriculture and food sector intersect with several of them, such as "Food Systems", "Ecosystems, Natural Areas and Parks", and "Local Economy". The RGS identifies the land uses for agriculture within the Rural Settlement Areas as "Agricultural Areas", which have been established using the ALR boundaries. Agricultural Areas cover approximately 12 % of the Comox Valley. Land use policies and regulations in the CVRD's three electoral areas are contained within the Rural Comox Valley OCP and the Rural Comox Valley Zoning Bylaw which contain relevant policies and regulations for farming practices and the agriculture sector.

Agriculture and Community Food Security

From the late 1800's to mid 1900's agricultural development increased and Vancouver Island farms provided most of the food required by residents.[6] In the last 50 years there has been a decrease in the proportion of food that is produced on the island – unverified figures suggest what was once a resiliency rate of 85% is now closer to 5-10%.[7] A strong agricultural sector where producers of all commodity types and sizes are supported contributes positively to local and regional food security. Even if farm products produced in the Comox Valley are sold outside of the region or Vancouver Island, having active farms in the region attracts and retains the supporting systems such as equipment dealers, mechanics, food distribution companies and other supporting businesses for the agriculture sector. Increasing the agricultural productive capacity of Vancouver Island, through methods which are sustainable as well as economically and socially beneficial to local communities, will support food security in the Comox Valley.

[5] Comox Valley. Food Hub Project. Accessed July 2022.
[6] Strategies for Increasing Food Security on Vancouver Island. Vancouver Island Community Research Alliance, Office of Community Based Research. 2011.
[7] A Baseline Assessment of Food Security in British Columbia's Capital Region. Emily MacNair. 2004.

Table of Contents

Figures

Tables

Acronyms

ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
ALUI	Agricultural Land Use Inventory
AWDM	Agricultural Water Demand Model
BC	British Columbia
BCE	Before Common Era
CD	Census Division
CE	Common Era
CLI	Canada Land Inventory
CVAP	Comox Valley Agriculture Plan
CVEX	Comox Valley Exhibition
CVFPC	Comox Valley Food Policy Council
CVRD	Comox Valley Regional District
CWH	Coastal Western Hemlock
Ha	Hectare
IR	Indian Reserve
ISC	Coastal Invasive Species Council
MAF	Ministry of Agriculture and Food
PARC	Pacific Agri-food Research Centre
SEI	Sensitive Ecosystem Inventory
UBC	University of British Columbia
YA	Young Agrarians

1.0 Introduction

The Comox Valley Regional District (CVRD) Agricultural Plan is being updated and modernized to provide a framework for decision making which reflects innovative best practices and policies including climate resiliency, Indigenous food systems and new sector technology. The modernized Plan will provide a roadmap for the CVRD to strengthen the regional agricultural sector and contribute to its long-term sustainability.

It has been over 20 years since the region led the development of one of the first innovative Agricultural Plans in the province, the Comox Valley Agricultural Plan (CVAP). Due to the evolving nature of the agriculture and food sector and the regulations surrounding land-use planning policies, the CVRD has embarked on a project to update the 2002 document. This planning process will culminate in a Comox Valley Regional District Agricultural Plan (the "Plan"). The primary objective of the project is to produce a comprehensive agricultural planning document that focuses on the CVRD jurisdiction and provides guidance in identifying opportunities to strengthen the regional agricultural sector and contribute to its long-term sustainability. The Plan will propose recommended actions that anticipate future changes and challenges specific to the CVRD to support regional planning efforts.

There are several key elements in the planning process that are used to achieve the objectives of the Plan. These elements include:

- A background report (this document) to provide an update on the current trends in the agricultural sector since the 2002 Plan was completed and provide an analysis of current policies and regulations relating to the agriculture sector in the CVRD and the 2002 CVAP;
- Engagement with agricultural producers and the public (including interviews, surveys and a Town Hall) to identify the strengths, weaknesses, opportunities, and threats affecting the agriculture sector and land base; and
- The creation of the updated CVAP including an implementation strategy to facilitate a community-based approach to strengthening agriculture, along with a monitoring and evaluation framework to track implementation progress

This Background Report provides the foundational knowledge about the agricultural sector and biophysical characteristics of the Comox Valley to help inform the development of the Plan.

2.0 History of Traditional Food Systems and Post-Contact Agriculture the Comox Valley

2.1 Traditional Indigenous Plant Food Management Systems in the Comox Valley - Historical Background

Content provided to the CVAP project by Dr. Jesse Morin

The Pentlatch ancestors of the K'ómoks First Nation who occupied the area now known as the Comox Valley practised an array of ecosystem management techniques to increase the abundance of preferred plant and animal species in the local area. Early historical records, archaeological data, and ethnographic information can be used to infer traditional Pentlatch plant harvesting and landscape management techniques. This evidence indicates that the open prairies of the Comox Valley as described by settlers in the 1860s were an anthropogenic environment that was closely managed and tended by local Pentlatch people for millennia, and these prairies were undoubtedly owned by specific Pentlatch lineages. Prior to diking, the rich estuaries of the Courtenay River were likely similarly managed, and a different suite of plants harvested.

The existing extent of Garry Oak ecosystem has been greatly reduced over the last 150 years through agricultural activities and urban development, but early historic descriptions of the Tsolum River prairie (including maps) approximate its extent prior to colonization and Euro-Canadian land clearance (see Figure 1 and Figure 2). R. Mayne, British naval officer on the Plumper Expedition in 1860 Common Era (CE) recorded the following observations of the Tsolum River prairie:

> *Landing from the canoe just above the Forks of the Puntluch and Courtenay (or Tzo-o-oom, as the Indians call it) Rivers, and on the left bank of the later, we found ourselves in the middle of a large prairie, which we discovered continued in a north westerly direction, or parallel with the coast, for eight or ten miles. The Courtenay flows nearly through the centre of this, and there are one or two smaller streams, which water the whole abundantly. The ground slopes upwards from the river on both sides, so as to prevent the overflow to any extent. The whole of this prairie is bounded by dense wood, forming a sheltering coast-fringe on the east, and affording plenty of timber on all sides (except towards the entrance to Baynes Sound) for building, burning, &c. It took us a day and a half to walk over this land, through which a plough might be driven from end to end.*[8]

R. Pidcock (an early explorer and hunter) similarly described the prairie land around Sandwick in 1862 CE, and specified Pentlatch harvesting of ferns and berries:

> *There are about 3,000 acres of open land but so divided by strips of wood that you cannot see more than a small portion at once. The river divides it though not at all*

[8] Mayne, Richard. 1862, Four Years in British Columbia and Vancouver Island: An Account of Their Forests, Rivers, Coasts, Gold Fields, and Resources for Colonisation. J. Murray, London.

equally there being much more on the north than the south side. The land for the most part is covered with fern which grows to a great height in some parts and a blue berry something like our Bilberry grows in great quantities more or less all over it and these are gathered by Indian Women about July and boiled & then spread into thin cakes and dried. In 1862 the number of deer was almost incredible for such a small expanse of Country. When the fern began to die away they began coming out on the Prairie in small herds and were very easily shot.[9]

Figure 1. Official map of the Comox Valley, AD 1865 (Comox District 1865) (19T2 East Coast LSTA). Spotted/starred pink areas indicate forested lands.

[9] Pidcock, R. H. 1862, Adventures in Vancouver Island. Being an Account of 6 Years Residence, and of Hunting and Fishing Excursions with some Account of the Indians Inhabiting the Island. BC Archives, Victoria. Pg 68-69.

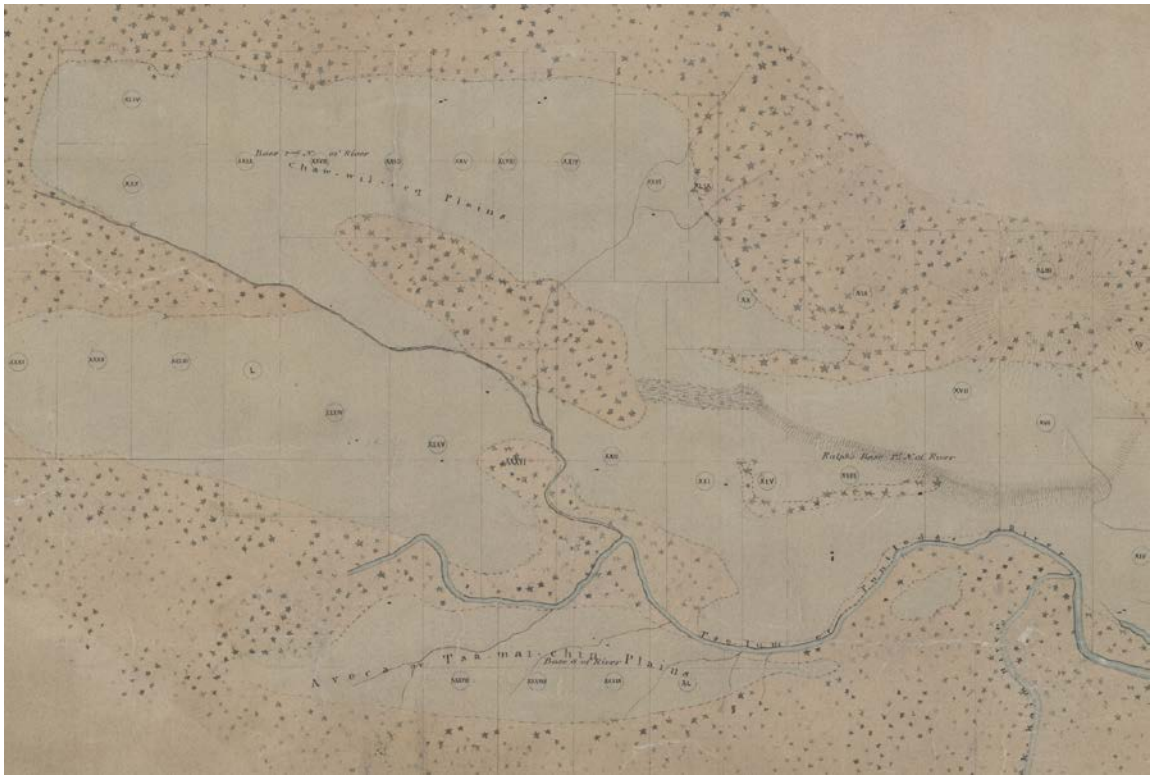

Figure 2. Detail of official map of the Comox Valley, 1865 CE (Comox District 1865) (19T2 East Coast LSTA). Spotted/starred pink areas indicate forested lands. "Avoca or Tsa-mai-chin Plains" (bottom, Dove Creek area), "Chaw-wil-ceq Plains" (top left, Grantham area) The Tsolum prairies are left and centre.

The Tsolum River prairie, the open parkland environment encountered by colonists in the mid-19th century in the Comox Valley were anthropogenic environments that were regularly and carefully managed by local Pentlatch people. These prairies were the northern extent of the Garry Oak ecosystem and hosted a range of plant species that were important to traditional Pentlatch diets. These species included camas (*Camassia quamash*), bracken fern (*Pteridium aquilinum*), blueberry (*Vaccinium sp*.), and saskatoon berry (sp). As described by MacDougal et al.: "Indigenous peoples may have been largely responsible for the persistence of this ecosystem [Garry Oak] via landscape-level burning regimes."[10]

Camas is plant with an edible bulb that grows in great abundance in Garry Oak ecosystems. It was dug and harvested during May in large quantities and cooked in earth ovens (rock-lined, earth covered cooking pits), and then could be stored for future use.[11] Lists of wedding gifts exchanged between Pentlatch and Kwakwaka'wakw chiefs from pre-contact times describe 20 boxes of camas being sent north from Pentlatch to their new kin for the marriage feast.[12] Archaeological evidence (i.e., charred camas in a roasting feature) from this suggests that Indigenous harvesting of camas extends back to at least about 2,400 Before Common Era (BCE).[13] Extensive archaeological deposits have recently been

[10] MacDougall, A. et al. 2004. Defining Conservation Strategies with Historical Perspectives: A Case Study from Degraded Oak Grassland Ecosystem. Conservation Biology 18:455-465.
[11] Grant, Colquhoun. 1857. Description of Vancouver Island. *Journal of the Royal Geographic Society*. 27:268-320.
[12] Boas, Franz. 1921. *The Ethnology of the Kwakiutl, Based on Data Collected by George Hunt*. Bureau of American Ethnology, 35th Annual Report 1913-1914. Washington, Government Printing Service. Pg 894.
[13] Capes, Catherine. 1964. *Contributions to the Prehistory of Vancouver Island*. Idaho State University Museum. Pg 21.

identified across some of the prairies of Puntledge Indian Reserve (IR) No.2, and similar archaeological investigation of other historical prairie lands could identify additional archaeological sites.

Bracken fern was described as growing in great profusion in the Tsolum River prairies, and their roots were dug up, roasted in earth ovens, and eaten/preserved by Pentlatch people. Pentlatch and K'ómoks oral histories often describe people living off of fern roots.[14,15] Archaeological evidence of bracken fern root harvesting (i.e., charred bracken fern root in a roasting feature) in the Tsolum River prairies extends back to around 2,400 BCE. [16]

> *The open country, in its natural state, is mostly covered with a growth of ferns, which sometimes attain a height of ten feet, with stems three quarters of an inch in diameter, and roots descending to a depth of three feet. These roots the native Indians prepare them in some peculiar way for winter food and excavate deep trenches to obtain them.*[17]

And, as described above, berries, including blueberries and saskatoon berries grew in profusion across this prairie, and were harvested and preserved by Pentlatch people.[18] One of the earliest images of the K'ómoks First Nation settlement at the mouth of the Courtenay River in the 1860's shows a large berry drying rack in front of the houses there.[19]

Smaller Garry Oak ecosystems on Hornby Island and the Tsable River were similarly used by Pentlatch people.[20] These prairies and anthropogenic Garry Oak ecosystems were amongst the very first to be pre-empted by Euro-Canadian settlers to the Comox Valley, as they were among the only open lands, and the best agricultural lands in the region.[21]

The primary way Pentlatch people maintained these Garry Oak ecosystems and associated prairies was through the use of controlled burns. That is, people set small fires in the summer to the dry underbrush around these prairies to discourage the encroachment of conifers and to encourage the growth of colonizing species like grasses and berries.[22, 23, 24] Such disturbed environments are particularly attractive to deer, that were described as "almost incredible for such a small expanse of Country" [25] and were regularly hunted by local Pentlatch people. Further, regular burning increases camas

---

[14] Boas, Franz. 1921. *The Ethnology of the Kwakiutl, Based on Data Collected by George Hunt*. Bureau of American Ethnology, 35th Annual Report 1913-1914. Washington, Government Printing Service. Pg 411.
[15] Bouchard, Randy and Dorothy Kennedy, editors. 2006. *Indian Myths and Legends From the North Pacific Coast of America: A Translation of Franz Boas' 1895 Edition of Indianische Sagen von der Nord-Pacifishen Kuste Amerikas*. Talonbooks, Vancouver.
[16] Capes, Catherine. 1964. *Contributions to the Prehistory of Vancouver Island*. Idaho State University Museum. Pg 21.
[17] Mackie, Richard Somerset. 1995. The Wilderness Profound: Victorian Life on the Gulf of Georgia. Victoria: Sono Nis Press.
[18] Pidcock, R. H. 1862, Adventures in Vancouver Island. Being an Account of 6 Years Residence, and of Hunting and Fishing Excursions with some Account of the Indians Inhabiting the Island. BC Archives, Victoria. Pg 68.
[19] BC Archives, PN 879.
[20] Fletcher, Olivia. 1989, 2001. Hammerstone: A biography of Hornby Island. NeWest Publishers, Limited, Edmonton, AB.
[21] Mackie, Richard Somerset. 1995. *The Wilderness Profound: Victorian Life on the Gulf of Georgia*. Victoria: Sono Nis Press.
[22] Erickson, Wayne, and Del Meidinger. 2007. *Garry Oak (Quercus garryana) Plant Communities in British Columbia: A Guide to Identification*. Ministry of Forests and Range Science Program Technical Report 040, Victoria.
[23] Grant, Colquhoun. 1857. Description of Vancouver Island. *Journal of the Royal Geographic Society*. 27:268-320.
[24] Turner, Nancy, Douglas Deur, and Dana Lepofsky. 2013. Plant Management Systems of British Columbia's First Peoples. *BC Studies* 179:107-133.
[25] Pidcock, R. H. 1862. *Adventures in Vancouver Island. Being an Account of 6 Years Residence, and of Hunting and Fishing Excursions with some Account of the Indians Inhabiting the Island*. BC Archives, Victoria.

abundance.[26] Thus, by burning these prairies, Pentlatch people maintained their extent and increased the productivity of desired plant species and deer.

Pentlatch people also harvested thousands of young (~15 years old) Douglas fir trees for constructing fish traps in Comox Harbour. There are literally hundreds of thousands of wooden stakes (the remains of fish traps) in Comox Harbour made of such young Douglas fir trees,[27] and these were likely selectively harvested throughout the Comox Valley, but especially around the edges of these prairies.

In addition to controlled burning and selective forestry practices to maintain these prairies and increase desired plant foods, Pentlatch peoples' harvesting techniques also enhanced the abundance of these foods. Tilling of soils with digging sticks in the process of harvesting camas or bracken fern increased production through the aeration of soils and recycling of nutrients.[28] Pentlatch people were described as harvesting exceptionally large bracken fern rhizomes from "deep trenches" in the Tsolum prairie, undoubtedly breaking up and aerating these soils in the process.[29] Camas and bracken fern were also likely transplanted as desired by Pentlatch peoples to increase their abundance of newly cleared lands.[30]

The Tsolum River prairie as described above includes the Headquarters Road area on the east side of the Tsolum River from Mission Hill to Grantham, and the Condensory Road area, the Dove Creek area on the west side of the Tsolum River. Additional much smaller similarly managed prairies included much of north and western Hornby Island, upper Millard Creek, and off of Back Road, Gartley Point, and the mouth of the Tsable River.

While the plant management techniques described are not interpreted as agricultural practices because the species in question were not domesticated, the Pentlatch people actively managed these prairies for millennia and tended them as vast gardens.

---

[26] Beckwith, B. R. 2004. *The Queen Root of this Clime: Ethnoecological Investigations of Blue Camas (Camassia quamash, C. leichtlinii; Liliaceae) Landscapes on Southern Vancouver Island*. Unpublished PhD dissertation, Department of Biology, University of Victoria, Victoria.

[27] Greene, Nancy, David McGee, and Roderick Heitzmann. 2015. The Comox Harbour Fish Trap Complex: A Large-Scale, Technological Sophisticated Intertidal Fishery from British Columbia. *Canadian Journal of Archaeology* 39:161-212.

[28] Turner, Nancy, Douglas Deur, and Dana Lepofsky. 2013. Plant Management Systems of British Columbia's First Peoples. *BC Studies* 179:107-133. Pg 111.

[29] Mackie, Richard Somerset. 1995. *The Wilderness Profound: Victorian Life on the Gulf of Georgia*. Victoria: Sono Nis Press.

[30] Turner, Nancy, Douglas Deur, and Dana Lepofsky. 2013. Plant Management Systems of British Columbia's First Peoples. *BC Studies* 179:107-133.

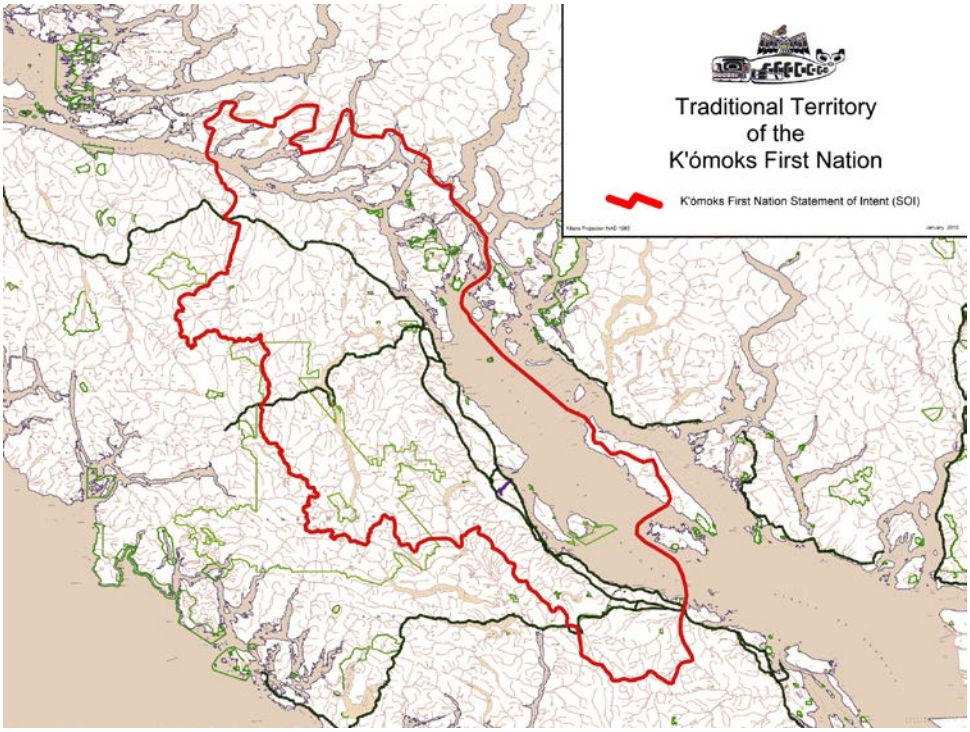

Figure 3. Map of K'òmoks First Nation Traditional Territory.

2.2 Post-European Contact Agriculture in Comox Valley

Comox Valley was settled in the 1860's after it was identified as holding great potential for agricultural production due to fertile soils and a favourable climate. The first pioneers of Comox Valley came to farm the land, which they acquired through pre-emption, a process of acquiring land for free from the government under the condition of breaking or clearing the land and farming it. Parcels of land settled through pre-emption were usually around 160 acres. Much of the land within the Comox Valley was pre-empted by 1899 (Figure 4).

The population of the Comox Valley continued to grow over the decades, subdivision of land led to an increase in producers and the expansion of European settlement led to the emergence of several rural communities and the incorporation of municipalities, including Courtenay in 1915 and Comox in 1946[31]. In the 1960's the Canadian Land Inventory mapped the agricultural capability of the area and in the 1970's the provincial Agricultural Land Commission was established and an Agricultural Land Reserve (ALR) was identified in Comox Valley, though much of it was a mix of cleared and forested land. Lands within the ALR are protected for agricultural priority use as they are expected to have the best potential for agricultural production based on the Land capability assigned by the Canadian Land Inventory. The establishment of the ALR reduced subdivision and non-farming development pressure on farmland. Today, the Comox Valley is home to 23,429 ha of ALR, comprising 14% of the CVRD's total land area[32] is identified with the Agricultural Areas designation within the CVRD's Regional Growth Strategy which prioritizes farming and agricultural production in those areas.

[31] Comox Museum. The Growth of Comox. Accessed August 2022.
[32] BC Ministry of Agriculture. Comox Valley Regional District Land Use Inventory. 2014.

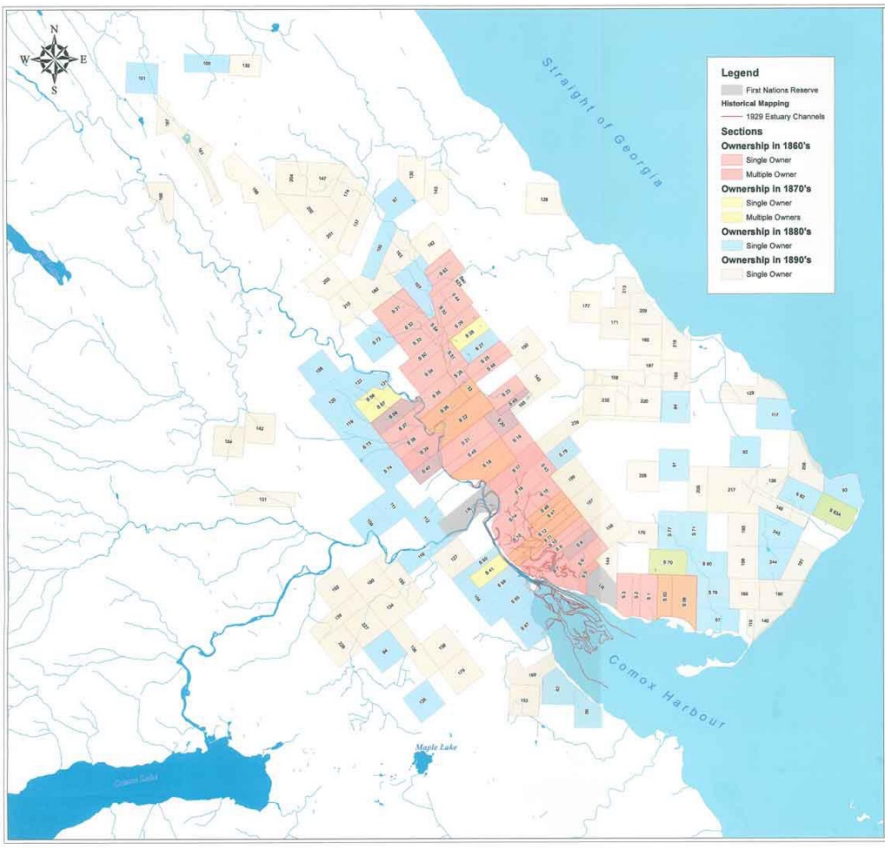

Figure 4. Comox Valley Pre-emptors map.

Early farmers in the Comox Valley produced a diversity of foods including grain, silage corn, milk and other dairy products, beef, sheep, hogs, poultry (meat and eggs), peas, potatoes, tree fruits (apples, pears, plums and prunes)[33]. Dairy was the main agricultural sector in the area and culminated into a farmers cooperative creamery called the Comox Creamery which operated for 67 years before dwindling in membership and eventually joining the Fraser Valley Dairy Cooperative in 1968 (now Dairyland). Today the Comox Valley is still home to a vast diversity of agricultural production including fruits, vegetables, grains and meats, though dairy production has seen a significant reduction.

3.0 Regional Context

Comox Valley Regional District (CVRD) is located on the eastern coast of Vancouver Island, British Columbia. The CVRD is geographically bordered by Strathcona Regional District, Alberni-Clayoquot Regional District, Regional District of Nanaimo, and the Strait of Georgia. The CVRD covers an area of 2,425 km^2, of which 1,725 km^2 is land (the remainder is water).

The CVRD contains three electoral areas and three municipalities, Town of Comox, City of Courtenay and Village of Cumberland (Figure 5). Each area contains unique attributes and producers and food businesses. The municipalities are the primary markets for agricultural products and host most of the food-retail and processing infrastructure and labour pool. There is active farming within the City of

[33] The CVRD. Comox Valley Agriculture Plan; Background Report. 2000

Courtenay's boundaries. The Town of Comox was historically an agricultural area and still retains some agricultural heritage, with many farms surround Comox in Electoral Area B. The Village of Cumberland developed as a mining town rather than a farming community but the population is supportive of local food products and the town has numerous food related businesses. Electoral Area A is known as Canada's oyster capital and has a history of seafaring and shellfish production. More than half of BC's shellfish production comes from Baynes Sound[34]. Electoral Area C is home to the majority of farms in the CVRD.

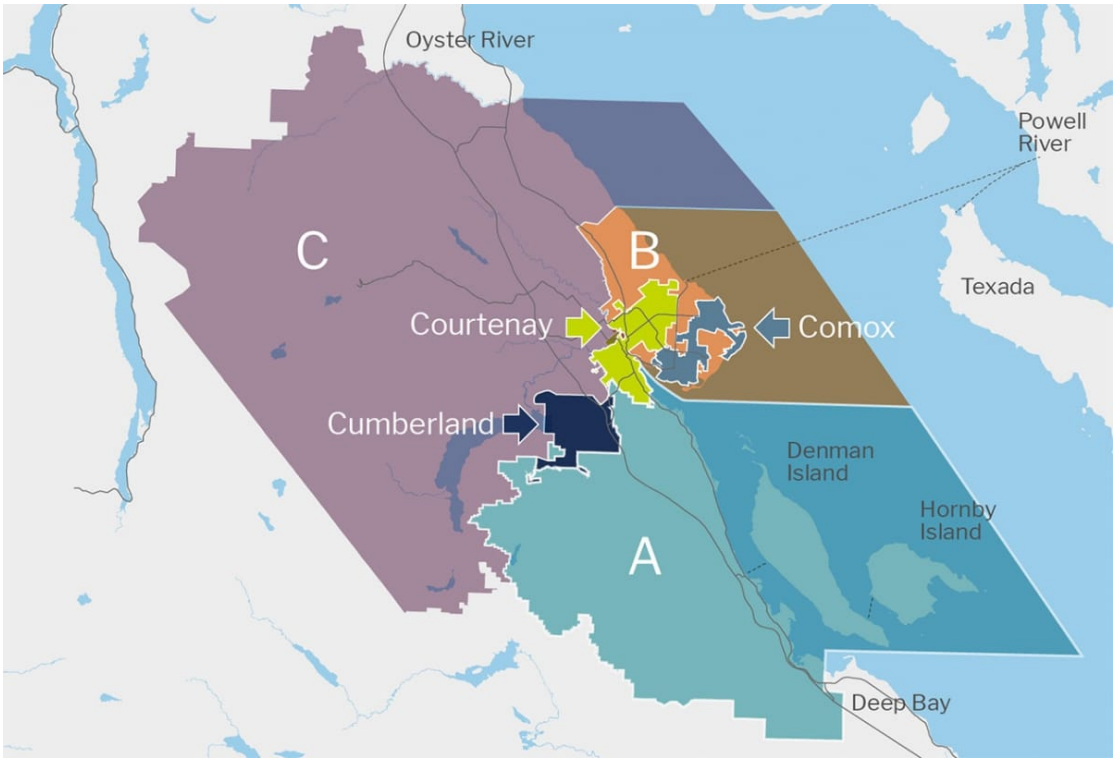

Figure 5. Map of CVRD Electoral Areas and Municipalities.

3.1 Population

The 2021 Statistics Canada Census shows a growth rate in the region of 8.9%, from 66,527 in 2016 to 72,445 in 2021. With a land area of 1,697 km^2, it had a population density of 43/km^2 in 2021 (Table 2). The average age of residents in the CVRD is 47.4 years. The Comox Valley Local Health Area Profile provided by Island Health, projects the largest population growth by 2028 to be in the 75+ age group, which is expected to result in a doubling from 7,973 to 15,413 residents over the age of 75 within the next 20 years.[35] Over two thirds of CVRD's population are living in single detached homes, which is higher than the provincial average of 42%.

[34] Government of Canada. Community profile: Comox Valley. Accessed June 2022.
[35] Island Health. Comox Valley Local Health Area Profile. 2018

Table 2. Population and density of the Comox Valley Regional District.[36]

Location	Population	Change in population 2016-2021	Land (km²)	Population/km²
Electoral Area-A	7,926	9.9%	491.3	16
Electoral Area-B	7,392	4.2%	54.1	137
Electoral Area-C	9,158	6.8%	1,072	9
Courtenay	28,420	10.8%	32.4	877
Comox	14,806	5.5%	16.9	878
Cumberland	4,447	18.5%	29.0	153
Comox Valley	**72,445**	**8.9%**	**1,697**	**43**
K'ómoks First Nation	291	31.1%	0.58	500
British Columbia	**4,648,055**	**+13.0%**	**920,686**	**5**

4.0 Biophysical Context and Agricultural Capability

4.1 Weather and Growing Conditions

The Comox Valley stretches from the central east coast of the Vancouver Island to the mountains of the Vancouver Island Ranges. The area consists of a gently sloping terrain, descending from west to east, creating various drainage patterns and microclimates. Most of the region is within the Coastal Western Hemlock (CWH) Biogeoclimatic zone, with a small area of Coastal Douglas fir on Denman and Hornby islands (Figure 6).

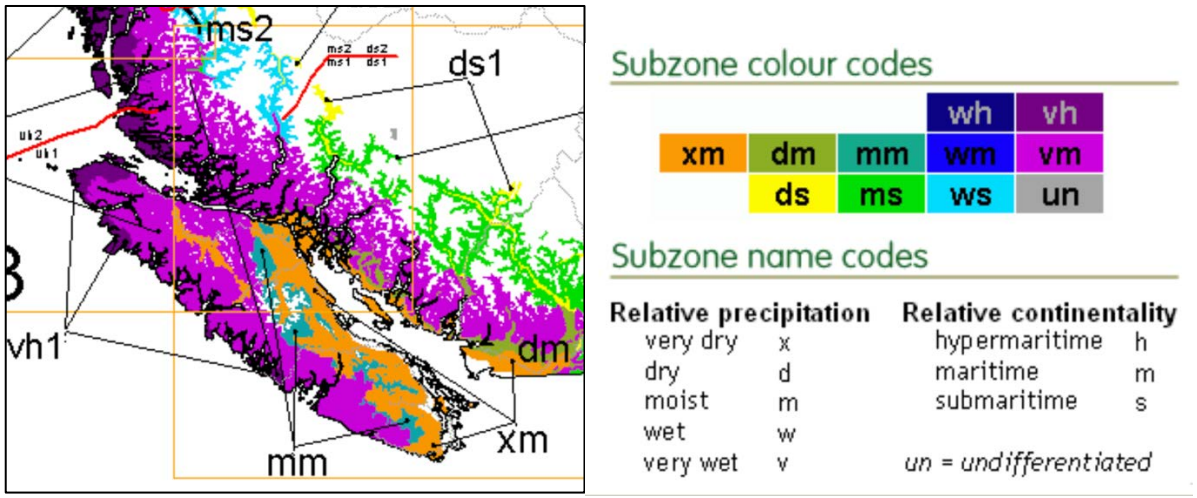

Figure 6. Subzones of CWH Biogeoclimatic zone on Vancouver Island[37].

The CWH Biogeoclimatic zone is generally the rainiest zone in BC, however Comox Valley is within the xm subzone, which is considered "very dry maritime". Any moisture coming from the pacific is dropped in the mountains, resulting in predominant growth of Douglas Fir. Most of Comox Valley's rain falls in

[36] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.
[37] UBC Centre for Forest Conservation Genetics. Accessed August 2022.

the winter months or comes mixed with snowfall. Comox airport weather station[38] reports an average of 179 mm of rainfall in November and only 26 mm in August[39]. The Comox Valley gets an average of 8 frost free months, and moderate temperatures year-round, making it a favourable location for agricultural production. A brief overview of weather norms are highlighted in Table 3.

Table 3 Weather data based on average recorded indicators for Comox Valley, BC[40].

	2014-2021 Averages			
Weather Indicator	Jan	April	July	November
Avg. Temp (°C)	4	9	18	6
Rainfall (mm)	141.1	66.8	26.0	179.0
Snowfall (cm)	36.7	0.1	0.0	14.7

Plant hardiness zones are identified by considering multiple climate factors which influence the ability of plants to grow within a region. While hardiness zones fail to capture micro-climates and the possibilities afforded by season extension infrastructure such as row covers and high tunnels, they do provide insight into the general productivity of a landscape. The hardiness zones of within the Comox Valley have remained a steady 7b with a few spots of 6a and b at higher altitudes[41]. While zones have shifted incrementally across BC over the past decade, they have not changed in Comox Valley. Zone 7b offers a wide diversity of plant production, with Comox Valley having among the most diverse production capacities in Canada.

4.2 Agricultural Capability

Not all agricultural lands are created equal and not all agricultural land is capable of, or suitable for, producing all agricultural products. Some agricultural land is more suitable for certain crops than others, and some land is best suited to pasture or grazing lands for livestock. BC's diverse agriculture industry needs all classes of land to thrive. There are three dominant limiting factors to agricultural lands in BC[42]:

1. Climate - defined by the heat energy and moisture inputs available for agricultural production.
2. Soil variability - properties and characteristics affect the land's ability to sustain agricultural products.
3. Topography - can limit access and the ability to use cultivation equipment.

The decision to put a particular parcel into a particular agricultural production is not a sole reflection of its agricultural capability or suitability. Agricultural business costs, physical accessibility and market vagaries may result in a certain block of land being used or left fallow and this may vary over time.

[38] Weather Spark. Climate and Average Weather Year Round at Comox Airport. Access June 2022.
[39] Ibid.
[40] Weather Spark. Climate and Average Weather Year Round at Comox Airport. Access June 2022.
[41] Environment Canada. Plant Hardiness Zones Map. Accessed June 2022.
[42] Agricultural Land Commission. Agricultural capability and the ALR. 2021.

The Canada Land Inventory (CLI), developed in the 1980s, used defensible criteria to apply agricultural capability rating for soils in the ALR. There are seven classes[43]:

- Class 1 land is capable of producing the very widest range of crops. Soil and climate conditions are optimum, resulting in easy management.
- Class 2 land is capable of producing a wide range of crops. Minor restrictions of soil or climate may reduce capability but pose no major difficulties in management.
- Class 3 land is capable of producing a fairly wide range of crops under good management practices. Soil and/or climate limitations are somewhat restrictive.
- Class 4 land is capable of a restricted range of crops. Soil and climate conditions require special management considerations.
- Class 5 land is capable of production of cultivated perennial forage crops and specially adapted crops. Soil and/or climate conditions severely limit capability.
- Class 6 land is important in its natural state as grazing land. These lands cannot be cultivated due to soil and/or climate limitations.
- Class 7 land has no capability for soil bound agriculture.

Although Class 6 and 7 lands have limited capability for soil bound agriculture, they may be agriculturally productive where topography and climate allow. The following are not considered in the classification: distance to market, available transportation facilities, location, farm size, type of ownership, cultural patterns, skill or resources of individual operators, and hazard of crop damage by storms.

Land within the Comox Valley has been extensively assessed and contains a significant amount of Class 4 and 5 agricultural lands (unimproved) with the most prominent limitations to production being excessive water, moisture deficiencies or stoniness. Classes 4 and 5 denote moderate to low agricultural capability without intervention, though these lands are still highly productive and many of the limitations presented are improvable to a class 1-3 through use of irrigation and drainage infrastructure[44]. The Comox Valley also has a significant amount of land which contains classes 1-3, identified by the pink layer in Figure 7 and Figure 8. These lands are highly productive and ideal for all forms of agricultural production.

[43] Ministry of Agriculture and Food, Ministry of Environment. Land Capability Classification for Agriculture in British Columbia. 1983.
[44] Climate and Agriculture Initiative. Regional Adaptation Strategies: Vancouver Island. 2020.

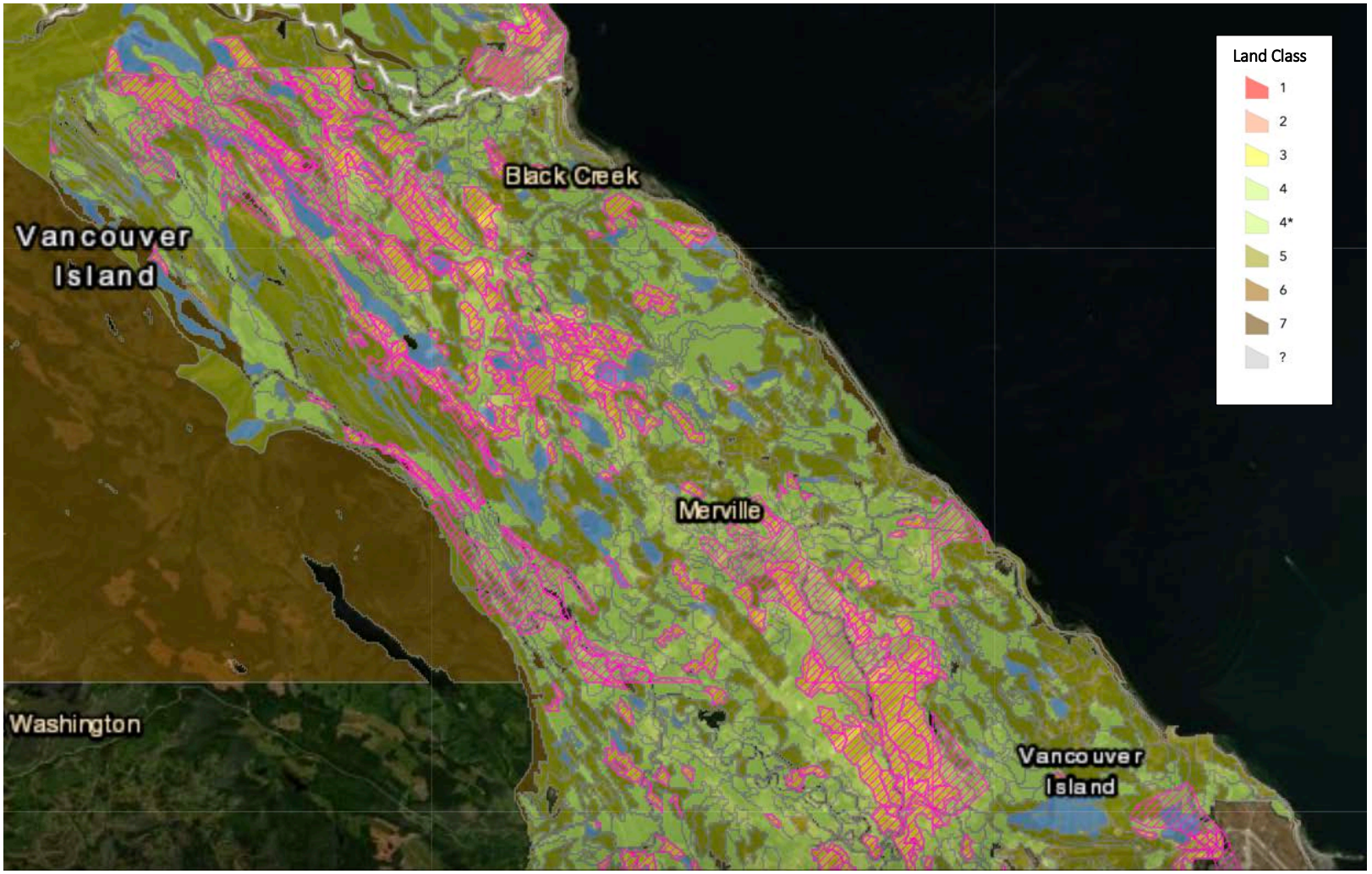

Figure 7. Example of Agricultural Capability map in Comox Valley. Pink-cross hatched area means lands which contain Class 1, 2 or 3. [45]

[45] BC Soil Information Finder Tool (SIFT). Accessed August 2022.

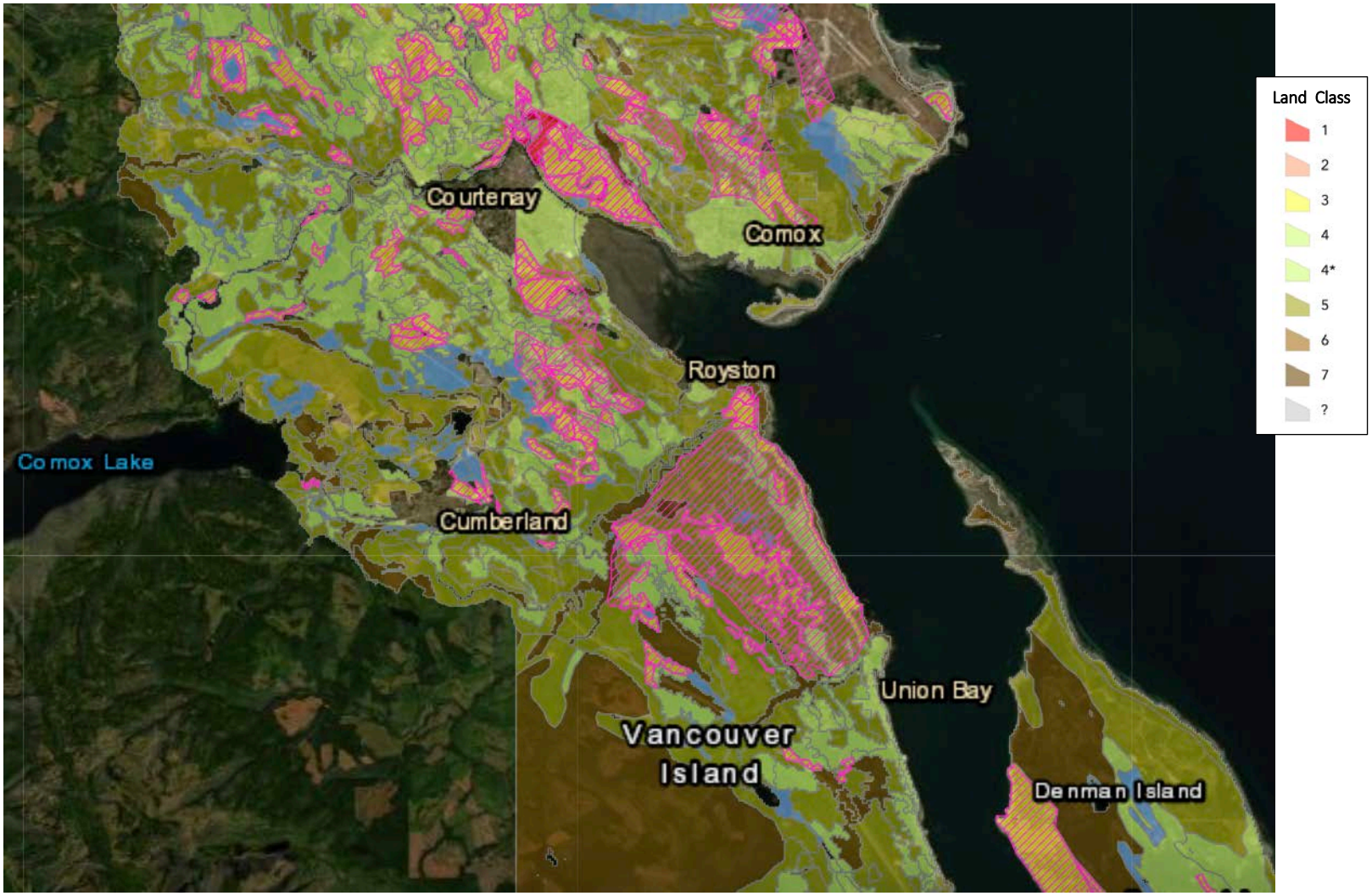

Figure 8. Example of Agricultural Capability map in Comox Valley. Pink-cross hatched area means lands which contain Class 1, 2 or 3.[46]

[46] BC Soil Information Finder Tool (SIFT). Accessed August 2022.

4.3 Agricultural Land Reserve

In 1970's the Provincial government established the Agricultural Land Commission (ALC) to oversee land use taking place within the ALR. The ALR was identified in part by the Canada Land Use Inventory and in collaboration with local governments. It includes lands across the province that have climate and soil combination for optimal agricultural production. The ALR system works to preserve BC's food security and the future of agriculture in an ever-changing landscape. Lands within the ALR are protected for agricultural priority use as they are expected to have the best potential for agricultural production. As of 2013, within the CVRD there was 23,429 ha of ALR, comprising 14% of the CVRD's total land area[47]. Most of this land is situated along the coast, away from the Vancouver Island Ranges, and on Denman and Hornby Islands (Figure 9).

The 2013 Agricultural Land Use Inventory (ALUI) found that of the 23,429 ha of ALR in the CVRD, only 23% was being actively farmed. Thirty-eight percent of land was otherwise unusable for farming due to infrastructure (roads, houses, barns etc.), pre-existing residential infrastructure, waterbodies, wetlands, or its status as a park or reserve.

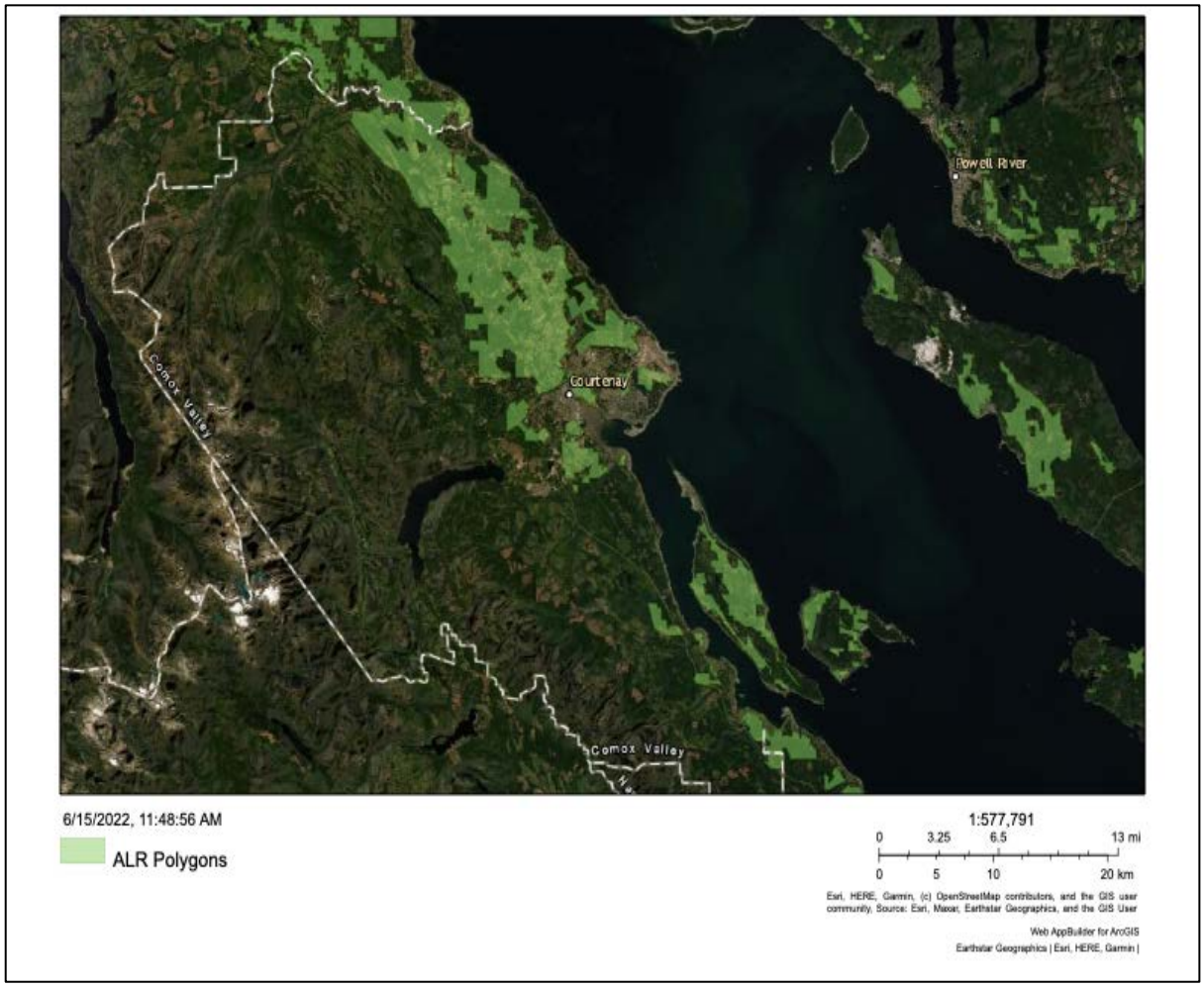

Figure 9. ALR within the CVRD.

[47] BC Ministry of Agriculture. Comox Valley Regional District Land Use Inventory. 2014.

4.4 Water Resources

4.4.1 Watersheds

The Comox Valley encompasses several watersheds, such as the Comox Lake watershed, the Tsolum River watershed, the Oyster River watershed, the Black Creek watershed and the Roy Creek watershed, among several others. The Comox Lake Watershed is the main source of household water for residents of Comox, Courtenay and surrounding communities and also includes the downstream Puntledge watershed. The Tsolum River watershed begins at the northeast side of Mount Washington and flows southeast towards Courtenay incorporating low lying residential and agricultural areas. The watershed includes rivers, streams and aquifers and is a significant source of water for agricultural use in the Comox Valley. As summers grow longer and hotter with a changing climate, the need for irrigation is increasing. This will apply additional pressure to an already stretched watershed which experiences significant differences between wet and dry seasons, often bringing floods and high water in the winter and springs, followed by very low water levels in July through October when it is needed the most.

Between 2019 and 2021 a Tsolum River Agricultural Watershed Plan[48] was developed to better understand the watershed demands and identify steps for the future. The research from phase one of the plan found that groundwater plays an important role in agricultural water needs and that irrigation account for 85% of the water consumption. Research for the plan also raised concerns about the ability of the watershed to meet community needs for water into the future due to changing water needs resulting from both climate change and farmland expansion[49]. Phase two of the plan culminated in a number of recommendations including; collaborative management of the Tsolum watershed (including proactive land-use planning and policy co-creation with K'ómoks), improving understanding of the watershed and climate change, encouraging sustainable water management through the use of provincial management tools, and supporting community and producers in water management techniques.

The recommendations emerging from the Tsolum River Agricultural Watershed Plan important for agricultural production include:

- A greater emphasis on education around the watershed and its inherent value,
- Supporting producers in on-farm water storage infrastructure,
- Expanding crop variety trials to identify crops which are resilient to water stress,
- Assisting in well licensing, and,
- Supporting water conservation and beneficial management practices to improve watershed health.

4.4.2 Aquifers

The Comox Valley is also home to over a dozen aquifers which contribute to well water access for residents, businesses, and farms. A list of known aquifers in the Comox Valley as well as their locations, vulnerability and productivity can be found in Table 4.

[48] CVRD. Tsolum River Agricultural Watershed Plan, Phase two. May 2021.
[49] CVRD. Tsolum River Agricultural Watershed Plan, Phase One. February 2019.

Table 4. Mapped Aquifers in Comox Valley.[50]

#	Aquifer Name	Descriptive Location	Material Type	Vulnerability	Productivity	Demand
950	Wood Mountain and Mount Washington	Courtenay Airport, Courtenay	Bedrock	Low	N/A	N/A
952	Tsolum River, North of Courtney	North of Puntledge River	Sand and Gravel	High	N/A	N/A
417	Puntledge/ Cumberland	North of Cumberland, to Puntledge R.	Sand and Gravel	High	N/A	N/A
412	Oyster River	Kahushan Point, north bank of Oyster R.	Sand and Gravel	High	N/A	N/A
411	Nanaimo Group, Campbell River to Courtney	1 km S. of Oyster R. Vancouver Is.	Bedrock	Low	N/A	N/A
951	Courtney and Royston	Puntledge to Courtenay	Sand and Gravel	Moderate	N/A	N/A
408	Comox-Merville	Comox Harbour to 10 km north of Merville	Sand and Gravel	Moderate	N/A	N/A
436	N/A	Shingle Spit-Phipps Point, Hornby Island	Bedrock	Moderate	Low	High
437	N/A	Ford Cove-Norman Point, Hornby Island	Bedrock	Moderate	Moderate	Moderate
438	N/A	Mt. Geoffrey, Hornby Island	Bedrock	Moderate	Moderate	High
435	N/A	Whaling Station Bay, Hornby Island	Bedrock	Moderate	Low	High
414	N/A	Alluvial fan at the mouth of Rosewall Cr.	Sand and Gravel	High	High	High
419	N/A	Wilfred Creek delta, south of Fanny Bay	Sand and Gravel	Moderate	High	Moderate
740	N/A	Denman Island	Bedrock	High	Low	Moderate
739	N/A	Denman Island - east	Sand and Gravel	Moderate	Low	Moderate
415	N/A	Tsable River delta deposit	Sand and Gravel	High	High	Low
407	N/A	Point Holmes, east of the Town of Comox.	Sand and Gravel	High	Moderate	Low
409	N/A	Little River deltaic deposit	Sand and Gravel	High	Moderate	Low

[50] BC Water Resource Atlas. Accessed August 2022.

4.4.3 CVRD Water Services

The CVRD operates five water service systems including the Comox Valley Water System, servicing 45,000 people, and the Black Creek-Oyster Bay Water Local Service Area (Figure 10), servicing 2,200 people. Both of these water systems service a large number of agricultural operations. In 2021, the CVRD completed the Water Treatment Project which consisted of the construction of a new water treatment facility to eliminate boil water advisories due to turbidity. The facility cleans water through 3 methods (filtration, ultraviolet purification, and chlorination) to improve water security for 50,000 people in Comox Valley[51] as well as providing consistent clean water for agricultural operations.

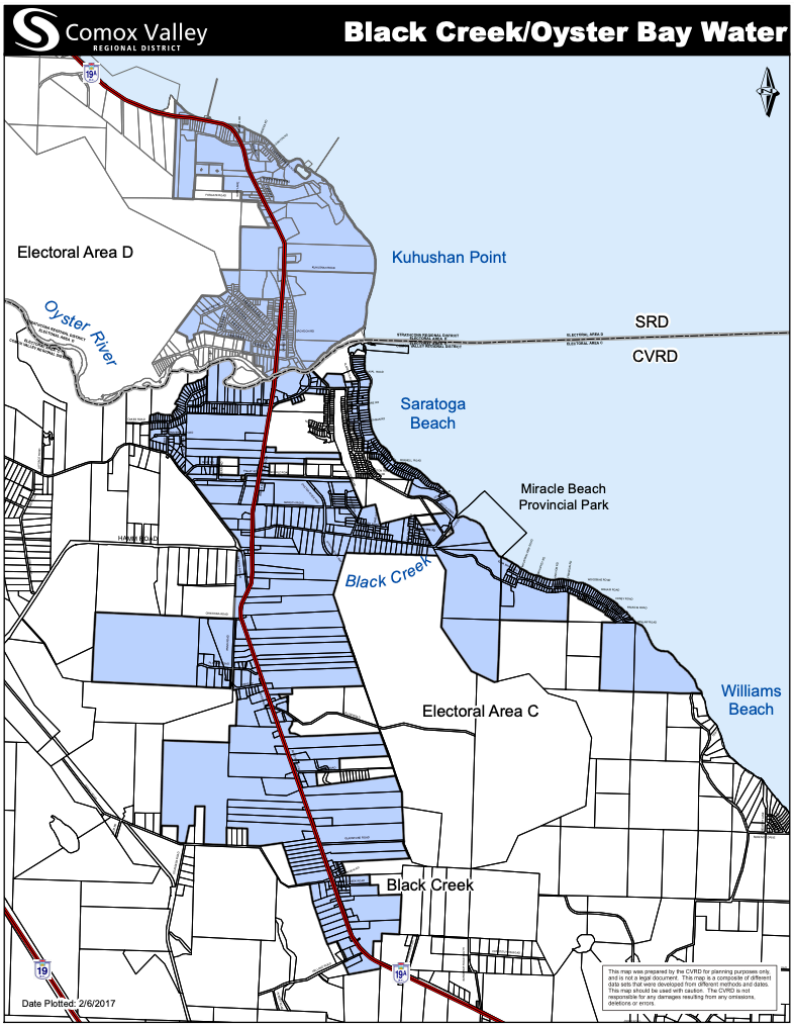

Figure 10. Map of Black Creek - Oyster Bay water service area.

4.4.4 Agricultural Water Use

An Agricultural Land Use Inventory (ALUI) was conducted by the Ministry of Agriculture and Food (MAF) in 2013. This ALUI helped to document all uses occurring within the ALR and on parcels of land with Farm Tax Status outside the ALR. Data regarding land use activities was then used to populate an Agricultural Water Demand Model (AWDM).

[51] CVRD. Comox Valley Water Treatment Project. 2021.

The ALUI found that only 28% of farms were using irrigation in the Comox Valley. The Census of Agriculture data from 2021 indicates that out of 9,148 ha of farmed land in the Comox Valley, 975 ha of is being irrigated. More recent (2022) water licensing information available through the BC Water Resources Atlas indicates 604 current active surface water licenses in the Comox Valley. Of these licenses, 236 are domestic, 162 are related to agricultural use, with the majority being irrigation (Table 5). Table 5 provides a full break down of agriculturally relevant surface water licenses in the Comox Valley. The remaining licenses are connected to water providers, manufacturing, storage, and power. In addition to surface water, the Comox Valley is home to over 1,000 groundwater wells. Of these, only 16 are licensed. The intended use of 675 of these wells is stated as "private domestic" with only 5 wells intended for "irrigation" none of which are currently licensed[52]. It is worth noting that many farmers who have submitted water license applications through the Water Sustainability Act application process are still waiting for these to be processed. Therefore, it is likely that the number of licensed wells and surface water licenses will increase over the next few years once the province had captured this information.

Table 5. Agricultural surface water licenses in Comox Valley.[53]

License use	# of licenses
Irrigation	138
Livestock	8
Greenhouse/ Nursery	3
Flood harvesting	4
Crop suppression	3
Frost protection	6

4.5 Environmentally Sensitive Areas

Environmentally sensitive areas are places where valued environmental attributes are found to be sensitive to disturbances and special care or retention are critical to protecting diverse plant and wildlife populations and ecosystem services. Identification and cataloguing of these areas happen through mapping and Sensitive Ecosystem Inventories. A 1998 SEI of Comox Valley found 7 rare and threatened ecosystem types: coastal bluff, sparsely vegetated, terrestrial herbaceous, riparian, wetland, woodland, and older forest. In addition to these seven, two essential ecosystems which have been modified by humans but which are essential for biodiversity and wildlife: older second growth forest and seasonally flooded agricultural fields.

A 2014 report called the Comox Valley Sensitive Ecosystem Inventory Disturbance Assessment[54] found that over 20 years, from 1992 – 2012 there was significant sensitive ecosystem loss in the Comox Valley. Most of this loss occurred in lowland Comox Valleys forest ecosystems (older second growth forests, woodlands and older forests) and was mainly attributed to development including industrial, road and urban use and land clearing or logging. A breakdown of ecosystem loss assessed in the 2014 report can be seen in Table 6.

[52] BC Water Resource Atlas. Accessed August 2022.
[53] Ibid.
[54] Comox Valley Conservation Strategy. Comox Valley Sensitive Ecosystem Inventory Disturbance Assessment. October 2014.

Table 6. Comox Valley Lowland Sensitive Ecosystem Loss 1992- 2012.[55]

Loss of Comox Valley Lowland Sensitive Ecosystems (area in hectares) over two ten year periods between 1992 and 2012.					
Primary SEI Ecosystem Type	**Adjusted SEI Amount***	***Lost 1992 - 2002***		***Lost 2002 - 2012***	
		Area	**%**	**Area**	**%**
Coastal Bluff	8.3	0.0	0.0%	0.0	0.0%
Terrestrial Herbaceous	329.8	4.4	1.3%	33.6	10.3%
Older Forest	702.6	180.7	25.7%	53.0	10.2%
Riparian	2324.0	97.8	4.2%	77.2	3.5%
Sparsely Vegetated	17.0	0.0	0.0%	0.0	0.0%
Wetland	2262.2	48.0	2.1%	14.7	0.7%
Woodland	16.2	6.5	39.9%	0.0	0.0%
Totals (Rare and Threatened Ecosystems)	*5660.1*	*337.3*	*6.0%*	*178.6*	*3.4%*
Seasonally Flooded Agricultural Field	471.3	6.5	1.4%	0.0	0.0%
Older Second Growth Forest	6465.3	1951.9	30.2%	1283.9	28.4%
Total (Other Important Ecosystems)	*6936.7*	*1958.4*	*28.2%*	*1283.9*	*25.8%*
TOTALS	***12596.7***	***2295.7***	***18.2%***	***1462.5***	***14.2%***

*The adjusted SEI area includes ecosystem additions and excludes reinterpreted primary ecosystems identified during assessments of the original SEI in 2002 and 2012.

In 2010, the Comox Valley released a Sustainability Strategy[56] which contained goals for ecosystem conversation including protecting 100% of sensitive ecosystems by 2050 and rehabilitating 70% of degraded ecosystems by 2050. Some direct-action items within the strategy include mapping and inventorying 100% of ecosystems by 2015, integrating ecosystem stewardship into curriculums, and ensuring consistency across local governments in ecosystem protection regulations.

4.5.1 Wetlands and Woodlands

Wetlands and woodlands serve as important habitat for an array of plants and animals as well as providing important ecosystem services which humans rely on. According to the 2021 Agriculture Census within Comox Valley there are 161 farms which report having wetlands and woodlands on their properties, although the exact area of this land is supressed for privacy.

There are several local organizations working on protecting and enhancing watersheds, wetlands and woodlands. These include the Comox Valley Project Watershed Society, the Comox Valley Land Trust and many partners in the Comox Valley Conservation Strategy Community Partnership.

4.5.2 Waterfowl and Wildlife Habitat

Like much of Coastal BC, the Comox Valley serves as an important feeding ground for migrating waterfowl during the winter months. Finding the balance of co-existence between supporting the waterfowl populations and protecting agricultural yields is an ongoing effort. Organizations such as Ducks Unlimited Canada (DUC) are working to support producers in striking this balance. For over 20 years DUC has been working with the agriculture sector in Comox Valley on introducing cover crops to bare winter soils to help attract migrating birds, such as the Trumpeter Swan away from important

[55] Comox Valley Sensitive Ecosystem Inventory Disturbance Assessment
[56] CVRD. Comox Valley Sustainability Strategy. February 2010.

agricultural crops, and towards alternative feeding fields[57]. Additional wildlife support on agricultural land is found in conservation of riparian areas. Riparian areas are the transition zone between a watercourse and upland fields. Efforts to conserve and protect riparian areas produce numerous benefits including flood mitigation, biodiversity, water purification, fish populations and habitat for wildlife and pollinator species. For the purposes of protecting riparian areas necessary for fish habitat, the CVRD works with the Riparian Area Protection Regulation under the Fish Protection Act which requires assessments from qualified environmental professionals of residential, commercial and industrial development in the vicinity of fish-bearing watercourses.

4.6 Invasive and Noxious Weeds, Pests, and Diseases.

As a result of climate change, life cycles and populations of agricultural pests and diseases are expected to shift. Understanding the current pests and diseases is a critical part of preparing for future pressures. Invasive species, primarily plants, negatively impact the agriculture and livestock industry. Loss of native grasslands to the spread of invasive plants has led to the loss of forage for both livestock and wildlife. Many invasive species also pose health threats to livestock and wildlife due to toxins or burrs causing physical injury. There are online resources including the CVRD website, the Cowichan Valley Land Trust and the Coastal Invasive Species Committee (ISC), offering information about invasive species in and around the Comox Valley, as well as management and disposal tactics. While there are many invasive plants in the area, the Coastal ISC has developed a rating system to clearly define the degree of intervention required for each species (Table 7)

Table 7. Invasive plant species on Vancouver Island.

Invasive Plant Species			
Eradicate	**Contain**	**Control**	
Blueweed	Carpet Burweed	Bur Chervil	Periwinkle Species
Buffalo Burr	Hawkweed Orange	Burdock Species	Purple Loosestrife
Common Reed	Knapweed, Black	Canada Thistle	Scotch Broom
Cordgrass	Knapweed, Diffuse	Common Tansy	St. John's Wort
Garlic Mustard	Knapweed, Spotted	Teasel, Fullers	Tansy Ragwort
Giant Hogweed	Knapweed, Meadow	Dalmatian Toadflax	Butterfly Bush
Giant Reed	Knapweed Bohemian	English Holly	Daphne/ Spurge Laurel
Hoary Alyssum	Knotweed, Giant	English Ivy	Grose
Hoary Cress	Knotweed, Himalayan	Giant Mannagrass	Eurasion Watermilfoil
Lesser Celendine	Knotweed Japanese	Hairy Cat's Ear	Yellow Archangel
Garden Loosestrife	Poison Hemlock	Himalayan Blackberry	Yellow Hawkweed
Milk Thistle	Himalayan Balsam	Jimson Weed	
Shiny Geranium	Scotch Thistle		
Slender False Brome	Yellow Flag Iris		
Sulfur Cinquefoil			
Sweet Fennel			
Wild chervil			

[57] DUC. Comox Valley program helps ducks and agriculture co-exist in BC. Accessed August 2022.

In 2021, the Climate and Agriculture Initiative BC developed a Pests and Pollinators Assessment for Vancouver Island which highlighted the most prominent pests of concern for the area based on engagement with stakeholders in the agriculture sector[58]. Table 8 summarizes the findings from that report.

Table 8. Pests and Diseases by crop in Cowichan Valley.

Pests and Diseases of Concern			
Forage	**Berries**		**Tree Fruit**
Leather Jacket	Blueberry maggot	Brown marmorated stink bug	Ambrosia beetles
True Armyworm	Cranberry tipworm	False blossom	Anthracnose canker
Western corn Rootworm	Grapevine leafroll virus	Japanese beetle	Apple decline
	Leafrollers	Lygus bug	Apple maggot
Western yellowstriped armyworm	Nematodes	Ripe rot	Apple scab
	Rose stem girdler	Spanworm	Coddling moth
	Spotted lantern fly	Spotted wing drosophila	Eastern filbert blight
	Strawberry blossom weevil	Verticillium wilt	Spotted wing drosphila

4.7 Climate Change and the Comox Valley

Farmers are accustomed to the weather influencing their activities and weather-dependent decisions are a part of farming life. Adapting to climate change, however, 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 farm viability and food production. Various climate change modelling scenarios developed by UBC, and the Pacific Agri-Food Research Centre (PARC) in Summerland, predict, for the province of BC, an overall warming of temperatures across seasons along with a shifting hydrological systems and increased frequency of extreme weather events.

Despite the challenges of applying broad climate models, some general projections are anticipated in BC between now and 2050. For Comox Valley, climate projections from the Pacific Climate Impact Consortium suggest significant increases in temperature as early as the 2050's, overall reduced snowfall in winters with increased precipitation as rain, and an extension of the productive season through increased growing degree days and frost-free days. Table 9 (next page) offers a more in-depth look at the current projections.

[58] Climate & Agriculture Initiative BC. Pests & Pollinators Gaps & Opportunities Assessment & Implementation Plan. 2021.

Table 9. Climate Projections for Comox Valley in the 2020s, 2050s, and 2080s.[59]

		2020 change from 1961-1990 baseline		2050 change from 1961-1990 baseline		2080 change from 1961-1990 baseline	
Characteristic	**Season**	**Range**	**Median**	**Range**	**Median**	**Range**	**Median**
Median Temperature	Annual	+1.2°C to +1.9°C	+1.5°C	+1.9°C to +3.8°C	+2.7°C	+3.3°C to +5.9°C	+4.3°C
Precipitation	Annual	-2.0% to +3.0%	+0.98%	-1.4% to +6.7%	+2.7%	+0.62% to +13%	+8.1%
	Summer	-26% to +7.8%	-13%	-41% to +3.6%	-15%	-54% to -8%	-26%
	Winter	-0.7% to +11%	+4.9%	+0.04% to +10%	+5.2%	+1.7% to +21%	+12%
Snowfall	Winter	-64% to -39%	-56%	-81% to -64%	-74%	-93% to -77%	-89%
	Spring	-63% to -21%	-45%	-82% to -41%	-59%	-96% to -64%	-84%
Growing Degree Days	Annual	+243 to +459 degree days	+368 degree days	+438 to +981 degree days	+668 degree days	+823 to +1630 degree days	+1110 degree days
Frost-free days	Annual	+26 to +42 days	+37 days	+47 to +75 days	+60 days	+69 to +97 days	+87 days

Shifting hydrological patterns will bring more rain during fall, winter and spring months, reduced precipitation in summers, and more extreme precipitation events. When paired with rapid snowmelt at higher altitudes, there will be an increased likelihood of flooding. In a region which already experiences significant rainfall, which is at times detrimental to agricultural production, increased precipitation in three seasons will place further strain on agricultural viability and require drainage interventions. Precipitation in summer months is anticipated to decline, and along with a hotter drier climate will result in significantly increased water withdrawals from surface and groundwater sources[60], increasing pressure on water sources which already experience low flows during periods of high demand[61].

4.7.1 Climate Change Impacts on Agriculture

With rising temperatures and changes in precipitation patterns, the Comox Valley can expect dramatic secondary effects which will impact agriculture production including pressure on fresh water sources, creating strain on crop and livestock water needs. These changing hydrological systems along with higher summer temperatures will only serve to increase water demands during hot dry summer months, as well as increase the risks of forest fires.[62] Warmer winters may be favourable to new pests

[59] Pacific Climate Impacts Consortium. Plan2Adapt tool. Accessed May 2022.
[60] Climate and Agriculture Initiative BC. Regional Adaptation Strategy: Vancouver Island. 2020.
[61] Comox Valley Agricultural Plan: History and Resources. 2000.
[62] Climate and Agriculture Initiative BC. Regional Adaptation Strategy: Vancouver Island. 2020.

and diseases which will be able to over-winter and expand their territory into Comox Valley. Furthermore, warming across all seasons con contribute to changes in pollinator behaviour, compromising agricultural pollination schedules.[63]

In 2020, the BC Climate and Agriculture Initiative, released the regional adaptation strategy for Vancouver Island, identifying several climate issues as top concerns for the region. These issues include warmer & drier summer conditions, changing pest and beneficial insect populations, increasing variability and shifting crop suitability, and increasing precipitation and extreme rainfall events.[64] Additional effects may include a range of conditions described in Table 10.

Table 10. Potential agricultural impacts of climate change in Comox Valley[65].

Climate Change Condition	Potential Agricultural Impacts
Changing Hydrological systems	Increased flows in shoulder seasons with risk of flooding, reduction in water supply during growing seasons, increase in need for water storage infrastructure, negative impacts on non-irrigated croplands.
Increasing temperatures across all seasons	Increased pressures from pests and diseases, increased potential for drought and extreme heat and resulting damage to crops, increased evapotranspiration and damage to crops.
Changes conditions favourable to pests, diseases, and invasive species	Increased winter survival rates, more frequent and increased damage to crops, inability to rely on previous pest management practices, increase in costs of pest and disease management.
Increased occurrence of extreme precipitation events	Increased potential for floods and run off, wet soils hindering access to land and productivity of land, increased risk of erosion in fields and riparian areas, potential flooding and resulting infrastructure damage.
Increased risk of wildfires in hot, dry summers	Stunting impacts of smoke and ash on crop production, impacts to livestock and human health, increased damage to agriculture infrastructure, long term impacts on soil and hydrological systems after severe burns, competing water needs between firefighting and agriculture use, psychological effects on producers.
Increased seasonal variability	Reduced predictability of weather patterns, changes to production scheduling and an increased need for adaptability, unpredictable frost days, unpredictable timing of bloom and changes to pollinator behaviour.
Increased growing degree days and frost-free days	Potential for additional cuts of hay, opportunities for new varieties of crops, inconsistent yield and quality from previous crops.

4.7.2 CVRD Commitments to Climate Change

The CVRD has made strong commitments on climate action through various regulations and strategies including two provincially mandated climate action initiatives; the BC Climate Action Charter[66], as well as the Green Communities Act in the early 2000's. Furthermore, the CVRD joined the Partners for

[63] Climate and Agriculture Initiative BC. Regional Adaptation Strategy: Vancouver Island. 2020.
[64] Ibid.
[65] Ibid.
[66] Government of British Columbia. The BC Climate Action Charter. Accessed August 2022.

Climate Protection Program[67] in 2006 and adopted the BC Climate Action Toolkit[68] in 2008. In 2010 and the Comox Valley Sustainability Strategy[69] was completed which included the goal of 80% reduction in GHG emissions from 2007 levels by 2050. The CVRDs Climate Action commitments are consistently carried through into additional strategies and plans within the region including the Regional Growth Strategy[70], and the development of the Corporate Energy and Emissions Plan[71] in 2011, revised in 2022.

To address climate change adaptation and mitigation through an agricultural lens, the CVRD released the Rural Areas Community Climate Action Plan[72] in 2015 which includes a section dedicated to the agricultural sector. One goal which is specifically relevant to coordinating climate action within the agricultural sector is, "Monitor efforts to enhance sustainable agricultural activities in the Comox Valley and facilitate where needed."

Commitments include:

i. Perform an inventory of existing and planned agricultural efforts by the CVRD, community groups, and local and regional farming organizations.
ii. Engage the Agricultural Planning and Advisory Committee on sustainable agricultural efforts and coordination.
iii. Monitor the uptake and successes of application of the Environmental Farm Plan.
iv. Consider supporting farmers in on-site water storage and methane gas capture from dairy cow manure programs.
v. Consider establishing an agricultural development centre - an entity that trains farmers, makes farmland available and produces and sells local food.
vi. Coordinate with Ministry of Agriculture and Food to keep the agricultural land use inventory up to date.
vii. Perform an agricultural processing services and facilities assessment with the intent of improving the opportunity, quality and quantity of local value-added food products

These commitments are continuously being acted upon and progress is expected to continue over the long term.

4.8 Natural Hazards and Emergency Planning

The Comox Valley faces a number of natural hazards which are only expected to increase in frequency and severity with a changing climate. Two critical hazards are flooding (coastal and river) and wildfires.

4.8.1 Coastal and river flooding

Floods are part of the natural environment which can be beneficial to agriculture by enriching floodplain soils and providing soil moisture. However, they can also cause detrimental impacts to agricultural land and farms and disrupt supply chains. The Comox Valley is subject to floods both from overland and

[67] Federation of Canadian Municipalities. Partners for Climate Protection Program. 2006.
[68] BC Climate Action Toolkit. Accessed August 2022.
[69] CVRD. The Comox Valley Sustainability Strategy. 2010.
[70] CVRD. Comox Valley Regional Growth Strategy. 2010.
[71] CVRD. Comox Valley Corporate Energy and Emissions Plan. 2022.
[72] CVRD. Rural Communities Climate Action Plan. 2015.

riverine floods during extreme precipitation events, and coastal floods from sea level rise and coastal storms.

The CVRD has taken a proactive approach to coastal flood events as they have embarked on an adaptation strategy which included a coastal Flood Mapping Project[73]. The mapping project included mapping areas of concern both coastal and along rivers and found the entire CVRD shoreline to be at risk, including agricultural areas in the Elma Bay area the Little River area, Courtenay Flats, the Lazo area, and Deep Bay[74]. While the area at risk of flood is small in relation to the entire CVRD land base, (1.1% of the land base) this area contains a significant amount of residential and agricultural settlements. Furthermore, rising sea levels increase the area of land at risk of flooding. The Coastal Flood Adaptation Strategy resulted in identifying four priorities for the CRVD to focus on in preparing for, preventing, and responding to flood events[75].

A Farm Flood Readiness Toolkit, developed by the Climate and Agriculture Initiative, is available for producers to help understand potential flood scenarios and prepare for floods on their farms. [76]

4.8.2 Wildfires

The occurrence and severity of wildfires are increasing across BC, including on Vancouver Island which experienced several fires in the 2021 season. Wildfires are spurred by warming summer temperatures, increased droughts, and a collection of forest debris which acts as fuel. The proximity of agricultural operations to forests, places farming operations within the CVRD under increasing pressure from wildfire. In addition to the direct destruction caused by fires, potential impacts to the agriculture sector include negative impacts to animal and crop health and productivity from smoke and disrupted access to local services, supply chains, and transportation networks[77].

The CVRD offers a webpage devoted to wildfire preparedness, response and recovery through which residents can access resources to guide them through wildfire season[78]. Likewise, BC Ministry of Food and Agriculture provides emergency preparedness factsheets, tips, industry specific guidelines.[79]

[73] Comox Valley Regional District. Coastal Flood Adaptation Strategy. 2022.
[74] Comox Valley Regional District. Coastal Flood Mapping Project. 2021.
[75] Comox Valley Regional District. Coastal Flood Adaptation Strategy. 2022.
[76] Climate and Agriculture Initiative BC. Farm Flood Readiness Toolkit. 2022.
[77] Climate and Agriculture Initiative BC. Regional Adaptation Strategy: Vancouver Island. 2020.
[78] Comox Valley Regional District. Wildfires. Access June 2022.
[79] BC Ministry of Food and Agriculture. Emergency Response Planning. Access June 2022.

5.0 Agricultural Profile

The fertile landscape and favorable climate of the Comox Valley has attracted producers since the 1860's when settlers first began arriving in the area. Early farmers grew a diversity of products from grains and silage to vegetables, raised animals for meat and had a thriving dairy sector. Today, farms in the Comox Valley remain diverse and relatively small-scale, with 79% of farms being under 70 acres. The following section explores the make-up of agriculture in the Comox Valley today.

5.1 Agricultural Profile Methodology

Several sources of data were used to construct the Agricultural Profile: the Agricultural Land Use Inventory, the Census of Agriculture and BC Assessment Farm Class Data (see section 5.7).

Agriculture Land Use Inventory

In the summer of 2013, MAF conducted an Agricultural Land Use Inventory (ALUI) within the CVRD.[80] Each parcel within the ALR or with Farm Tax Status outside the ALR was examined using MAF's standard AgFocus system for ALUI. The ALUI data is helpful in answering the type and scale of agricultural activities and what proportion of the ALR is available for farming.

Census of Agriculture

The Census of Agriculture collects information from self-reporting individuals every five years as part of the larger Statistics Canada census collection and the completion is mandatory under the Federal *Statistics Act*. The Census of Agriculture is a federal data collection initiative, and as such the geographic resolution is coarser than that of the ALUI. This a reason for some discrepancies found in the datasets. The latest available Census of Agriculture uses 2021 data from Statistics Canada for Census Division (CD) Comox Valley Regional District.[81] The boundaries for Census Division 53 cover the entire Comox Valley Regional District with several subdivisions for the Electoral Areas and Municipalities.

The Census of Agriculture defines the term "agricultural operator" as a person responsible for the management and/or financial decisions made in the production of agricultural commodities[82]. In the 2011 and 2016 censuses, an "agricultural operation" was defined as any farm that grows or produces agricultural products with the intent to sell these products. In the 2021 census, "agricultural operation" was replaced by "agricultural holding" (i.e., the census farm) and is now defined as "a unit that produces agricultural products and reports revenues or expenses for tax purposes to the Canada Revenue Agency." The new definition removes ambiguity in the definition of a census farm, focusing on business oriented agricultural operations. This change affects the comparability of farm counts and related statistical data from previous census years[83].

[80] Ministry of Agriculture. Comox Valley Land Use Inventory Report. 2013.
[81] Statistics Canada. 2016. Census of Agriculture
[82] Statistics Canada. 2020. Frequently Asked Questions.
[83] The Western Producer. Stats Can changes "Farm" definition. April 2022.

5.2 Farm Characteristics

5.2.1 Number of Farms

According to the Census of Agriculture, the number of farm operations has decreased in the Comox Valley since 2011 (Table 11). However, a decline in the number of farms between 2016 and 2021 (from 416 to 351 farms) is, in part, a result of the change in definition of a census farm.

5.2.2 Size and Type of Farms

As shown in Table 11, 79% of the farms are under 70 acres, indicating that the Comox Valley has mostly small farms, with few farms over 100 acres.

Table 11. Farm Size in the CVRD Area.[84]

	2011	% of Farms	2016	% of Farms	2021	% of Farms
Total Number of Farms	432	100%	416	100%	351	100%
Under 10 acres	143	33%	141	34%	131	37%
10 - 69 acres	201	46%	193	46%	146	42%
70 – 129 acres	39	9%	36	9%	31	9%
130 – 179 acres	19	4%	15	3%	14	3%
180 – 239 acres	8	2%	7	2%	9	3%
240 – 399 acres	9	3%	15	4%	7	2%
400 acres and over	13	3%	9	2%	13	4%

The most common type of farming operation in the CVRD is fruit and tree nut production, and cattle ranching, with both types remaining very stable in numbers over the past decade. Hay production is also common, although it has been experiencing a steady decrease since 2011, as has hog and pig farming (Table 12, next page). The only sectors to have experienced an increase in the decade between 2011 and 2021 were poultry and egg production, and vegetable and melon production. The sharp decrease in horse farms is likely partly attributed to the change in the definition of a census farm.

[84] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.

Table 12. Farms classified by farm type in the CVRD Area.[85]

Farm Types	Comox Valley Area		
	2011 432 farms	2016 416 farms	2021 351 farms
Fruit and tree nut farming	52	49	50
Beef cattle ranching	36	42	40
Hay farming	63	47	38
Vegetable and /or Melon Farming	26	30	35
Poultry and Egg Production	31	29	34
Livestock combination farming	40	35	27
Nursery and tree production	38	33	25
Other miscellaneous crop farming	20	13	19
Sheep and/or goats	18	20	18
Horse and other Equine Production	40	43	17
Vegetable & herb crops grown under cover	14	5	11
Dairy cattle	16	10	10
Apiculture	8	14	8
Fruit and vegetable combination farming	9	17	8
Miscellaneous animal production	6	7	5
Hog and Pig farming	5	10	4
Floriculture	9	8	1
Mushroom production	1	2	1
Fur-bearing animal and rabbit production	0	1	0
Wheat farming	0	1	0

A closer look at livestock trends indicates that hen and chickens are the most common animal found on farms in the Comox Valley, although the 2021 Census does not provide a count for the number of animals on these farms (Table 13). Cattle are also common on farms, with 97 farms reporting 5,421 animals. While the number of cattle heads declined from 2016, the number of farms remained the same.

Table 13. Livestock trends in Comox Valley.

	2011			2016			2021		
Livestock	# of Farms	# of Animals	Avg per farm	# of Farms	# of Animals	Avg per farm	# of Farms	# of Animals	Avg per farm
Total cattle/calves	122	6,645	54	97	5,784	60	97	5,421	56
Horses/ponies	90	348	4	83	311	4	28	x	x
Hens/chickens	171	19,025	111	187	22,587	121	142	x	x
Goats	27	206	7	27	170	6	22	x	x
Sheep/lambs	58	1,483	26	58	1,375	23	45	1,058	24
Llamas/alpacas	12	x	x	12	x	x	6	69	12
Colonies of honeybees	26	600	23	38	1,455	38	20	726	36
Total pigs	31	774	25	39	1,147	29	38	1,039	27

[85] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.

According to the Census of Agriculture, the total area of land in crops has decreased, over the past decade (Table 14). Part of this decline may be, in part, due to the change in definition of a census farm. There is likely more land in food production than reported by the census.

Table 14. Land use on farms in the Comox Valley.[86]

	Comox Valley Area		
	2011 (ha)	2016 (ha)	2021 (ha)
Cropland	4,279	4,312	3,961
Christmas trees	115	36	78
Summerfallow land	3	33	57
Tame or seeded pasture	1,212	974	x
Natural land for pasture	1,889	1,161	x
Woodland and wetlands	2,549	1,900	x
All other land	1,240	1,237	844
Total farm area	**11,287**	**9,653**	**9,148**

Note: "x" indicates that the data was too unreliable to be published.

Cropland can be further broken down into hay and field crops, tree fruits, vegetables, and nursery crops. Much of the crops produced in the Comox Valley are done on such a small scale that the Census data is withheld for privacy matters. The 2013 ALUI found a total of 5,753 ha of cropland land, 4,952 ha in forage or pasture, 218 ha in vegetable production, and 172 ha in berries. A complete breakdown of the available Census information for these crops is presented in Table 15.

Table 15. Most common crops in the Comox Valley.[87]

	Comox Valley		
Crops Produced	2011 (ha)	2016 (ha)	2021 (ha)
Alfalfa	565	70	x
Tame hay and fodder	2,572	3,069	2,891
Corn	336	316	269
Mixed grains	2	1	x
Oats	19	4	x
Barley	x	218	x
Potatoes	95	43	x
Total wheat	x	98	x
Total area of fruits	185	171	144
Total area of field vegetables	99	99	80

[86] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.
[87] Ibid.

5.3 Land Practices

Most land practices went down from 2016 to 2021, however this may be due to the overall reduction in farms. Despite this reduction, there was an increase in wind break/ shelterbelt installation. There was also an increase in Certified Organic operations between 2016 and 2021 (Table 16).

Table 16. Land Practices in Comox Valley in hectares.[88]

Practice	2011 (ha)	2016 (ha)	2021 (ha)
Commercial fertilizer (ha)	3,376	3,270	2,904
Use of solid or composted manure (not mixed into the soil)	533	514	462
Use of solid or composted manure (mixed into the soil)	436	593	402
Lime (ha)	334	622	205
Windbreaks or shelterbelts	141	149	151
Insecticides (ha)	154	229	122
In-field winter grazing or feeding	103	115	92
Rotational grazing	126	134	92
Winter cover crops	61	71	48
Plowing down green crops	45	48	44
Certified or transitional organic	12	11	15

5.4 Farm Profitability

Comox Valley producers must offset income with the costs of land, labour and agricultural inputs such as fertilizers, fuel, and feed. Many farmers across different regions of BC have indicated challenges in producing sufficient financial resources to afford adequate farm labour, equipment, and other farm inputs (seeds, feed, soil amendments, etc.) to enhance production levels, and the situation in the Comox Valley area is no different. Most farmers need financial assistance (through loans or other investments) to scale up their production and often one family member must work off the farm. Farm profitability is difficult to measure or to estimate. The following proxies can be used:

- Farm capital and assets
- Gross margin of farm operations
- Average farm receipts per farm
- Average farm receipts per hectare
- Net revenue margin

5.4.1 Farm Capital and Assets

Total farm capital includes land and buildings, livestock and poultry, farm machinery, and farm equipment. Total farm capital across the Comox Valley has increased from $530.9 million in 2016 to $691.1 million in 2021, despite the number of farms reporting decreasing (Table 17).

[88] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.

Table 17. Farm Capital of farms in Comox Valley.[89]

	2011 (millions $)	2016 (millions $)	2021 (millions $)
Total farm capital	504.3 (432 farms)	530.9 (416)	691.1 (351 farms)
Land and buildings (owned)	415.7 (416 farms)	420.4 (401 farms)	507.2 (340 farms)
Farm machinery & equipment	34.2 (432 farms)	34.4 (416 farms)	32.3 (322 farms)
Livestock and poultry	7.8 (313 farms)	13.3 (303 farms)	10.6 (245 farms)

5.4.2 Gross Margin of Farm Operations

The gross margins of Comox Valley farm operations have been on a decline since 2016 (Table 18).

Table 18. Gross margin of farm operations in the Comox Valley.[90]

Year	Gross Farm Receipts ($)	Total Operating Expenses ($)	Gross Margin
2011	31,212,798	28,005,889	10.3%
2016	33,662,551	29,490,823	12.3%
2021	37,470,727	35,843,051	4.3%

5.4.3 Farm Receipts and Net Revenue

Sales (receipts) and net revenue can be calculated on a per farm and per hectare basis using Census of Agriculture data. The average farm revenue rose between 2011 and 2021; however, this is not reflected in the gross margin due to the concurrent rise in operating expenses (Table 19). The average revenue per farm and per hectare has increased for the CVRD.

Table 19. Revenue per hectare of farmland in the Comox Valley.[91]

Year	# of Farms	Gross Farm Receipts ($)	Average per Farm ($)	Total Land in Crops (Hectares)	Average per Hectare of Land in Crops ($)
2011	432	31,212,798	72,251	11,287	2,765
2016	416	33,662,551	73,021	9,653	3,487
2021	351	37,470,727	106,754	9,148	4,096

5.4.4 Gross Farm Receipts by Category

Thirteen percent (13%) or 47 farms generated above $100,000 in revenues in 2021, while 52% of farms generated $0 or under $10,000 (Table 20). In 2021, the category of $0 in farm receipts was added. Farms in this category are not reporting revenues but are reporting expenses to the CRA.

[89] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.
[90] Ibid
[91] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.

Table 20. Gross farm receipts by category in the Comox Valley.[92]

Total Gross Farm Receipts	2011 (432 farms)	2016 (416 farms)	2021 (351 farms)
$0	x	x	36
Under $10,000	272	214	146
$10,000 – $24,999	68	87	80
$25,000 - $49,999	32	45	26
$50,000 - $99,999	22	23	16
$100,000 – $249,999	12	17	21
$250,000 – $499,999	7	16	10
$500,000 and above	19	14	16

5.5 Farm Labour and Succession Planning

Despite the average age of Comox Valley farmers being near to 60 (Table 21), in 2016, only 22 farms out 640 farms reported having a written succession plan in place for their farm. There was a slight improvement with 24 succession plans in 2021.

Table 21 Farmer demographics in the Comox Valley.[93]

	2016	2021
Total Number of operators	640	545
Farms with one operator	200	170
Farms with 2 or more operators	440	375
Male	365	300
Female	280	245
Average Age	56.9	58.8
Farms with Succession Plans	22	25

In terms of labour, a total of 35 farms reported labour types. In 2021, 25 farms reported providing full time work on a year-round basis, while 22 farms reported part-time work year-round (Table 22). A total of 21 farms reported hiring part time seasonal/temporary basis for a total of 152 employee positions.

Table 22. Farm labour in the Comox Valley.[94]

	2021	
Labour Types	Farms reporting	Total employees
Year-round full time	25	116
Year-round part time	22	88
Seasonal/temporary	21	152
Family workers	18	56

[92] Ibid.
[93] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.
[94] Ibid.

5.6 Farmland Tenure

Land tenure can be an indication of farm stability; those owning land may have more confidence to invest in the business than those who lease their land. In the Comox Valley, 82% of land being farmed is owned (Table 23). The 2021 amount of leased land is suppressed indicating that the numbers are too small to report. These numbers overall indicate a high level of farm stability in land tenure.

Table 23. Land Tenure in Comox Valley.[95]

	2016	%	2021	%
Total farm area (ha)	9,653	100	9,148	100
Area owned (ha)	8,095	84	7,538	82
Leased from governments (ha)	33	0.3	x	x
Rented or leased from others (ha)	1,439	15	x	x

[95] Ibid.

5.7 BC Assessment Farm Class Data Analysis

Data relating to BC Assessment Farm Class from 2013 to 2022 was analyzed for trends over time. The *Assessment Act* is administered by BC Assessment, a provincial Crown Corporation responsible for the classification of properties for tax purposes. Applying for farm classification ("Farm Class") is a voluntary and provides the benefit of a lowered tax rate for assessed properties.

Even though property may be zoned as agricultural land, or located 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 agricultural production and it meets the other requirements of the Act. Only land can be classified as farmland; buildings (residences and outbuildings) are classified separately. Farm status properties may or may not be located within the ALR and are valuable for noting the distribution of farmed land in both the urban and rural areas. A certain minimum amount of gross income must be produced from the primary agricultural production, and these requirements vary depending on the total land area. Minimum gross income requirements are calculated as follows:

a) $10,000 on land less than 0.8 ha (1.98 acres);
b) $2,500 on land between 0.8 ha (1.98 acres) and 4 ha (9.88 acres); and
c) On land larger than 4 ha (9.88 acres), you must earn $2,500 plus 5% of the actual value of any farmland in excess of 4 ha.

In 2022, there were 11,808 ha of land classified as having Farm Class status in the Comox Valley, which includes farms inside and outside of the ALR. Approximately 9.1% (1,073 ha) of farms with Farm Class status are outside of the ALR. The majority (60%) of land classified as Farm Class are in Electoral Area C (Table 24). The value of all Farm Class land in the CVRD is just over $430 million in land and improvement values (Table 24).

Table 24. Land classified as Farm Class and value of the land in the Comox Valley.

	Farm Class Land Area		Value (land and improvement)	
	Total (ha)	Percentage of Farm Class Area	Value ($)	Percentage of Total Value
Electoral Area A (Baynes Sound, Denman, Hornby)	2,249.3	19.0%	82,548,942	19.1%
Electoral Area B (Lazo North)	1,700.2	14.4%	87,295,402	20.2%
Electoral Area C (Puntledge-Black Creek)	7,022.3	59.5%	223,408,404	51.8%
City of Courtenay	792.5	6.7%	35,328,622	8.2%
Town of Comox	43.0	0.4%	2,539,922	0.6%
Village of Cumberland	0.4	0.0%	270,290	0.1%
Total	11,807.3		431,391,582	

The largest areas of farming activities having Farm Class status are grain and forage, dairy and beef (Table 25). There are large number of farms classified as mixed, meaning there is more than one farming activity occurring on the farm parcel (e.g., vegetables, livestock and poultry). Farm parcels classified as 'Other' include faming activities not captured by the other categories defined by BC Assessment; for example, aquaculture, apiculture, floriculture and other activities. Census of Agriculture reports 9,148 ha of farm area for 2021 whereas the BC Assessment data reports 11,807 ha of farming activity under Farm Class. This discrepancy is likely due to the differences in how the two organizations define farming activities. The vast majority (60%) of Farm Class land by area is in Electoral Area C.

Table 25. Hectares of farming activities in the Comox Valley classified as Farm Class in 2022.

	Electoral Area A (Baynes Sound, Denman, Hornby) (Ha)	Electoral Area B (Lazo North) (Ha)	Electoral Area C (Puntledge-Black Creek) (Ha)	City of Courtenay (Ha)	Town of Comox (Ha)	Village of Cumberland (Ha)	Total (Ha)
Grain & Forage	431.6	429.8	1,725.4	48.6	8.0	0	2,643.5
Dairy	0.0	207.2	1882.1	215.1	0	0	2,304.4
Beef	478.5	246.2	1,225.0	90.5	0	0	2,040.2
Other	702.9	329.6	714.0	22.9	34.3	0	1,803.7
Mixed	553.5	179.2	989.6	17.3	0.7	0	1,740.3
Small Fruit (including grapes)	16.9	98.4	150.9	363.9	0	0	630.1
Vegetable	17.3	102.4	94.4	32.1	0	0.4	246.6
Poultry	9.4	29.5	126.2	2.0	0	0	167.2
Winery	5.6	43.9	104.3	0	0	0	153.8
Tree Fruit	31.5	34.0	7.4	0.0	0	0	72.9
Meat & Poultry Processing	0	0	3.0	0	0	0	3.0
Distillery	2.0	0.0	0.0	0	0	0	2.0
Total (Ha)	2,249.3	1,700.2	7,022.3	792.5	43.0	0.4	11,807.6

According to the BC Assessment data, there has been a decline in dairy farming and an increase in grain and forage, beef and mixed farming since 2013. Small fruits, vegetables and tree fruit farming activities have remained relatively stable in the past 10 years. There has been an overall increase in hectares of farm activities reported by BC Assessment (approximate increase of 700 ha from 2013 – 2022).

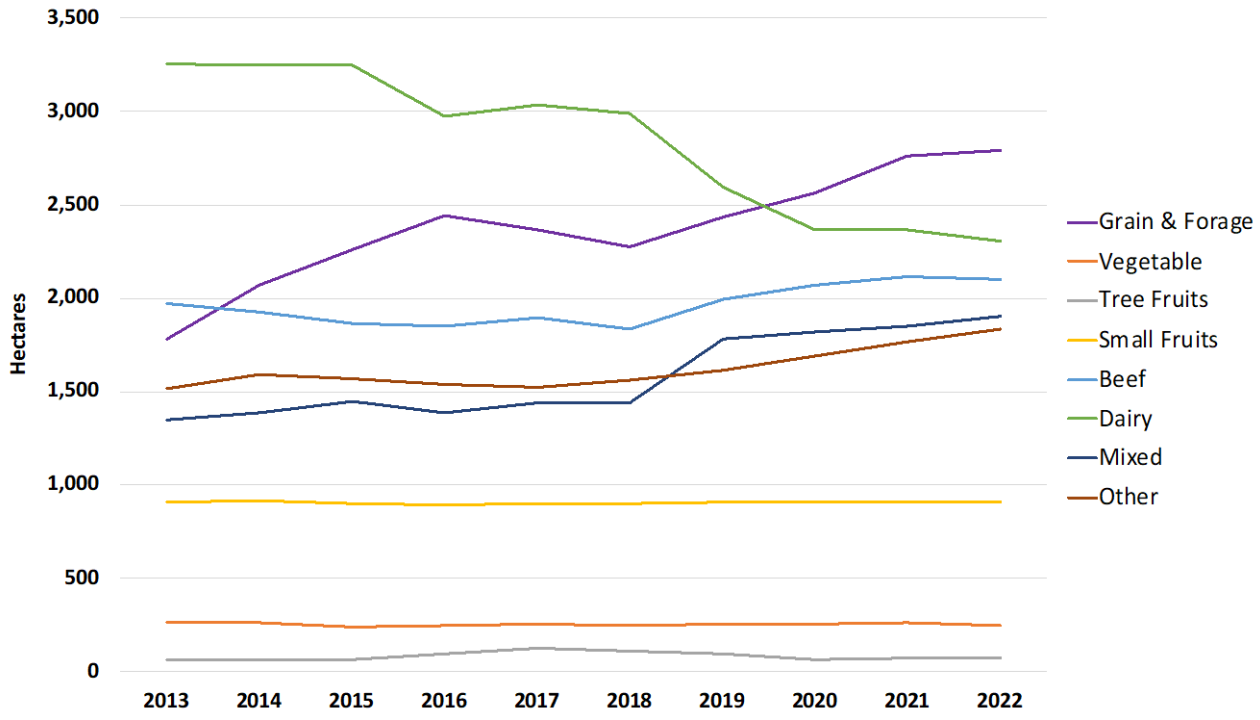

Figure 11. Changes in farming activities in the Comox Valley classified as Farm Class from 2013 - 2022.

As illustrated in Table 26, there are many more larger parcels with Farm Class than smaller parcels in the Comox Valley. Many farms in CVRD may utilize more than one parcel as a farm unit and it is generally more efficient to run a farm on fewer larger parcels than on many smaller parcels.

Table 26. Parcels with Farm Class status based on parcel size in the Comox Valley.

	< 0.8 ha	0.8 – 4 ha	> 4 ha	Total
Electoral Area A (Baynes Sound, Denman, Hornby)	11	76	143	230
Electoral Area B (Lazo North)	9	65	106	180
Electoral Area C (Puntledge-Black Creek)	4	96	274	374
City of Courtenay	1	10	14	25
Town of Comox	2	0	3	5
Village of Cumberland	1	0	0	1
Total	**28**	**247**	**540**	**815**

Larger parcels usually allow farmers greater flexibility to expand or change their type of operation as the economy and markets change. Larger parcels accommodate equipment more efficiently and reduce the need to move farm equipment on public roads. Smaller parcels are more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances, and may encourage alternative land uses such as residential.[96] Although some types of agriculture can be successful on small parcels, (e.g., intensive market gardens, greenhouse operations, nurseries), generally the smaller the parcel is, the fewer viable options there are for farming. This is illustrated by Table 27, where over 50% of larger parcels are farmed whereas only 11% of smaller parcels are farmed.

Table 27. Percentage of parcels with Farm Class based on parcel size in the Comox Valley.

	< 0.8 ha	0.8 – 4 ha	> 4 ha	Total
Total Parcels with Farm Class*	28	247	540	815
Total Number of ALR Parcels**	248	575	986	1,809
Percentage of Parcels with Farm Class	11.3%	43.0%	54.7%	45.1%

*Based on 2022 data from BC Assessment.**Based on 2013 ALUI data from the Ministry of Agriculture.

6.0 Agricultural Resources

6.1 Agriculture-Related Infrastructure and Distribution Networks

Like most agricultural sectors on Vancouver Island, access to transportation, water and waste management, and distribution infrastructure is required to reach the larger domestic and export markets through the Lower Mainland. The CVRD is located within the north-central area of Vancouver Island and is well-served by several transportation nodes.

6.1.1 Transportation Infrastructure

The following list describes key transportation and distribution infrastructure that is in place and can be accessed by the agricultural sector:

- **Major roads and highways:** Producers in the CVRD are primarily served by a paved highway network administered by the Ministry of Transportation and Infrastructure, including Inland Highway 19 which was completed in the last 25 years and connects the CVRD directly to Nanaimo and Victoria to the south and to Campbell River and Port Hardy to the north and Highway 19a. The CVRD is also connected to the western portion of the Island, particularly the communities of Port Alberni, Ucluelet, and Tofino, by Highway 4, which connects to Highway 19 just south of Comox in Parksville. These highways provide efficient truck delivery options throughout Vancouver Island.
- **Ferries:** Farms on Denman and Hornby Island rely heavily on the BC Ferries transportation network. The ferries connect these islands to Buckley Bay terminal south of Comox. An additional ferry terminal in Comox and services Powell River on the Sunshine Coast bringing many of their farm products through the Comox Valley. To reach the Lower Mainland and the Port of Vancouver, YVR International Airport and the United States border (for export), producers must take direct ferries to greater Vancouver from Nanaimo or Victoria. An

[96] Ministry of Agriculture. Comox Valley Land Use Inventory Report. 2013.

alternative route exists by travelling to Powell River and then taking an additional two ferries south (Saltery Bay to Earls Cover and Langdale to Horseshoe Bay). The cost and reliability of the ferry system does present challenges for the agricultural sector. The 2010 Denman Island Farm Plan noted that ferry costs and the relatively small size of the ferry, created additional expenses in direct costs and time for producers, which made it difficult to compete with Vancouver Island and Lower Mainland operations.

- **Rail:** The Island Corridor rail line connects Courtenay to Victoria. However, the train services have discontinued and trains are no longer running. There may be opportunities to repurpose some of the train-related infrastructure such as the train station, or to revive the passenger service.

6.1.2 Power and Communications Infrastructure

Successful agricultural businesses rely on stable sources of energy and reliable internet connectivity.

- **Heat and Power:** There is good and reliable access to electricity and is served by BC Hydro. However, during winter storms and/or windstorms, power outages can affect the region for several days at a time. Farm operations tend to be prepared for these disruptions by ensuring that they have back-up options such as generators. The stable access to electricity may facilitate the movement towards electrifying farm equipment and machinery, which will reduce the agriculture sector's reliance on fossil fuels as energy sources.
- **Communications:** There is a developing telecommunication network in the CVRD which will allow for efficiencies across the agriculture sector including farm management practices and distribution and marketing of products. Towers for 4G networks and Starlink satellite internet services are expanding across the region[97]. A subsea fibre optic cable for high-speed internet has recently been installed with landing sites in Williams Beach, Comox, Denman Island and Hornby Island[98].

6.1.3 Waste Management Infrastructure

The Comox Strathcona Waste Management services manages waste and recycling for the Comox Valley Regional District and the Strathcona Regional District. Residents, including farmers, can bring their garbage, recycling and hazardous wastes to the Comox Valley Waste Management Centre or the Campbell River Waste Management Centre. A regional organics composting facility is under construction at the Campbell River Waste Management Centre, scheduled for completion in December 2022. The household organic material will be repurposed into finished compost for agricultural and landscaping uses.[99]

6.1.4 Distribution Networks

Support systems and infrastructure for distributing food to major retail markets have long been established and operate efficiently at the provincial and national levels (Sysco, Gordon Food Services, and Overwaitea are examples). However, many producers in the Comox Valley may have difficulty accessing this distribution system because their operations and yields are too small to meet production requirements of larger scale retail outlets. Additionally, there may be information gaps around labelling,

[97] Starlink. Map. Accessed September 2022.
[98] Connected Coast. Maps. Accessed September 2022.
[99] Comox Strathcona Waste Management. Regional Organics Compost Project. Accessed September 2022.

quality control, traceability, and food safety. Existing grocery stores in the incorporated municipalities include The Real Canadian Superstore, Thrifty Foods and Quality Foods, which may have limited capacity to support local producers. However, some local grocers do prioritize locally procured goods including Courtenay Country Market, Cumberland's Seeds Food Market, Edible Island Whole Foods Market and Tomm's Food Village on Island Highway West.

There are additional local vendors creating opportunities for selling locally produced foods into the community. One such example is LUSH Valley's Harvest Box[100], an operation which purchases fresh food from local producers and distributes them through a weekly harvest box program.

Furthermore, producers have the ability to sell direct to consumers through a variety of direct market channels. This includes unprocessed and value-added products, being sold via farm gate stands, farmers markets and Community Supported Agriculture. Table 28 summarizes the channels by which farmers are selling direct to consumers in Comox Valley.

Table 28. Producers in the Comox Valley selling direct to consumers.[101]

Farms Selling Direct to Consumers	Number of Farms
Sales of Unprocessed Agricultural Products	195
Using Farm Gate, Stands, Kiosks, U-pick	136
Using Farmers' Markets	49
Sales of Value-added Products	33
Community Supported Agriculture	9
Direct Deliveries to Consumers	97

6.1.5 Farmers Markets

In addition to numerous on-farm stores, there are four markets operating in and around the region, with two of the markets running two days a week which are accessible to Comox Valley producers. Table 29 summarizes the farmers markets that operate in the CVRD and surrounding area. Farmers markets throughout the spring, summer and fall also create a tourism draw which allows tourists and locals to become acquainted with local production and value-added products while generating income for producers. During COVID-19, the Comox Valley Farmers Market offered an online market to keep the residents of the Comox Valley and beyond supplied with fresh, local and nutritionally dense food.

Table 29. Summary of farmers market in and around the CVRD.

Market	Location	Season	Days
Denman Island Farmers Market	Denman Island	May - October	Saturdays 9:30 – 12:30
Hornby Island Farmers Market	Hornby Island	May - September	Wednesdays (Jul & Aug) Saturdays (May- Sept) 11:00 – 14:00
Comox Valley Farmers Market	Courtenay	Year Round	Saturdays Year Round 9 AM- 1PM

[100] LUSH Valley. Introducing the New Harvest Box Program. July 2020.
[101] Statistics Canada Census of Agriculture: 2011, 2016 & 2021.

			Wednesdays June -September 2 PM-5:30 PM
Comox Valley Farmers Market	Cumberland	June - September	Sundays 10 AM- 1PM

6.2 Agricultural Processing and Value-Added Opportunities

Agricultural support services, such as extension officers, farm equipment dealers, irrigation and drainage specialists, local processing, and value-added infrastructure can all assist in maximizing the ability for individual farming operations to succeed. These are summarized within the Comox Valley context below.

6.2.1 Meat Processing

Each link in the local meat supply chain is vital - a local abattoir allows farmers to get their animals processed in a timely and humane manner and cut and wrap shops (butchers) allow farmers to sell their products in cuts that are tailored to the appropriate market. Successful local abattoirs have developed business cases that include total cost accounting; are able to match maneuverability vs. workflow limitations; and have invested in producer-processor relationships to build trust through education and celebrate successes. While there may never be one simple solution for something as complex as the meat sector, some relatively small investments in local infrastructure can provide stability in the food processing and supply chain, enhanced income streams for farmers and employment opportunities for area residents.

In response to the Bovine Spongiform Encephalopathy incidences in 2004 the province amended meat processing regulations by enacting the Meat Inspection Regulation of the BC food and Safety act. The new regulations mandated that all animal slaughter in BC occur within a federally inspected or provincially licensed plant[102]. These changes significantly limited the ability of producers to slaughter, process and sell their animals, as unlicensed abattoir and on-farm slaughter operations closed across the province and farmgate meat sales were eliminated. Over the last 15 years more than 300 abattoirs have closed due to a combination of changing regulations and labour shortages.

In 2021, following years of review, and in response to shortages of slaughter and processing options, the BC government updated the meat processing licensing system. The new system replaces the Class A, B, D, and E system with “Abattoir”, “Farmgate Plus” and “Farmgate” licenses. The Abattoir license allows for slaughtering of an unlimited number of animals (own and custom for other producers) with sales to retail or direct to customer. Farmgate plus allows for slaughter of a farmer’s own animals and limited custom slaughter for other producers, with sales throughout BC to the retail market and direct to consumer. The Farmgate Licenses only allow for slaughter of a farmer’s own animals and sales are restricted to direct to consumer at farmgate, and at farmers markets in the regional district and within 50 km of where the meat is produced. Further meat processing, including cut and wrap requires a Food Premises Permit obtained from a health authority for all levels of licensing. There are currently very few

[102] SSMPA. Small Scale Meat Sector Survey: a roadmap to growth for local meat in BC. April 2022.

abattoir licenses within Comox Valley which are also qualified to do cut and wrap services. The following is a list of those facilities at the time of publication:[103]

- Gunter Bros Meat Co. Ltd. (Bison, Cattle, Goats, Hogs, Sheep, Rabbits, Water Buffalo)
- StoneCroft Farm. (Chicken & Turkey)
- Paradise Meadows Poultry. (Chicken & Turkey)
- Marsden Meadows (Chicken & Turkey)

The Farmgate licenses allow slaughter 1-5 animal units (an animal unit meaning a combined animal weight, when measured alive, of 455 kg/1,000 lbs). The Farmgate Plus licenses allow producers to slaughter to a maximum of 25 animal units. Currently, within the Comox Valley area, there are no Farmgate or Farmgate Plus licenses.

6.2.2 Food Processing and Storage

Food processing services and resources are a critical part of a diversified food system, offering opportunities for producers to create value-added products, build their businesses in new directions and extend their season through preserves and storage crops. The 2021 Census of Agriculture reported 33 farms selling value-added products. Comox Valley is home to a combination of community kitchens in community centres and churches for small scale food processing and independent food processors who have commercial kitchens. In Courtenay, a commissary kitchen provides rentable food processing and storage space. VanIsle Commissary Kitchen offers commercial processing equipment, prep stations, cold and dry storage, and operates in a VIHA approved facility[104]. Another examples is Lush Valley, who works in a 2000 ft^2 space to receive fresh products from local farms for packing and distribution to social service providers in the region. There are two larger-scale food storage facilities in Comox Valley: Coldstar Solutions - Comox (small cross-dock facility) and Coastal Transportation and Storage - Comox (3,000 ft^2 refrigerated/frozen).

Comox Valley has dozens of food processors, including larger businesses whose products are sold at major retailers, including Tree Island Gourmet Yogurt and Natural Pastures Cheese. Table 30 provides examples of some of the food processing businesses in the region. This was compiled in 2021 and is not an exhaustive list as some processing businesses may not have an online presence, and it can be difficult to find every business in the region.

Table 30. Examples of food processing businesses in the CVRD.[105]

Name of processor	Location	Primary products
40 knots Winery	Comox	Wine
Abuelo's Corn Tortillas	Courtenay	Tortillas
Ace Brewing	Courtenay	Craft Beer
Alderlane Farmhouse Bakery	Black Creek	Baked goods
Ammo Box Hot Sauce	Comox	Condiments - salsas
As You Like It Product	Union Bay	Condiments - salsas
Bates Beach Farm	Courtenay	Condiments - salsas

[103] Licensed Meat Processing Facilities in BC. BC Ministry of Agriculture
[104] VanIsle Commissary Kitchens. Accessed July 2022.
[105] Urban Food Strategies. Food Hub Feasibility Study, Interim Report. 2021.

Name of processor	Location	Primary products
Beaufort Vineyard & Estate Winery	Courtenay	Wine
Blue Moon Estate Winery	Courtenay	Wine
Blue Spruce Ice Cream	Courtenay	Dairy-yogurt
Botanical Soap Shop	Comox	Soap
By the sea apothecary (herbalist)	Black Creek	Herbs and Spices
Clever Crow Herbs and Spices	Black Creek	Herbs and Spices
Coastal Black Estate Winery	Black Creek	Wine
Comox Valley Canning Co	Courtenay	Condiments - salsas
Corlan Vineyard and Farm	Denman Island	Wine
Cumberland Brewing	Cumberland	Craft Beer
Cumberland Hemp Co.	Cumberland	Clothing
Dark Side Chocolates	Cumberland	Chocolate
Denman Island Chocolate	Denman Island	Chocolate
Estevan Tuna Co.	Courtenay	Canned fish
Gladstone Brewing	Courtenay	Craft Beer
Heavenly Goodies Bakery	Courtenay	Baked goods
Heavenly Libations	Courtenay	Sodas & syrups
Hornby Organic (energy bars)	Comox	Energy Bars
Island Spirits Distillery	Hornby Island	Spirits
Land and Sea Brewing	Courtenay	Craft Beer
Legato Gelato (goat milk gelato)	Fanny Bay	Goat milk gelato
Middle Mountain Mead	Hornby Island	Mead
Mustard Lady	Courtenay	Condiments - salsas
Natural Glacier Waters	Fanny Bay	Water
Natural Pastures Cheese	Courtenay	Cheese
New Tradition Brewing	Comox	Craft Beer
Prontissima Pasta	Courtenay	Pasta
Thai Sauce Company	Courtenay	Condiments - salsas
Tree Island Yogurt	Courtenay	Dairy-yogurt
Van Isle Commissary Kitchen	Courtenay	Value-added, mulitple
Zen Moment Kombucha	Courtenay	Beverage

6.2.3 Economic Development and Food Hubs

The food and agriculture sector require specific approaches to promote growth and expansion of agricultural operations and food processing businesses through appropriate access to resources, professional guidance and networks. One such approach for economic development in the food and agriculture sector are food hubs.

Food hubs have been growing in popularity across BC with the recent provincial funding geared at expanding BC's Food Hub Network. While Food Hubs take many shapes and are developed to meet the needs and fill gaps within their respective communities, the foundational concept consists of a community based commercial kitchen with food processing capacity including working space, cold and

dry storage, equipment and tools and a network of food actors. In 2021, the CVRD completed a Food Hub Feasibility Study and created the Food Hub Stewardship Group to help initiate the creation of a food hub within the Comox Valley. The feasibility study included input from over 40 business, residents, farmers and interested parties. A business model has been developed for the establishment of a local food hub and the CVRD is moving forward with the first step of recommendations in the implementation plan[106].

In 2021 the Center for Seafood Innovation (CSI) in Bowser opened. The CSI is a food and research hub at Vancouver Island University focused on the innovation needs of BC's seafood companies to extract more value from sustainable seafood harvests. Activities range from the development of new seafood recipes to trials of emerging food technologies to communication research[107].

6.2.4 Agri-Tourism

Tourism marketing in the Comox Valley, inclusive of Denman and Hornby Islands places a focus on outdoor recreation, mountain biking, kayaking, arts and culture and food production. With an industry dedicated to outdoor adventure tourism already present in the area, agri-tourism opportunities such as farm-stays, u-picks, and cycle tours fit well into the tourism profile. The Comox Valley Farm Cycle Tour offers tourists a guided opportunity for cyclists of all skill levels and ages to experience the countryside of the region, as they discover an incredible array of farms.[108] For tourists interested in exploring Comox Valley's abundant agricultural lands on their own, the Comox Valley Grower's Guide[109] offers tastes of both sea and land. Furthermore, on-farm agri-tourism opportunities can help diversify income streams and build a vibrant and economically sustainable agriculture sector. It should be noted that agri-tourism activities and agri-tourism accommodations are somewhat limited and regulated through the ALC Act and regulations.

6.3 Agricultural Extension and Support Services

Extension and support services come in many forms and help agricultural operations thrive through the creation of networks, information sharing and access to physical resources. The BC Ministry of Agriculture and Food is an important resource for the agriculture sector as the Ministry provides information related to regulations, funding programs and direct support through the Regional Agrologist. The following organizations provide extension and support services in the Comox Valley area.

Comox Valley Farmers Institute: A non-profit organization, committed to agriculture, farming and farmers in the Comox Valley, Vancouver Island, British Columbia, Canada. The Comox Valley Farmers Institute is an active and important contributor and advocate to the continued success of agriculture in the Comox Valley. Learn more: https://cvfarmersinstitute.com/

[106] Comox Valley. Food Hub Project. Accessed July 2022.
[107] Vancouver Island University. Centre for Seafood Innovation. Accessed September 2022.
[108] Comox Valley Farm Cycle Tour. https://ediblevancouverisland.ediblecommunities.com/node/71781
[109] Comox Valley Grower's Guide. https://view.publitas.com/discover-comox-valley/2020-cv-growers-guide/page/18-19

Mid Island Farmers Institute: The objectives of the Mid Island Farmers' Institute, enshrined in the 1897 Farmers' and Women's Institute Act, which include improve conditions of rural life, promoting the theory and practice of agriculture and to arrange on behalf of its members for the purchase, distribution or sale of commodities, supplies or products. Learn more: https://www.midislandfarmersinstitute.com/

Comox Valley Exhibition: Run by the volunteer and non-profit Comox Valley Exhibition Association, the Comox Valley Exhibition has been around for 148 years and takes place over three days in August on the CVRD owned CVEX grounds. It is also known to many simply as the "Fall Fair". Amongst other things, the event focuses on providing a public educational and awareness by showcasing past and present local agriculture as well as silviculture and aquaculture. It has traditionally provided a venue for the hobbyist, home gardener and households to have their products evaluated against provincial standards and for the local 4-H Clubs to showcase their animals and be judged. Learn more: http://cvex.ca/

Comox Island 4-H: 4-H is a youth organization that encourages kids to reach their full potential through teaching agricultural responsibility through hands on activities and programs. Comox Valley is home to two 4-H clubs, the Comox Valley Calf Club in Courtenay and the Shamrock Gumbooters Club in Cumberland. Learn More: https://www.4hbc.ca/clubs/vancouver-island#comox

Comox Valley Horticultural Society: The Horticultural Society's purpose is to provide education, resources and networking opportunities for gardeners in the Comox Valley. Learn more: https://comoxvalleyhortsociety.ca/

Comox Valley Food Policy Council: The goal of the Comox Valley Food Policy Council (CVFPC) is to provide a forum for advocacy and policy development that works towards the creation of a food system that is ecologically sustainable, economically viable and socially just. Their current priorities include supporting the creation of a local food aggregation and distribution hub and related local food procurement policies, advocating for and develop policy related to healthy school food access and food-systems education, and supporting and advocating for policy development relating to food access and poverty. Learn more: https://lushvalley.org/cvfpc/about/

Hornby/Denman Growers and Producers Alliance: This alliance's goal is to advocate for all Denman agricultural sectors and their offshoots, and to provide a forum for cooperation, communication and support among island growers and producers. Their purpose is to provide year-round farmer's markets, increased stewardship and agricultural education, develop added value agricultural processing facilities and to establish Hornby/Denman as a well-known destination for healthy, natural food products, grown-locally, using sustainable agricultural practice. Learn more: https://www.denmangpa.ca/

Island Farmer's Alliance: A membership-based organization, the mission of the Island Farmer's Alliance is to ensure the sustainability and growth of Vancouver Island agriculture. Learn more: https://islandfarmersalliance.wordpress.com/

LUSH Valley Food Action Society: The LUSH Valley Food Action Society, is a non-profit society in Comox Valley which has works to help people gain local food system skills, knowledge and access to good

food.[110] LUSH Valley is recognized by Community Food Centres Canada as a Good Food Organization and are an Island Health Food Security Hub. LUSH Valley collaborates with diverse partners towards a food secure future for all by delivering a variety of programs and projects including:

- Fruit Tree and Farm Gleaning
- Urban Agriculture
- Healthy Foods Program
- Food Share
- Advocacy
- Comox Valley Food Policy Council

Young Agrarians (YA): Young Agrarians is a farmer-to-farmer education and resource network aimed at supporting new and aspiring young farmers in building their business, production knowledge and skills and community. YA has been operating their land matching program in the Comox Valley since 2018, connecting new and aspiring landless farmers with existing land-owning farmers through the program which acts as both a mentorship and succession plan. Learn more: https://youngagrarians.org/

In addition to extension supports and educational resources, the agriculture industry requires services and supplies which allow farmers to operate their businesses, the following list is a sample of the agricultural suppliers in the CVRD:

- North Island Tractor, Courtenay
- Vancouver Island Farm Products, Courtenay
- Top Shelf Feeds, Courtenay
- Black Creek Farm and Feed Supply, Black Creek
- Iritex Pumps and Irrigations, Courtenay
- Shar-Kare Feeds and Pet Supplies, Courtenay

7.0 Agricultural Policies and Regulations

Agriculture in Canada and BC is governed by a network of Federal, Provincial, and Local governments, each playing a specific role in regulating the use of agricultural land, the making and distribution of food products, and ensuring the health and safety of the food system. Other entities and departments within levels of government focus on the economics of agriculture and farming in Canada. Others yet, focus on the interface between environmental protection, climate change and agriculture. This section provides a summary of senior-level government regulations governing agriculture as well as regional land use policies for agriculture in the CVRD.

7.1 Senior-Level Government Regulations Governing Agriculture

7.1.1 Federal

The Federal Government regulates several areas of agriculture including interprovincial and international trade practices, public health and food safety, and the natural environment. A list of Federal Acts that have authority or influence on the agriculture and food sector is provided in Table 31.

[110] Lush Valley. About Us. Accessed July 2022.

In some instances, municipalities may have to respond to Federal Acts through their local jurisdiction and authority. For example, the *Cannabis Act* motivated municipalities to create new policies and bylaws related to land use, zoning, business licensing and responding to nuisance complaints.

In addition to Acts and Regulations, federal programs can influence in local government policies and bylaws. Of particular importance is the federal Seasonal Agricultural Worker Program (SAWP) and housing for these temporary foreign workers (TFWs). Federal programs can also be an important source of funding for the agriculture sector to facilitate the adoption of best practices for increased efficiencies in farm management and environmental sustainability. Examples include programs supporting agri-innovation and the Environmental Farm Plan. In 2023, the Sustainable Canada Agricultural Partnership (a federal-provincial cost share program) will replace the Canada Agricultural Partnership to help the agricultural industry position itself to respond to future opportunities and respond to climate change.

Table 31 Examples of Government of Canada Acts related to the agriculture and food sectors.[111]

Act	Relation to Agriculture and Food Sectors
Agricultural Products Marketing Act	Regulates the marketing of agricultural products in interprovincial and export trade.
Cannabis Act	Regulates several areas related to the legalization of cannabis including providing access to a quality-controlled supply of cannabis, and protect the health of young persons by restricting their access to cannabis.
Farm Income Protection Act	Regulates agreements between the Government of Canada and the provinces to provide for protection for the income of producers of agricultural products.
Fisheries Act	Regulates the conservation and protection of fish and fish habitat, including by preventing pollution.
Health of Animals Act	Regulates diseases and toxic substances that may affect animals or that may be transmitted by animals to persons, and respecting the protection of animals
Plant Protection Act	Regulates the importation, exportation and spread of pests injurious to plants and to provide for their control and eradication.
Safe Food For Canadians Act	Regulates food commodities, including their inspection, their safety, their labelling and advertising, their import, export and interprovincial trade, and the establishment of standards for them.

7.1.2 Provincial

The Province of BC primarily regulates agriculture through Acts under the responsibility of the Ministry of Agriculture and Food and the Agricultural Land Commission, who oversees the ALR. Activities in the agriculture and food sector also have to comply with Acts under other provincial ministries, such as the Ministry of Environment and Climate Change Strategy, and the Ministry of Forests, Lands, Natural Resource Operations and Rural Development. Some of the key Acts are outlined below. The provincial government also has several programs to support the agriculture section in business development, land matching, environmental best practices, emergency management, and income protection.[112]

[111] This is not an exhaustive list of relevant Acts.
[112] BC Ministry of Agriculture and Food. Programs. Accessed September 2022.

Agricultural Land Commission Act

In response to the continual loss of agriculture land, the Agricultural Land Commission (ALC) was created in 1973. The ALC administers the ALC Act and is responsible for the 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 ALC Act takes precedence over, but does not replace, other legislation and bylaws that may apply to the ALR. Local and regional governments, as well as other Provincial agencies, are expected to plan in accordance with the Provincial policy of preserving agricultural land. The Agricultural Land Reserve General Regulation, B.C. Reg. 57/2020, identifies the procedures for submitting applications and notices of intent. The Agricultural Land Reserve Use Regulation, B.C. Reg. 30/2019 specifies land uses permitted in the ALR.

Farm Practices Protection (Right to Farm) Act (FPPA)

A key component of MAF's "Strengthening Farming" program involves the FPPA, which underpins efforts to protect current farm practices and protects a farmer's right to farm. A farm operation qualifies for protection under the FPPA if the farmer is not contravening local government bylaws related to animal control, noise and nuisance if conducting a farm operation in accordance with normal farm practices. The farm activities must not be in contravention of the Public Health Act, Integrated Pest Management Act, or Environmental Management Act. The FPPA established the Farm Industry Review Board as a mechanism to resolve complaints about farm practices. The FPPA also enables the Province to make regulations respecting standards for the purpose of defining normal farm practices.

Water Sustainability Act

The Water Sustainability Act (WSA) (2014) provides for the licensing of activities including use, diversion, and storage of water. The WSA provides local governments the ability to undertake Water Sustainability Plans, which may include a designation for "dedicated agricultural water", also known as agricultural water reserves. This allows the water sustainability planning process to prioritize or establish unique rules for agriculture, which will be particularly useful when considering how reductions in water use will be handled through drought planning and management.

Environmental Management Act

EMA provides the authority for introducing wastes into the environment, while protecting public health and the environment. The Code of Practice for Agricultural Environmental Management is a Minister's regulation under the EMA that regulates storage, siting, and use of manure, compost, other agricultural by-products and materials on agricultural operations.

Assessment Act

Section 23 of the Assessment Act and BC Reg 411/95, the Classification of Land as a Farm Regulation (the "Farm Class Regulation"), set out the requirements that must be met for land to be classified as "Farm" for assessment and tax purposes. Land classified as Farm must be used all or in part for primary agricultural production. The designation of farm tax status is used as a proxy to confer 'bona fide' farm status and is often listed as a criteria within ALC policies and local zoning bylaw.

Land Title Act

The Land Title Act gives Approving Officers the power to assess potential impacts of proposed subdivisions on farmland, including considerations for buffers and road patterns. The Approving Officer is responsible for all subdivision applications within the municipal boundaries.

7.2 Regional Land Use and Agriculture Policy, Zoning and Strategies

Regional districts play a role in region-wide planning by developing a Regional Growth Strategy (RGS) and other Plans and Strategies that link or coordinate the otherwise independent planning and land use regulation choices of the member municipalities. Regional Districts act as the general local government for electoral areas for planning and development and provide local services such as waterworks and fire protection to unincorporated communities within the electoral areas.

The CVRD RGS was adopted in 2011. The RGS is a shared vision for managing growth and community impacts, with the CVRD, the City of Courtenay, the Town of Comox, and the Village of Cumberland committing to work together to promote communities that are socially, economically and environmentally sustainable for generations to come. The RGS is implemented within each community through local Official Community Plans (OCPs), Infrastructure Plans, and regulatory tools such as zoning. There are eight goals areas in the RGS, and the agriculture and food sector intersect with several of them, such as “Food Systems”, “Ecosystems, Natural Areas and Parks”, and “Local Economy” (more detail can be found in Table 26). The RGS identifies the land uses for agriculture within the Rural Settlement Areas as “Agricultural Areas”, which have been established using the ALR boundaries. Agricultural Areas cover approximately 12 % of the Comox Valley (Figure 12).

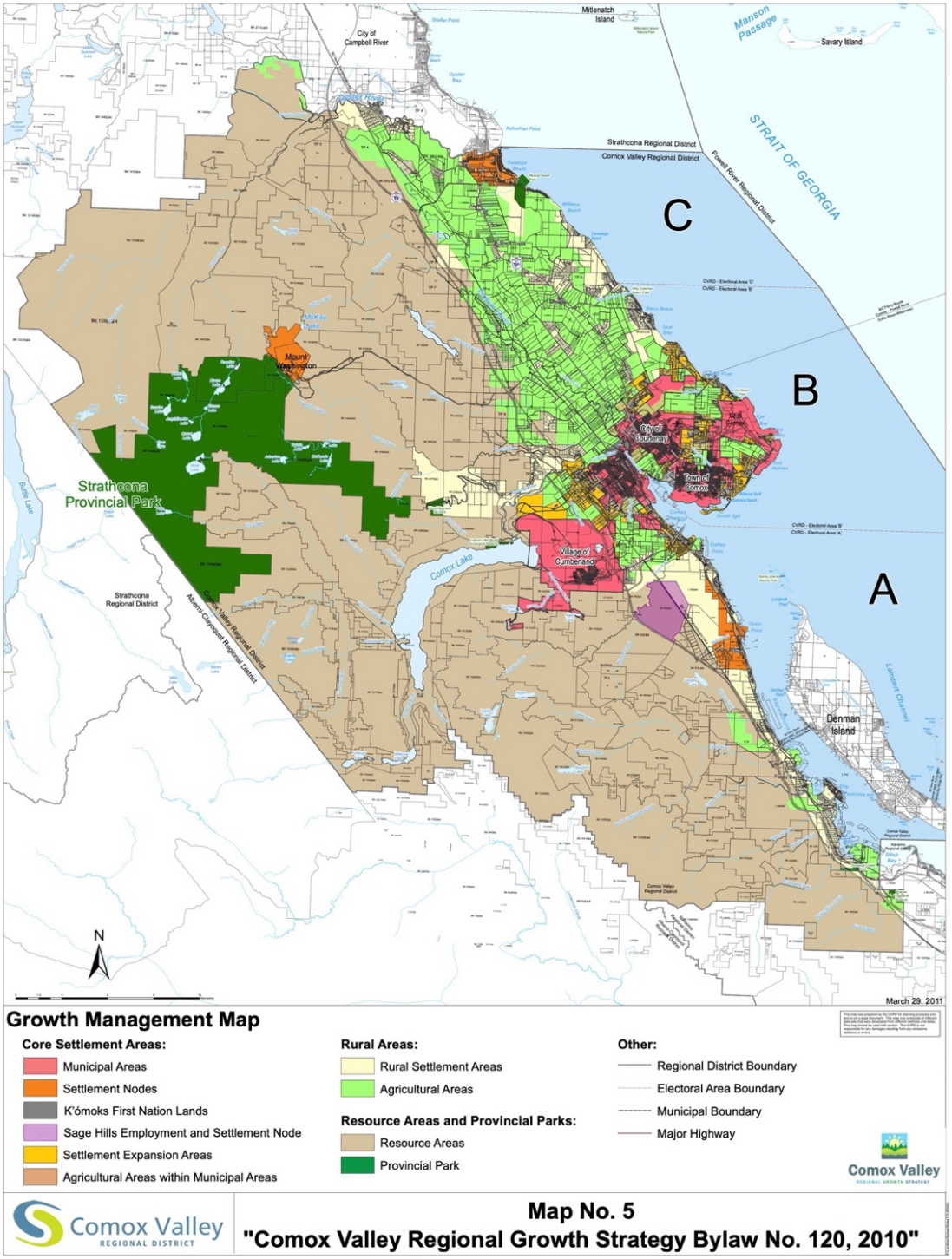

Figure 12. Agricultural Areas in the CVRD (bright green).

Land use policies and regulations in the CVRD's three electoral areas are contained within the Rural Comox Valley OCP and the Rural Comox Valley Zoning Bylaw. Agriculture excerpts from these documents are summarized in Table 32.

Table 32. Agriculture-related excerpts from regional statutory plans.

Comox Valley Regional Growth Strategy, Bylaw No. 120 - 2010 (Agriculture excerpts)	
Goal 2: Ecosystems, Natural Areas and Parks	
Objective 2-A: Identify and map areas for conservation	• All local governments are encouraged to update environmental mapping including ALR and conservation areas • Collaborate with private landowners, environmental organizations and upper-level governments to ground-truth maps and data
Objective 2-C: Promote environmental best practices in Agricultural and Resource Areas.	• Encourage landowner contact and education programs and, require protection of the sensitive environmental features on their land. • Explore additional opportunities for habitat restoration and conservation covenants • Implement parcel size minimums • Support uptake of EFPs • Ensure appropriate buffers and transition zones to support ecological connectivity and function • Utilize best practices in creating trails through agricultural areas • As part of the Comox Valley Agricultural Plan update, explore incentives for conservation on agricultural lands. • Support increase water availability for agriculture while maintaining health ecosystem function
Goal 3: Local Economic Development	
Objective 3-B: Increase regional job base	• Protect and enhance ALR lands
Objective 3-C: Support resource-based employment opportunities	• Increase amount of actively farmed lands, encourage infrastructure development to help increase agricultural production • Support small lot agriculture to increase new entrants into the industry
Goal 6: Food Systems	
Objective 6-A: Protect land for existing and future agriculture and associated activities and allow for the growth and expansion of such activities.	• Work to mitigate impacts of new developments on ground and surface water • to protect agricultural operations, mandate appropriate buffers between working landscapes and residential development • Protect agricultural land and encourage development of agricultural support infrastructure
Objective 6-C: Improve and expand agricultural irrigation practices and infrastructure	• Collaboration between Local governments, agricultural stakeholder groups and farmers to increase irrigation water supply
Objective 6-D: Increase farming activity in the Comox Valley	• Support and encourage organizations in promoting the Comox Valley as a good place to enter the farming industry • Encourage food processing plants, storage and local markets

	• Consult with farmers, farm businesses, and agricultural stakeholders on issues impacting their ability to productively farm • Support the availability of local agricultural products through encouraging local procurement in the public sector
Objective 6-E: Raise awareness of the regional importance of the local food system	• Support the development of a coordinated regional food security strategy. • Support programs to educate and encourage farmers in carrying out Environmental Farm Plans (EFPs). • Update the Comox Valley Agricultural Action Plan on a regular basis (every five years) so it remains current and relevant • Review regulatory bylaws to align with ALC
Rural Comox Valley Official Community Plan No. 337, 2014 (Agriculture Excerpts)	
Agriculture Sector Relevant Policies	
Economy and Industry Policies (agriculture & aquaculture)	• Foster communication with the agriculture and aquaculture industries, the farmer`s institute and the farmer`s market • Encourage EcDev in attracting agricultural support businesses • Improve provision of necessary agricultural infrastructure and services • Encourage BC Assessment to establish favourable tax regime for agricultural producers • Encourage and facilitate public education initiatives that convey the impacts of living within working agricultural and aquaculture landscapes • Explore options to improve access to potable and reclaimed water as a reasonable price for agriculture and aquaculture industry. • Protect agricultural lands within and outside of the ALR • Encourage the establishment of value-added processing facilities • Recognize groundwater as an important resource • Promote buy local campaigns • Encourage agricultural industry to adhere to BMPs for water use
Land Use Rural Settlement Areas	**Objective** promote the use of agriculturally viable land for agricultural purposes. **Policies** • Enable agriculture industries and related uses, such as small-scale agriculture operations, farm gate sales, food processing establishments, distribution centres, farmers' markets and agricultural research facilities. • Ensure agricultural land subdivision maintains land for agricultural use • Avoid public road frontages and endings adjacent to agricultural land
Agricultural Areas	**Objectives** (1) To preserve large parcels from further subdivision, (2) To promote agriculture and aquaculture as an important economic sector of the Comox Valley. **Policies**

	• Discourage subdivision, Encourage larger lots of agricultural land • Require agriculture as primary use • Require Cannabis operations to abide by ALR regulations • Encourage land management practices to reduce runoff • Protect ground and surface water • Require new developments to demonstrate sustainable on-site services incl. water, sewage, disposal etc. • Avoid fragmentation of agricultural land by utility and transportation corridors • Support farm gate sales in alignment with ALC regulations • Permit agricultural support services on agricultural designated land
Rural Comox Valley Zoning Bylaw 520 – 2019 (Agriculture Excerpts)	
Section 303 Agricultural Use	
Agricultural Use	• For the purposes of this Section 303, terms that are not otherwise defined in this bylaw have the same meaning as in the Local Government Act, the Farm Practices Protection (Right to Farm) Act and the Agricultural Land Reserve Regulation. • On lands located outside the Agricultural Land Reserve on which "agricultural use" is expressly permitted by this bylaw all processing and retail sales associated with an agricultural use shall be carried out in accordance with, and restricted to the limitations of, the Home Occupation and Domestic Industrial Use provisions of this bylaw.
Farm Use	Farm Retail Sales • Farm Retail Sales- At least 80% of retail sales area to be devoted to farm products from within the CVRD Indoor Riding Arenas • Indoor riding arenas require 30.0 metre setbacks from all lot lines Intensive Agriculture • All buildings and structures that house livestock associated with intensive agriculture shall be sited a minimum of 30.0 metres from all lot lines. • All building and structures that house any livestock associated with intensive agriculture shall be sited a minimum of 30.0 metres from any domestic well, spring, and the natural boundary of any watercourse. • All composting activities associated with mushroom production shall be sited a minimum of 30.0 metres from all lot lines. Agri-tourism • Agri-tourism activities, other than accommodation, are permitted on land that is classified as 'farm' under the Assessment Act Cannabis Production • The establishment of cannabis production on Agricultural Land Reserve lands in relation to farming for consistency within the Agricultural Land Commission Act, its regulations and orders of the Commission must not be permitted unless by a rezoning of the land

Uses Permitted on Conditions	**Agri-Tourism Accommodation Cabins** An agri-tourism accommodation cabin is subject to the following regulations: • Max floor size 45.0 square metres. • Limited signage and restricted placement of signs • Maximum stay of 3 months/ occupant in any cabin • On-site parking stall required for each accommodation **Temporary Sawmills** • 30 meter set back from all lot lines • At least 80 per cent of the volume of timber to be harvest on sawmill lot • The operation of a temporary sawmill on any lot is limited to 180 days/ year **Animal Kennels** An animal kennel is subject to the following specific requirements: • Minimum lot size is 2 ha • A minimum setback of 15 metres from all lot lines • Minimum setback of 30 metres from any lot line abutting a residential lot • Minimum setback 30 metres from a water source • Screening minimum of 1.5 metres in height for all kennel structures and areas on a lot abutting a lot zoned under Part 700, Residential Zones. • Limitations on signage **Golf Courses** • Golf courses are prohibited on lands within the Agricultural Land Reserve.
Section 304: Domestic Agriculture	
Domestic Agriculture	The **keeping of chickens (hens)** as a domestic agriculture use is subject to the following requirements: • Maximum of 6 chickens on lots 0.2 ha or larger, maximum of 4 chickens on lots under 0.2ha • No roosters • Setbacks for chicken enclosures from lot lines and dwellings • Checking enclosures not permitted in front yards • Maximum and minimum size allowance for chicken enclosures • Butchering and disposal of animals not permitted on the lot • Sale of meat not permitted **Beekeeping** as a domestic agriculture use is subject to the following requirements: • Maximum of 4 colonies on lots over 0.2 ha, maximum of 2 colonies on lots under 0.2 ha • Setbacks and orientation conditions on beehives concerning lot lines and entrance of beehive.

	A **produce stand** is permitted as part of a domestic agriculture use, subject to the following requirements: • Sales are limited to that which is produced on the lot • Maximum floor area of 9 sq. meters • Maximum height of 2.5 meters
Rural Zone Definitions – Agriculturally Relevant	
Residential One (R1)	- Single detached dwelling, agriculture permitted on lots > 4000 sq. meters - Carriage house, secondary suite, secondary dwelling, home occupation, bed and breakfast, domestic agriculture, Domestic industrial use (lots over 2 ha). - Minimum setbacks for buildings are required - Lot coverage maximum 35% - Subdivision not permitted on lots under 4 hectares
Residential Rural (R-RU)	- Single detached dwelling, agriculture permitted on lots > 4000 sq. meters - Carriage house, secondary suite, secondary dwelling, home occupation, bed and breakfast, domestic agriculture, domestic industrial use (lots over 2 ha). - Minimum setbacks for buildings are required - Lot coverage maximum 35% - Subdivision not permitted on lots under 4 hectares
Country Residential One (CR-1)	- Single detached dwelling, agriculture permitted on lots > 4000 sq. meters - Carriage house, secondary suite, secondary dwelling, home occupation, bed and breakfast, domestic agriculture. - Domestic industrial use and Animal Kennel (lots over 2 ha). - Setbacks required for animal kennel - Minimum setbacks for buildings are required - Lot coverage maximum 35% - Subdivision not permitted on lots under 4 hectares, minimum lot size is 2 ha.
Rural Eight (RU-8)	- Single detached dwelling, agricultural use, plant nursery and greenhouse, riding academy, silviculture, aquaculture, veterinary establishment, fish hatchery (including community based), animal kennel (on 2 ha or larger and subject to setbacks) - Wood processing, sawmills, gravel crushing and screening on lots 8 ha or larger and subject to setbacks. - Accessor uses: carriage house, secondary suite, secondary dwelling, home occupation, bed and breakfast, domestic industrial use, pet crematorium - Lot coverage maximum 15% - Minimum setbacks for buildings are required - Minimum lot area 8 ha

Rural Twenty (RU-20)	- Single detached dwelling, agricultural use, veterinary establishment, plant nursery and greenhouse, silviculture, fish hatchery (including community based) - Animal kennel b) Riding academy (on lots larger than 2 ha) - Wood processing, sawmill, gravel mineral or peat extraction, gravel crushing and screening (on lots larger than 4 ha) - Research and teaching facility b) Rural resource centre to a maximum floor area of 300.0 square metres (on lots larger than 4 ha and subject to conditions) - Accessory use: Carriage house, secondary suite, secondary dwelling, bed and breakfast, home occupation, domestic industrial use, retail and wholesale sales of agricultural and forestry products (max floor area 100.0 square metres) - Animal kennels, gravel facilities and building subject to setbacks - Maximum of two residential dwellings - Lot coverage maximum 15% - Minimum lot area 20 ha
Rural ALR (RU-ALR)	- Single detached dwelling, agricultural use, intensive agriculture, - On any lot in the Agriculture Land Reserve any other use specifically permitted under the Agricultural Land Commission Act, regulations and orders - Accessory uses: Secondary suite, home occupation - Residential density dictated by ALR regulations - All buildings subject to setbacks - Lot coverage maximum 35% - Minimum lot size 8 ha
Upland Resources (UR)	- Silviculture, agricultural use, fish hatchery, explosives sales, storage manufacturing and distribution, firearm range, wood processing, gravel, mineral or peat extractions, gravel crushing and screening, bulk mixing, processing of soil mixtures for commercial resale, - On any lot in the Agriculture Land Reserve any other use specifically permitted by the Agricultural Land Commission Act, regulations and orders - Accessory uses: single detached dwelling - wood processing, gravel, sand and mineral extraction, bulk mixing, processing of soil mixtures subject to setbacks and conditions - Lot coverage of all buildings and structures maximum 35% to a maximum of 1000.0 square metres. - Subdivision conditions apply
Aquaculture Use Permitted on Zones	- Aquaculture (AQ) - Upland Aquaculture Facility (UAF)

7.2.1 Urban Agriculture

Similar to the rural area's Domestic Agriculture provisions, urban agriculture is a recent addition to municipal bylaw. Focusing on enabling In produce sale stands, beekeeping, and raising chickens on

residential lots, the Village of Cumberland and the City of Courtenay have recently updated their bylaws. At the time of this publication, the Town of Comox is considering permitting small scale urban agriculture and hen keeping on residential properties which contain a single-family dwelling and will be inviting Town of Comox residents and property owners to participate in an Urban Agriculture and Hen Keeping Feasibility Survey.

7.3 Food Safety and Commodity Regulations

There are a variety of regulatory considerations that a producer may need to respect. These will vary somewhat depending on the goods and services ultimately provided. The most pertinent types of regulations to consider include:

- Federal and provincial food safety regulations for food handling and processing.
- Vegetable commodity regulations.
- Quota restrictions for dairy, poultry and eggs.

7.3.1 Federal Food Safety Regulations and Certifications

The Canadian Food Inspection Agency (CFIA) is responsible for maintaining food safety at the federal level to minimize preventable health risks related to food diseases[113]. CFIA also receives and acts on food safety complaints through investigations and coordinates food recalls. CFIA certification programs include the Hazard Analysis Critical Control Point (HACCP) program and the Canada Good Agricultural Practices (GAP) program. HACCP is used to help find, correct, and prevent physical, chemical, and biological hazards throughout the food production process[114]. HACCP is used by most countries around the world and became mandatory for federally-registered meat and poultry establishments in Canada in 2005.

The Canada GAP program was developed specifically for operations that produce, handle and broker fruits and vegetables. It is designed to help implement and maintain effective food safety procedures within fresh produce operations. Certification in Canada GAP requires facilities undergo an inspection at least once per year by a qualified auditor. Canada GAP is voluntary and is increasingly requested by large produce retailers. While HACCP and GAP are becoming more popular with larger operators, they incur a lot of cost and administrative overhead for smaller farms.

7.3.2 Provincial Food Safety Regulations and Certifications

The BC Government has substantial legislation that covers food safety[115]. The *Food Safety Act* regulates the whole BC food industry from production and manufacturing to retail and restaurants. The Ministry of Health has been delegated the responsibility of administering the *Food Safety Act* at the food product level, while the Ministry of Agriculture administers the *Food Safety Act* at the farm practices level.

[113] CFIA. About the Canadian Food Inspection Agency.
[114] HACCP. CFIA Information.
[115] Province of BC. Food Safety Legislation.

The *Food Safety Act* outlines the legal responsibility of food operators with respect to the safety of products; coordinates inspections and enforcement; and specifies offences and penalties for infractions. The aggregation initiative would likely be regulated by the *Act* through the *Food Premises Regulation*, which defines a "food premise" as any place where food intended for public consumption is sold, offered for sale, supplied, handled, prepared, packaged, displayed, served, processed stored, transported, or dispensed."

The *Food Premises Regulation*[116] requires that the construction or renovation plans of a food premises must be approved by a health officer. Specifications regarding potable water, waste disposal, lighting, ventilation, and kitchen equipment are all regulated. The regulation also requires FOODSAFE[117] training by operators and a permit to operate a food service establishment. Island Health is responsible for licensing, inspecting, and administering the FOODSAFE education program within the Comox Valley[118]. Food businesses that prepare or serve food for immediate consumption must obtain a Health Operating Permit. School kitchens must secure this permit from the Environmental Health Officer. An Application for Health Approval will need to be submitted to the local Environmental Health Officer and a food safety and a sanitation plan may be required as well. In addition to FOODSAFE certification, operators would be required to consider guidelines for mobile food premises and guidelines for the sale of foods at temporary markets. These have been developed by the BC Centre for Disease Control[119].

7.4 Supply Management

Several commodity groups are regulated by supply management and/or marketing in BC. These include dairy products, poultry and eggs, and vegetables (including greenhouse crops). Some of the industry associations related to supply management include:

- BC Broiler Hatching Egg Commission
- BC Chicken Marketing Board
- BC Egg Marketing Board
- BC Milk Marketing Board
- BC Turkey Marketing Board
- BC Vegetable Marketing Commission

The government of British Columbia and Canada regulate the production and marketing of cow's milk, broiler hatching eggs, broiler chicken, turkey and eggs using a system of supply management. In the dairy industry, the volume of milk produced for industrial purposes (for example, cheese) is set at the federal level while provincial dairy boards determine how much milk needs to be produced for the fluid market (for example, milk in cartons).[120] Quota must be obtained to sell milk within BC through the BC Milk Marketing Board and the provincial government inspects and licenses dairy farms and bulk tank milk graders to ensure food safety standards for the milk are met.

[116] BC Food Premises Regulation.
[117] FOODSAFE certification process information. http://www.foodsafe.ca
[118] The local Health Protection Office.
[119] Food Premises Guidelines. BCCDC.
[120] Government of BC. Supervisory Review of Dairy Quota Governance. Accessed September 2022.

Large-scale egg producers in BC are regulated under the supply management system and require quota to operate. Quota is not required under two circumstances.[121] The first is raising 1-99 hens as a "Backyard Flock Producer" (BFP). For this option, farmers may only sell their ungraded eggs directly to end users (i.e. those who will actually be eating the eggs) through farm gate sales at the farmer's premises or at farmers markets. The second is raising 100-399 hens as a "Small Lot Producer". For this option a permit is required from BC Egg Marketing Board to raise this number of hens and an annual fee is required. Eggs produced under the small-lot program that are ungraded can only be sold directly to the end users.

Production of greater than 2,000 broilers per year require quota to operate. Two options exists for the production of broilers. The first is raising 200 chickens per year for personal use, without a permit. The second is raising Up to 2,000 chickens per year for farm direct marketing, which requires a permit. requiring a permit. All meat offered for sale must be processed at a provincially or federally inspected and approved facility.

The BC Vegetable Marketing Commission (BCVMC) regulates the production, transportation, packing, storage and marketing of a variety of crops. The Commission enforces the *Natural Products Marketing Act* and its regulations. In this role the Commission licenses producers by controlling the production and delivery of specific crops. Registration with the BCVMC as a commercial producer is required for all producers of regulated products. Regulated products include:

- Greenhouse crops (fresh and processing use):
    - tomatoes (all types), peppers, lettuce, and cucumbers;
- Storage crops (fresh and processing use):
    - Beets (tops off), green cabbage, red cabbage, carrots (tops off), parsnips, potatoes (all types, varieties), rutabaga, white (purple top) turnips, yellow onions.
- Processing crops (only for processing use)
    - peas, beans, corn, broccoli, brussels sprouts, cauliflower, potatoes (all types, varieties) and strawberries.

Farmers who and produce more than one tonne of regulated vegetables per year must be registered with BCVMC.[122] Farmers are exempt if the maximum amount of all regulated product sold to any consumer in any one day does not exceed 300 pounds each of storage crops and 60 pounds each of greenhouse crops.[123]

8.0 Agriculture and Food Security

From the late 1800's to mid 1900's agricultural development increased and Vancouver Island farms provided most of the food required by residents.[124] In the last 50 years there has been a decrease in the proportion of food that is produced on the Island – unverified figures suggest what was once a

[121] BC Egg. Prospective Farmers. Accessed September 2022.
[122] BCVCM General Order. 2022.
[123] Ibid.
[124] Strategies for Increasing Food Security on Vancouver Island. Vancouver Island Community Research Alliance, Office of Community Based Research. 2011.

resiliency rate of 85% is now closer to 5-10%.[125] A current study on the volume of food produced on Vancouver Island and the Comox Valley would provide important information for understanding the current agricultural production capacity.

A strong agricultural sector where producers of all commodity types and sizes are supported contributes positively to local and regional community food security. Even if farm products produced in the Comox Valley are sold outside of the region or Vancouver Island, having active farms in the region attracts and retains the supporting systems such as equipment dealers, mechanics, food distribution companies and other supporting businesses for the agriculture sector. Increasing the agricultural productive capacity of Vancouver Island, through methods which are sustainable as well as economically and socially beneficial to local communities, will support food security in the Comox Valley.

> Food security "exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life." (Food and Agricultural Organization FAO, 2006).

[125] A Baseline Assessment of Food Security in British Columbia's Capital Region. Emily MacNair. 2004.