

Growing Knowledge



Ministry of
Agriculture

Agricultural Land Use Inventory

Reference Number: 800.510-26.2012

City of Chilliwack Fraser Valley Regional District Summer 2012



**Strengthening Farming Program
Ministry of Agriculture**

December 1, 2015

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We would like to thank the farmers who stopped to talk to the survey crew and to answer questions about farming in the Fraser Valley.



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Acronyms

AGRI	BC Ministry of Agriculture
ALR	Agricultural Land Reserve
ALUI	Agricultural Land Use Inventory
FVRD	Fraser Valley Regional District
GIS	Geographic Information Systems

Executive Summary

In the summer of 2012, the BC Ministry of Agriculture conducted an Agricultural Land Use Inventory (ALUI) in the City of Chilliwack. The ALUI was funded by the Fraser Valley Regional District and the BC Ministry of Agriculture.

ALUIs can be used to understand the type and extent of agricultural activities within the ALR. The ALUI data quantifies how much land is currently used for agriculture, how much land is unavailable for agriculture, and the potential for agricultural expansion. The data provides baseline information that can be used to track trends in agricultural land use and to measure changes over time. The data also enables the estimation of agricultural water demand with the use of an irrigation water demand model.

Included in the inventory were:

- all parcels completely or partially within the ALR,
- all parcels classified by BC Assessment as having “Farm” status for tax assessment,
- all parcels zoned by local government bylaws to permit agriculture that are greater than 1 acre (approximately 0.4 ha) and showing signs of agriculture on aerial photography.

The ALR in Chilliwack consists of 16,941 ha. Of this area:

- 88% or 14,971 ha met one of the above criteria and was included in the inventory area.
- 7% or 1,097 ha was in Indian reserves.
- 5% or 871 ha was outside of legally surveyed parcels in rights-of way or water
- <1% or 2 ha was on parcels with less than 500 m² in the ALR and was not inventoried.

The 88% of the ALR that excludes the ALR outside of legally surveyed parcels and ALR on Indian reserves is considered the “**effective ALR**”. This area forms the basis of the ALUI analysis.

The 1,097 ha of ALR on Indian reserves was inventoried, however, the findings are presented separately due to differences in levels of governance, planning, and decision making processes. ALUI findings on Indian reserves are presented in Appendix A.

The ALUI was conducted using visual interpretation of aerial imagery combined with a drive-by “windshield” survey to capture a snapshot in time of land cover and land use. Land cover is defined as the biophysical material at the surface of the earth, and land use is defined as how people utilize the land.

In the ALR by land cover, 75% of the effective ALR was farmed (11,298 ha), 11% of the effective ALR was anthropogenically modified (1,618 ha), and 14% was in a natural or semi-natural state (2,056 ha). An additional 263 ha of land outside the ALR was farmed.

Land use was applied on a parcel basis. To determine land use, the entire parcel was examined and a “Used for farming” or “Not used for farming” definition was assigned based on the percentage of the parcel in cultivated crops, farm infrastructure, and/or the scale of livestock production. Refer to the glossary for the “Used for farming” definition. In the ALR by land use, 56% of the ALR parcels are “Used for farming”. Of these “Used for farming” parcels, 84% are also used for residential purposes and 15% are used exclusively for farming. Parcels that are “Not used for farming” have a broader range of land uses on them. Seventy-four percent of all “Not used for farming” parcels have a residential land use, and 10% have no apparent use.

Land cover, land use, and physical site limitations (topography, flooding, awkward shape, etc.) were used to assess how much land is available and may have potential for farming in the future. Of the 14,971 ha of inventoried ALR, 77% was farmed or supporting farming (e.g. crops, barns, farm houses, irrigation ditches, etc.). Ten percent (10%) was unavailable for farming due to an existing land use or land cover and 4% had limited farming potential due to a physical site limitation. The remaining 9% (1,400 ha) was available and may have potential for farming.

Despite there being 1,400 ha of land that may be available for farming, there are few large ALR parcels available and with potential for farming. A parcel is considered available and with potential for farming if it has at least 50% of its area and at least 0.4 ha available for farming. In total, there are 351 parcels considered available for farming: 204 parcels (58%) are less than 2 ha and 282 parcels (80%) are less than 4 ha. Of the ALR parcels considered available for farming but not farmed, only 69 parcels (20%) are greater than 4 ha.

The ALUI shows that agricultural land in Chilliwack is intensively utilized. There are 10,845 ha of cultivated field crops in Chilliwack (10,603 ha in the ALR and 241 ha outside the ALR). The most common crops are forage with 6,965 ha (64% of all cultivated land), pasture with 1,446 ha (13% of all cultivated land) and nursery crops with 894 ha (8% of all cultivated land). Most forage production is intensively produced and is primarily grown to support dairy and other livestock sectors. Of the forage crops, 47% was in forage corn while 53% was in grass and mixed grass & legume crops. The main products grown in nursery operations were ornamentals and shrubs with 539 ha (5% of all cultivated land) and cedar hedging with 320 ha (3% of all cultivated land). Also grown were 588 ha of vegetables, 567 ha of berries, 137 ha of nut trees, and 247 ha in assorted other crops.

In addition to the cultivated crops, there were 60 ha in greenhouses and crop barns; 2 ha were in mushroom crop barns, 21 ha were in poly greenhouses, and 37 ha were in glass greenhouses. Greenhouses and crop barns comprise only 0.4% of the ALR.

Irrigation use was captured by crop type and irrigation system type to aid in developing an agricultural water demand model. A total of 3,022 ha or 28% of all cultivated crops were irrigated in Chilliwack. Giant guns systems were the most common with 1,731 ha and were found primarily on forage crops. Sprinkler systems were the next most common with 839 ha and were found on a variety of crop types. Trickle systems were third with 452 ha and were found almost exclusively on vine and berry crops.

Livestock activities were recorded, but are difficult to measure using a windshield survey. Livestock may not be visible if they are housed in barns or are on another land parcel. The inventory data does not identify animal movement between parcels that make up a farm unit, but reports livestock at the parcel where the animals or related structures are observed. No actual livestock numbers were obtained through the survey, so the results were reported as a range in terms of animal unit equivalents for each parcel. Livestock activities with specialized structures such as barns feedlots, or stockyards designed for confined feeding at high stocking densities are considered “intensive” while livestock activities with the ability to graze on pasture and that utilize non-intensive infrastructure are defined as “non-intensive”.

Chilliwack has many farms dedicated to producing meat, eggs and dairy products. There were 201 identified poultry activities of which 71% (143 activities) are defined as “intensive”. Most (132 activities) were “large” scale (> 10,000 chickens or > 5,000 turkeys), while 10 were “medium” scale (2,500 -10,000 chickens or 1,250 - 5,000 turkeys), 6 were “small” scale (100 - 2,500 chickens) and 53 were “very small” scale or backyard flocks (< 100 chickens).

The dairy industry is among the highest contributors to total farm gate receipts in the area. There were 158 identified dairy activities of which 82% (129) are defined as “intensive”. These types of operations require large investments in land, livestock, technology, equipment and machinery. There were 80 “large” scale dairy activities (> 100 cattle), 58 “medium scale” (25 - 100 cattle), and 20 “small” or “very small” scale (< 25 cattle) dairy activities.

The next most common group of livestock are equines. Most horses are being kept as part of a rural residential or farming lifestyle, while donkeys often serve an additional role of discouraging predation on other farm animals. There were 255 equine activities in Chilliwack. There were a 11 “medium” scale (25 - 100 equine) activities, some of which are associated with commercial boarding. The remaining equine activities are “small” (2 - 25 equine) or “very small” scale. Although equine activities are numerous, all are considered “non-intensive”.

Also recorded were 95 beef, 66 sheep / lamb /goat, 15 llama / alpaca, 5 swine, and 4 specialty (game birds, peacocks, emu) livestock activities.

Further analysis of ALR lands was conducted on 3,171 parcels with 14,847 ha or 87.6% of the ALR land. The average ALR parcel size in Chilliwack is 4.7 ha and the median parcel size is 1.9 ha. Of the ALR parcels, 56% were “Used for farming”, and 44% were “Not used for farming”.

Chilliwack has a large proportion of small parcels with 71% of the ALR parcels (2,249 out of 3,171) being less than 4 ha. Of these 2,249 small parcels, over half (1,242 parcels or 55%) are “Not used for farming”. The relationship between parcel size and farming is even more striking on parcels less than 1 ha; 80% of all ALR parcels less than 1 ha are “Not used for farming” with the majority having a residential use. Although parcels of all sizes are “Used for farming”, small parcels are less likely to be farmed.

This report provides insight into the current status of agriculture in Chilliwack. The information can be used to help inform decisions on how to best manage the agricultural land base in order to support and strengthen Chilliwack’s agricultural sector.

Agrologist Comments

The Fraser Valley is in one of the most agriculturally productive regions in the country. The region, including Chilliwack, has many attributes that make it amenable to agriculture. The area has among the best soils in the province (Agriculture Capability Class 1-3), a temperate climate, and good availability of water for irrigation. The region also has excellent access to urban markets and to international shipping ports.

The agricultural industry in Chilliwack began in the late 1850s as a response to the gold rush in the Fraser Canyon. Small mixed farms were established to service the growing population with an emphasis on beef, dairy, and forage production. Demand for agricultural products continued to grow in the 1880s after the completion of the CPR. During this time the dairy industry expanded, and the first creamery and cheese factory in Western Canada was established in Chilliwack in 1885. The 1940s saw an influx of farmers migrate from the prairies to the Fraser Valley. They brought a wealth of agricultural knowledge and diversified local agricultural products to include poultry, hogs, raspberries, and strawberries¹. More recently, farm immigrants from around the world have increased the level of expertise and technological innovation employed across the agricultural landscape.

With two-thirds of Chilliwack's land area in the ALR, agriculture remains a key component of the local economy. The Chilliwack region (Census Consolidated Subdivision 36) has the second-highest gross farm receipts of all municipalities within British Columbia, and accounts for 12% of the gross farm receipts within the province². The Chilliwack region saw an increase of 39% in gross farm receipts between the 2006 and 2011 census years (\$258.5 million to \$359.5 million). Agriculture provides the community with an estimated \$700 million in economic activity as well as positive secondary impacts³.

The dominant agricultural sectors are dairy and poultry. Chilliwack is home to Canada's largest dairy farm, and much of the agricultural land produces forage to support the livestock sectors. Other significant types of agriculture include greenhouse operations, nursery operations and vegetable and berry production. Farm scales run the gamut from small, part-time businesses to very large operations employing a large number of Chilliwack residents.

Chilliwack is comprised of two main agricultural areas: the Fraser Valley River bottom and the Ryder Lake area in the Cascade mountain foothills. The majority of the land that is available for farming but not farmed is in the Ryder Lake area. Most of the farmland in the Fraser Valley River bottom is fully utilized for agricultural purposes. Some farmers in this area may have challenges expanding due to the limited availability of land.

There is generally strong support for agriculture within the community:

- Chilliwack has an Agricultural Advisory Committee and an Agricultural Area Plan
- The Agriculture Center of Excellence has recently been established at UFV
- Agriculture is one of the key sectors of focus for the Chilliwack Economic Partners Corporation
- Many farm operations offer direct sales and/or agritourism experiences

Potential challenges facing agriculture include:

- An increasingly urbanized population with limited understanding of the normal farm practices and activities required to run a farm

¹ Chilliwack Agricultural Area Plan. 2012

² Statistics Canada, Census of Agriculture 2011. <http://www5.statcan.gc.ca/>

³ Chilliwack Economic Partners Corporation

- Competition for the limited land base among user groups
- Climate change scenarios which indicate an increase in wetter winters and drier summers

Chilliwack is well-positioned to meet these challenges and grow its agriculture sector into the future through continued emphasis on long term planning processes which provide a stable and attractive business environment for farm entrepreneurs.

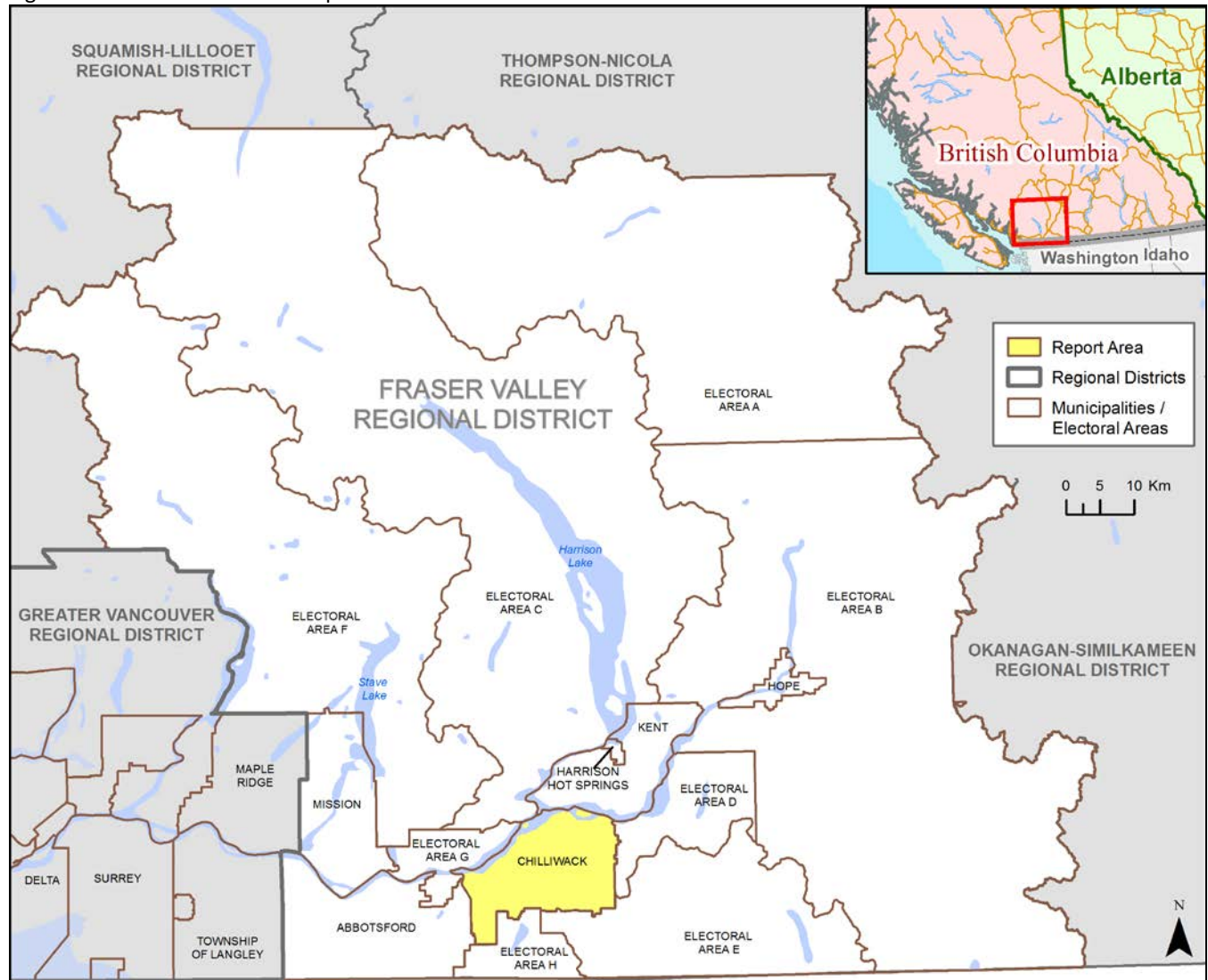
1. General Information

The City of Chilliwack was first incorporated in 1873 and is the third oldest municipality in British Columbia. Agriculture has played a significant role in Chilliwack's history and it continues to be an economic driver today. The city has excellent access to transportation routes, urban markets, and international shipping ports. Chilliwack also draws visitors to the region through agritourism and by its proximity to outdoor recreational areas.

Chilliwack is bordered by Abbotsford to the west, Electoral Area H (Cultus Lake – Columbia Valley) to the south, Electoral Area D (Popkum – Bridal Falls) to the east and the Fraser River to the North.

In 2011, Chilliwack had a population of 77,936⁴ making it the seventh largest municipality in BC. Chilliwack is growing quickly and experienced a population growth rate of 12.6% between the 2006 and 2011⁴ census years. This is significantly higher than the provincial growth rate of 7% during the same time period. Chilliwack has a total area (including land and water) of 26,872 ha⁵.

Figure 1. General location map



⁴ Statistics Canada, 2011 Census. <https://www12.statcan.gc.ca>

⁵ Government of British Columbia; Ministry of Community, Sport & Cultural Development, Local Government Statistics
http://www.cscd.gov.bc.ca/lgd/infra/library/regional_stats11_summary.pdf

AGRICULTURAL LAND RESERVE

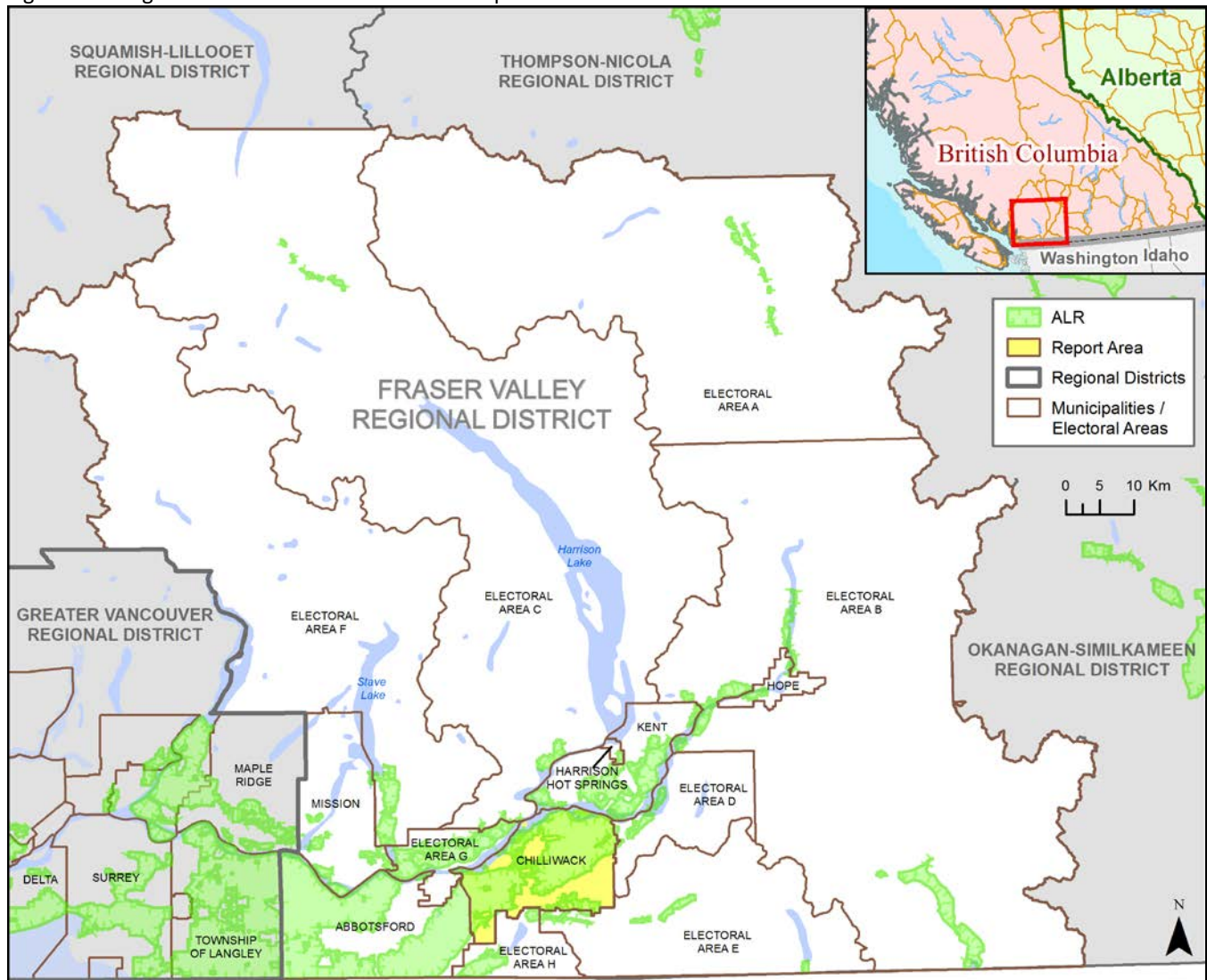
The Agricultural Land Reserve (ALR) is a provincial land use zone that was designated in 1973 in which agriculture is recognized as the priority use. Within the ALR, farming is encouraged and non-agricultural uses are controlled.

There are 71,865 hectares⁶ of ALR land within Fraser Valley Regional District (see Figure 2); 16,941 ha⁷ or 24% is within Chilliwack.

The land area of Chilliwack is 25,335 ha⁸. With 16,941 ha⁴ in the ALR, nearly 67% of Chilliwack's land area is in the ALR. This area includes:

- 14,971 ha in inventoried parcels
- 871 ha outside legally surveyed parcels in rights-of-way and water (not inventoried)
- 2 ha in parcels with less than 500 m² in the ALR (not inventoried)
- 1,097 ha in Indian reserves

Figure 2. Agricultural Land Reserve location map



⁶ Provincial Agricultural Land Commission (ALC), Library, ALC Reports, Annual Report 2009/10 & 2010/11 Pg 39. <http://www.alc.gov.bc.ca>

⁷ Agricultural Land Commission, ALR mapping, Land and Resource Data Warehouse, 2011-07-31 (area calculated in GIS).

⁸ Calculated in GIS

INVENTORY AREA

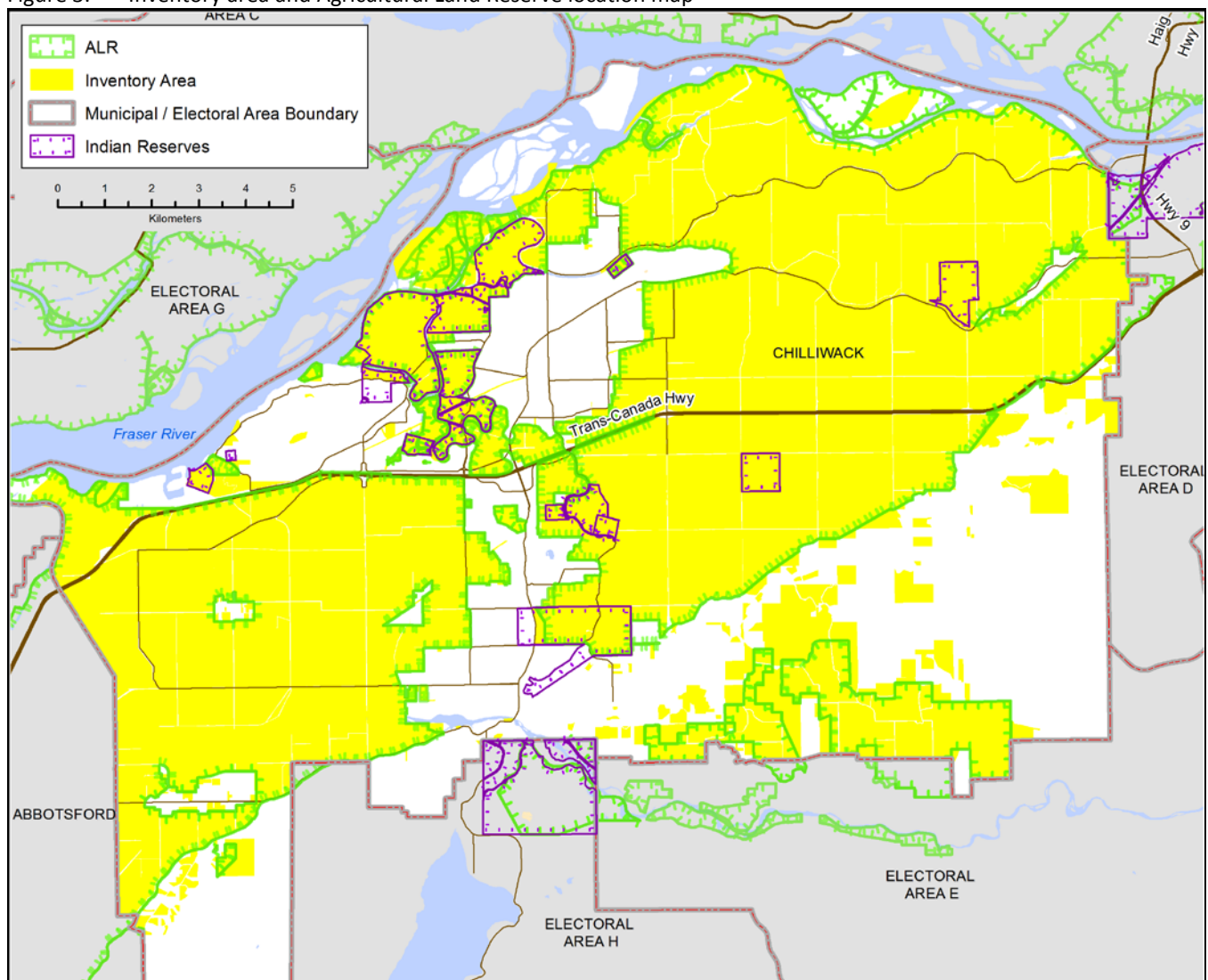
The total inventory area encompasses 3,535 parcels with a combined area of 16,471 ha, or 65% of the land area in Chilliwack. Included are all parcels:

- completely or partially within the Agricultural Land Reserve
- classified by BC Assessment as having “Farm” status for property tax assessment
- zoned by local government bylaws to permit agriculture and exhibiting signs of agriculture on aerial photography

The amount of ALR land included in the inventory area is 14,971 hectares. This area is 88% of the total ALR within Chilliwack and is considered the “**effective ALR**”.

Also inventoried was 1,097 ha of ALR on 15 reserves associated with 10 bands (Aitchelitz, Kwaw-kwaw-a-pilt, Leq"a:mel, Shxwa:y Village, Skowkale, Skwah, Soowahlie, Squiala, Tzeachten and Yakweakwioose). ALUI findings for these areas are presented in Appendix A due to differences in levels of governance, planning, and decision making processes.

Figure 3. Inventory area and Agricultural Land Reserve location map



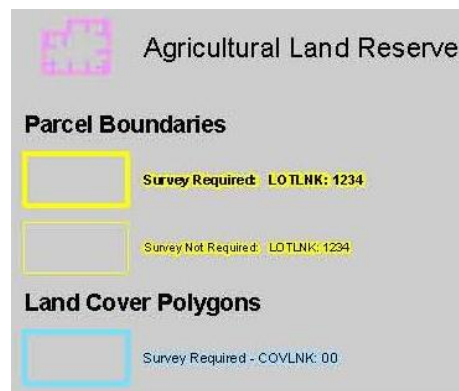
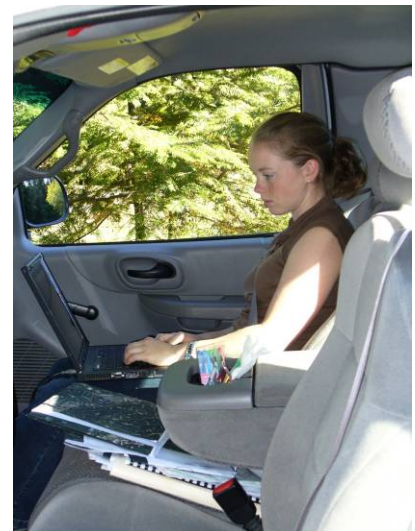
2. Methodology

INVENTORY METHODOLOGY

AgFocus is an Agricultural Land Use Inventory System developed by BC Ministry of Agriculture's Strengthening Farming Program. AgFocus employs a "windshield" survey method designed to capture a snapshot in time of land use and land cover on legal parcels. For more information on AgFocus, please refer to these documents available from the Strengthening Farming Program:

- AgFocus – A Surveyor's Guide to Conducting an Agricultural Land Use Inventory
- AgFocus – Field Guide to Conducting an Agricultural Land Use Inventory
- AgFocus – A GIS Analyst's Guide to Agricultural Land Use Inventory Data

The Chilliwack Agricultural Land Use Inventory was conducted in the summer of 2012 by a professional agrologist assisted by a GIS technician and a driver⁹. The survey crew visited each property and observed land use, land cover, and agriculture activity from the road. Where visibility was limited, data was interpreted from aerial photography in combination with local knowledge. The technician entered the survey data into a database on a laptop computer.



Field survey maps provided the basis for the survey and included:

- The legal parcel boundaries (cadastre)¹⁰
- Unique identifier for each legal parcel
- The preliminary land cover polygon boundaries (digitized prior to field survey using aerial photography)
- Unique identifier for each preliminary land cover polygon
- The boundary of the Agricultural Land Reserve (ALR)
- Base features such as streets, street names, watercourses and contours
- Aerial photography



⁹ Vehicle and driver provided by Fraser Valley Regional District.

¹⁰ Cadastre mapping (2012) was provided by City of Chilliwack.

DESCRIPTION OF THE DATA

For each property in the study area, data was collected on general land use and land cover. For properties with agriculture present, data was collected on agricultural practices, irrigation, crop production methods, livestock, agricultural support (storage, compost, waste), and activities which add value to raw agricultural products.

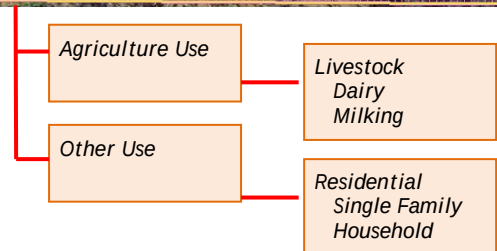
Once acquired through the survey, the data was brought into a Geographic Information System (GIS) to facilitate analysis and mapping. Digital data, in the form of a tabular database and GIS spatial layers (for maps), may be available with certain restrictions through a terms of use agreement.

General land use:

Up to two general land uses (e.g. residential, commercial) were recorded for each property based on an assessment of overall economic importance, the property's tax status, and/or the extent of the land use. The survey for general land use focuses solely on human use and considers:

- The actual human use of land and related structures and modifications to the landscape
- Use-related land cover (where land cover implies a use or is important to interpreting patterns of use)
- Declared interests in the land (which may limit use) such as parks

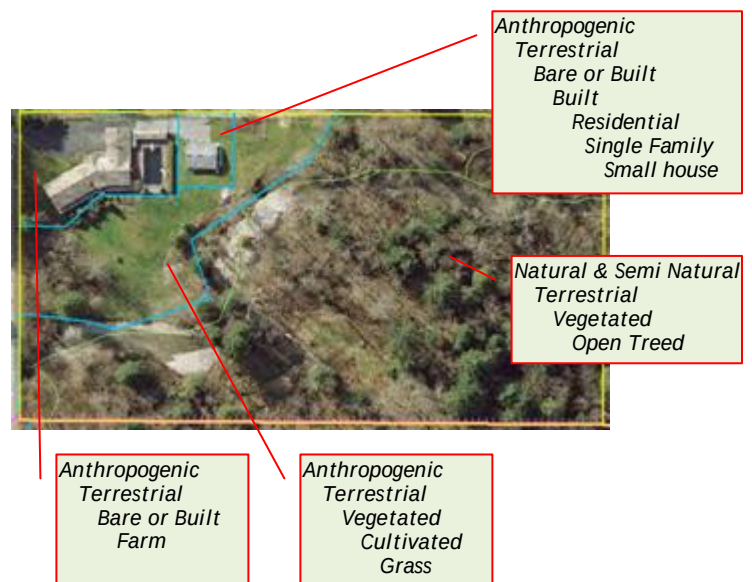
In addition, the availability of non-farm use properties for future farming was assessed based on the amount of potential land for farming on the property and the compatibility of existing uses with future farming activities.



Land cover:

Land cover refers to the biophysical features of the land (e.g. crops, buildings, forested areas, woodlots, streams). Land cover was surveyed by separating the parcel into homogeneous components and assigning each a description. Prior to field survey, polygons were delineated in the office using orthophotography. Further delineation occurred during the field survey until one of the following was achieved:

- Minimum polygon size (500 sq m ~5400 sq ft) or minimum polygon width (10 m ~33 ft)
- Polygon is homogeneous in physical cover and homogeneous in irrigation method
- Maximum level of detail required was reached



In most cases, more than one land cover was recorded for each parcel surveyed.

Agricultural practices: Surveyors recorded agricultural practices associated with crops or livestock activities. For example, if a forage crop was being harvested for hay, it was recorded. Irrigation was also recorded, including the type of system used.

Agricultural crop production: Crop production and crop protection methods observed on the parcel were recorded such as wildlife scare devices, temperature or light control, or organic production. Organic production is not always visible and may have been recorded based on local knowledge or farmer interviews.

Livestock: Livestock operations and confinement methods along with the scale of the activity were estimated and recorded. Livestock not visible at the time of survey may have been inferred based on grazed pastures, manure storage, size of barn and other evidence.

Agricultural support: Ancillary agricultural activities, such as storage, compost or waste, supporting the production of a raw commodity on a farm unit were recorded.

Agricultural value added: Activities that add value to a raw commodity where at least 50% of the raw commodity is produced on the farm unit were recorded. This value-added activity included processing, direct sales and agri-tourism activities.

PRESENTATION OF THE DATA

The data is presented in the form of summarized tables and charts. Absolute data values are preserved throughout the summarization process to maintain precision. In the final formatting of the summarized tables and charts, data values are rounded to the nearest whole number. As a result, data presented in the summarized tables and charts may not appear to add up correctly.

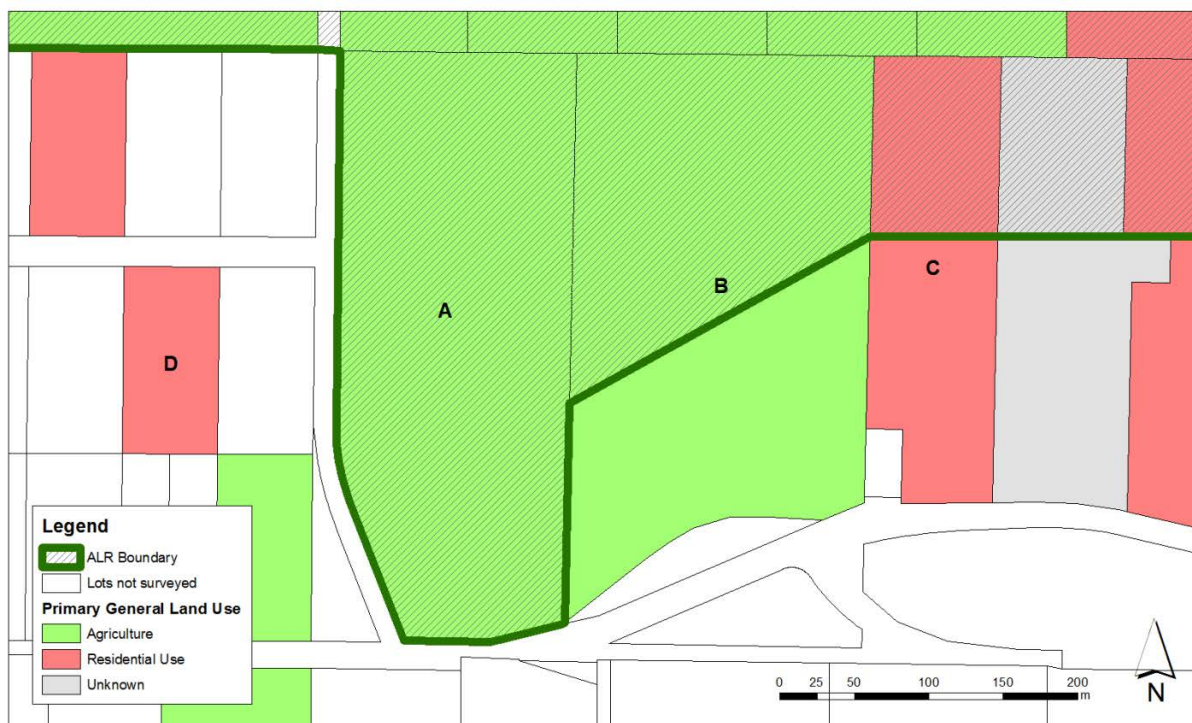
DETERMINATION OF PARCELS WITHIN THE ALR

Since much of the following analysis is parcel based, it is important to note that the ALR boundaries do not always align with parcel boundaries. As a result, many parcels have only a portion of their area in the ALR.

Figure 4 illustrates the frequent misalignment between parcel boundaries and the ALR boundary. Given that the dark green line represents the ALR boundary, Lot A is completely in the ALR and Lots B and C have a portion of their area in the ALR. Lot D is completely outside the ALR.

Many of the results presented in this report include 3 separate totals: the total parcel area, the portion of the parcel inside the ALR, and the portion of the parcel outside the ALR.

Figure 4. Parcel inclusion in the ALR



3. Land Cover and Farmed Area

Land cover describes the biophysical material at the surface of the earth and is distinct from land use which describes how people utilize the land. Land use is surveyed by assigning the parcel up to two land uses. Examples of land use include residential, commercial, and industrial. Refer to Section 4 of this report for more information on land use.

Land cover is surveyed by separating the parcel into homogeneous components and assigning each a description such as landscape lawn, natural open treed, natural waterbody, blueberries, road, or small single family house. Most surveyed parcels have numerous different land cover types with each describing a different area of the parcel. Land cover more closely approximates the actual area of land in agricultural production or “Farmed” than land use.

Four land cover types are considered “Farmed”:

- **Cultivated field crops:** vegetation under cultivation for harvest or pasture including land temporarily set aside from farming and perennial crops that were not harvested or grazed in the current growing season
- **Farm infrastructure:** built structures associated with farming such as barns, stables, corrals, riding rings, and their associated yards
- **Greenhouses:** permanent enclosed glass or poly structures with or without climate control facilities for growing plants and vegetation under controlled environments
- **Crop barns:** permanent enclosed structures with non-translucent walls for growing crops such as mushrooms or bean sprouts

Forage and pasture field crops which have not been cut or grazed during the current growing season (unused), unmaintained field crops, and unmaintained greenhouses are considered “Farmed” land covers but are considered inactive.

Land cover types which may support farming, such as farm residences, vegetative buffers and farm road access, are not considered “Farmed”.

Land cover on Indian reserves is presented in Appendix A.

Table 1. Land cover and farmed area

Land cover*		ALR			Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of total ALR	% of effective ALR**		
Actively farmed	Cultivated field crops	10,450	62%	70%	235	10,685
	Farm infrastructure	633	4%	4%	21	654
	Greenhouses	57	< 1%	< 1%	<1	58
	Crop barns	2	< 1%	< 1%	-	2
Inactively farmed	Unused forage or pasture	130	< 1%	1%	6	136
	Unmaintained field crops	23	< 1%	< 1%	<1	24
	Unmaintained greenhouses	1	< 1%	< 1%	-	<1
FARMED SUBTOTAL		11,296	67%	75%	263	11,558
Anthropogenic (not farmed)	Managed vegetation	798	5%	5%		
	Residential footprint	352	2%	2%		
	Transportation & utilities	175	1%	1%		
	Waterbodies	144	< 1%	1%		
	Settlement	87	< 1%	< 1%		
	Non Built or Bare	63	< 1%	< 1%		
SUBTOTAL		1,620	9%	11%		
Natural and Semi-natural	Vegetated	1,686	10%	11%		
	Waterbodies	350	2%	2%		
	Wetlands	19	< 1%	< 1%		
SUBTOTAL		2,056	12%	14%		
TOTAL		14,971	88%	100%		
Indian reserves		1,097	7%			
Outside legal parcels: rights-of-ways, water		871	5%			
Parcels with < 500 sq m of ALR		2	< 1%			
SUBTOTAL		1,970	12%			
TOTAL		16,941	100%			

* Refer to the glossary for terms used in this table.

** Effective ALR is the total ALR area excluding ALR on Indian reserves and ALR outside of legally surveyed parcels and ALR slivers.

Table 1 shows the extent of different land cover types across the ALR in Chilliwack.

There are 11,296 ha of "Farmed" land cover in the ALR. Of the "Farmed" land cover, 10,450 ha is in cultivated field crops, 633 ha is in farm infrastructure, 57 ha is in greenhouses, and 154 ha is "Inactively farmed" in unused or unmaintained crops and greenhouses.

Refer to Map 1 for more information.

Figure 5. Land cover and farmed area in the effective ALR

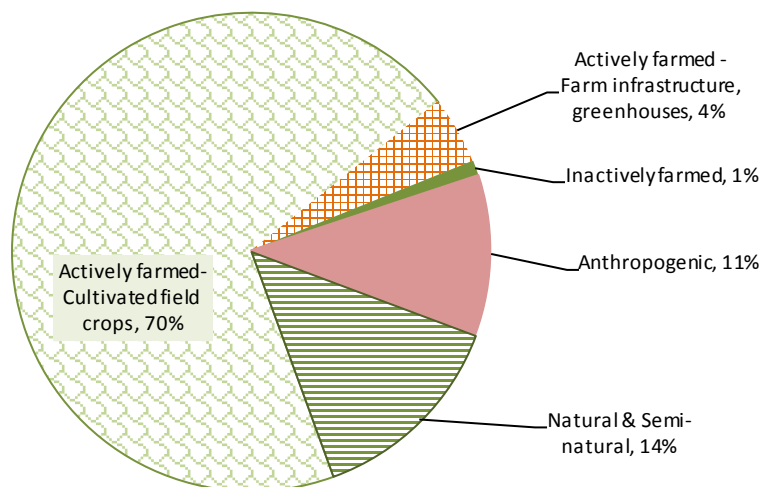


Figure 5 shows the proportion of different land cover types across the ALR in Chilliwack.

Of the effective ALR land, 74% is "Actively farmed" in cultivated crops and in farm infrastructure and 1% is "Inactively farmed".

Land used in support of farming such as natural pasture, farm residences, vegetative buffers or roadways is not included as "Farmed".

4. Land Use and Farm Use

Land use focuses solely on human use and describes the economic function or type of establishment using the parcel. A parcel can have a variety of activities on the land, yet serve a single use. For example, two parcels are said to be “Used for farming”, even if one is a dairy farm and the other is in blueberries. Another example is “Commercial” land use; if one parcel is a hotel, another is a retail store, and a third is a gas station, all are considered to have “Commercial” land use.

Up to two general land uses (e.g. residential, commercial, protected area) are recorded for each parcel. Evaluation of land uses are based on overall economic importance, the property’s tax status, and/or the extent of the land use.

Parcels where the majority of the parcel area is utilized for farming or parcels which exhibit significant evidence of intensive farming are considered “**Used for farming**”. Refer to the glossary for a complete definition of “Used for farming”. Many “Used for farming” parcels are also used for other purposes such as “Residential” or “Industrial”. This report does not attempt to determine which use is primary.

Table 2. Land use and farming use in the ALR

Parcel land use*		In ALR (ha)	% of effective ALR**	Number of ALR parcels	% of ALR parcels	Average ALR parcel size (ha)
Used only for farming - no other use		2,059	14 %	267	8 %	8
Used for farming - Mixed use	Residential	10,029	67 %	1,500	47 %	7
	Transportation & utilities	12	<1 %	11	<1 %	1
	Commercial & service	5	<1 %	2	<1 %	3
	Institutional & community	4	<1 %	3	<1 %	1
	Industrial	1	<1 %	1	<1 %	1
USED FOR FARMING SUBTOTAL		12,112	81 %	1,784	56 %	7
Not used for farming	Residential	1,065	7 %	1,033	33 %	1
	No apparent use	576	4 %	144	5 %	4
	Water management	540	4 %	54	2 %	10
	Golf	218	1 %	10	<1 %	22
	Transportation & utilities	145	<1 %	63	2 %	3
	Recreation & leisure	116	<1 %	13	<1 %	11
	Protected area / park / reserve	67	<1 %	14	<1 %	5
	Commercial & service	46	<1 %	16	<1 %	3
	Institutional & community	45	<1 %	27	1 %	2
	Industrial	28	<1 %	10	<1 %	3
	Other	12	<1 %	3	<1 %	5
NOT USED FOR FARMING SUBTOTAL		2,860	19 %	1,387	44 %	2
TOTAL		14,971	100 %	3,171	100 %	5
Indian reserves		1,097				
Outside legal parcels: rights-of-ways, water		871				
Parcels with < 500 sq m of ALR		2				
SUBTOTAL		1,970				
TOTAL		16,941				

* See "Land Use" in the glossary for terms used in this table.

* Effective ALR is the total ALR area excluding ALR on Indian reserves and ALR outside of legally surveyed parcels.

Table 2 shows that 81% of the effective ALR area is on parcels that are "Used for farming".

In total, there are 1,784 ALR parcels that are "Used for farming" (56% of all ALR parcels) and 1,387 ALR parcels that are "Not used for farming" (44% of all ALR parcels).

There are 267 parcels that are exclusively "Used for farming". These parcels have an average parcel size of 8 ha.

Of the "Not used for farming" ALR parcels, the majority are used for residential purposes (1,033 parcels with 1,065 ha). Most of these parcels are small, with an average area of 1 ha.

Refer to Map 2 for more information.

Figure 6. Proportion of ALR parcels by land use on “Used for farming” parcels

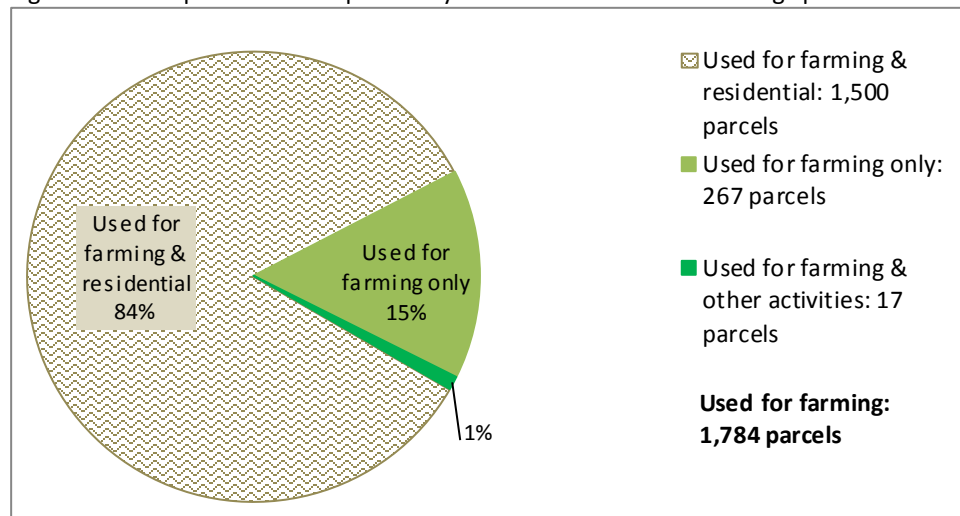


Figure 6 illustrates the proportion of “Used for farming” ALR parcels by their land use.

Eighty-four (84%) of the “Used for farming” ALR parcels are also used for residential purposes.

Another 15% of the “Used for farming” ALR parcels are exclusively used for agriculture, with no other uses.

Figure 7. Proportion of ALR parcels by land use on “Not used for farming” parcels

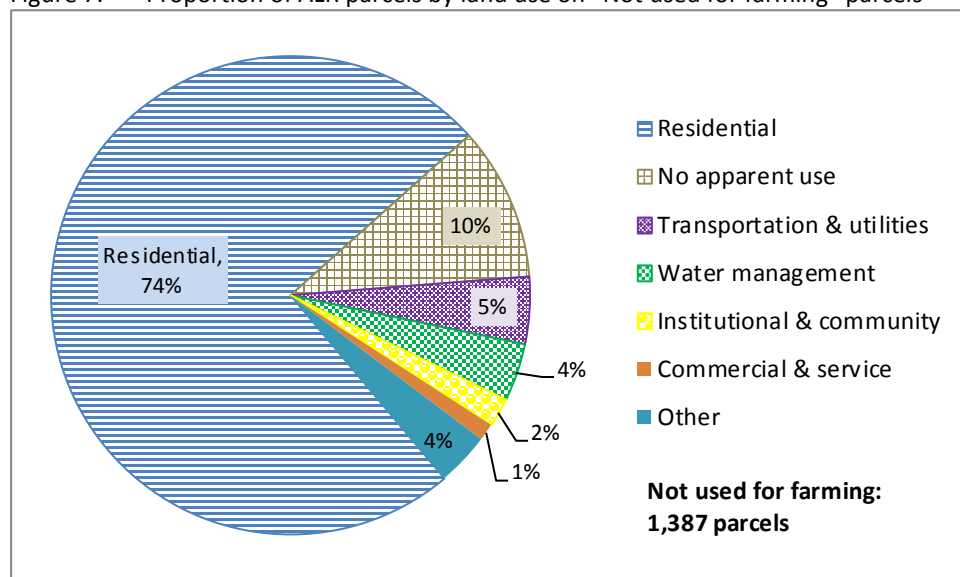


Figure 7 illustrates the proportion of “Not used for farming” ALR parcels by their land use.

The largest proportion of all “Not used for farming” ALR parcels (74%) have a residential use.

Ten percent (10%) of the “Not used for farming” ALR parcels have no apparent use, followed by 5% with transportation & utilities use.

5. Availability of Land for Farming

There is a strong demand for agricultural products produced in the lower mainland. This demand is expected to increase with population growth¹¹. Future agricultural land needs will be influenced by the increase in demand for agricultural products as well as by market demands and farm management requirements (nutrient management, bio-security, etc.). Growth may have to take place on a fixed land base as lands that are suitable to increase agricultural output may not be available. Agricultural sectors that require large land bases, such as dairy or berry, may find it difficult to access land for farm expansion or for starting new operations. Future agricultural growth may come from new commodity types and intensifying land use rather than finding new land for development.

The analysis of the availability of land for farming examines how much land is not farmed, how much land may have the potential to be farmed, and the characteristics of this land.

Properties currently “Used for farming” or with some agriculture present are considered available for farm expansion. Properties currently “Not used for farming” but with an existing use compatible with agriculture, such as residential, are considered available for farming. In both cases, it is assumed that any existing non-farm land uses will be maintained and will not be displaced by agriculture expansion.

Properties that are currently “Not used for farming” and with an established non-farm use that is incompatible with agriculture (e.g. a golf course, a school, or small lot residential) are considered to be unavailable for farming. These properties may be altered in a way that is incompatible with agriculture, may have little land available, and/or tend to have very high land values. It is usually uneconomical for a farmer to acquire and convert these properties to farmland given the limited potential for farming. Also, if there is insufficient land available on a parcel with an existing non-farm use, it will not likely be considered for lease by farmers.

In Chilliwack, properties in the ALR and “Used for farming” have an average assessed land and improvement value of \$162, 918 per ha.

Properties in the ALR that are considered “Unavailable for farming” have an average assessed land and improvement value of \$1,795, 345 per ha.

(Calculated using 2012 BC Assessment)

Land is further assessed for its farming potential based on physical and environmental characteristics. Only areas in natural and semi-natural vegetation, areas in managed vegetation (managed for landscaping, dust or erosion control), and non-built or bare areas are considered to have some potential for farming. Areas covered with built structures, steep slopes or rocky soils and areas with operational constraints such as a very small size, are considered to not have potential for farming. For this analysis, it is assumed that removing built structures and fill piles, filling in water bodies or remediating slopes to create land with potential for farming would likely not occur.

Environmental, economic, and social values may need to be weighed when considering the value of leaving land in a natural or semi-natural state versus developing it for agriculture.

¹¹ In BC, the regulated marketing system requires that over 95% of our milk, eggs, chicken and turkey be produced in BC. The need to produce these products increases in direct proportion to population growth.

Table 3. Status of the ALR land base with respect to farming

Land status		In ALR (ha)	% of total ALR	% of effective ALR*
Actively farmed	Cultivated field crops	10,450	62 %	70 %
	Farm infrastructure	633	4 %	4 %
	Greenhouses	57	<1 %	<1 %
	Crop barns	2	<1 %	<1 %
ACTIVELY FARMED		11,142	66 %	75 %
Supporting farming	Residential footprint	217	1 %	1 %
	Artificial Waterbodies	108	<1 %	<1 %
	Transportation	3	<1 %	<1 %
	Built up - Other	2	<1 %	<1 %
SUPPORTING FARMING		331	2 %	2 %
Unavailable for farming due to existing land use	Water management	404	2 %	3 %
	Golf	217	1 %	1 %
	Residential	172	1 %	1 %
	Transportation & utilities	118	<1 %	<1 %
	Recreation & leisure	73	<1 %	<1 %
	Protected area / park / reserve	67	<1 %	<1 %
	Institutional & community	39	<1 %	<1 %
	Other	52	<1 %	<1 %
Unavailable for farming due to existing land cover	Wetlands & waterbodies	257	2 %	2 %
	Residential footprint	69	<1 %	<1 %
	Built up - Other	30	<1 %	<1 %
	Utilities	22	<1 %	<1 %
	Transportation	19	<1 %	<1 %
UNAVAILABLE FOR FARMING		1,540	9 %	10 %
Site limitations	Flooding	284	2 %	2 %
	Operational	142	<1 %	<1 %
	Topography &/or soils	116	<1 %	<1 %
	Drainage	16	<1 %	<1 %
LIMITED POTENTIAL FOR FARMING		558	3 %	4 %
Available & with potential for farming	Natural & Semi-natural - Vegetation	819	5 %	5 %
	Anthropogenic - Managed vegetation	421	2 %	3 %
	Unmaintained field crops	148	<1 %	<1 %
	Anthropogenic - Non Built or Bare	10	<1 %	<1 %
	Unmaintained greenhouses	1	<1 %	<1 %
AVAILABLE & WITH POTENTIAL FOR FARMING		1,400	8 %	9 %
TOTAL		14,971	88 %	100 %
Indian reserves		1,097	7 %	
Outside legal parcels: rights-of-ways, water		871	5 %	
Parcels with < 500 sq m of ALR		2	<1 %	
SUBTOTAL		1,970	12 %	
TOTAL		16,941	100 %	

* Effective ALR is the total ALR area excluding ALR on Indian reserves and ALR outside of legally surveyed parcels.

Table 3 details the status of Chilliwack's ALR land base in relation of farming. In total, 75% of the effective ALR (11,142 ha) is actively used for farming and 2% of the effective ALR is used in support of farming (farm residences, irrigation ditches, etc.).

Ten percent (10%) of the effective ALR is unavailable for farming due to an existing land use or land cover and 4% has limited potential for farming due to site limitations such as flooding, small size, topography, or soils.

This leaves 1,400 ha of ALR (9% of the effective ALR) that is available and may have potential for agricultural development. Of this area, 819 ha or 5% of the effective ALR is in "Natural and semi-natural vegetation".

Refer to Map 3 for more information.

Figure 8. Status of the effective ALR in relation to farming

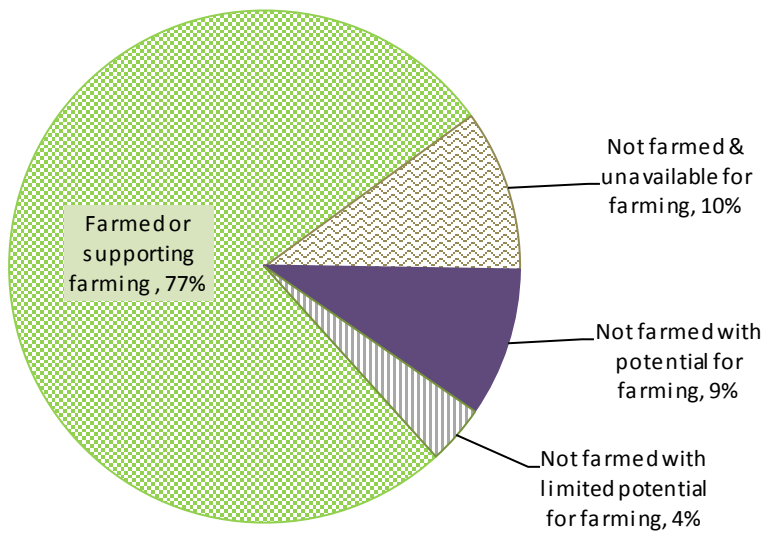


Figure 8 illustrates the status of the effective ALR in relation to farming in Chilliwack.

The effective ALR includes the total ALR area excluding ALR land on Indian reserves and excluding ALR outside of legally surveyed parcels (rights-of-ways, etc.).

Seventy-seven percent (77%) of the effective ALR is farmed or is supporting farming.

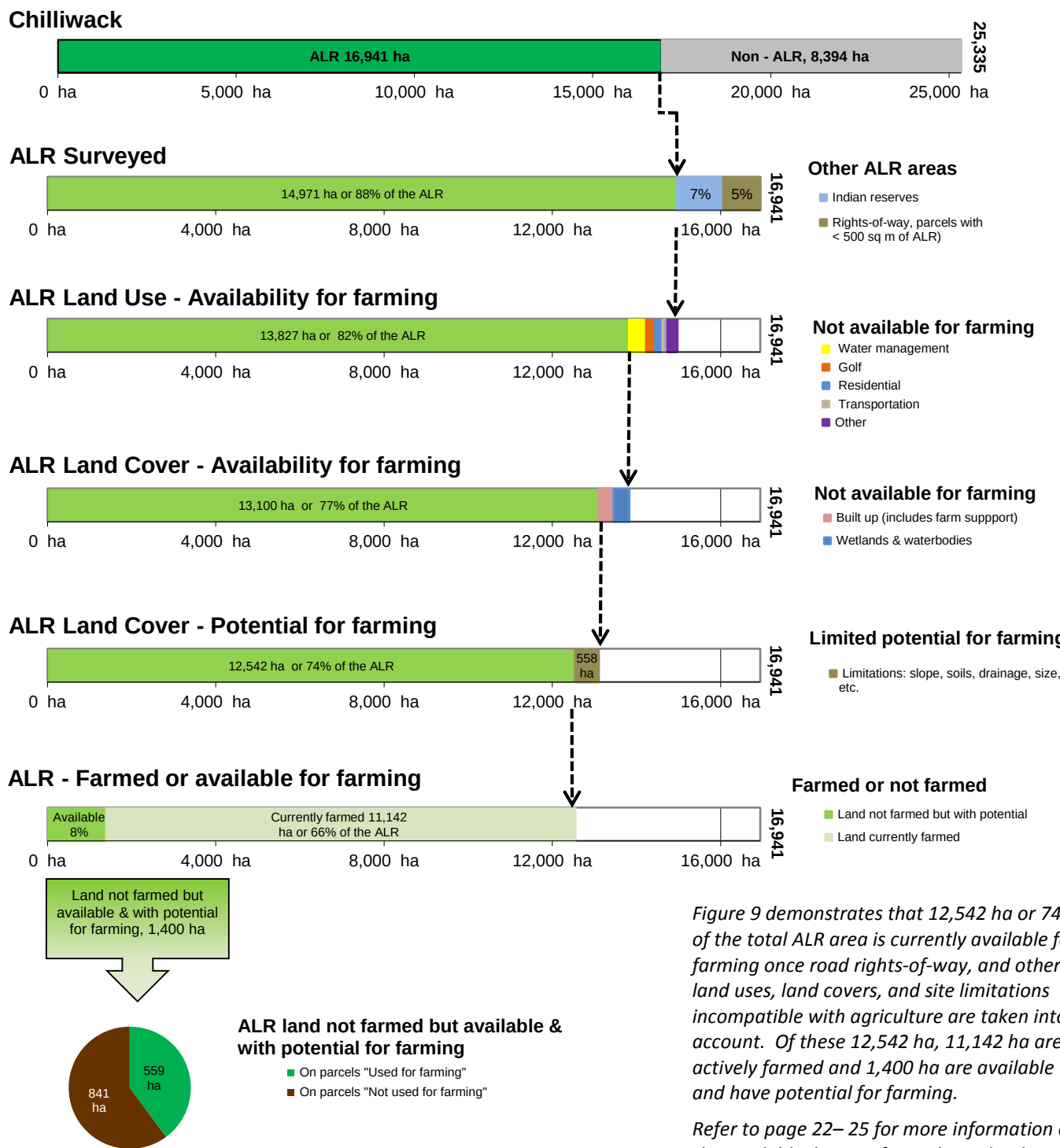
Another 10% is not farmed and is unavailable for farming.

Nine percent (9%) of the effective ALR is not farmed, but is available and may have the potential to be brought into agricultural production.

Figure 9 details the availability of ALR land for farming. Each successive bar describes the amount of ALR available for farming after a category of land has been removed.

The first bar details Chilliwack’s ALR and non ALR land area. The second bar shows how much ALR land was inventoried. The third and fourth bars show the land area that is unavailable for farming due to an existing land use or land cover. The fifth bar removes areas with limited potential for farming. The sixth bar shows the area of ALR that is available for farming and the area that is currently is farmed.

Figure 9. Availability and potential of ALR lands for farming



CHARACTERISTICS OF NOT FARMED BUT AVAILABLE LANDS

Some of the areas that are not farmed could be available for agricultural expansion. Farm businesses have the potential to expand by cultivating more land on a parcel. This can involve clearing, draining, or levelling the land to prepare it for cultivation. In some cases, it is important to consider the ecological services and wildlife habitat provided by naturally vegetated areas. These values may need to be weighed against the need for food production.

The size of the area available, and its proximity to a larger field can affect the potential of the area to be used for agriculture. Smaller areas are suitable for some types of intensive agricultural production such as mushrooms, floriculture, poultry, and container nurseries. Small areas are also suitable for start-up farmers and established farmers wanting to expand through leases.

Despite these opportunities, small areas provide fewer farming opportunities than large lots. They specifically exclude dairy, hogs, and large vegetable greenhouses. Dairy operations, for example, are unsuited to small lots as a single cow produces sufficient manure per year to fertilize 0.4 ha of forage production. This means that a dairy operation consisting of 50 cows would require access to 20 ha. Without sufficient land area to utilize the manure as a fertilizer, the dairy operation would have to find other, more expensive, methods to handle the manure produced on the farm. In addition, working farms require sufficient space to operate in order to avoid odour, dust, and noise conflicts with nearby non-farm properties.

On Parcels “Used For Farming”

Parcels that are “Used for farming” do not always utilize 100% of their land area. There may be some opportunity to increase farming activities on these parcels.

Table 4. Land use and cover on parcels “Used for farming” with ALR land available for farming

Mixed land use on “Used for farming” parcels	Number of parcels	Land not farmed but with potential for farming			Land currently farmed			% potential increase to total ALR farmed area
		In ALR (ha)	Outside ALR (ha)	Total area (ha)	In ALR (ha)	Outside ALR (ha)	Total area (ha)	
Residential	1017	499	40	539	6,144	22	6,166	4 %
Used for farming only	65	59	5	64	490	11	501	<1 %
Commercial & service	1	< 1	< 1	< 1	2	< 1	3	<1 %
Institutional & community	1	< 1	-	< 1	< 1	-	< 1	<1 %
TOTAL	1,084	559	45	604	6,637	33	6,670	5 %

Table 4 highlights the potential to increase the amount of farmed land on parcels that are already “Used for farming”. This increase would come from expanding existing farm operations towards a more complete utilization of the available parcel area.

There is little land available for farm expansion on parcels that are already “Used for farming”. Parcels with the mixed use “Used for farming” and “Residential” offer some available land (539 ha), however, most of these areas are small with an average size of 0.5 ha. Most other “Used for farming” parcels are fully utilized and offer little land in which to expand agricultural production.

Figure 10 details the land cover type on the 559 ha of ALR considered “available and with potential for farming” on parcels already “Used for farming”.

Figure 10. ALR land cover that is available for farming on “Used for farming” parcels

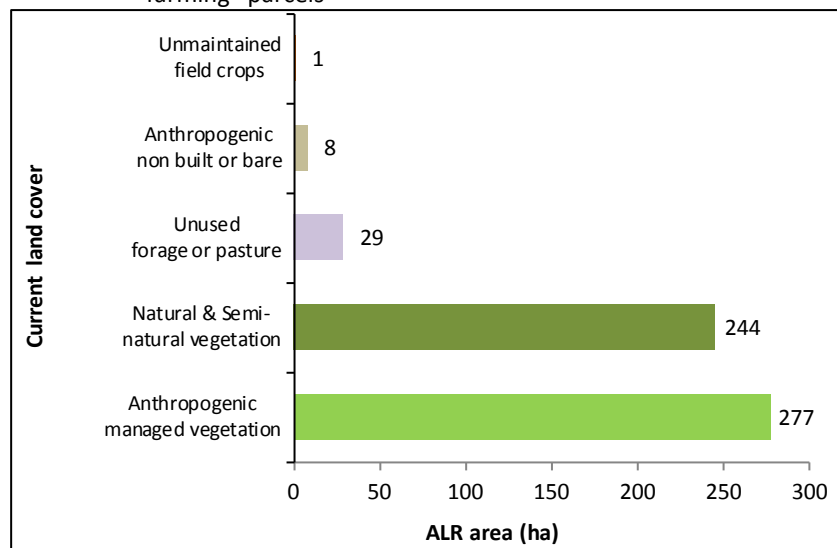


Figure 10 indicates that land currently in “Anthropogenic managed vegetation” could provide the greatest gains in farming on parcels that are already “Used for farming”.

Anthropogenic managed vegetation consists mainly of landscaping and lawns surrounding residences and other buildings. Converting this to agricultural use may not be supported by the landowners.

It is likely that some of the “Natural & semi-natural” vegetation on “Used for farming” parcels may already be serving a purpose. Natural vegetation provides privacy, natural views, dust and sound buffers, as well as wildlife habitat, and other ecological services.

On Parcels “Not Used For Farming”

Table 5. Land use and cover on parcels “Not used for farming” with ALR land available for farming

Parcel land use on “Not used for farming” parcels	Number of parcels	Land not farmed but with potential for farming			% potential increase to total ALR farmed area	Average parcel size (ha)
		In ALR (ha)	Outside ALR (ha)	Total area (ha)		
Residential	346	574	105	679	5 %	2
No apparent use	62	252	150	402	2 %	6
Transportation & utilities	2	4	48	53	<1 %	26
Industrial	2	3	-	3	<1 %	2
Commercial & service	3	3	-	3	<1 %	1
Institutional & community	3	2	0	2	<1 %	1
Land in transition	1	1	-	1	<1 %	1
Recreation & leisure	1	1	-	1	<1 %	1
TOTAL	420	841	303	1,144	8 %	

Table 5 illustrates the potential to increase farming on parcels that are “Not used for farming” but that have some portion of ALR land that is available for farming. This increase would come from prioritizing agriculture over other non-farm uses and the full utilization of the available parcel area for farming.

The greatest potential for increasing farmed land could come from parcels with “Residential” use. Most parcels with “Residential” use and land available for farming are relatively small with an average parcel size of 2 ha.

Figure 11. ALR land cover that is available for farming on “Not used for farming” parcels

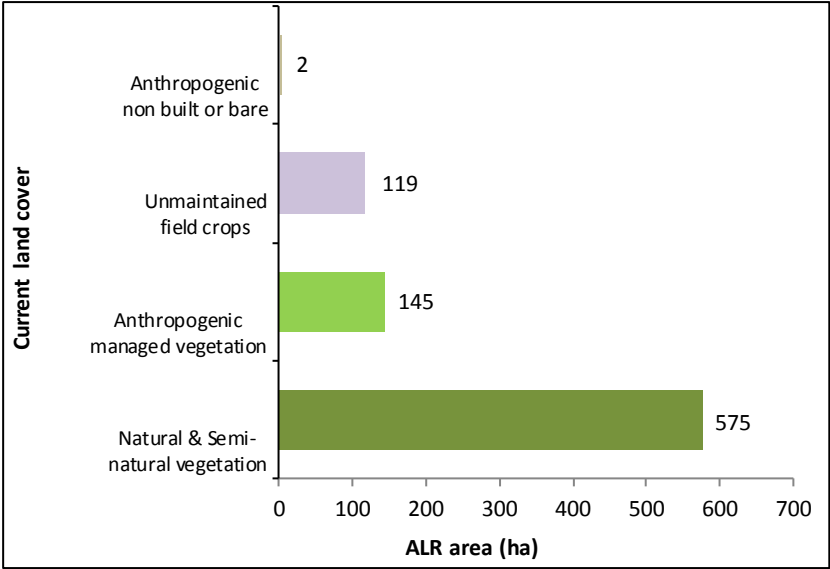


Figure 11 indicates that most of the available ALR land on parcels “Not used for farming” is currently in “Natural & Semi-natural” land cover.

This land would need to be cleared before being cultivation could occur. Converting this land to agriculture may infringe on other values such as residential privacy, natural views, wind and sound buffers, and wildlife habitat.

These values would have to be measured against the benefits from increased farming.

“Natural & Semi-natural” vegetation type is detailed in Figure 12.

Figure 12. Natural & semi-natural vegetation in the ALR & available for farming on “Not used for farming” parcels

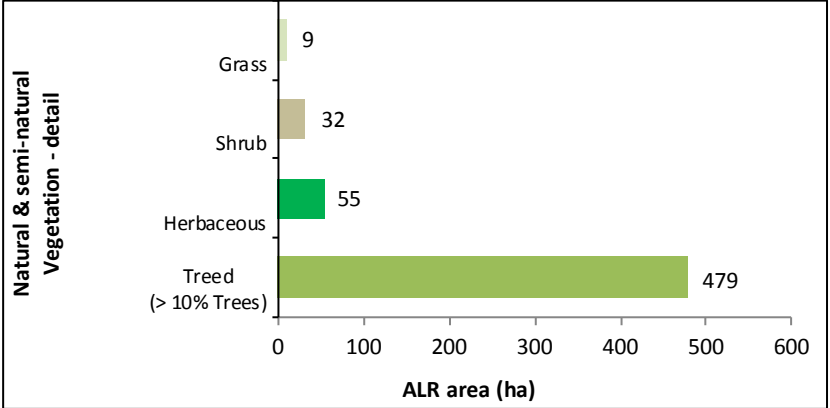


Figure 12 illustrates the types of “Natural and Semi-natural” vegetation shown in Figure 11.

The majority of the land cover is “treed”.

Figure 13. Size of areas available for farming on “Not used for farming” parcels with available ALR land



Figure 13 illustrates the number of areas available and with potential for farming in Chilliwack. The area of all adjacent available land covers on a parcel are combined to arrive at the total area that could potentially be farmed. An area is considered available and with potential for farming if it is free from built structures, cover limitations, incompatible land uses, cultivated crops, and is greater than 0.4 ha (1 acre). Small areas are considered available for farming if they are adjacent to and could potentially be amalgamated into a field on the same parcel. A single ‘area’ may be comprised of multiple land covers on the same parcel.

Of the areas available for farming, 189 (45%) are less than 1 ha, and two-thirds (281 areas or 67%) are less than 2 ha. Fewer options are available to efficiently farm small parcels. There are 67 areas greater than 4 ha and available for farming in Chilliwack.

Figure 14. Parcel size distribution of ALR parcels “Not used for farming” but available for farming

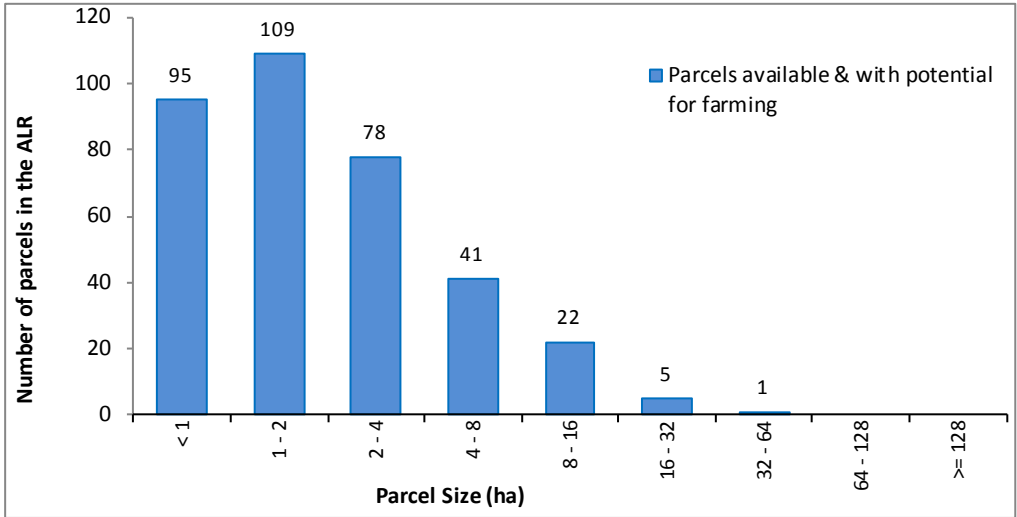


Figure 14 shows the number of ALR parcels that are currently “Not used for farming” but that are available and have potential to be brought into production. These parcels have at least 50% of their parcel area and at least 0.4 ha (1 acre) of land available for farming.

There are 351 parcels in Chilliwack’s ALR that are available for farming, but not farmed. Of these parcels:

- 204 parcels (58%) are less than 2 ha
- 282 parcels (80%) are less than 4 ha
- 69 parcels (20%) are greater than 4 ha

6. Farming Activities

CULTIVATED FIELD CROPS

Cultivated field crops are captured in a geographical information system (GIS) at the field or land cover polygon level by crop type (vegetables, forage or pasture, berries, etc.). The total land area and field size characteristics are then evaluated for each crop.

Included with cultivated field crops is fallow farmland, inactively farmed land (i.e. forage or pasture crops which have not been harvested or grazed this season) and land temporarily set aside for wildlife or other purposes. Also included is bare cultivated land or land under preparation for planting as it is assumed these lands will be planted during the survey season. Excluded are crops grown in crop cover structures such as greenhouses or mushroom barns.

Cultivated field crops in Chilliwack are described by thirteen crop groupings:

- **Forage:** grass, mixed grass/legume, forage corn. Includes fields used exclusively for forage and field used for both forage and pasture
- **Pasture:** grass, mixed grass/legume. Includes inactively farmed fields (unused or unmaintained this season)
- **Nursery:** ornamentals & shrubs, cedar hedges, forestry stock, mixed
- **Vegetables:** sweet corn, Cole crops, mixed vegetables (a variety of vegetable type cultivated together), potatoes, leafy vegetables, legumes, misc. vegetables (includes peppers, tomatoes, asparagus, eggplant, shallots, green onions, okra), cucurbits
- **Berries:** blueberries, raspberries, cranberries, blackberries, mixed berries, strawberries
- **Nut trees**
- **Tree plantations:** Christmas trees, fibre/pulp/veneer trees
- **Other :** bare cultivated land, fallow land (cultivated land that has not been seeded/planted for one or more growing sessions that will be brought back into rotation), crop transition, cover grass (to manage soil moisture/ erosion associated with a crop)
- **Cereals & oilseeds:** field peas, barley, rye
- **Tree fruits:** apples, mixed tree fruits
- **Specialty:** rhubarb, medicinal plants, hops
- **Grapes**
- **Floriculture**

Cultivated crops on Indian reserves are presented in Appendix A.

Table 6. Main field crop types by area

Type	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of effective ALR			
Forage	6,905	46%	61	6,965	64%
Pasture	1,293	9%	153	1,446	13%
Nursery	894	6%	< 1	894	8%
Vegetables	580	4%	8	588	6%
Berries	564	4%	3	567	5%
Nut trees	136	1%	1	137	1%
Trees (plantation)	93	< 1%		93	1%
Other*	58	< 1%	3	61	< 1%
Cereals & oilseeds	42	< 1%	10	52	< 1%
Tree fruits	12	< 1%		12	< 1%
Specialty	10	< 1%	-	10	< 1%
Grapes	9	< 1%	1	10	< 1%
Floriculture	9	< 1%	-	9	< 1%
TOTAL	10,603	71%	241	10,845	100%

** Other. Includes bare cultivated land, fallow land (cultivated land that has not been seeded or planted for one or more growing season), land in crop transition, and land planted in cover grass to manage soil moisture/erosion associated with a cultivated crop.

Table 6 shows the main field crop types produced on the 10,845 ha of cultivated land in Chilliwack.

“Forage” is the most common type of field crop accounting for 64% of all cultivated land and 46% of the effective ALR.

“Pasture” is the second most common crop type and accounts for 13% of all cultivated land and 9% of the effective ALR.

Nursery crops are the third most abundant crop type in Chilliwack and account for 8% of all cultivated land.

Refer to Map 4 for more information.

Figure 15. Main field crop types by percentage

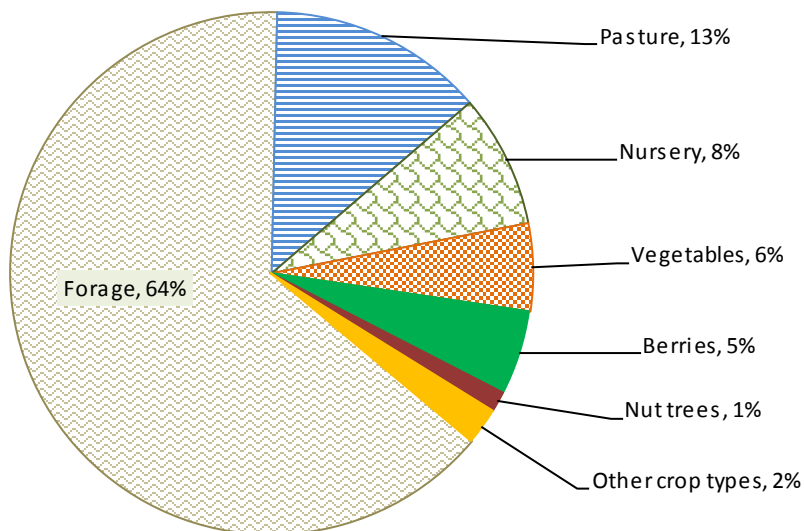


Figure 15 shows the proportion of the main field crop types across Chilliwack's cultivated land.

“Forage” combined with “pasture” comprises 77% of all cultivated land.

Figure 16. All cultivated field crops by size¹²

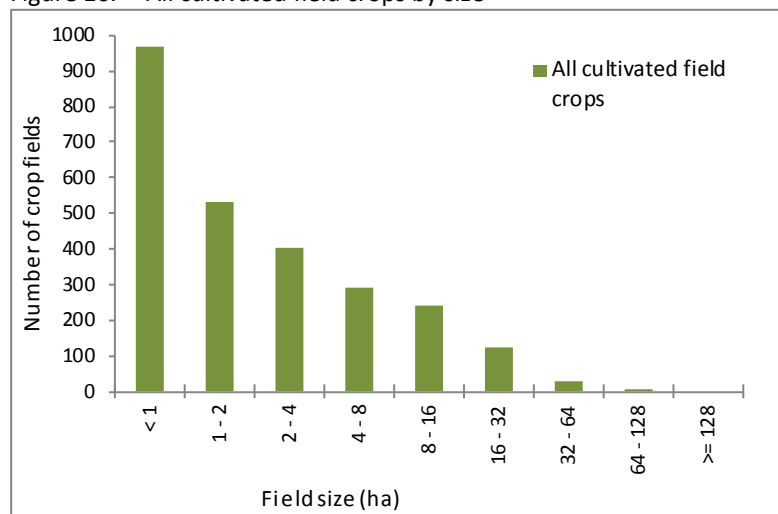


Figure 16 illustrates the number and size distribution of fields used for cultivated field crops.

In Chilliwack, there are 2,591 individual crop fields with an average crop area of 4 ha and a median crop area of 1.5 ha.

There are 970 individual crop fields less than 1 ha. Pasture fields account for over half (52%) of these small fields.

If two or more crop fields of the same crop type are present on one parcel, they are counted as one crop field. A parcel may have several different crop types.

Figure 17. Parcel size distribution of parcels with cultivated field crops

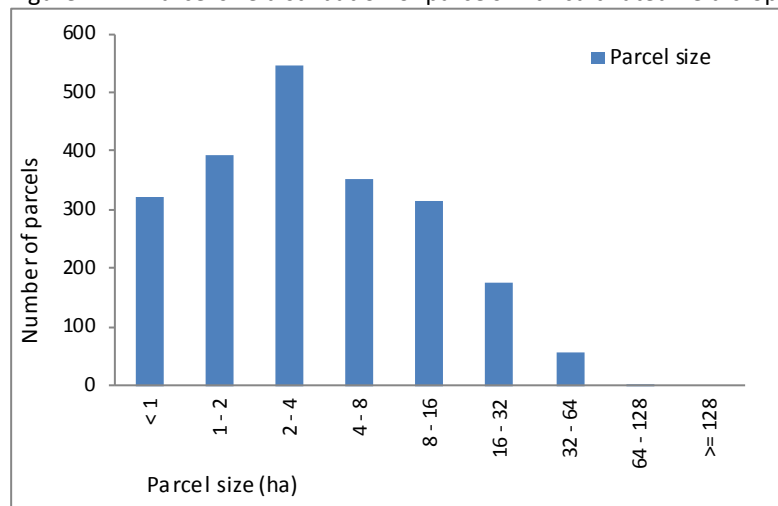


Figure 17 illustrates the size distribution of parcels that have cultivated field crops.

In total, cultivated crops occur on 2,160 parcels. These parcels have an average parcel size of 6 ha and a median parcels size of 3 ha.

¹² Each distinct crop type on one parcel is counted as one crop activity. Each crop activity will include at least one and perhaps more crop fields. A parcel may have more than one crop activity if there is more than one distinct type of crop on that parcel.

Forage and pasture crops

Forage and pasture are the dominant crop types in Chilliwack.

- Forage is a cultivated crop that is cut and made into silage or hay for livestock feed.
- Pasture is a cultivated crop that is used for grazing only and is not cut.
- Forage & pasture is grazed for 1-3 months and is cut for silage or hay.

Areas previously used for forage or pasture are considered inactively farmed.

- Unused: forage or pasture which has not been cut or grazed during the current growing season.
- Unmaintained: forage or pasture has not been cut or grazed during the current growing season, has not been maintained for several years and probably would not warrant harvest.

Table 7. Forage & pasture crops by area

Forage & pasture crops		In ALR (ha)	% of effective ALR	Outside ALR (ha)	Total area (ha)	% of cultivated land
Forage	Forage corn	3,249	22%	7	3,256	30%
	Grass	2,402	16%	20	2,422	22%
	Mixed grass / legume	1,241	8%	20	1,261	12%
Subtotal		6,891	46%	48	6,939	64%
Forage & pasture	Grass	11	< 1%	13	24	< 1%
	Mixed grass / legume	2	< 1%	-	2	< 1%
Subtotal		13	< 1%	13	26	< 1%
Pasture	Mixed grass / legume	981	7%	139	1,120	10%
	Grass	168	1%	9	177	2%
	Legume	13	< 1%	-	13	< 1%
Subtotal		1,163	8%	148	1,310	12%
Unused	Grass	95	< 1%	5	100	< 1%
	Mixed grass / legume	35	< 1%	< 1	36	< 1%
Subtotal		130	< 1%	6	136	1%
TOTAL		8,197	55%	214	8,411	78%

Table 7 shows that there is far more forage than pasture in Chilliwack.

In total, there are 6,939 ha used for forage production, 1,310 ha used for pasture and 26 ha used for both forage and pasture. The majority of the forage is grown to support intensive dairy operations in the region.

Refer to Map 5 for more information.

Figure 18. Forage & pasture crop types by percentage

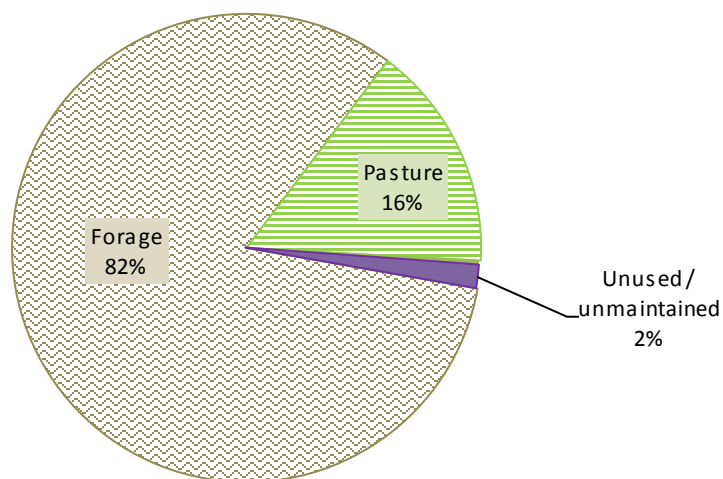


Figure 18 shows the proportion the forage and pasture types in Chilliwack.

Figure 19. Forage & pasture fields by size and type

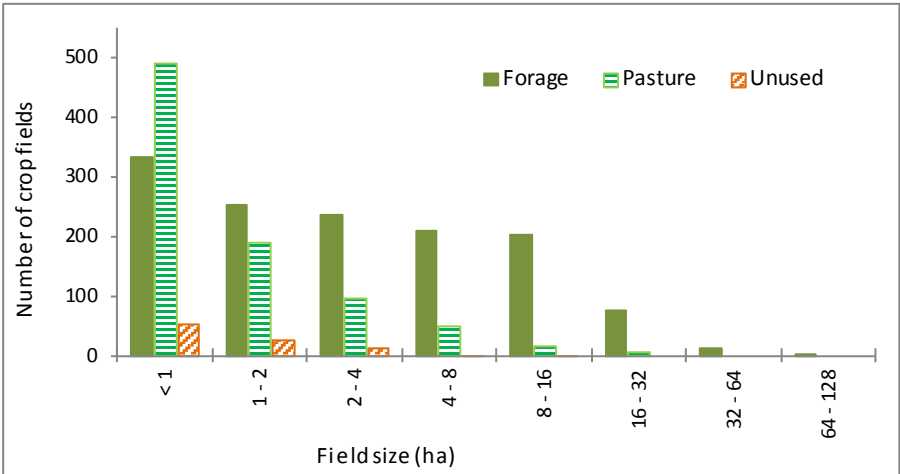


Figure 19 compares the field sizes of forage and pasture crops in Chilliwack.

Most pasture fields are less than 2 ha (678 out of 844 or 80%). There are 844 pasture fields with an average crop area of 2 ha and a median crop area of 0.7 ha.

In comparison, there are 1,313 forage fields with an average crop area of 5 ha and a median crop area of 2 ha.

Forage fields generally need to be larger than pasture fields in order to accommodate large equipment. There are instances in Chilliwack where multiple small forage fields, spanning multiple parcels are farmed as a single unit. This helps to efficiently bring smaller lots into production.

Nursery & tree plantations

Nursery operations produce a variety of plants, trees, and shrubs that are cultivated for transplant.

These operations can be soil or container based. An intensive container based nursery has the potential to thrive on a relatively small parcel with poor soils.

Tree plantations are characterized by trees and woody shrubs that are harvested on site for fibre or other products. Tree plantations are not cultivated for transplant except in rare cases such as ball & burlap Christmas trees.

Nursery and tree plantations in Chilliwack include:

- **Nursery** : ornamentals and shrubs, cedar hedging, forestry stock, and mixed operations
- **Tree plantations** : Christmas trees, pulp/fibre/veneer trees

Table 8. Nursery & tree plantations by area

Nursery & tree plantations		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of effective ALR			
Nursery	Ornamentals and shrubs	539	3%	< 1	539	5%
	Cedar hedging	320	2%	< 1	320	3%
	Nursery - mixed	32	< 1%	-	32	< 1%
	Forestry stock	< 1	< 1%	-	< 1	< 1%
	Nursery - unmaintained	3	< 1%	< 1	3	< 1%
Nursery total		894	5%	< 1	894	8%
Tree plantation	Fibre/pulp/veneer trees	74	< 1%	< 1	75	< 1%
	Christmas trees	14	< 1%	< 1	14	< 1%
	Unknown type	4	< 1%	-	4	< 1%
Tree plantation total		93	< 1%	< 1	93	< 1%
TOTAL		987	6%	< 1	987	9%

Table 8 shows that Chilliwack has 894 ha in nursery crops and 93 ha in tree plantations.

Ornamentals and shrubs are the main crop type in terms of area.

Refer to Map 4 more information.

Figure 20. Nursery crops by size and type

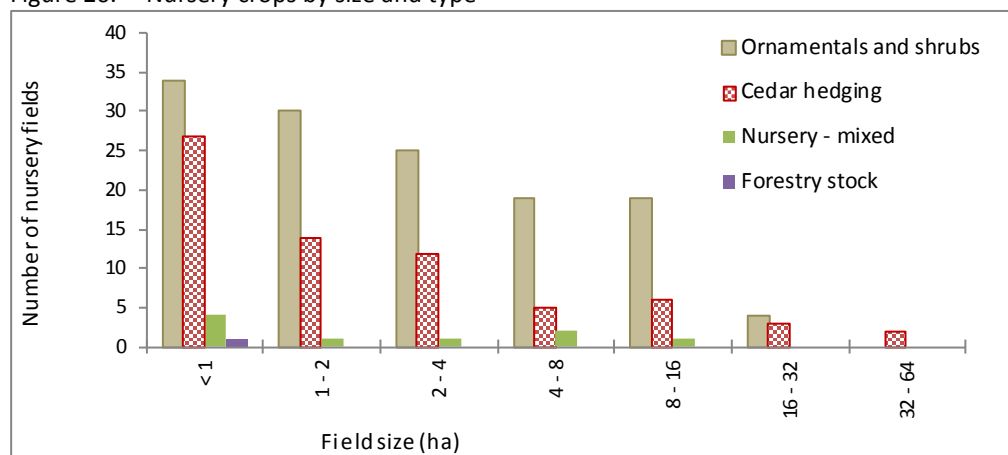


Figure 20 illustrates the field size distribution of nursery crops in Chilliwack.

There are 131 ornamental and shrub fields, 69 cedar hedge fields, 9 mixed nursery fields, and 1 forestry stock production area.

Overall, there are 210 individual nursery crops with an average crop area of 4 ha and a median crop area of 2 ha.

Figure 21. Tree plantations by size and type

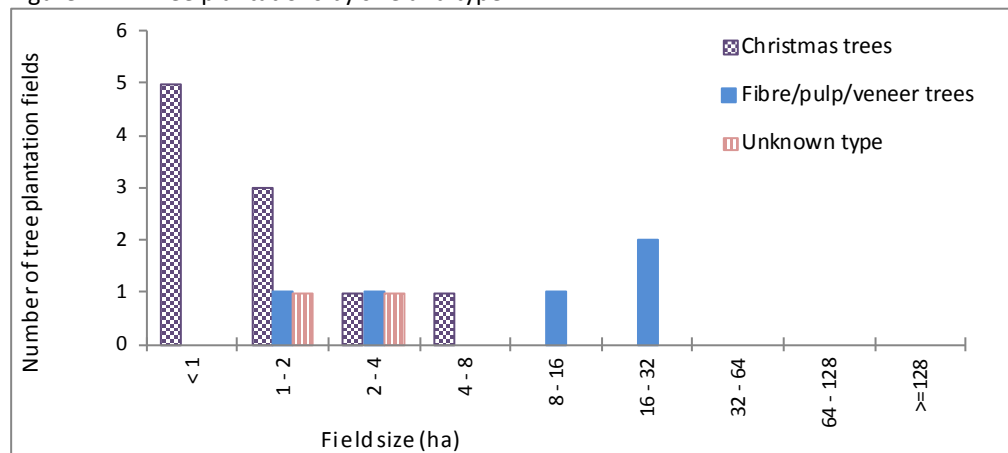


Figure 21 illustrates the field size distribution of tree plantations in Chilliwack.

There are 17 individual tree plantation fields with an average crop area of 5 ha and a median crop area of 1 ha.

Vegetable crops

Vegetable crops are either annual, such as potatoes or lettuce, or perennial such as rhubarb and asparagus. Annual vegetable crops are usually rotated or grown on different land each year to minimize the build-up of crop-specific pest and disease problems and to avoid exhausting soil nutrients. Since this inventory is a snapshot in time, the annual vegetable crops seen during the survey year may not be present in the same location the following year.

Vegetables in Chilliwack are described by nine crop groupings:

- **Sweet corn**
- **Cole crops:** Includes broccoli, Brussels sprouts, cabbage, cauliflower, kale, collards, kohlrabi
- **Mixed vegetables:** a variety of vegetable types cultivated in a field
- **Potatoes**
- **Leafy vegetables:** Includes lettuces, spinach, Swiss chard, celery
- **Legumes:** beans, peas
- **Misc. Vegetables:** May include peppers, leeks, tomatoes, asparagus, eggplant, shallots, green onions, okra.
- **Unknown:** the vegetable type could not be determined from the road
- **Cucurbits:** Includes squash, cucumber, zucchini, melons, watermelon, pumpkin

Table 9. Vegetable crops by area

Vegetable crops	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of effective ALR			
Sweet corn	256	2%	1	257	2%
Cole crops	136	1%	6	142	1%
Mixed vegetables*	73	< 1%	< 1	74	< 1%
Potatoes	52	< 1%	< 1	52	< 1%
Leafy vegetables	18	< 1%	-	18	< 1%
Legumes	15	< 1%	< 1	15	< 1%
Misc. vegetables**	15	< 1%	-	15	< 1%
Unknown^	14	< 1%	-	14	< 1%
Cucurbits	< 1	< 1%	-	< 1	< 1%
TOTAL	580	4%	8	588	5%

* A variety of vegetable types cultivated in a field.

** May includes peppers, sweet corn, leeks, tomatoes, asparagus, eggplant, shallots, green onions, okra.

^ The type of vegetable field could not be determined from the road.

Table 9 presents the different vegetable crops in Chilliwack.

In total, 588 ha of vegetables crops were identified. Sweet corn was the most common with 257 ha or 2% of all cultivated land.

Cole crops were the second most common with 142 ha, followed by mixed vegetables with 74 ha.

Figure 22. Vegetable crop types by percentage

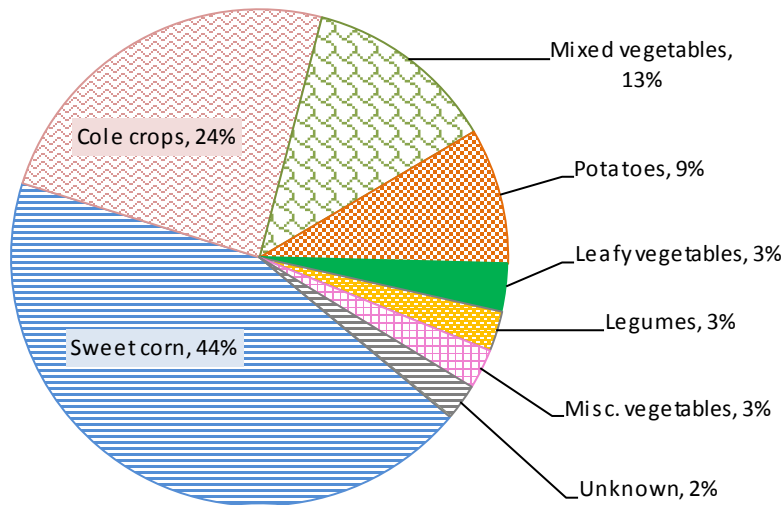


Figure 22 shows the proportion of vegetable crops in Chilliwack.

Sweet corn, Cole crops, mixed vegetables, and potatoes account for 90% of the vegetables in Chilliwack.

Figure 23. Vegetable fields by size

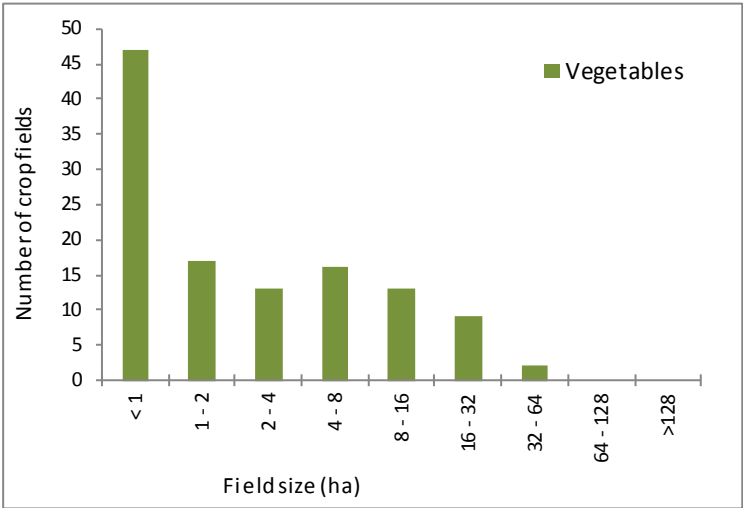


Figure 23 illustrates the size distribution of vegetable fields in Chilliwack. Most vegetable fields are less than 1 ha.

In total, there are 117 individual vegetable fields with an average crop area of 5 ha and a median crop area of 1.5 ha.

Vegetable fields occur on 114 parcels where the average parcel size is 8 ha and the median parcel size is 3.5 ha.

Figure 24. Sweet corn, Cole crops, mixed vegetable and potato fields by size

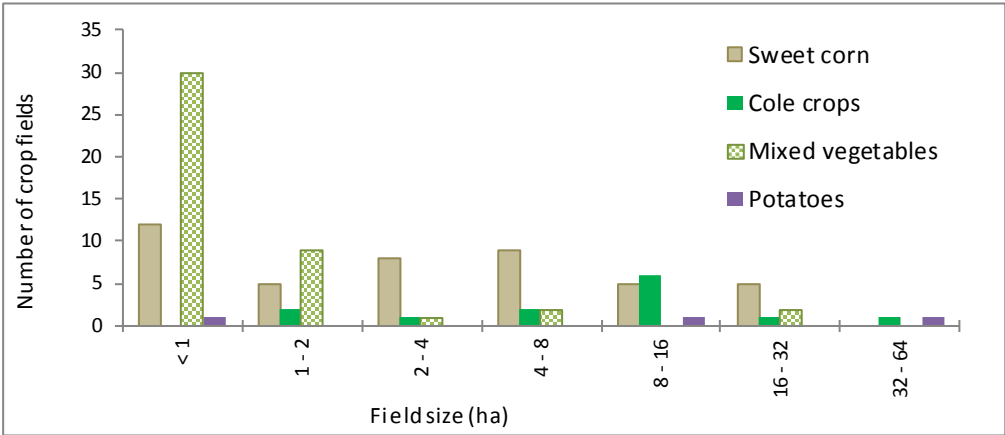


Figure 24 compares the field sizes of the top 4 vegetable crops.

Most mixed vegetable fields are less than 1 ha in size.

Berry crops

Berries are primarily perennial crops. These crops do not change frequently as most require several years to mature and some crop types require extensive land preparation. Strawberries are a perennial plant which is usually rotated to minimize build-up of crop-specific pest and disease problems. Since this inventory is a snapshot in time, the strawberry crops seen during the survey year may not be present in the same location the following year.

Two plant age categories are described:

- **Young:** Plants are young and have not reached peak production
- **Mature:** Plants are mature and are capable of reaching peak production

Table 10. Berry crops by area

Vine & berry crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of effective ALR			
Blueberries	Mature	315	2%	2	317	3%
	Young	114	1%	1	115	1%
	Subtotal	429	3%	3	432	4%
Raspberries	Mature	75	< 1%	< 1	76	< 1%
	Unmaintained	16	< 1%	-	16	< 1%
	Subtotal	91	< 1%	< 1	91	1%
Cranberries	Mature	11	< 1%	-	11	< 1%
	Young	8	< 1%	-	8	< 1%
	Subtotal	19	< 1%	-	19	< 1%
Blackberries	Mature	17	< 1%	-	17	< 1%
	Unmaintained	< 1	< 1%	< 1	< 1	< 1%
	Subtotal	17	< 1%	< 1	17	< 1%
Unkonw type	Mature	8	< 1%	-	8	< 1%
	Subtotal	8	< 1%	-	8	< 1%
Strawberries	Young	< 1	< 1%	-	< 1	< 1%
	Subtotal	< 1	< 1%	-	< 1	< 1%
Mixed berries	Mature	< 1	< 1%	-	< 1	< 1%
	Subtotal	< 1	< 1%	-	< 1	< 1%
TOTAL		564	4%	3	567	5%

Table 10 details the berry crops in Chilliwack.

Five percent of all cultivated land in Chilliwack is in berry crops (567 ha).

Blueberries are the most significant berry type with 432 ha (4% of all cultivated land) followed by raspberries with 91 ha.

Figure 25. Berry crop types by percentage

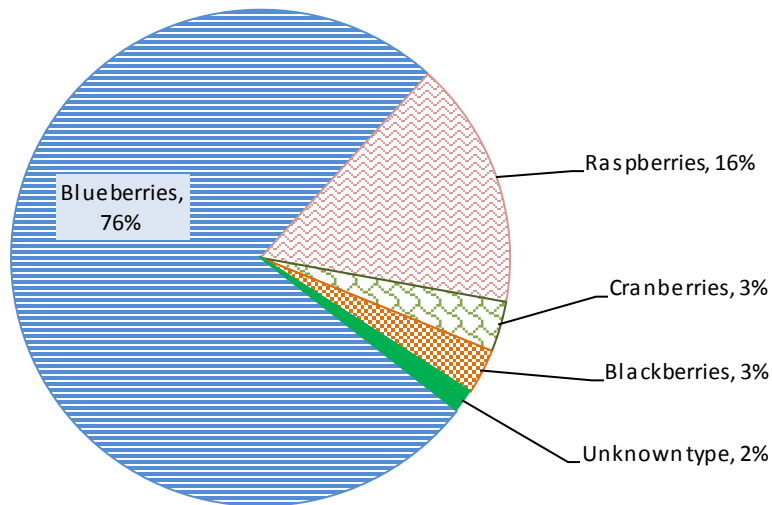


Figure 25 shows the proportion of berry crop types in Chilliwack

Blueberries combined with raspberries comprise 92% of all berries within the city.

Figure 26. Berry fields by size

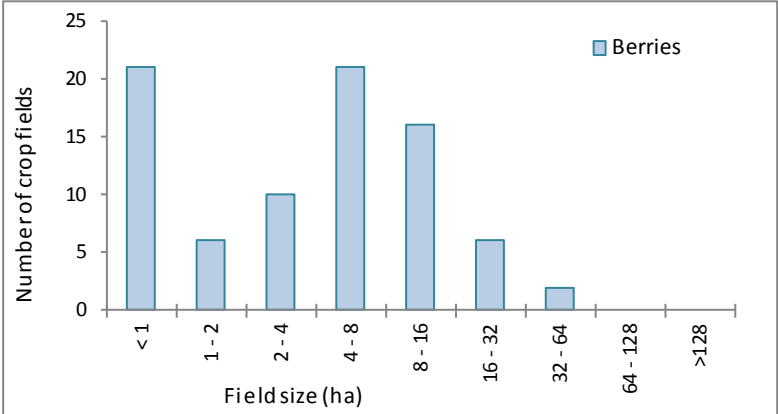


Figure 26 illustrates the field size distribution of berry crops in Chilliwack.

There are 82 individual berry fields with an average crop area of 7 ha and a median crop area of 4 ha.

Berry crops occur on 79 parcels where the average parcel size is 12 ha and the median parcel size is 7 ha.

Figure 27. Blueberry, raspberry, and cranberry fields by size

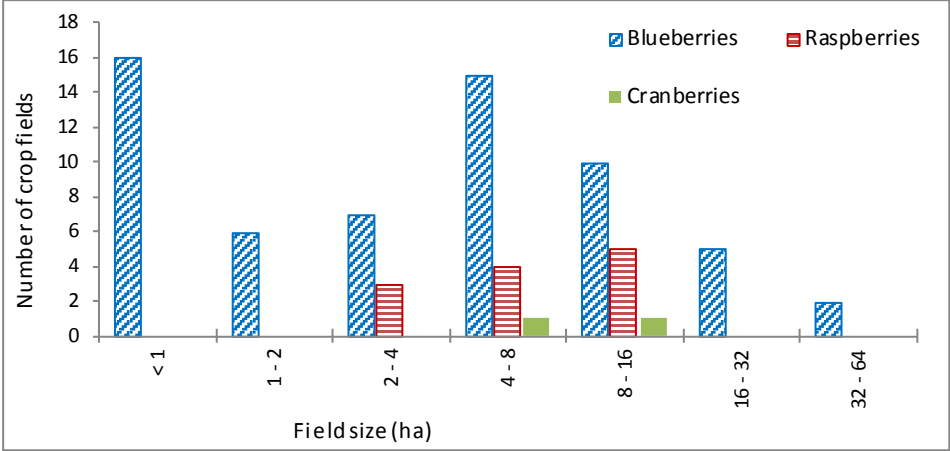


Figure 27 shows the field size distribution of the top 3 berry crops.

Blueberries occur across all field sizes with berry crops. There are 61 blueberry fields while there are only 12 raspberry and 2 cranberry fields.

Blueberries have an average crop area of 7 ha and a median crop area of 4 ha.

In comparison, cranberry fields have an average and median crop area of 9 ha. All cranberry fields occur on fields larger than 7 ha.

Top 20 Individual Crops

Table 11. Top 20 crop types by area

Cultivated field crop	In ALR (ha)	% of ALR	% of effective ALR	Outside ALR (ha)	Total area (ha)	% of cultivated land
Forage	6,905	41%	46%	61	6,965	64%
Pasture	1,163	7%	8%	148	1,310	12%
Ornamentals and shrubs	539	3%	4%	< 1	539	5%
Blueberries	429	3%	3%	3	432	4%
Cedar hedging	320	2%	2%	< 1	320	3%
Sweet corn	256	2%	2%	1	257	2%
Cole crops	136	1%	1%	6	142	1%
Hazelnut / filbert	135	1%	1%	1	137	1%
Unused forage/pasture	130	1%	1%	6	136	1%
Raspberries	75	< 1%	< 1%	< 1	76	< 1%
Fibre/pulp/veneer trees	74	< 1%	< 1%	< 1	75	< 1%
Mixed vegetables	72	< 1%	< 1%	< 1	73	< 1%
Potatoes	52	< 1%	< 1%	< 1	52	< 1%
Nursery	32	< 1%	< 1%	-	32	< 1%
Field Peas	32	< 1%	< 1%	-	32	< 1%
Fallow land	24	< 1%	< 1%	< 1	24	< 1%
Cranberries	19	< 1%	< 1%	-	19	< 1%
Cultivated land	18	< 1%	< 1%	< 1	18	< 1%
Leafy vegetables	18	< 1%	< 1%	-	18	< 1%
Blackberries	17	< 1%	< 1%	-	17	< 1%
TOTAL	10,445	62%	70%	227	10,672	98%

* Effective ALR is the total ALR area excluding ALR on Indian reserves and ALR outside of legally surveyed parcels.

Table 11 lists the top 20 individual crops that account for 98% of the cultivated land in Chilliwack.

Forage, pasture, ornamentals & shrubs, and blueberries are the top four individual crops in terms of area.

These four crop types account for 85% of all cultivated land in Chilliwack.

Figure 28. Top 10 crop types by area

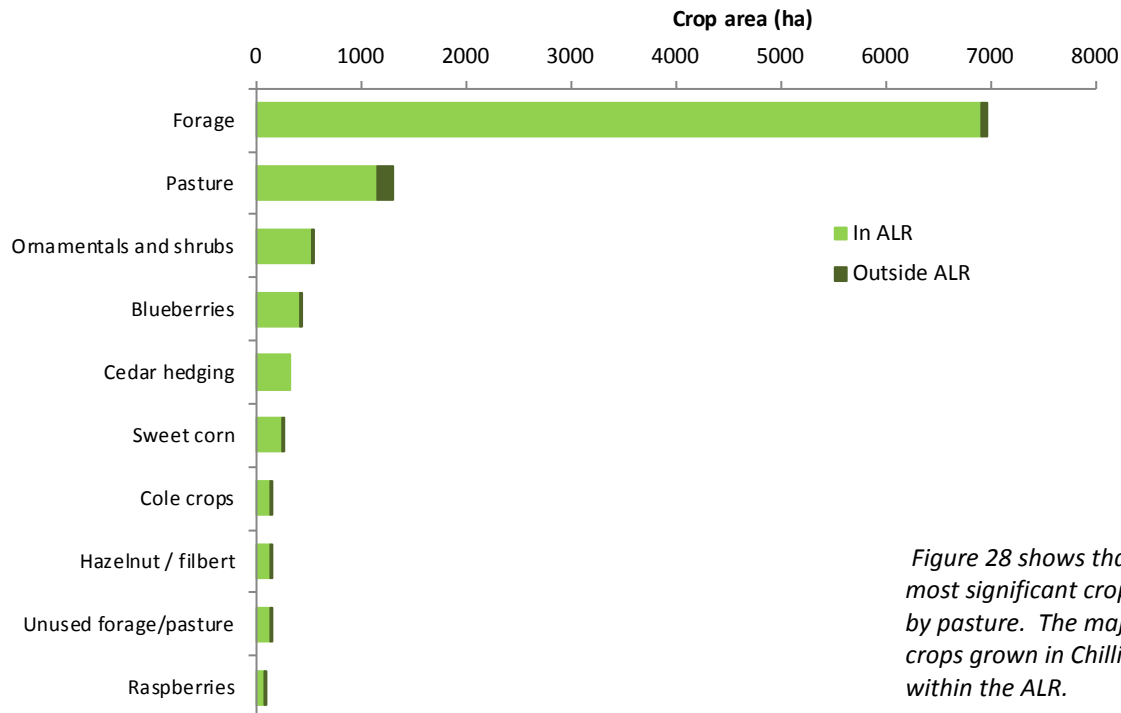


Figure 28 shows that forage is the most significant crop type followed by pasture. The majority of all crops grown in Chilliwack are found within the ALR.

GREENHOUSES & CROPS BARNs

Greenhouses are structures covered with translucent material and of sufficient size for a person to work inside¹³. They are permanent enclosed glass or polyethylene (poly) structures with or without climate control facilities for growing plants under controlled environments. Non permanent structures such as hoop covers are considered an agricultural practice and are not included here.

Crop barns are permanent structures with non-translucent walls that are used for growing mushrooms or specialty crops such as bean sprouts.

Table 12. Greenhouses by area¹⁴

Greenhouses		ALR		Outside ALR (ha)	Total area (ha)	% of greenhouse area
		In ALR (ha)	% of ALR			
Crop Barn	Mushroom	2	<0.1	-	2	3%
Subtotal		2	< 1%	-	2	3%
Glass greenhouse	Floriculture	12	<0.1	-	12	20%
	Nursery	6	<0.1	-	6	9%
	Unknown	2	<0.1	-	2	3%
	Vegetables	1	<0.1	-	1	2%
	Empty	1	<0.1	-	1	1%
	Unmaintained	<0.1	<0.1	-	<0.1	<0.1
Subtotal		21	< 1%	-	21	35%
Poly greenhouse	Unknown	13	<0.1	0.3	14	23%
	Nursery	11	<0.1	-	11	18%
	Floriculture	5	<0.1	-	5	9%
	Mixed	5	<0.1	-	5	8%
	Vegetables	2	<0.1	-	2	4%
	Empty	< 1	<0.1	-	< 1	1%
	Unmaintained	1	<0.1	-	1	1.1%
Subtotal		37	< 1%	< 1	37	62%
TOTAL		60	0.4%	< 1	60	100%

Table 12 shows that Chilliwack has 60 ha in greenhouses and crop barns.

There are 2 ha in crop barns, 21 ha in glass greenhouses, and 37 ha in poly greenhouses.

Floriculture and nursery are the main products produced in both glass and poly greenhouses.

Figure 29. Greenhouse and crop barn activities by building type and parcel size

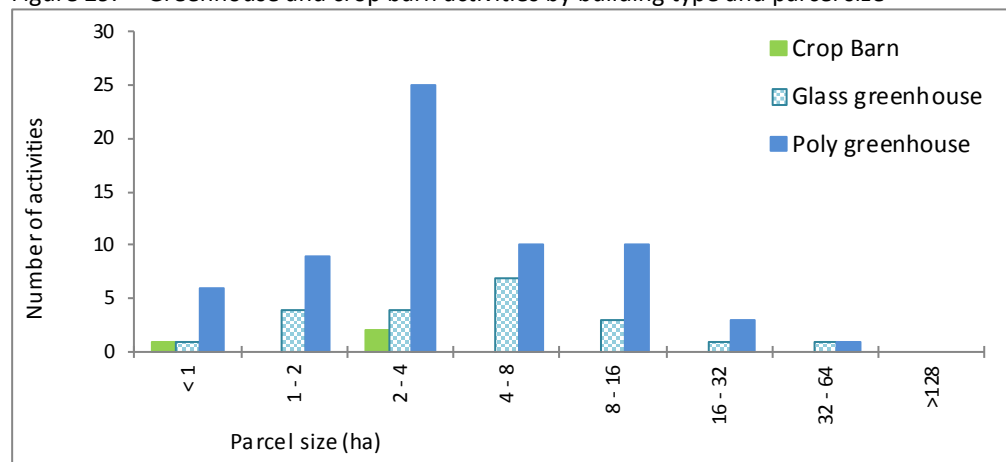


Figure 29 details the parcel size distribution of parcels with greenhouse or crop barn activities.

The average parcel size where greenhouses or crop barns occur is 5 ha.

The average parcel size by building type is:

- 2.2 ha – crop barns
- 7.1 ha – glass greenhouses
- 5.4 ha – poly greenhouses.

¹³ Source: *Guide for Bylaw Development in Farming Areas*, 2013. Ministry of Agriculture.

¹⁴ The areas reported in this table exclude external yards, parking, warehouses and other infrastructure related to the greenhouse or crop barn operation. Poly refers to polyethylene.

Figure 30. Greenhouse and crop barn activities by building type and greenhouse footprint¹⁵

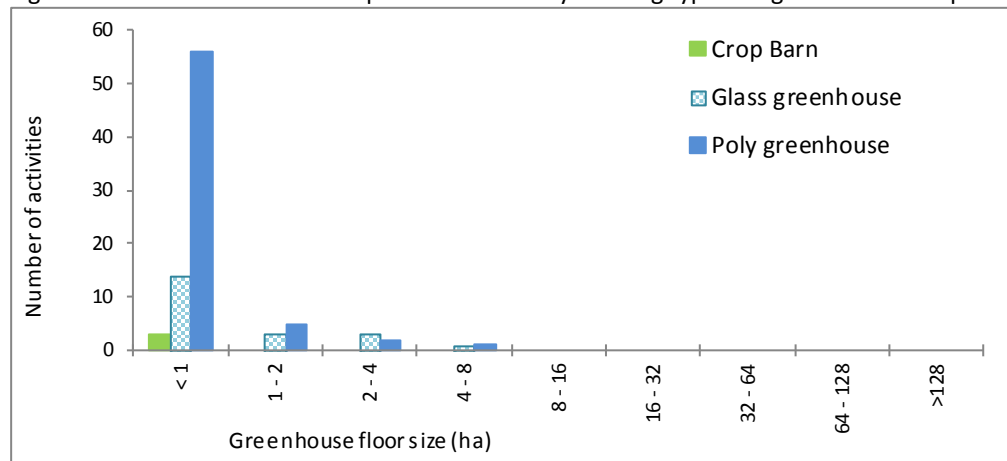


Figure 30 shows that most greenhouse activities are less than one ha in size.

In total, there are 64 poly greenhouse, 21 glass greenhouse, and 3 crop barn activities.

Most of the poly greenhouse activities (56 or 88%) are less than 1 ha in size.

All poly greenhouse activities are less than 8 ha in size.

Figure 31. Distribution of greenhouse and crop barn total area by building type and size¹⁵

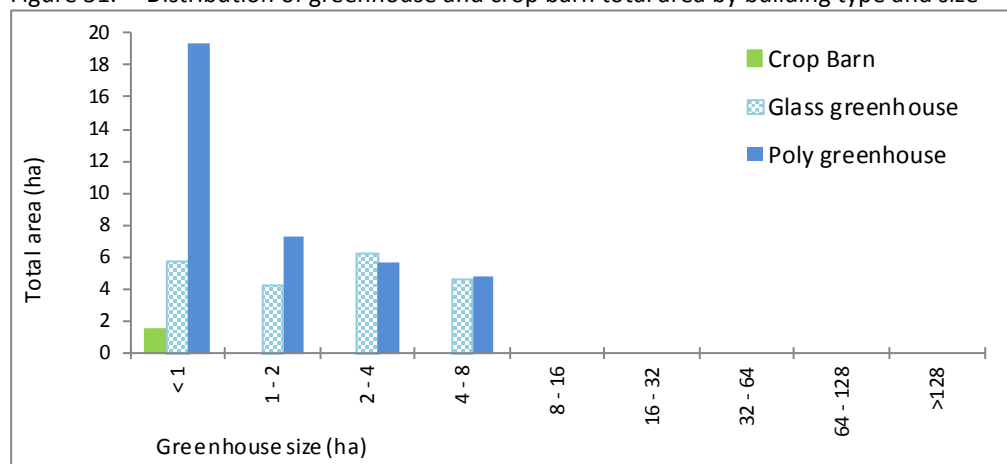


Figure 31 shows the total area of greenhouses and crop barns by building type

Poly greenhouses comprise the majority of total area for greenhouse and crop barn activities less than 1 ha. This is too be expected as the number of poly greenhouses exceeds the number of glass greenhouses and crop barns (refer to Figure 30).

¹⁵ Each distinct greenhouse or crop barn building type on one parcel is counted as one activity. Each activity will included at least one and perhaps more greenhouse/crop barn structures of the same building type if the buildings edges are adjacent to one another.

IRRIGATION

Irrigation is the artificial application of water to the land or soil and may be used to assist in the growing of agricultural crops, the maintenance of managed vegetation, and the control of soil erosion or dust. The availability of water delivery infrastructure and good quality water for irrigation are often requirements for growing high-value crops.

Irrigation is captured at the field or land cover level by system type (surface, sprinkler, centre pivot, giant gun, trickle) and then summarized by crop type to the total land area under irrigation. Irrigated land includes all irrigated field crops and may also include irrigated fallow farmland, land temporarily set aside for wildlife or other purposes, and land under preparation for planting. Also included are crops grown in greenhouses and crop barns. In addition, individual cultivated field crops are evaluated for percent of crop area under irrigation.

An Agricultural Water Demand Model (AWDM) has been created for the Fraser Valley Regional District. The AWDM is a water management planning tool that provides data on current and future agricultural water demands. The AWDM utilizes Agricultural Land Use Inventory crop and irrigation data, as well soil and climate data from external sources. The Fraser Valley Regional District AWDM Report¹⁶ highlights the results from 3 climate change scenarios and 3 water management practices.

Table 13. Main crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)			Total area irrigated (ha)	% of crop area irrigated
	Sprinkler	Giant gun	Trickle		
Forage	94	1,395	-	1,489	21%
Nursery	638	155	< 1	794	89%
Berries	21	23	444	488	86%
Vegetables	52	105	< 1	157	27%
Pasture	15	45	-	60	5%
Floriculture	5	2	-	8	86%
Cereals & oilseeds	-	6	-	6	11%
Tree fruits	5	-	-	5	44%
Grapes	< 1	-	5	5	55%
Nut trees	5	-	-	5	4%
Other*	3	-	-	3	5%
Trees (plantation)	-	-	1	1	1%
TOTAL FIELD CROP AREA IRRIGATED	839	1,731	452	3,022	28%
Greenhouses & crop barns	Flood and trickle irrigation			59	100%

* Other. Includes bare cultivated land, fallow land (cultivated land that has not been seeded or planted for one or more growing season), land in crop transition, land planted in cover grass to manage soil moisture/erosion associated with a cultivated crop.

Table 13 outlines the types of irrigation systems used on cultivated field crops in Chilliwack. Only 28% of all cultivated field crops are irrigated (3,022 ha out of 10,845 ha).

The majority of all nursery, berry, and floriculture crops are irrigated. Although forage and pasture are the most abundant crop types, only 21% of forage crops are irrigated and only 5% of all pasture crops are irrigated.

¹⁶ Fraser Valley Regional District Agricultural Water Demand Model 2015. <http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/agriculture-water/water-management/agriculture-water-demand-model>

Figure 32. Irrigation systems by percentage of cultivated land

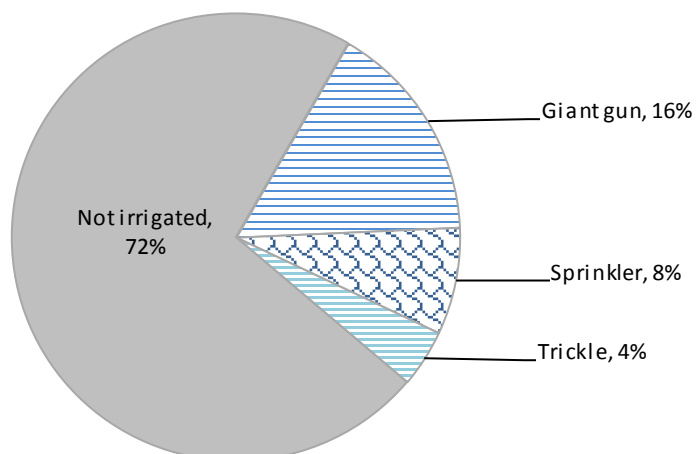


Figure 32 shows that 72% of the cultivated land in Chilliwack is not irrigated.

Table 14. Top 20 crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)			Area irrigated (ha)	% of crop area irrigated
	Sprinkler	Giant gun	Trickle		
Forage	94	1,395	-	1,489	21%
Pasture	15	45	-	60	5%
Ornamentals and shrubs	321	129	< 1	451	84%
Blueberries	3	7	416	426	99%
Cedar hedging	312	-	-	312	98%
Sweet corn	-	6	-	6	2%
Cole crop	6	72	-	78	55%
Hazelnut / filbert	5	-	-	5	4%
Unused forage/pasture	-	-	-	-	-
Raspberries	-	15	20	35	47%
Fibre/pulp/veneer trees	-	-	-	-	-
Mixed vegetables	28	8	< 1	36	50%
Potatoes	17	-	-	17	32%
Nursery	5	26	-	31	97%
Field Peas	-	-	-	-	-
Fallow land	3	-	-	3	14%
Cranberries	19	-	-	19	100%
Cultivated land	-	-	-	-	-
Leafy vegetables	-	18	-	18	100%
Blackberries	-	-	-	-	-

Table 14 outlines the type of irrigation systems used on the top 20 individual field crops in Chilliwack.

Forage is the main crop utilizing giant gun irrigation while blueberries are the main crop utilizing trickle irrigation.

The top 20 crops are detailed in Table 11.

LIVESTOCK

Livestock activities are difficult to measure using a windshield survey. Livestock are often confined to structures making it difficult for the surveyor to see the animals. Local knowledge and other indicators such as animal confinement type (barn type), feeder system type, manure handling system type, and other visible elements may be used to infer the type of livestock and scale of activity that exist on a parcel. In addition, livestock are mobile and may utilize more than one land parcel. Livestock visible on a certain parcel one day may be visible on a different parcel the next day. This inventory does not attempt to identify animal movement between parcels that make up a farm unit but reports livestock at the parcel where the animals or related structures were observed.

"Main Type" and **"Secondary Type"** of livestock are determined by comparing the scale of different livestock activities on the parcel. The "Main Type" of livestock does not represent the primary agricultural activity, but only the main type of livestock activity.

"Intensive" livestock activities utilize specialized structures such as barns, feedlots and stockyards designed for confined feeding at higher stocking densities.

"Non Intensive" livestock activities allow animals to graze on a pasture and often utilize non intensive barns and corrals/paddocks.

"Unknown livestock" refers to activities where non specialized livestock related structures were present but the livestock were not visible and therefore the specific type of livestock could not be determined.

"Homesite" refers to the location of the main ranch or main barn of a livestock operation or farm unit¹⁷. Often, other types of farm infrastructure, such as corrals, paddocks, barns, and feeding/watering facilities, as well as the farm residence, are also at this location. This is the primary location of the farm unit where most livestock management occurs.

"Non Homesite" refers to a location where livestock are present but related infrastructure is minimal. Often pasture fencing and watering are the only apparent infrastructure improvements. This location is often used only for pasturing livestock and is secondary to an operation's primary (or homesite) location.

The scale system used to describe livestock operations relies on animal unit equivalents which is a standard measure used to compare different livestock types. One animal unit equivalent is approximately equal to one adult cow or horse. The scale system includes 4 levels:

- **"Very Small"** Approximately 1 cow or horse or bison, 3 hogs, 5 goats or deer, 10 sheep, 50 turkeys, 100 chickens (1 animal unit equivalent)
- **"Small"** LESS THAN 25 cows or horses or bison, 75 hogs, 125 goats or deer, 250 sheep, 1250 turkeys, 2500 chickens (2 - 25 animal unit equivalents)
- **"Medium"** LESS THAN 100 cows or horses or bison, 300 hogs, 500 goats or deer, 1000 sheep, 5000 turkeys, 10,000 chickens (25 - 100 animal unit equivalents)
- **"Large"** MORE THAN 100 cows or horses or bison, 300 hogs, 500 goats or deer, 1000 sheep, 5000 turkeys, 10,000 chickens (over 100 animal unit equivalents).

¹⁷ Farm unit includes all the property belonging to a farm and may incorporate more than one parcel.

Table 15. Livestock activities

Livestock group	Scale of activity				Total activities	By activity type		By location	
	Very small scale	Small scale	Medium scale	Large scale		Intensive	Non intensive	Homesite	Non homesite
Equine	90	154	11	-	255	-	255	255	-
Poultry	53	6	10	132	201	143	58	201	-
Dairy	7	13	58	80	158	129	29	147	11
Beef	24	58	12	1	95	10	85	89	6
Sheep / lamb / goat	45	19	2	-	66	-	66	65	1
Llama / alpaca	11	4	-	-	15	-	15	15	-
Swine	-	1	-	4	5	4	1	5	-
Specialty livestock*	3	1	-	-	4	-	4	4	-
TOTAL	233	256	93	217	799	286	513	781	18

* Specialty livestock in Chilliwack includes game birds (partridges, pheasants, pigeons & quail), emu, and peacocks.

Table 15 details the number and scale of livestock activities in Chilliwack.

Equine is the most common type of livestock activity accounting for 32% of all livestock activities (255 out of 799). Poultry is the second most common livestock type with 201 activities or 25%, followed by dairy and beef activities.

Although equine operations are common, the scale of each operation is generally smaller than poultry, or dairy activities. Poultry and dairy both have high proportions of “intensive” activities that utilize specialized structures for confined feeding at higher stocking densities.

Equine, poultry, dairy, and, beef activities are described in further detail in Tables 16 -19.

Table 16. Poultry activities

Poultry activity	Scale	By parcel		Total number of activities	By activity type	
		Main type	Secondary type		Intensive	Non intensive
Chicken	Very small scale (< 100 birds)	39	11	50	-	50
	Small scale (100 - 2500 birds)	2	-	2	-	2
	Medium scale (2500 - 10,000 birds)	9	-	9	8	1
	Large scale (>10,000 birds)	126	1	127	127	-
Subtotal		176	12	188	135	53
Duck	Very small scale (< 50 birds)	1	1	2	-	2
Subtotal		1	1	2	-	2
Goose	Very small scale (< 100 birds)	1	-	1	-	1
Subtotal		1	-	1	-	1
Poultry - unknown type	Small scale (100 - 2500 birds)	2	-	2	-	2
	Medium scale (2500 - 10,000 birds)	1	-	1	1	-
	Large scale (>10,000 birds)	4	-	4	4	-
Subtotal		7	-	7	5	2
Turkey	Small scale (50 -1250 birds)	1	1	2	2	-
	Large scale (1250 - 5000 birds)	1	-	1	1	-
Subtotal		2	1	3	3	-
TOTAL		187	14	201	143	58

Table 16 details the 201 poultry activities identified in Chilliwack. The majority of all poultry activities are “intensive” (143 activities and 71%). “Medium and “Large” scale activities are almost exclusively “intensive” while “small” and “very small” activities tend to be “non-intensive”. All poultry activities occur on the livestock homesite.

Table 17. Dairy activities

Scale of dairy activity	By parcel		Total number of activities	By activity type		By location	
	Main type	Secondary type		Intensive	Non intensive	Homesite	Non homesite
Very small scale (1 cow)	6	1	7	-	7	6	1
Small scale (2 - 25 cattle)	13	-	13	2	11	11	2
Medium scale (25 - 100 cattle)	57	1	58	47	11	52	6
Large scale (> 100 cattle)	79	1	80	80	-	78	2
TOTAL	155	3	158	129	29	147	11
Inactive dairy operations			19				

Table 17 details the 158 dairy activities identified in Chilliwack. Only 141 of the 158 activities have more than 1 animal and are livestock "homesites". This indicates there may be up to 141 dairy operations in Chilliwack.

Also recorded were 19 inactive operations. An inactive operation was identified by the presence of empty and unused dairy infrastructure. These inactive operations may indicate a shift towards fewer, larger dairy operations. Inactive activities are not counted in the total number of livestock activities in Chilliwack.

Table 18. Beef activities

Scale of beef activity	By parcel		Total number of activities	By activity type		By location	
	Main type	Secondary type		Intensive	Non Intensive	Homesite	Non homesite
Very small scale (1 cow)	20	4	24	-	24	23	1
Small scale (2 -25 cattle)	53	5	58	4	54	53	5
Medium scale (25 -100 cattle)	11	1	12	5	7	12	-
Large scale (> 100 cattle)	1	-	1	1	-	1	-
TOTAL	85	10	95	10	85	89	6

Table 18 details the 95 beef activities identified in Chilliwack. Only 10 of these activities are considered "intensive". There is one "large" scale activity (>100 cows) and 12 "medium" scale activities (25 -100 cattle). The remaining beef activities (82 or 86%) are "small" or "very small" scale.

Table 19. Equine activities

Scale of equine activity	Type of activity	By parcel		Total number of activities	By activity type		By location	
		Main Type	Secondary Type		Intensive	Non intensive	Homesite	Non homesite
Very small scale (1 equine)		82	8	90	-	90	90	-
Small scale (2-25 equine)		130	16	146	-	146	146	-
Small scale (2-25 equine)	Boarding	7	1	8	-	8	8	-
Medium scale (2-25 equine)		9	-	9	-	9	9	-
Medium scale (2-25 equine)	Boarding	2	-	2	-	2	2	-
TOTAL	TOTAL	230	25	255	-	255	255	-

Table 19 details the 255 equine activities identified in Chilliwack. Although there are many equine activities, most are "small" or "very small" scale (less than 25 animals), with only 11 "medium" scale activities reported.

Also identified were 10 equine boarding facilities.

Figure 33. Livestock activities by scale and type (equine excluded)

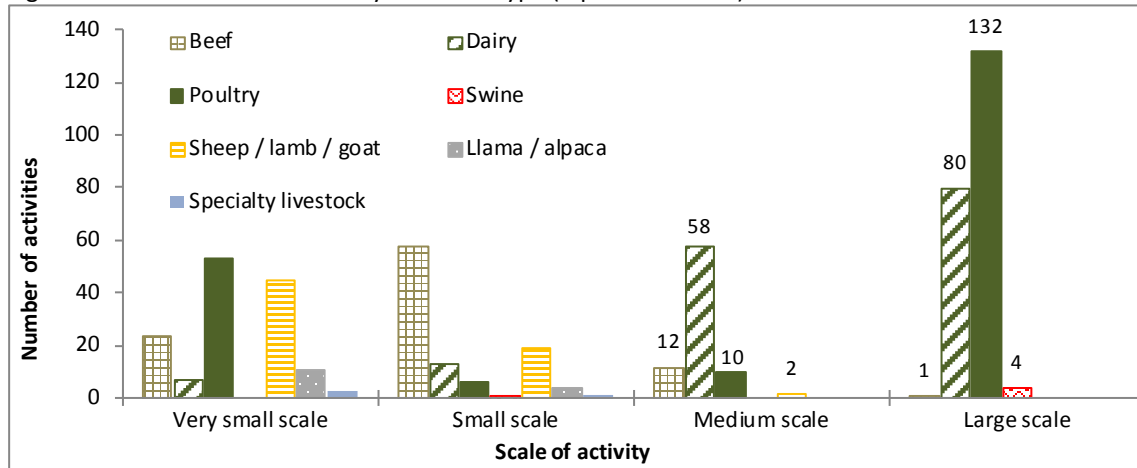


Figure 33 shows the scale distribution of livestock activities (equine excluded).

The majority of the “large” scale livestock activities are poultry (132) and dairy (80). There are also “large” scale swine (4 activities) and beef (1 activity).

Figure 34. Livestock and equine activities by scale

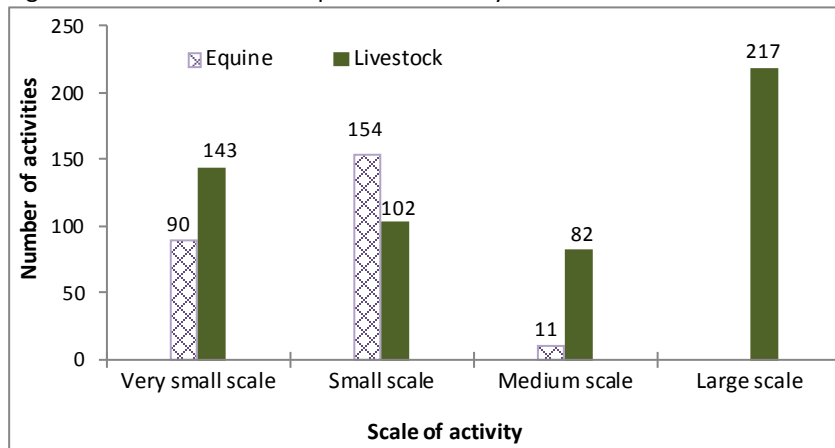


Figure 34 compares the scale of equine and other livestock and activities.

Although 32% of all animal activities are equine, nearly all equine activities are “small” or “very small” scale.

Of the equine activities, only 11 or 5% are “medium” scale. Of the other livestock activities, 299 or 55% are “medium” and “large” scale.

Figure 35. Livestock activities by parcel size and scale (equine excluded)

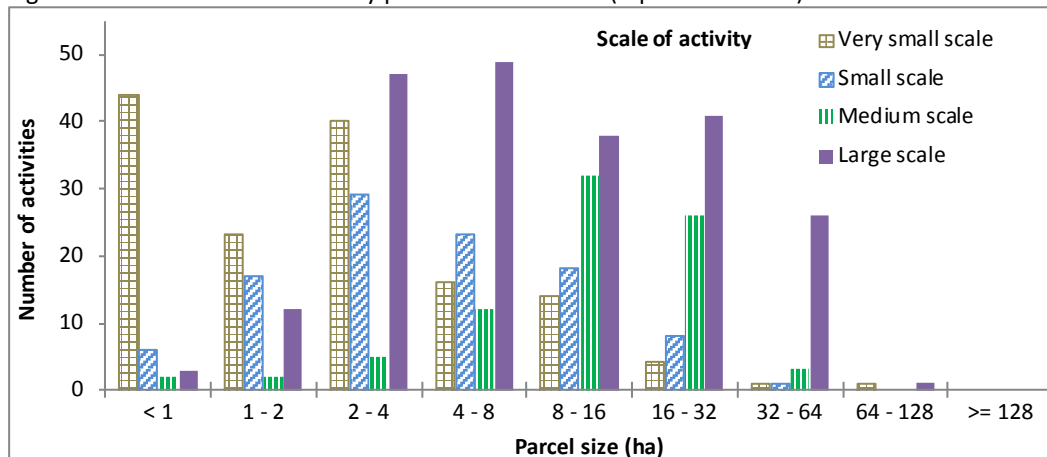


Figure 35 illustrates the distribution of livestock activities (equine excluded) by scale across parcel size categories.

“Large” scale activities occur across all parcels sizes with livestock, including parcels less than 1 ha.

Most “large” scale activities occurring on parcels less than 2 ha are associated with poultry.

Figure 36. Top livestock activities by parcel size and type

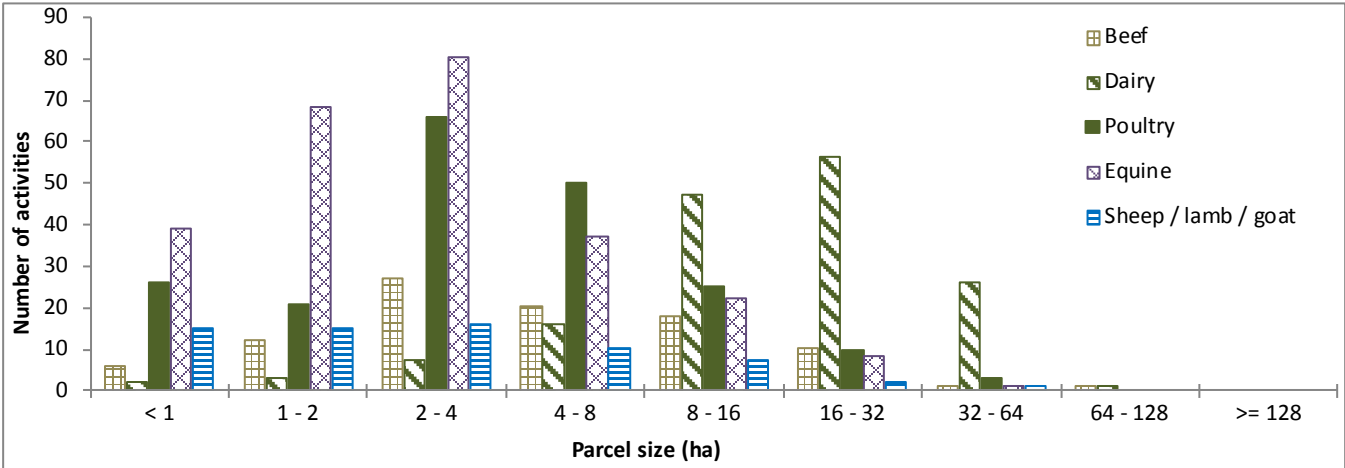


Figure 36 compares the distribution of different livestock types across parcel size categories.

Dairy activities occur across all parcel sizes with livestock, however, they are concentrated on parcels larger than 8 ha. Equine activities also occur across all parcel sizes with livestock, however, most equine activities are concentrated on parcels less than 4 ha.

Figure 37. Livestock and equine activities by parcel size

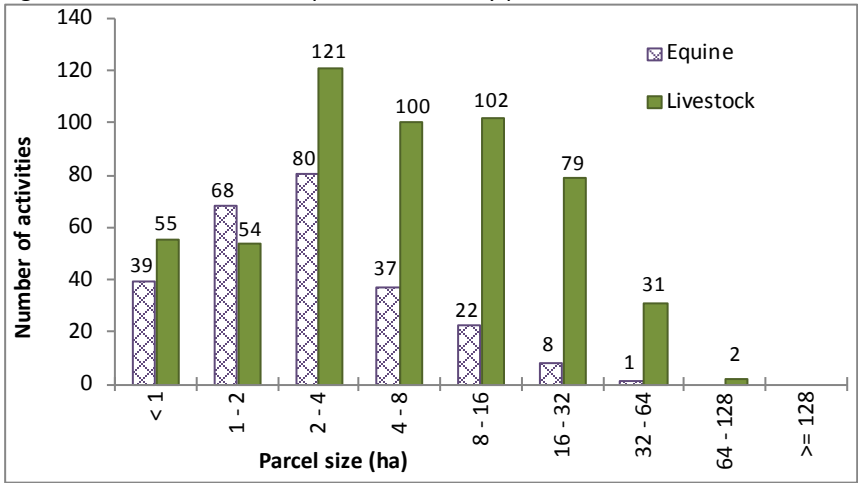


Figure 37 compares the distribution of equine and other livestock activities across parcel size categories.

The majority (73%) of all equine activities occur on parcels less than 4 ha while the majority of livestock activities (58%) occur on parcels greater than 4 ha.

Both equine and livestock activities occur on parcels < 1 ha.

7. Condition of ALR Lands

This section presents a parcel based analysis of parcel size and residential uses in the ALR.

PARCEL INCLUSION IN THE ALR

The inventory area included 14,971 hectares of ALR which is 88% of the total ALR area within Chilliwack. The remaining ALR was on Indian reserves (1,097 ha or 7% of ALR) or was outside of legally surveyed parcels in rights-of-ways (871 ha or 5%) or was on a parcel with less than 500 square meters of ALR (2 ha).

ALR land on Indian reserves is not included in the following section as reserves function differently from municipalities in terms governance and decision making.

ALR boundaries do not always align with parcel boundaries which results in many parcels having only a portion of their area in the ALR. To achieve an accurate picture of the ALR land in Chilliwack, only parcels that meet the following criteria are included in this section of the report:

- parcels > 0.05 hectares in size with at least half their area ($\geq 50\%$) in the ALR, or
- parcels with at least 10 hectares (≥ 10 hectares) of ALR land.

In total, 3,171 parcels, with 14,847 hectares or 87.6% of the ALR (and 99% of the effective ALR) land meets the above criteria and is included in the further analysis of the ALR. This includes 1 parcel, associated with Island 22 Regional Park, that has less than 50% of its area in the ALR.

Figure 38. Parcel inclusion in the ALR



Figure 38 illustrates the distinction between parcels considered to be within or outside the ALR:

Considered to be within the ALR:

- lot A is completely in the ALR
- lot B has 50% or more of its area in the ALR.

Considered to be outside the ALR:

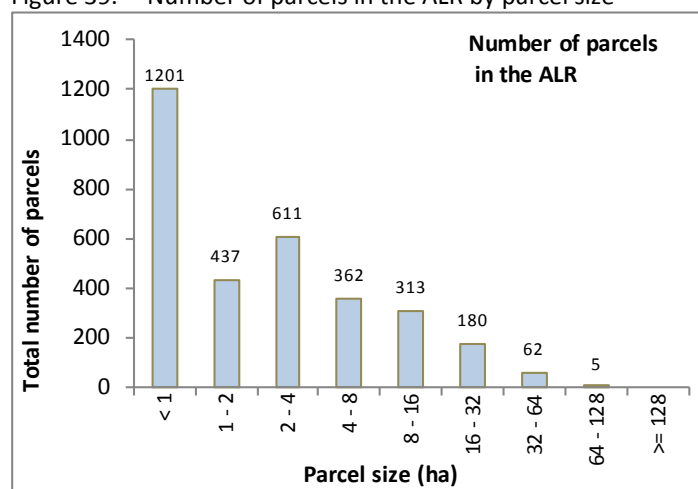
- lot C has less than 50% of its area and less than 10 ha in the ALR
- lot D is completely outside the ALR.

PARCEL SIZE & FARMING IN THE ALR

Parcel size must be considered when determining the agricultural potential of a parcel. Larger parcels usually allow farmers greater flexibility to expand or change their type of operation as the economy and markets change. Although some types of agriculture can be successful on small parcels, (e.g. intensive market gardens, nurseries), the number of viable farming options generally decreases with a reduced parcel size.

A farming operation may utilize more than one parcel as a farm unit¹⁸, however, it is generally more efficient to run a farm on fewer larger parcels than many smaller parcels. Smaller parcels can be problematic for farm expansion and farm sustainability as they are generally more costly per hectare than larger parcels, and they can easily be disassembled from larger farm units and sold. Larger parcels accommodate equipment more efficiently and reduce the need to move farm equipment on public roads. Smaller parcels are also more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances.

Figure 39. Number of parcels in the ALR by parcel size



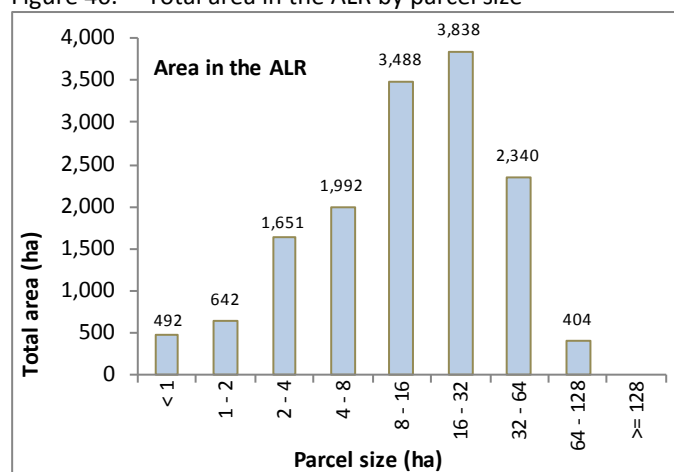
The average ALR parcel size in Chilliwack is 4.7 ha and the median parcel size is 1.9 ha.

Figure 39 illustrates that of the 3,171 parcels in the ALR:

- 38% (1,201 parcels) are less than 1 ha.
- 71% (2,249 parcels) are less than 4 ha.
- 11% (362 parcels) are between 4 and 8 ha.
- 10% (313 parcels) are between 8 and 16 ha.
- 8% (247 parcels) are greater than 16 ha.

Refer to Map 6 for more information.

Figure 40. Total area in the ALR by parcel size



In Chilliwack, the majority of the ALR area is on larger parcels.

Figure 40 illustrates that of the 14,847 ha in the ALR:

- 3% (492 ha) is on parcels less than 1 ha.
- 19% (2,785 ha) is on parcels less than 4 ha.
- 13% (1,992 ha) is on parcels between 4 and 8 ha.
- 23% (3,488 ha) is on parcels between 8 and 16 ha.
- 44% (6,582 ha) is on parcels greater than 16 ha.

¹⁸ Farm Unit – An area of land used for a farm operation consisting of one or more contiguous or non-contiguous parcels, that may be owned, rented or leased, which form and are managed as a single farm.

Table 20. Number of farmed and not farmed parcels in the ALR

Parcel status with respect to farming	Number of parcels	% of parcels in the ALR
Used for farming	1,785	56 %
Not used for farming	1,386	44 %
TOTAL	3,171	100 %

Table 20 demonstrates that of the 3,171 parcels in the ALR, 1,758 or 56% are “Used for farming”.

Figure 41. Number of farmed and not farmed parcels in the ALR by parcel size

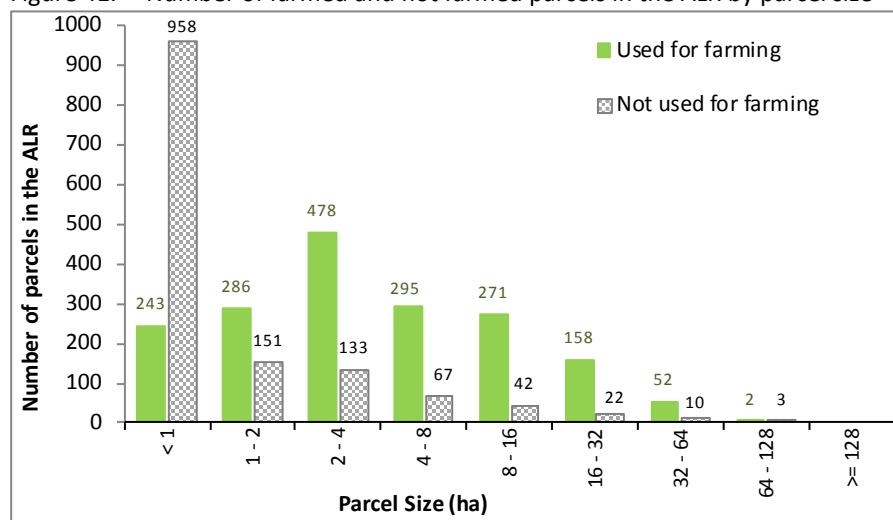


Figure 41 compares the distribution of “Used for farming” parcels with other parcels in the ALR.

Of the 1,386 parcels in the ALR and “Not used for farming”:

- 958 (69%) are less than 1 ha,
- 1,242 (90%) are less than 4 ha

There are 5 parcels larger than 64 ha in Chilliwack’s ALR; 2 of which are “Used for farming” and 3 are “Not used for farming”. The “Used for farming” parcels are associated with large scale dairies. Of the “Not used for farming” parcels, 2 are associated with water management on the Vedder River and have flooding limitations, and 1 is in Ryder Lake and has topography limitations.

Figure 42. Number of farmed and not farmed parcels in the ALR by parcel size (line chart)

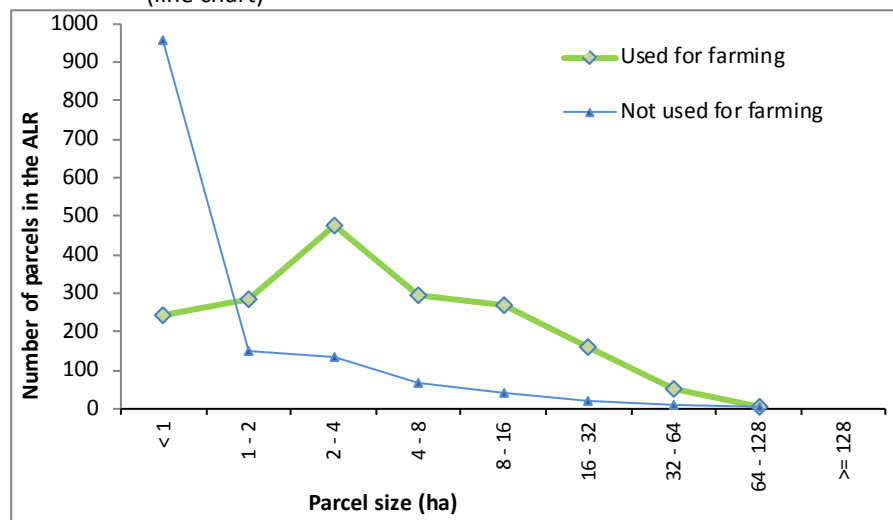


Figure 42 illustrates that although parcels of all sizes are “Used for farming”, parcels less than 1 ha are far less likely to be farmed.

Figure 43. Proportion of parcels farmed and not farmed by parcel size in the ALR

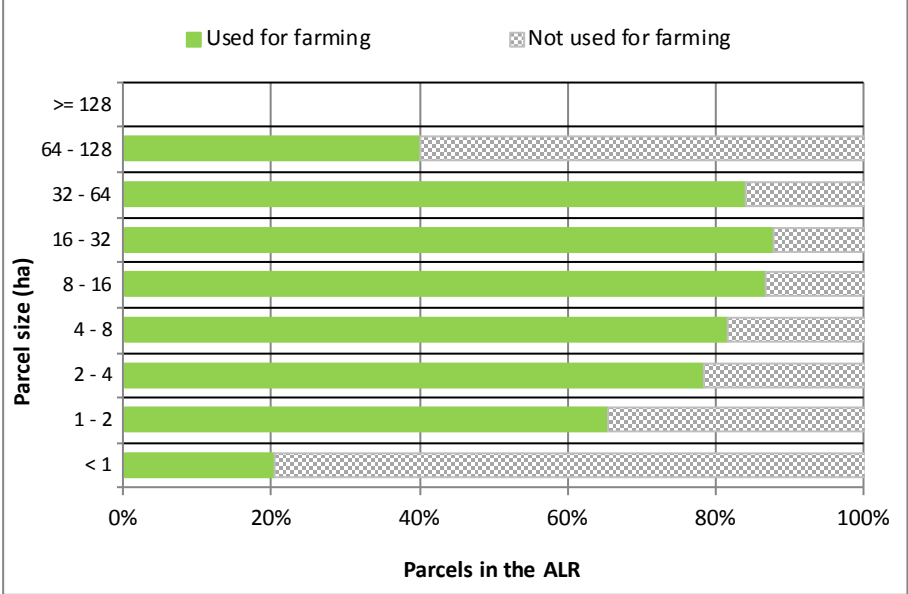
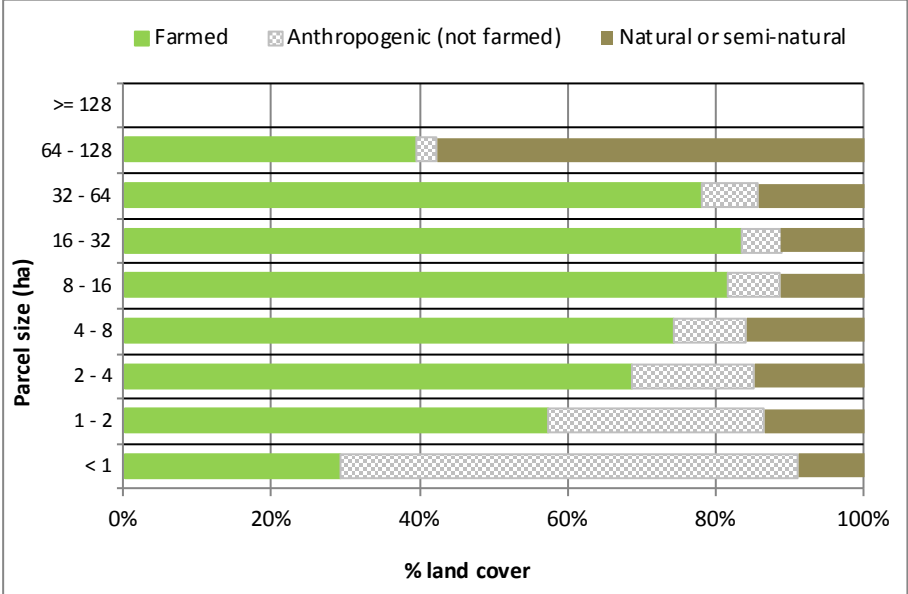


Figure 43 shows that the proportion of parcels “Used for farming” generally increases as the parcel size increases.

Only 20% of the ALR parcels less than 1 ha are “Used for farming”.

Figure 44. Proportion of land cover by parcel size in the ALR



Similar to Figure 43 above, Figure 44 shows that the proportion of farmed land cover generally increases as the parcel size increases.

The largest proportions of “Anthropogenic” (not farmed) land cover occurs on parcels less than 1 ha.

RESIDENTIAL USE IN THE ALR

The ALR is a provincial zone in which agriculture is the priority use and some “Residential” use is considered a necessary accessory to the agricultural use of a property. However, “Residential” use which is not an accessory to agriculture can effectively limit the ability of agriculture to grow, intensify and respond to market demands. When the primary motivation for ownership of ALR land is residential use, the residence is often placed to maximize privacy and views, with little consideration for agricultural opportunities on the parcel. Houses that are not adjacent to the frontage road alienate portions of land from future agriculture. If the occupants are non-farmers, they are more likely to be affected by noise, odour, or dust from neighbouring farm operations.

The size of the residence may be another factor to consider. Properties with larger residences usually have higher property values making it more difficult for a farmer to acquire and convert this land to farmland in the future.

In the following analysis cabins/cottages, mobile homes, single-family houses, duplexes, townhouses, apartments, motels, dormitories, and institutional living buildings are included. Single-family houses are further described by the estimated size of the building:

- Small single-family house < 1,500 sq. ft.
- Medium single-family house 1,500 – 3,500 sq. ft.
- Large single-family house 3,500 – 5,000 sq. ft.
- Estate (very large) single-family house > 5,000 sq. ft.

Average land improvement values of Chilliwack properties with residences in the ALR were as follows:

- estate single family house \$513,400
- large single family house \$341,300
- medium single family house \$229,000
- small single family house \$128,000
- single mobile home \$78,500

(Calculated using 2012 BC Assessment database - Last improvement value)

Residential footprint includes the main residence plus its associated yard, driveway, parking and any auxiliary buildings or structures. When two residences are on a property, areas associated to both (such as shared driveways, parking or yard), are assigned to the closest residence.

Figure 45. Land use on parcels in the ALR

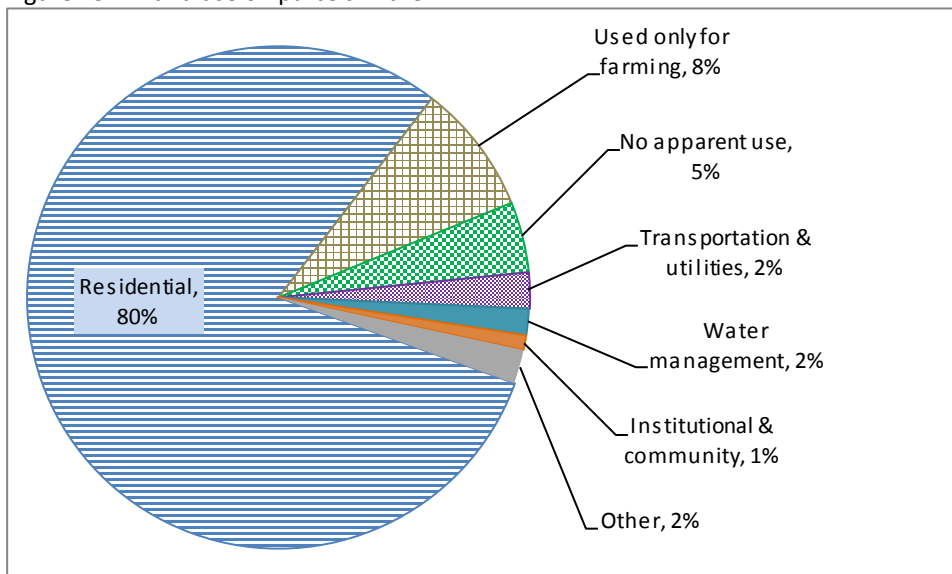


Figure 45 illustrates the proportion of all ALR parcels by their land use.

Residential use is the predominant land use and occurs on 80% of the ALR parcels.

Size and placements of the residential footprint on a parcel can impact the potential of the remaining parcel area to be used for farming purposes.

Figure 46. Residential land use on parcels in the ALR by farming status

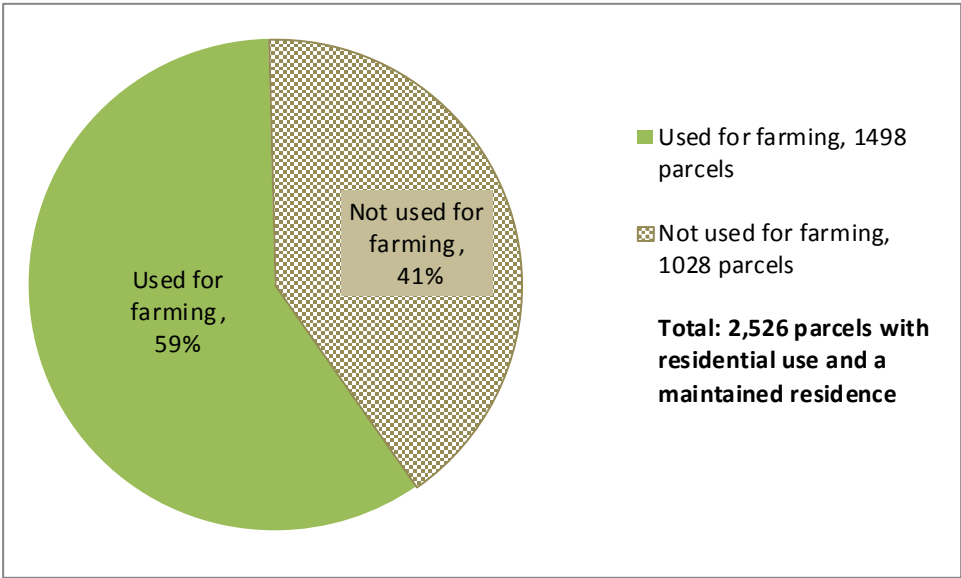


Figure 46 illustrates the proportion of ALR parcels with a maintained residence by farming status.

In total, 59% of all ALR parcels with a residence are “Used for farming”.

Over 40% of the ALR parcels with a residential are “Not used for farming”. If the assumption is made that most farmers do not leave agricultural land idle, this could indicate that there is a significant proportion of non-farming land owners living in the ALR.

Figure 47. Size of residence on ALR parcels by farming status

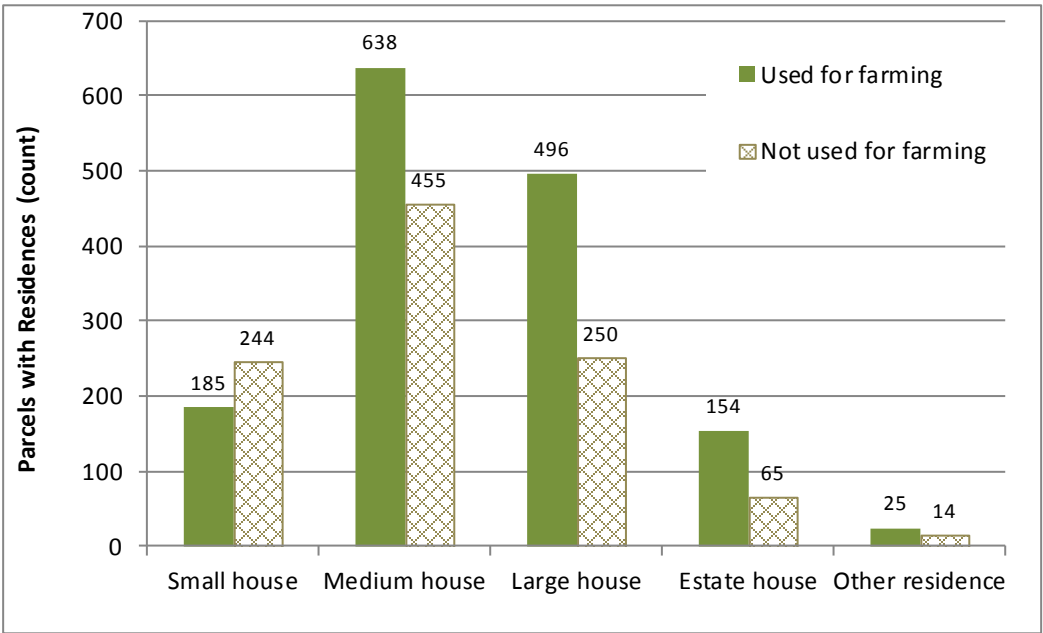


Figure 46 illustrates the number and size of residences that are used and “Not used for farming”.

“Medium” sized houses are the most common house size in the ALR. There is also a significant proportion of “Large” houses in the ALR.

Appendix A – Indian reserves

LAND COVER ON INDIAN RESERVES

Table A1. Land cover on Indian reserves

Land cover*		ALR	
		In ALR (ha)	% of ALR
Actively farmed	Cultivated field crops	346	2%
	Farm infrastructure	2	< 1%
Inactively farmed	Unmaintained field crops	22	< 1%
FARMED SUBTOTAL		370	2%
Antropogenic (not farmed)	Managed vegetation	103	< 1%
	Residential footprint	67	< 1%
	Transportation & utilities	29	< 1%
	Waterbodies	47	< 1%
	Settlement	22	< 1%
	Non Built or Bare	38	< 1%
	Built up - Other	<1	< 1%
SUBTOTAL		306	2%
Natural and Semi-natural	Vegetated	413	2%
	Waterbodies	8	< 1%
SUBTOTAL		421	2%
TOTAL		1,097	6%

* Refer to the glossary for terms used in this table.

Table A1 shows the extent of different land cover types across the ALR on Indian reserves.

A total of 370 ha of "Farmed" land cover was recorded; 348 was actively farmed and 22 ha was inactively farmed in unmaintained field crops.

No farmed land cover was found outside of the ALR on Indian reserves.

Table A2. Land cover on Indian reserves by reserve name

Band name	Reserve name	Land Cover Category			ALR area (ha)
		Farmed (ha)	Anthropogenic (not farmed) (ha)	Natural & Semi-natural (ha)	
Aitchelitz	Aitchelitz 9	-	9	10	19
SUBTOTAL		-	9	10	19
Kwaw-kwaw-a-pilt	Kwawkwawapilt 6	-	13	55	68
SUBTOTAL		-	13	55	68
Leq"a:mel	Lackaway 2	-	-	<1	<1
SUBTOTAL		-	-	<1	<1
Multiple bands*	Grass 15*	64	-	-	64
SUBTOTAL		64	-	-	64
Shxwa:y Village	Skway 5	79	99	80	258
SUBTOTAL		79	99	80	258
Skowkale	Skowkale 10	20	33	2	55
	Skowkale 11	-	12	<1	13
SUBTOTAL		20	46	2	67
Skwah	Schelawat 1	70	2	14	86
	Skawali 3	58	2	74	134
	Skwah 4	43	38	32	114
	Skwahla 2	-	-	12	12
SUBTOTAL		172	42	133	346
Squiaala	Squiaala 7	14	42	32	88
	Squiaala 8	-	-	<1	<1
SUBTOTAL		14	42	32	89
Tzeachten	Tzeachten 13	7	52	107	166
SUBTOTAL		7	52	107	166
Yakweakwioose	Yakweakwioose 12	15	4	<1	20
SUBTOTAL		15	4	<1	20
TOTAL		370	306	421	1,097

* The Grass 15 reserve is shared by 9 bands (Aitchelitz, Kwaw-kwaw-a-pilt, Shxwa:y Village, Skowkale, Skwah, Soowahlie, Squiala, Tzeachten and Yakweakwioose)

Table A2 shows the land cover types across the ALR by Indian band and reserve name in Chilliwack. Farmed land cover was identified on lands associated with the Shxwa:y Village, Skowkale, Skwah, Squiala, Tzeachten, and Yakweakwioose bands.

CULTIVATED FIELD CROPS ON INDIAN RESERVES

Table A3. Main field crop types by area and band name

Band name	Forage	Vegetables	Trees plantation	Berries	Nursery	Pasture	Tree fruits	Total area (ha)
Skwah	157	-	-	-	9	4	-	171
Shxwa:y Village	-	35	20	19	-	3	<1	78
Multiple bands - Grass 15	64	-	-	-	-	-	-	64
Skowkale	4	15	-	-	-	-	-	20
Yakweakwioose	15	-	-	-	-	-	-	15
Squiala	14	-	-	-	-	-	-	14
Tzeachten	7	-	-	-	-	-	-	7
TOTAL	262	50	20	19	9	7	<1	368

Table A3 shows the types of cultivated field crops on Indian reserves in Chilliwack. Forage is the main crop type, followed by vegetables.

Table A4. Forage crops by band name

Band Name	Forage crops (ha)			Total area (ha)
	Forage corn	Grass	Mixed grass / legume	
Skwah	55	97	5	157
Multiple bands - Grass 15	64	-	-	64
Yakweakwioose	15	-	-	15
Squiala	14	-	-	14
Tzeachten	7	-	-	7
Skowkale	4	-	-	4
TOTAL	160	97	5	262

Table A4 details the forage crops on Indian reserves in Chilliwack. There are 160 ha in forage corn, 97 ha in forage grass, and 5 ha in mixed grass & legume.

Table A5. Vegetable crops by band name

Band Name	Vegetable crops (ha)			Total area (ha)
	Cole crops	Mixed vegetables	Sweet corn	
Shxwa:y Village	20	8	6	35
Skowkale	14	-	1	15
TOTAL	34	8	8	50

Table A5 details the vegetable crops on Indian reserves in Chilliwack. In total, there are 34 ha of Cole crops, 8 ha of mixed vegetables and 8 ha of sweet corn.

IRRIGATED CROPS ON INDIAN RESERVES

Table A6. Irrigated crops by band name

Band name	Cultivated field crop	Irrigation system in use (ha)		Total area irrigated (ha)
		Sprinkler	Giant gun	
Skwah	Nursery - Cedar hedging	9	-	9
Shxwa:y Village	Vegetables - Cole crops	-	20	20
Skowkale	Vegetables - Cole crops	-	14	14
TOTAL CROP AREA IRRIGATED		9	34	44

Table A6 shows that 44 ha of crops on Indian reserves are irrigated.

Thirty-four ha of Cole crops are irrigated using giant gun systems and 9 ha of cedar hedging are irrigated with sprinkler systems.

Appendix B – Maps

City of Chilliwack 2012 [ALUI Maps](#)

- Map 1. Land cover & farmed area
- Map 2. Land use & farmed area
- Map 3. Availability of land for farming
- Map 4. Farming activities (cultivated crops, greenhouses, crop barns, irrigation, livestock)
- Map 5. Forage & pasture crops (including irrigation)
- Map 6. ALR parcel size

Size: 30” x 38” landscape

<http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood>

Agricultural Land and Environment → Strengthening Farming → Planning for Agriculture →
Agricultural Land Use Inventories → South Coast

Appendix C - Glossary

Actively farmed – Land cover considered **Farmed** but excludes unused / unmaintained field crops, and unmaintained greenhouses. Does not include natural pasture or rangeland.

Agricultural Land Reserve (ALR) – A provincial zone in which agriculture is recognized as the priority use. Farming is encouraged and non-agricultural uses are controlled.

Animal Unit Equivalent – A standard measurement used to compare different livestock types. One animal unit equivalent is approximately equal to one adult cow or horse. See **Scale of livestock operations**.

Anthropogenic – The term *anthropogenic* describes an effect or object resulting from human activity. In this report, the term anthropogenic refers to land cover originating and maintained by human actions but excludes farmed land cover (cultivated field crops, farm infrastructure, and crop cover structures).

Anthropogenic – Built up - Other – Lands covered by various unused or unmaintained built objects (structures) and associated yards that are not directly used for farming.

Anthropogenic – Managed vegetation – Lands seeded or planted for landscaping, dust or soil control but not cultivated for harvest or pasture. Includes parklands, golf courses, landscaping, lawns, vegetated enclosures, remediation areas.

Anthropogenic – Non Built or Bare – Human created bare areas such as extraction or disposal sites. Includes piles, pits, fill dumps, dirt parking or storage areas.

Anthropogenic – Residential – Lands covered by built objects (structures) and their associated auxiliary buildings, yards, roads, and parking. Includes single family dwellings, multifamily dwellings, and mobile homes.

Anthropogenic – Residential footprint – Includes the main residence plus its associated yard, driveway, parking and any auxiliary buildings or structures. When two residences are on a property, areas associated to both (such as shared driveways, parking or yard), are assigned to the closest residence.

Anthropogenic – Settlement – Lands covered by built objects (structures) and their associated yards, roads, and parking. Includes institutional, commercial, industrial, sports / recreation, military, non linear utility areas and storage / parking.

Anthropogenic – Transportation – Lands covered by built objects (structures). Includes roads, railways, airports and associated buffers and yards.

Anthropogenic – Utilities – Lands covered by built objects (structures). Includes linear features such as pipelines or transmission lines.

Anthropogenic Waterbodies – Areas covered by water, snow or ice due to human construction. Includes reservoirs, canals, ditches, and artificial lakes - with or without non cultivated vegetation.

Available for farming – Parcels that can be used for agricultural purposes without displacing a current use. Includes all parcels that do not meet the **Unavailable for farming** criteria.

BC Assessment – The Crown corporation which produces annual, uniform property assessments that are used to calculate local and provincial taxation. The database purchased from BC Assessment contains information about property ownership, land use, and farm classification, which is useful for land use surveys.

Cadastral – The GIS layer containing parcel boundaries, i.e. legal lot lines.

Crop cover structures – Land covered with built objects including permanent enclosed glass or poly structures (**greenhouses**) with or without climate control facilities for growing plants and vegetation under controlled environments, and barns used for growing crops such as mushrooms. Excludes non-permanent structures such as hoop or tunnel covers.

Crown ownership – Crown ownership includes parcels which are owned by provincial or federal governments. Parcel ownership is determined by the Integrated Cadastral Fabric maintained by the Parcel Fabric Section of the BC Government.

Cultivated field crops - Land under cultivation for harvest or pasture. Includes crop land, fallow farmland, unused forage or pasture, un-housed container crops and crops under temporary covers. Excludes natural pasture, rangeland, greenhouses, mushroom barns and other crop houses.

Effective ALR – The **Agricultural Land Reserve** area that is in legally surveyed parcels and under the jurisdiction of interest. The effective ALR is the total ALR area excluding ALR on Indian reserves and excluding ALR outside of legally surveyed parcels. Effective ALR can be used to compare land cover categories across jurisdictions.

Farm classification for tax assessment – Applies to parcels producing the minimum dollar amount to be classified as a farm by BC Assessment. Local governments apply a tax rate to farmland which is usually lower than for other land. To receive and maintain the farm classification, the land must generate annual income from agricultural production.

Farm infrastructure – Land covered by farm related built objects (structures) and their associated yards, roads, parking. Includes barns, storage structures, paddocks, corrals, riding rings, farm equipment storage, and specialized farm buildings such as hatcheries. Excludes greenhouses, mushroom barns and other crop houses.

Farm Unit – An area of land used for a farm operation consisting of one or more contiguous or non-contiguous parcels, that may be owned, rented or leased, which form and are managed as a single farm.

Farmed – Land cover directly contributing to agricultural production (both actively farmed and inactively farmed) and intentionally planted or built. Includes land in **Cultivated field crops**, **Farm infrastructure** and **Crop cover structures** (see individual definitions). Does not include natural pasture or rangeland.

Grazed – Land in **natural pasture or rangeland** that is used for grazing domestic livestock. These areas are considered separate from **Farmed** land cover.

Homesite (livestock) – The homesite is the primary location of a farm unit or livestock operation where most livestock management occurs. It is the location of the main ranch or main barn of a **farm unit**.

Inactively farmed – Land cover considered “Farmed” but is currently inactive. Includes unused / unmaintained forage and pasture, unmaintained field crops, and unmaintained greenhouses or crop barns. Does not include natural pasture or rangeland.

Intensive livestock – Intensive livestock have specialized structures such as barns, feedlots, or stockyards designed for confined feeding at high stocking densities.

Land use – Institutional & community – Parcels with churches, cemeteries, hospitals, medical centers, education facilities, correctional facilities, or government and First Nation administration.

Land use – Land in transition – Parcel with developed land in transition or where future change is likely to occur. Includes construction sites, tree removal, and demolished buildings.

Land use – No apparent use – Parcel with no apparent human use; natural areas, long term fallow land, cleared land not in production, abandoned or neglected land, abandoned or unused structures.

Land use – Protected area / park / reserve – Includes provincial parks, other parks, and ecological reserves. Areas may have passive recreation such as hiking, nature viewing, or camping.

Land use – Recreation & leisure – Parcels with intensive recreation (such as zoos, rinks, courts, walking/biking trails), or extensive recreation (such as horseback riding, wilderness camping sites, fishing, hunting, skiing, etc.). Golf course are reported separately.

Land use – Water management – Areas used to actively or inactively manage water. Includes reservoirs, managed wetlands, dykes and land which provides natural flood/erosion protection (land outside dyke).

Land use – Wildlife management – Areas used to actively or inactively manage wildlife. Includes wildlife reserves, breeding areas, fishing areas, and fish ladders/hatcheries.

Livestock operation scale – See **Scale of livestock operations**.

Natural and Semi-natural – Land cover which has not originated from human activities or is not being maintained by human actions. Includes regenerating lands, and old farm fields.

Natural and Semi-natural – Grass – Land cover dominated by herbaceous plants with long, narrow leaves characterized by linear venation; including grasses, sedges, rushes, and other related species.

Natural and Semi-natural – Herbaceous – Land cover dominated by low, non woody plants such as ferns, grasses, horsetails, closers and dwarf woody plants. If greater than 50% cover is grass, the land is categorized as grass.

Natural and Semi-natural – Natural bare areas – Includes bare rock areas, sands and deserts.

Natural and Semi-natural – Natural pasture – Smaller fenced areas usually on private land with uncultivated (not sown) natural or semi-natural grasses, herbs or shrubs used for grazing domestic livestock.

Natural and Semi-natural – Rangeland – Larger areas usually on crown land with uncultivated (not sown) natural or semi-natural grasses, herbs or shrubs used for grazing domestic livestock.

Natural and Semi-natural – Shrubs – Land where less than 10% crown cover is native trees and at least 20% crown cover is multi-stemmed woody perennial plants, both evergreen and deciduous.

Natural and Semi-natural – Treed - closed – Land where between 60 and 100% of crown cover is native trees.

Natural and Semi-natural – Treed - open – Land where between 10 and 60% of crown cover is native trees.

Natural pasture or rangeland – Land with uncultivated (not sown) natural or semi-natural vegetation used for grazing domestic livestock. This land cover is considered “Used for grazing” and “Not used for farming” although these areas are usually extensions of more intensive farming areas.

Non homesite (livestock) – A location where livestock are present, but related infrastructure is minimal. Non homesites are used for pasturing and are secondary to the farm units primary (homesite) location.

Non intensive livestock – Non intensive livestock have the ability to graze on pasture and often utilize non intensive barns and corrals/paddocks.

Not used for farming – Parcels that do not meet the **Used for farming** criteria.

Not used for farming but available – Parcels that do not meet the **Used for farming** criteria but can be used for agricultural purposes without displacing a current use.

Scale of livestock operations – The scale system used in this report to describe livestock operations includes 4 levels:

- **“Very Small** Approximately 1 cow or horse or bison, 3 hogs, 5 goats or deer, 10 sheep, 50 turkeys, 100 chickens (1 animal unit equivalent)
- **“Small”** LESS THAN 25 cows or horses or bison, 75 hogs, 125 goats or deer, 250 sheep, 1250 turkeys, 2500 chickens (2 - 25 animal unit equivalents)
- **“Medium”** LESS THAN 100 cows or horses or bison, 300 hogs, 500 goats or deer, 1000 sheep, 5,000 turkeys, 10,000 chickens (25 - 100 animal unit equivalents)
- **“Large”** MORE THAN 100 cows or horses or bison, 300 hogs, 500 goats or deer, 1000 sheep, 5,000 turkeys, 10,000 chickens (over 100 animal unit equivalents)

Potential for farming – Land without significant topographical, physical or operational constraints to farming such as steep terrain, land under water, or built structures. For example, land with little slope, sufficient soils and exhibiting a natural treed land cover would be considered as having potential for farming. Areas less than 1 acre in size are considered to have limited potential for farming.

Unavailable for farming – “Not used for farming” parcels where future agricultural development is improbable because of a conflicting land use or land cover that utilizes the majority of the parcel area. For example, most residential parcels are considered unavailable for farming if the parcel size is less than 0.4 hectares (approximately 1 acre) since most of the parcel is covered by built structures, pavement and landscaping.

Unmaintained field crops – Land under cultivation for field crops which has not been maintained for several years and probably would not warrant harvest.

Unmaintained forage or pasture – Land under cultivation for forage or pasture which has not been cut or grazed during the current growing season and has not been maintained for several years.

Unused forage or pasture – Land under cultivation for forage or pasture which has not been cut or grazed during the current growing season.

Used for farming – See final page of glossary.

Used for grazing – Parcels **Not used for farming** with a significant portion of their area in natural pasture or rangeland and evidence of active grazing domestic livestock.

Used for farming – Parcels where the majority of the parcel area is farmed OR parcels which exhibit significant intensity of farming are considered “Used for farming”. Specifically, parcels that meet at least one of the following criteria:

- medium or large scale livestock, apiculture or aquaculture operations
- at least 45% parcel area in cultivated field crops (excluding unused forage or pasture)
- at least 50% parcel area built up with farm infrastructure
- at least 25% parcel area built up with crop cover structures (excluding unmaintained structures)
- at least 40% parcel area in cultivated field crops (excluding unused forage or pasture) or farm infrastructure and small scale livestock, apiculture or aquaculture operations
- at least 33% parcel area in cultivated field crops (excluding unused forage or pasture) and at least 55% parcel area in cultivated field crops (excluding unused forage or pasture) or farm infrastructure
- at least 10% parcel area in crop cover structures (excluding unmaintained structures) and at least 40% parcel area in cultivated field crops (excluding unused forage or pasture) or farm infrastructure
- at least 20% parcel area and at least 20 ha in cultivated field crops (excluding unused forage or pasture)
- at least 25% parcel area and at least 10 ha in cultivated field crops (excluding unused forage or pasture)
- at least 30% parcel area and at least 5 ha in cultivated field crops (excluding unused forage or pasture)
- at least 10% parcel area and at least 2 ha built up with crop cover structures (excluding unmaintained structures)
- at least 20% parcel area and at least 1 ha built up with crop cover structures (excluding unmaintained structures)