



Growing Knowledge



Ministry of
Agriculture

Agricultural Land Use Inventory

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Strengthening Farming Program
Ministry of Agriculture

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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

Definitions

General

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.

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.

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

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 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.

Land Cover

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 and 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, and 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.

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.

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.

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.

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 – Grassland – 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 grassland.

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 fenced 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 – Shrubland – 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 grasses, herbs or shrubs used for grazing domestic livestock. This land cover is considered “Used for grazing” and “Not used for farming” although usually these areas are extensions of more intensive farming areas.

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.

Livestock

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.

Homesite –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**.

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

Non Homesite – Refers to 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.

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)

Land Cover and Farming

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

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

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.

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.

Land Use

Dumps & deposits – Parcels with garbage dumps or fill dumping.

Heritage – Parcels with archaeology or heritage sites.

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

Land in transition – Parcels with developed land in transition. Includes construction sites, large scale tree removal, and demolished buildings.

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.

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

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.

Resource protection & research – Parcels with government or private research activities (including agriculture).

Water management – Areas used to actively or inactively manage water. Includes reservoirs, dikes, ditches, and managed wetlands.

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

Land Use and Farming

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)

Not used for farming – Parcels that do not meet the “Used for farming” criteria presented above.

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

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

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.

Unavailable for farming – “Not used for farming” parcels where future agricultural development is improbable because of a conflicting land use that utilizes the majority of the parcel area. For example, most residential parcels are considered not available 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.

Executive Summary

In the summer of 2012, the BC Ministry of Agriculture conducted an Agricultural Land Use Inventory (ALUI) in the City of Abbotsford. 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 Abbotsford consists of 27,413 ha. Of this area:

- 94% or 25,858 ha met one of the above criteria and was included in the inventory area.
- 5% or 1,241 ha was outside of legally surveyed parcels in rights-of way
- 1% or 313 ha was in Indian reserves.

The 313 ha of ALR on Indian reserves was surveyed, 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 B.

An additional 1,661 ha of land outside the ALR was surveyed bring the total inventory area to 27,518 ha on 4,743 parcels.

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

In the ALR by land cover, 17,380 ha (63% of the ALR) was farmed (both actively and inactively), 2,832 ha (10%) was anthropogenically modified, and 5,646 ha (21%) was in a natural or semi-natural state. Another 313 ha (1%) was on Indian reserves and 1,241 ha (5%) was outside of legally surveyed parcels and was considered unavailable for farming. An additional 200 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” category was assigned based on the percentage of the parcel in cultivated crops, farm infrastructure, and/or the scale of livestock production. Refer to the definition section for the “Used for farming” definition. In the ALR by land use, a total of 19,599 ha (71% of the ALR) is on parcels “Used for farming”.

The inventory provided insight into ALR land available and with potential for farming by looking at land cover, land use, and physical site limitations. Of the 27,413 ha of ALR land in Abbotsford, 17,213 (63%) is actively farmed and 408 ha (1%) supports farming (e.g. houses, farm roads, farm buildings, etc). There are 1,841 ha (7%) in the ALR and unavailable for farming due to existing land use or land

cover and 1,064 ha (4%) with limited potential for agriculture due to physical site limitations such as topography, soils, or drainage. That leaves 5,331 ha (19%) of the ALR that is available and may have the potential to be developed for agriculture.

The ALUI shows that land in Abbotsford is very intensively utilized and has many intensively managed crops. This intensive level of farm management requires a high degree of investment in expertise, machinery, and infrastructure. Abbotsford has strong agricultural attributes that include good quality soil, an abundance of good quality water and a moderate climate. The crop profile in Abbotsford shows that these features encourage investment in high value agricultural enterprises.

There are 16,415 ha of cultivated field crops in Abbotsford (16,239 ha in the ALR and 176 ha outside the ALR). The most common crops are forage with 7,683 ha (47% of all cultivated land), berries with 4,506 ha (28% of all cultivated land), pasture with 1,702 ha (10% of all cultivated land) and vegetables with 1,307 ha (8% of all cultivated land). Most forage production is intensive and is primarily grown to support dairy, beef and other livestock production. Abbotsford is a berry production hub in Canada. Blueberries are the second largest crop in terms of area grown in Abbotsford. Of the 4,506 ha in berry production, blueberries comprise 2,911 ha (18% of all cultivated land and 11% of the ALR), and raspberries comprise 1,154 ha (7% of all cultivated land). Within the vegetable category, potatoes and mixed vegetables were the top crops in term of area.

In addition to cultivated crops, there are 153 ha in greenhouses and crop barns; 26 ha are in mushroom crop barns, 40 ha are in poly greenhouses, and 87 ha are in glass greenhouses. Greenhouses and crops barns comprise only 0.6% of the ALR.

Having access to good quality water is necessary for farmers who are producing high value crops. Irrigation use was captured by crop type and irrigation system type to aid in developing an agricultural water demand model. A total of 10,579 ha or 64% of all cultivated crops were irrigated in Abbotsford. Giant guns systems were the most common with 5,028 ha and were found primarily on forage and vegetable crops. Trickle systems were the next most common with 3,794 ha and were found predominantly on berry crops. Sprinkler systems were third with 1,694 ha and were found on a variety of crop types.

Livestock activities were recorded, but are difficult to measure using a windshield survey method. 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 obtainable 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”.

Abbotsford has many farms dedicated to producing meat, eggs and dairy products. The City is a center for poultry and dairy processing which generates cost efficiencies for the producers located in the area. There were 360 identified poultry activities of which 79% (286 activities) are defined as “intensive”. Most (215 activities) were “large” scale (> 10,000 chickens or > 5,000 turkeys), while 70 were “medium” scale (2,500 -10,000 chickens or 1,250 - 5,000 turkeys), 9 were “small” scale (100 - 2,500 chickens) and 66 were “very small” scale or backyard flocks (< 100 chickens).

Abbotsford supplies approximately 40% of all milk produced in the lower mainland. It is imperative to have a sufficient land base close to the main dairy building for an operation to run efficiently. There were 199 identified dairy activities of which 74% (147) are defined as “intensive”. These types of operations require large investments in land, livestock, technology, equipment and machinery. There were 73 “large” scale dairy activities (> 100 cattle), 74 “medium scale” (25 - 100 cattle), and 52 “small” or “very small” scale (< 25 cattle) dairy activities.

The next most common group of livestock was horses and donkeys. 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 348 equine activities in Abbotsford. There were a few commercial breeding or boarding operations, including 5 which were “medium” scale (25 - 100 equine). There were an additional 204 “small” scale activities (2 - 25 equine) and 139 are “very small” scale activities (1 equine). Although equine activities were numerous, all are considered “non-intensive”.

Also recorded were 115 beef, 77 sheep / lamb /goat, 23 llama / alpaca, 11 specialty (game birds, peacocks, mink), and 108 unidentified livestock activities.

Further analysis of ALR lands was conducted on 4,541 parcels with 25,785 ha or 94.1% of the ALR land. The average ALR parcel size in Abbotsford is 5.7 ha and the median parcel size is 3.4 ha. Of the 4,541 parcels in the ALR, 2,558 (56%) were “Used for farming”, and 1,983 parcels (44%) were “Not used for farming”. Abbotsford has a large proportion of small parcels with 57% of the ALR parcels (2,583 out of 4,541) being less than 4 ha. Of these 2,583 small parcels, 61% (1,566 parcels) are “Not used for farming” with the majority having residential use. In general, the proportion of parcel “Used for farming” increases as the parcel size increases. 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 Abbotsford. The information can be used to help inform decisions on how to best manage the agricultural land base in order to support and strengthen Abbotsford’s agricultural sector.

Agrologist Comments

The City of Abbotsford is among the most productive agricultural municipalities in Canada and is at the hub of a diverse, vibrant and successful agricultural sector in the Fraser Valley. Agriculture in Abbotsford generated \$639,780,251 in farm gate receipts as reported by Statistics Canada in 2011, and there was \$3,580,061,231 invested in farm capital. This is on par with, or exceeds any other municipality in Canada. In 2008, the economic activity generated from agriculture in Abbotsford was estimated to be 1.8 Billion dollars. Agriculture is among the most important private sector industries in Abbotsford, and is responsible for one in five jobs in the City.

The agriculture sector has been the primary driver behind the steady growth of the City, taking it from a tiny logging and brick-building community in the early 1900's to BC's fifth largest city in 2015. Developing this degree of economic growth from agriculture has not only been the result of the beneficial soils, climate, excellent water resources and access to markets that make the Fraser Valley such a prime agriculture zone; it has also been the result of attracting entrepreneurial farmers, and hard work on the part of the municipal and provincial governments to protect the viability of the sector through planning processes and provision of services.

The land base for primary production is of critical importance. The goods and services purchased by Abbotsford farms make up 38% of the Abbotsford Agri-Business Sector. If the land base is maintained in a way that encourages investment by farmers to optimize its productivity, then farmers will continue to invest in land, buildings, equipment, technology and infrastructure that will optimize their returns. In addition, Abbotsford has much to gain by providing leadership in managing its land base for primary agricultural production, in that 39% of the Abbotsford Agri-Business Sector is supported by farms outside of Abbotsford's municipal boundaries.

Understanding land use and the impact of decisions and development on the viability of the agriculture land base is a critical component of maintaining the viability of the sector. The Agricultural Land Use Inventory data provides information to help understand how to continue to guide the development of agriculture so that it can remain a strong, vibrant and healthy base for Abbotsford's economy.

The 2012 Abbotsford ALUI data:

- provides the basis for the development of the Agricultural Water Demand Model, which will help Abbotsford understand agriculture's water needs and the impact on its groundwater resources
- indicates that most of the land base in the ALR is in use, and evaluating the potential for further development will require close study
- shows that most ALR land is intensively developed and 64% of all cultivated crops are irrigated
- shows that intensively managed forage is the most abundant crop, comprising nearly half (47%) of all cultivated crops. This forage is mainly used as feed for dairy and beef cattle.
- proves that berry production is very prominent in Abbotsford, taking up 17% of the ALR
- shows that the raising of livestock is a large component of the agriculture industry with 1,258 livestock activities noted, and with 463 of them being intensive.
- shows that the ALR has many small parcels, creating issues with rural residential land use which is a source of complaints
- provides evidence that subdivision and urban encroachment onto the ALR may result in the loss of valuable farm businesses such as dairy production that are sensitive to availability of land for forage production and manure management
- indicates that there are a high proportion of parcels with housing in the ALR and that the impact of housing on the ALR needs further study

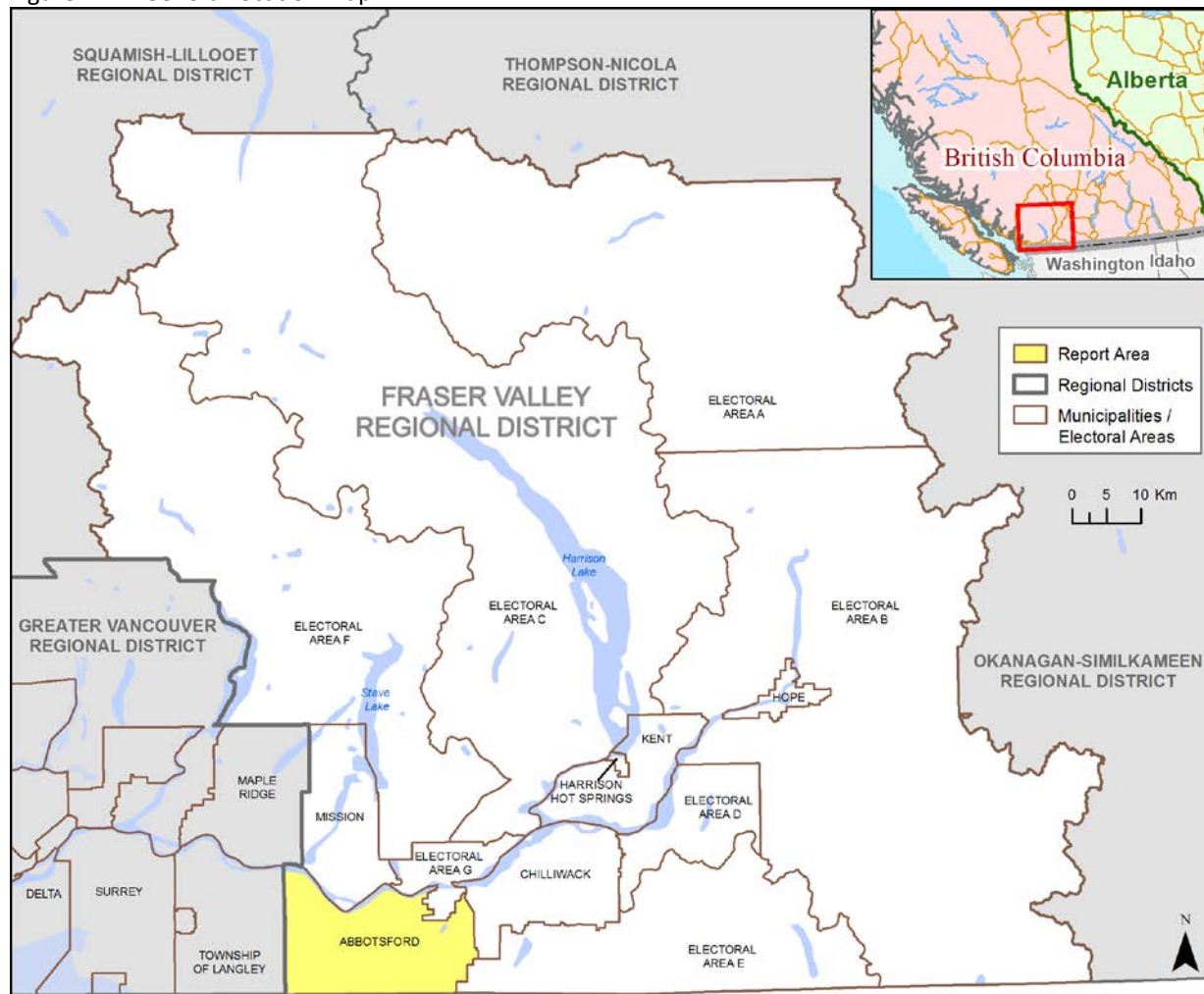
1. General Information

Abbotsford is at the center of a highly productive agriculture sector in the Fraser Valley. The city has the highest farm receipts of any municipality in British Columbia (22% of all BC farm receipts) and rivals the most productive agricultural land in Canada. The agriculture sector has seen continuous net growth over several decades as farmers invest in their farm businesses to efficiently produce high quality products for local, regional and international markets. The city is a hub of agriculture supply and manufacturing, and these secondary benefits greatly contribute to the urban economy.

The city is situated on the southern bank of the Fraser River and is surrounded by the municipalities of Langley, Mission and Chilliwack. Abbotsford has excellent access to transportation routes and to urban markets.

In 2011, Abbotsford had a population of 133,497¹ making it the fifth largest municipality in BC, and the largest municipality outside of Greater Vancouver. Abbotsford is growing quickly and experienced a population growth rate of 7.4% between the 2006 and 2011¹ census years. Abbotsford has a total area (including land and water) of 39,265 ha².

Figure 1. General location map



¹ Government of British Columbia; Ministry of Technology, Innovation and Citizens' Services, Demographic Analysis Section, BC Stats, Total Population, Municipalities, Regional Districts, and Development Regions <http://www.bcstats.gov.bc.ca/StatisticsBySubject/Demography/PopulationEstimates.aspx>

² 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

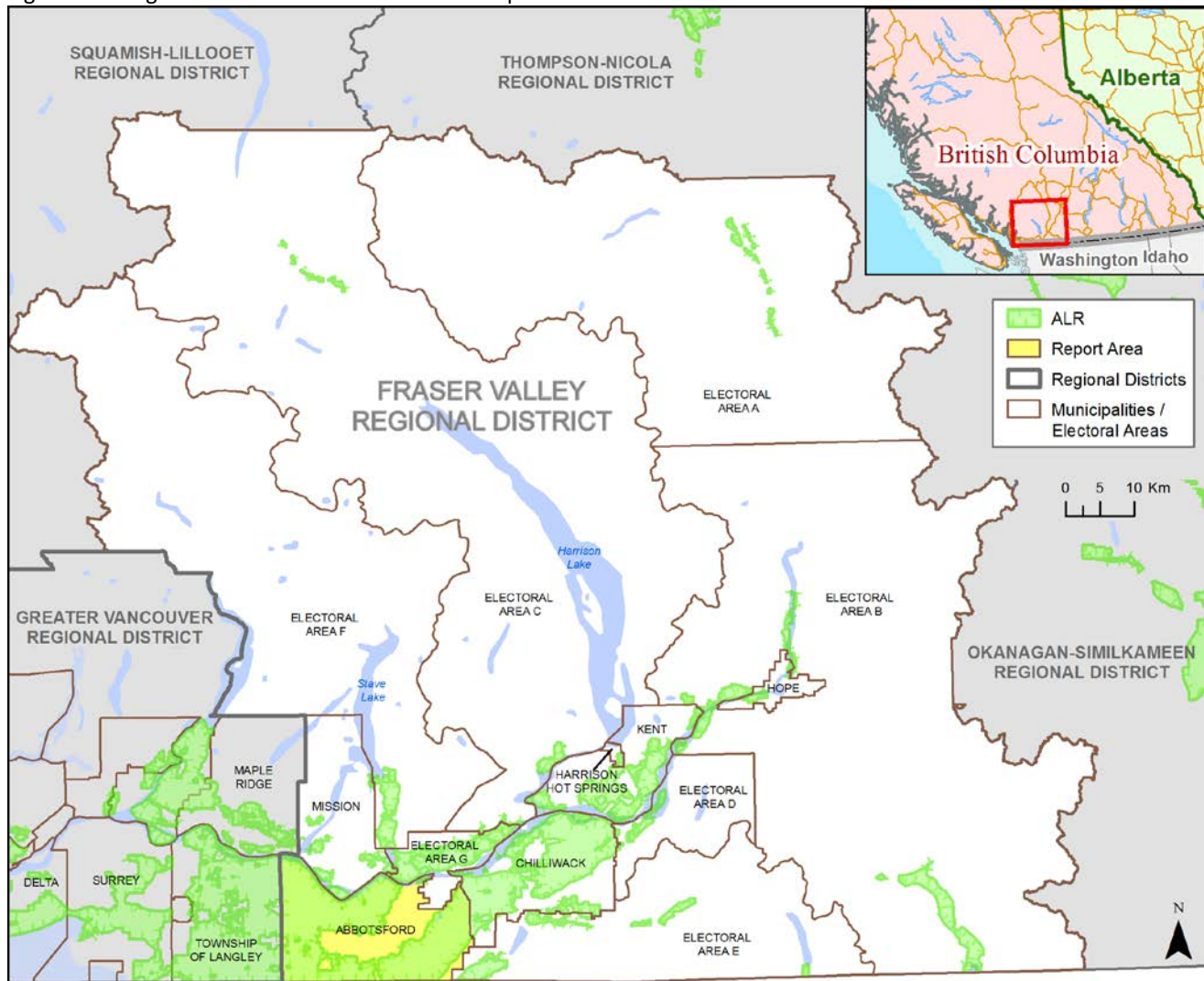
The Agricultural Land Reserve (ALR) is a provincial land use zone that was designated in 1973 in which agriculture is recognized as the priority use. Within the ALR, farming is encouraged and non-agricultural uses are controlled.

There are 71,865 hectares³ of ALR land within Fraser Valley Regional District (see Figure 2); 27,413 ha⁴ or 38% is within Abbotsford.

The land area of Abbotsford is 37,779 ha⁵. With 27,413 ha⁴ in the ALR, over 72% of Abbotsford's land area is in the ALR. This area includes:

- 25,858 ha in inventoried parcels
- 1,241 ha outside legally surveyed parcels in rights-of-way (not inventoried)
- 1 ha in parcels with less than 500 m² in the ALR (not inventoried)
- 313 ha in Indian reserves

Figure 2. Agricultural Land Reserve location map



³ Provincial Agricultural Land Commission (ALC), Library, ALC Reports, Annual Report 2009/10 & 2010/11 Pg 39. <http://www.alc.gov.bc.ca>

⁴ Agricultural Land Commission, ALR mapping, Land and Resource Data Warehouse, 2012-10-31 (area calculated in GIS).

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

INVENTORY AREA

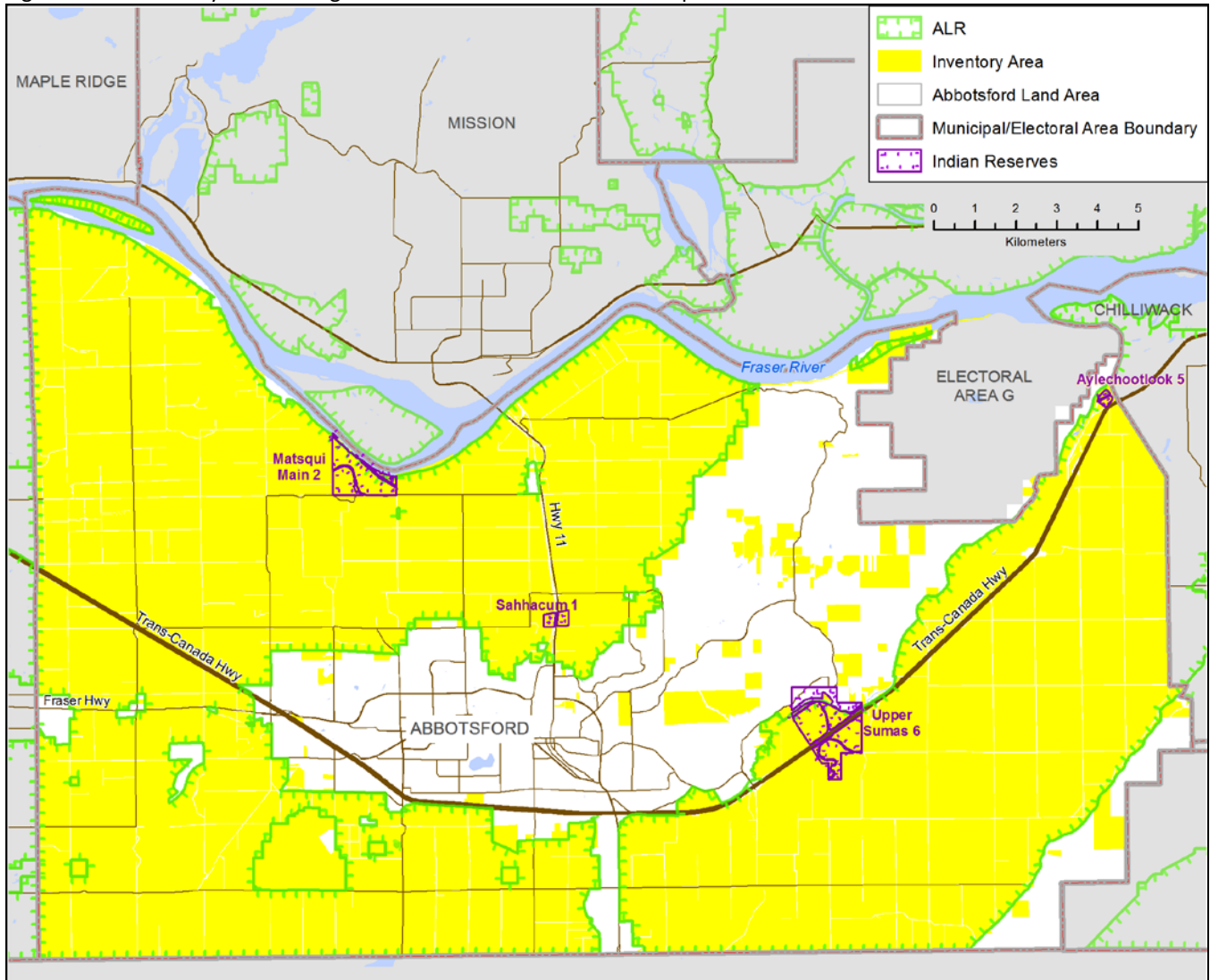
The total inventory area encompasses 4,743 parcels with a combined area of 27,518 ha, or 73% of the land area in Abbotsford. Included are all parcels:

- completely or partially within the Agricultural Land Reserve, or
- classified by BC Assessment as having “Farm” status for property tax assessment, or
- 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 25,858 hectares located on 4,596 parcels. This area is 94% of the ALR within Abbotsford.

Also inventoried was 323 ha (313 ha in the ALR and 10 ha outside the ALR) on 4 reserves associated with the Matsqui, Sumas, and Leq’a: Mel First Nations. ALUI findings for these areas are presented in Appendix B due to differences in levels of governance, planning, and decision making processes.

Figure 3. Inventory area and Agricultural Land Reserve location map



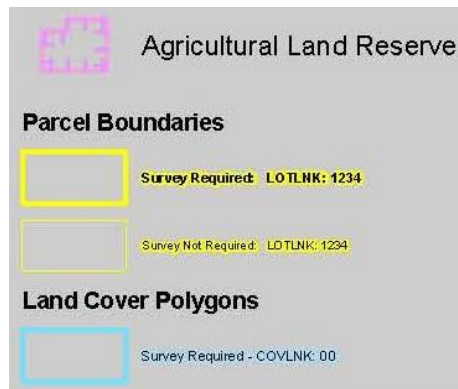
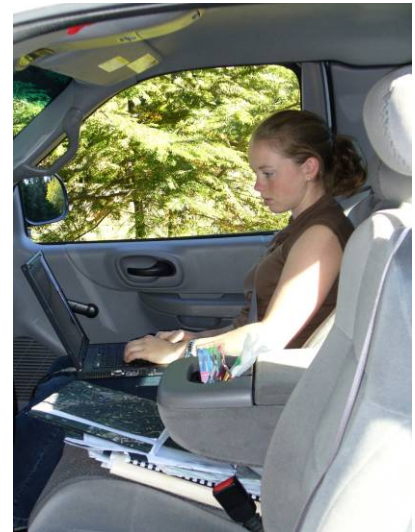
2. Methodology

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 Abbotsford Agricultural Land Use Inventory was conducted in the summer of 2012 by a professional agrologist assisted by a GIS technician and a driver⁶. 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)⁷
- 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



⁶ Vehicle and driver provided by Fraser Valley Regional District.

⁷ Cadastre mapping (2012) was provided through the Integrated Cadastral Information Society.

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.

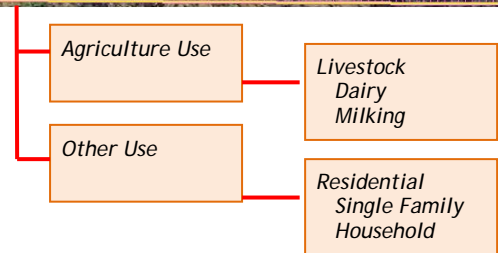
Once acquired through the survey, the data was brought into a Geographic Information System (GIS) to facilitate analysis and mapping. Digital data, in the form of a tabular database and GIS spatial layers (for maps), may be available with certain restrictions through a terms of use agreement.

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

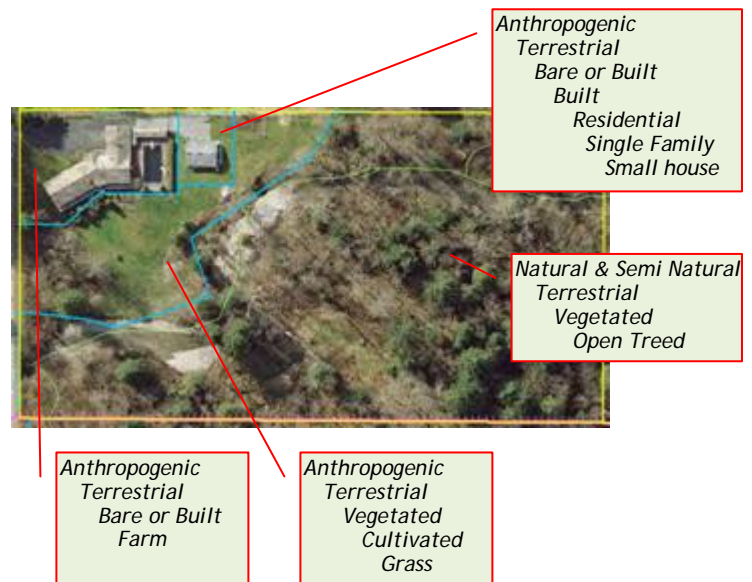
In addition, the availability of non-farm use properties for future farming was assessed based on the amount of potential land for farming on the property and the compatibility of existing uses with future farming activities.



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.

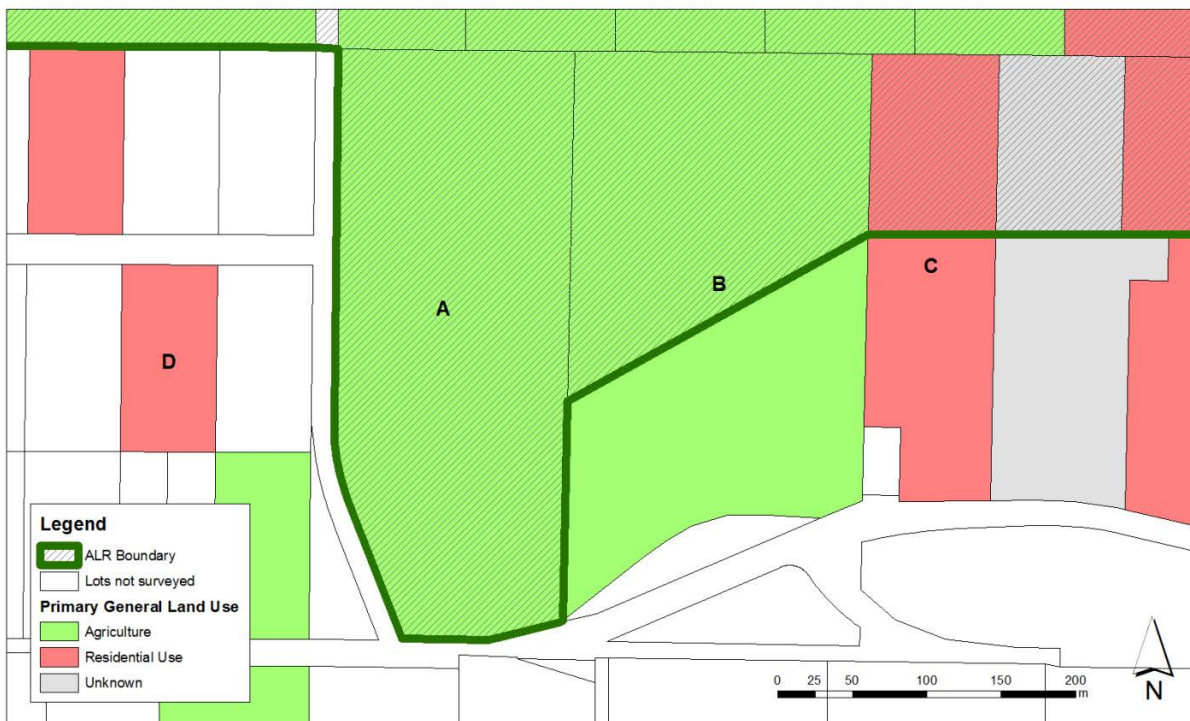
DETERMINATION OF PARCELS WITHIN THE ALR

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. Some examples of land use are 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.

Natural pasture and rangeland are fenced areas with uncultivated (not sown) natural or semi-natural grasses, herbs or shrubs used for grazing domestic livestock. These areas are considered “Grazed” rather than “Farmed” although usually these areas are extensions of more intensive farming areas.

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 B.

Table 1. Land cover and farmed area

Land cover*		ALR		Outside ALR (ha)	Total area (ha)	% of inventory area
		In ALR (ha)	% of ALR			
Actively farmed	Cultivated field crops	16,073	59%	176	16,249	59%
	Farm infrastructure	988	4%	23	1,011	4%
	Greenhouses	127	< 1%	<1	127	< 1%
	Crop barn	26	< 1%	<1	26	< 1%
Inactively farmed	Unmaintained field crops	62	< 1%	<1	62	< 1%
	Unused forage or pasture	104	< 1%	<1	104	< 1%
	Unmaintained greenhouses	<1	< 1%	<1	<1	< 1%
FARMED SUBTOTAL		17,380	63%	200	17,580	64%
Anthropogenic (not farmed)	Managed vegetation	1,200	4%	181	1,381	5%
	Residential footprint	574	2%	28	602	2%
	Non Built or Bare	432	2%	62	494	2%
	Transportation	233	< 1%	186	419	2%
	Waterbodies	161	< 1%	8	169	< 1%
	Settlement	149	< 1%	45	194	< 1%
	Utilities	66	< 1%	<1	66	< 1%
	Built up - Other	17	< 1%	<1	18	< 1%
SUBTOTAL		2,832	10%	511	3,343	12%
Natural and Semi-natural	Vegetated	4,960	18%	864	5,825	21%
	Waterbodies	396	1%	70	466	2%
	Wetlands	190	< 1%	6	196	< 1%
	Natural pasture	99	< 1%	10	109	< 1%
SUBTOTAL		5,646	21%	950	6,596	24%
TOTAL		25,858	94%	1,661	27,518	100%
Surveyed	Indian reserves	313	1%			
Not surveyed	Rights-of-ways	1,241	5%			
	Parcels with < 500 sq m of ALR	1	< 1%			
SUBTOTAL		1,555	6%			
TOTAL		27,413	100%			

* See "Land Cover" in the Definitions section for terms used in this table.

Table 1 shows the extent of different land cover types across the entire inventory area.

There are 17,380 ha in "Farmed" land cover in the ALR although, 166 of these ha are "Inactively farmed" in unmaintained field crops, unused forage or pasture and unmaintained greenhouses.

Refer to Map 1 for more information.

Figure 5. Land cover and farmed area in the ALR

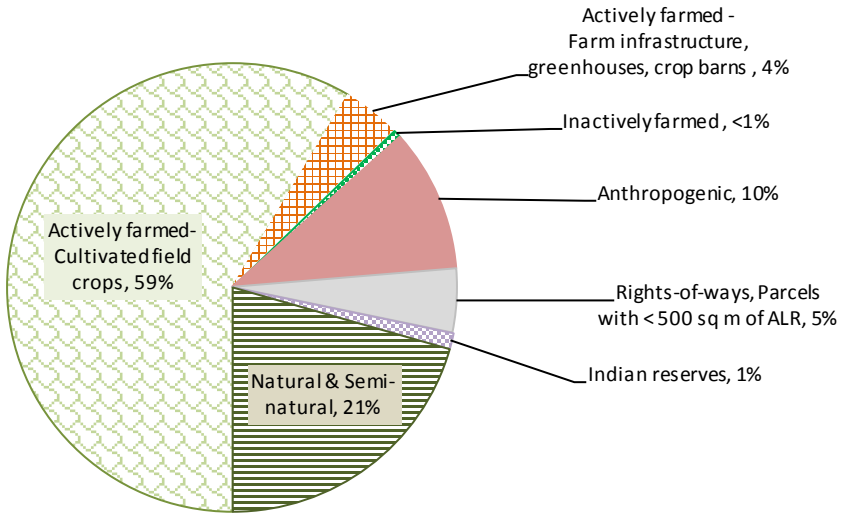


Figure 5 shows the proportion of different land cover types across the ALR in Abbotsford.

Of the ALR land, 63% is “Actively farmed” in cultivated crops and in farm infrastructure.

Twenty-one percent of the ALR is in “Natural & Semi-natural” vegetation.

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 and the another is a retail store, both 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**”. For a complete definition of “Used for farming”, refer to the Definitions section of this report.

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

Many parcels “Used for farming” or “Used for grazing” are also used for other purposes such as “Residential” or “Industrial”. This report does not attempt to determine which use is primary.

Land use is not assessed for land on Indian reserves.

Table 2. Land use and farming use by parcel

Parcel land use*		ALR		Outside ALR (ha)	Total area (ha)	% of inventory area	Number of parcels	% of parcels	Average parcel size (ha)
		In ALR (ha)	% of ALR area						
Used only for farming - no other use		4,156	15 %	48	4,204	15 %	462	10 %	9
Used for farming - Mixed use	Residential	15,027	55 %	181	15,209	55 %	2,108	44 %	7
	Utilities	238	<1 %	6	244	<1 %	19	<1 %	13
	Gravel extraction	103	<1 %	< 1	103	<1 %	4	<1 %	26
	Protected area / park / reserve	49	<1 %	< 1	49	<1 %	5	<1 %	10
	Industrial	18	<1 %	< 1	18	<1 %	5	<1 %	4
	Resource protection & research	8	<1 %	-	8	<1 %	1	<1 %	8
USED FOR FARMING SUBTOTAL		19,599	71 %	235	19,833	72 %	2,604	55 %	
Not used for farming	Residential	3,699	13 %	415	4,114	15 %	1,547	33 %	3
	No apparent use	808	3 %	321	1,129	4 %	221	5 %	5
	Gravel extraction	373	1 %	108	481	2 %	33	<1 %	15
	Transportation	322	1 %	349	671	2 %	98	2 %	7
	Protected area / park / reserve	311	1 %	50	361	1 %	51	1 %	7
	Industrial	155	<1 %	2	157	<1 %	28	<1 %	6
	Water management	140	<1 %	6	146	<1 %	25	<1 %	6
	Institutional & community	118	<1 %	71	189	<1 %	55	1 %	3
	Utilities	110	<1 %	57	167	<1 %	34	<1 %	5
	Military	76	<1 %	16	93	<1 %	1	<1 %	93
	Recreation & leisure	63	<1 %	15	79	<1 %	15	<1 %	5
	Recreation & leisure - golf	37	<1 %	-	37	<1 %	2	<1 %	18
	Land in transition	18	<1 %	3	21	<1 %	3	<1 %	7
	Wildlife management	18	<1 %	< 1	18	<1 %	2	<1 %	9
	Commercial & service	8	<1 %	13	20	<1 %	21	<1 %	< 1
Dumps & deposits	2	<1 %	-	2	<1 %	3	<1 %	< 1	
NOT USED FOR FARMING SUBTOTAL		6,259	23 %	1,426	7,685	28 %	2,139	45 %	
TOTAL		25,858	94 %	1,661	27,518	100 %	4,743	100 %	
Surveyed	Indian reserves	313	1 %						
Not surveyed	Rights-of-ways	1,241	5 %						
	Parcels with < 500 sq m of ALR	1	<1 %						
SUBTOTAL		1,555	6 %						
TOTAL		27,413	100 %						

* See "Land Use" in the Definitions section for terms in this table.

Table 2 shows that of the ALR in Abbotsford, 19,599 ha or 71% is on parcels "Used for farming" and 6,259 ha or 23% is on parcels "Not used for farming".

There are 5 parcels with the mixed use "Used for farming" and "Protected area / park / reserve"; all are used for forage production with 4 parcels associated with Matsqui Trail Regional Park, and 1 parcel associated with Aldergrove Lake Regional Park.

One parcel with the mixed use "Used for farming" and "Research protection & research" is associated with a Pacific Agri-Food Research Center research farm.

Refer to Map 2 for more information.

Table 3. Parcel use and land cover in the ALR

Parcel Land Use		Land Cover Category						Total	
		Farmed *		Anthropogenic (not farmed)		Natural & Semi-natural			
		In ALR (ha)	% of ALR area	In ALR (ha)	% of ALR area	In ALR (ha)	% of ALR area	In ALR (ha)	% of ALR area
Used only for farming - no other use		3,833	14 %	71	<1 %	252	<1 %	4,156	15 %
Used for farming - mixed use	Residential	12,572	46 %	963	4 %	1,493	5 %	15,027	55 %
	Utilities	212	<1 %	9	<1 %	17	<1 %	238	<1 %
	Gravel extraction	47	<1 %	35	<1 %	21	<1 %	103	<1 %
	Protected area / park / reserve	40	<1 %	< 1	<1 %	9	<1 %	49	<1 %
	Industrial	12	<1 %	4	<1 %	1	<1 %	18	<1 %
	Resource protection & research	6	<1 %	< 1	<1 %	< 1	<1 %	8	<1 %
USED FOR FARMING SUBTOTAL		16,722	61 %	1,082	4 %	1,794	7 %	19,599	71 %
Not used for farming or grazing		658	2 %	1,750	6 %	3,851	14 %	6,259	23 %
SUBTOTAL		17,380	63 %	2,832	10 %	5,646	21 %	25,858	94 %
Surveyed	Indian reserves							313	1 %
Not surveyed	Rights-of-ways							1,241	5 %
	Parcels with < 500 sq m of ALR							1	<1 %
SUBTOTAL								1,555	6 %
TOTAL ALR								27,413	100 %

* Some parcels that are "Not used for farming" have "Farmed" land cover, however, the extent or intensity is insufficient for the parcel to be considered "Used for farming". For a complete definition of "Used for farming" refer to the Definitions section.

Table 3 combines land use and land cover on ALR land. For example, parcels with the mixed use "Used for farming" and "Residential" have a total of 12,572 ha in "Farmed" land cover, 963 ha in "Anthropogenic" (not farmed) land cover, and 1,493 ha in "Natural & Semi-natural" land cover.

Although 19,599 ha or 71% of the ALR is on parcels "Used for farming" (refer to Table 2), only 17,380 ha or 63% of the ALR is actually in "Farmed" land cover as many "Used for farming" parcels are also used for other purposes. The majority of the "Farmed" land cover in the ALR (12,572 ha or 46%) is on parcels also used for "Residential" purposes.

5. Availability of Land for Farming

There is a strong demand for high quality BC agricultural products in both local and international markets. The demand for locally grown products is expected to increase with population growth⁸.

In prime production areas, such as the Fraser Valley, there are a wide variety of agricultural products that can be grown successfully, and agricultural land is highly sought after. Farmers are currently in competition with each other for land with favourable conditions such as appropriate parcel size, topography, aspect and water availability to grow their farm businesses. Lands suitable for agricultural development may not be available and agricultural sectors that require large land bases, such as dairy or berry, or that have specific land needs, such as greenhouse production, may find it difficult to access sufficient land. Future agriculture growth may come from new commodity types and intensifying agricultural land use rather than finding new land for development.

The analysis of the availability of land for farming examines how much land is not used for farming, 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. In addition, the portion of the property that is currently not in agricultural use needs to be of a configuration and size that is large enough for agricultural development.

In Abbotsford, properties in the ALR and “Used for farming” have an average assessed land and improvement value of \$109,969 per ha.

Properties in the ALR that are considered “Unavailable for farming” have an average assessed land and improvement value of \$2,107,442 per ha.

(Calculated using 2012 BC Assessment)

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.

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.

Availability of land is not assessed for land on Indian reserves.

⁸ 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 the population growth.

Table 4. Status of the land base with respect to farming

Land status		ALR		Outside ALR (ha)	Total area (ha)	% inventory area
		In ALR (ha)	% ALR Area			
Actively farmed	Cultivated field crops	16,073	59 %	176	16,249	59 %
	Farm infrastructure	988	4 %	23	1,011	4 %
	Greenhouses	127	<1 %	< 1	127	<1 %
	Crop barn	26	<1 %	< 1	26	<1 %
ACTIVELY FARMED		17,213	63 %	199	17,413	63 %
Supporting farming	Residential footprint	302	1 %	6	308	1 %
	Artificial Waterbodies	84	<1 %	< 1	84	<1 %
	Transportation	19	<1 %	1	21	<1 %
	Built up - Other	2	<1 %	< 1	2	<1 %
SUPPORTING FARMING		408	1 %	7	415	2 %
Unavailable for farming due to existing land use	Protected area / park / reserve	298	1 %	29	327	1 %
	Transportation	186	<1 %	316	502	2 %
	Residential	112	<1 %	< 1	113	<1 %
	Institutional & community	97	<1 %	70	167	<1 %
	Recreation & leisure - including golf	96	<1 %	< 1	96	<1 %
	Water management	34	<1 %	6	40	<1 %
	Industrial	19	<1 %	2	22	<1 %
	Land in transition	18	<1 %	< 1	18	<1 %
	Utilities	16	<1 %	< 1	16	<1 %
	Commercial & service	7	<1 %	1	8	<1 %
	Dumps & deposits	< 1	<1 %	-	< 1	<1 %
	Gravel extraction	< 1	<1 %	-	< 1	<1 %
Unavailable for farming due to existing land cover	Wetlands & waterbodies	539	2 %	54	592	2 %
	Residential footprint	227	<1 %	22	249	<1 %
	Built up - Other	91	<1 %	7	98	<1 %
	Transportation	73	<1 %	18	91	<1 %
	Utilities	28	<1 %	< 1	28	<1 %
UNAVAILABLE FOR FARMING		1,841	7 %	525	2,366	9 %
Site limitations	Topography &/or soils	679	2 %	507	1,186	4 %
	Operational	182	<1 %	10	192	<1 %
	Drainage	175	<1 %	< 1	175	<1 %
	Flooding	29	<1 %	2	31	<1 %
LIMITED POTENTIAL FOR FARMING		1,064	4 %	519	1,584	6 %
Available & with potential for farming	Natural & Semi-natural - Vegetation	3,869	14 %	335	4,204	15 %
	Anthropogenic - Managed vegetation	896	3 %	18	914	3 %
	Anthropogenic - Non Built or Bare	399	1 %	56	455	2 %
	Unused forage or pasture	104	<1 %	< 1	104	<1 %
	Unmaintained field crops	62	<1 %	< 1	62	<1 %
	Unmaintained greenhouses	< 1	<1 %	< 1	< 1	<1 %
AVAILABLE & WITH POTENTIAL FOR FARMING		5,331	19 %	410	5,740	21 %
TOTAL		25,858	94 %	1,661	27,518	100 %
Surveyed	Indian reserves	313	1 %			
Not surveyed	Rights-of-ways	1,241	5 %			
	Parcels with < 500 sq m of ALR	1	<1 %			
SUBTOTAL		1,555	6 %			
TOTAL		27,413	100 %			

Table 4 shows that 17,213 ha or 63% of the ALR is actively used for farming; 1% is used in support of farming (farm residences, roads, etc); 7% is unavailable for farming; 4% has site limitations that limit the potential for farming; and 19% is available and may have potential for agricultural development.

Refer to Maps 2 and 3 for more information.

Figure 6. Availability and potential of ALR lands for farming

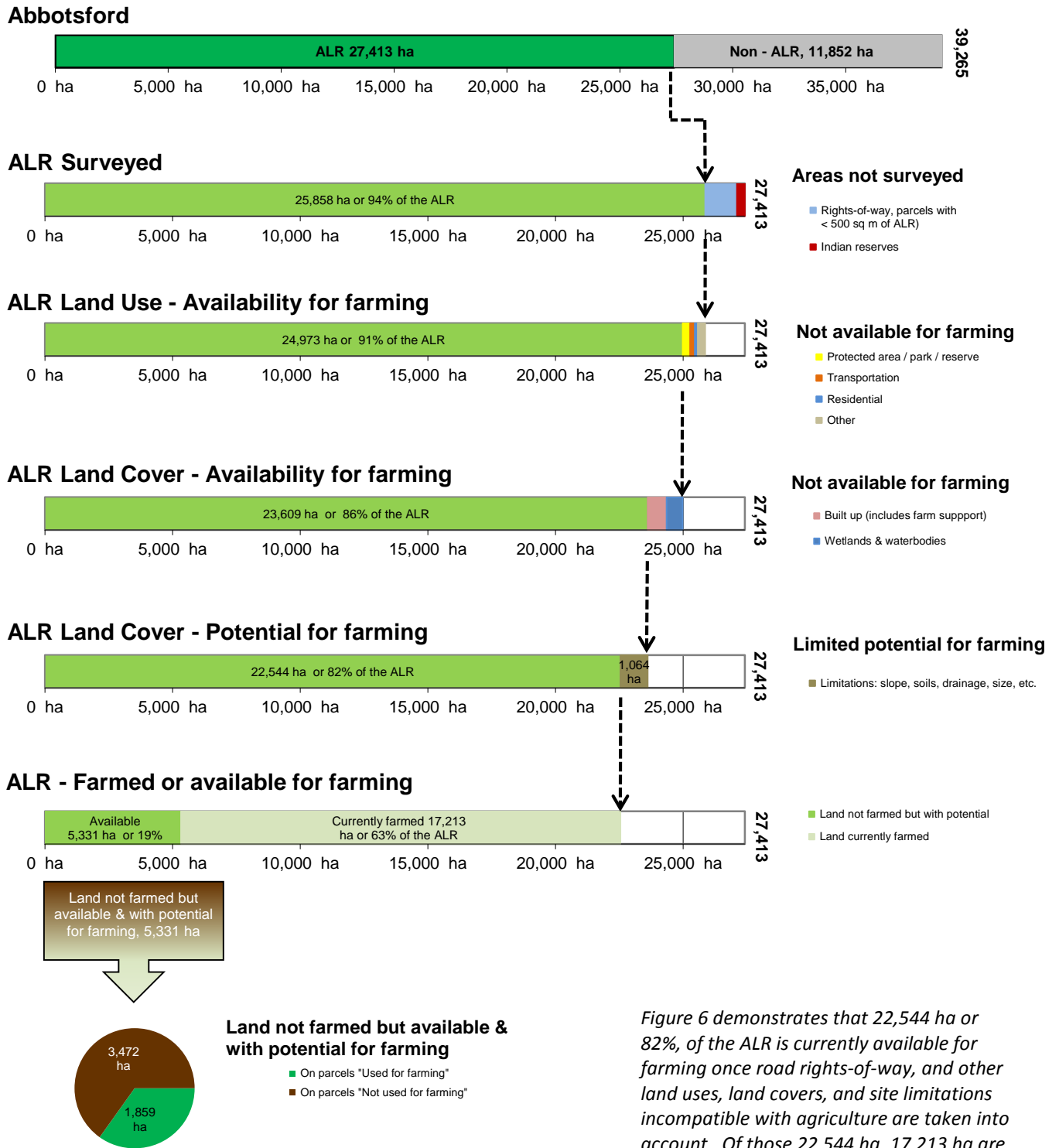


Figure 6 demonstrates that 22,544 ha or 82%, of the ALR is currently available for farming once road rights-of-way, and other land uses, land covers, and site limitations incompatible with agriculture are taken into account. Of those 22,544 ha, 17,213 ha are actively farmed and 5,331 ha are available and may have potential 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 and/or adjacency 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 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 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.

On Parcels “Used For Farming”

Parcels that are “Used for farming” do not always utilize 100% of their land area. Land not farmed but available and with potential for cultivation can offer opportunities to expand farming activities.

Table 5. 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	1452	1,620	8	1,628	9,316	4	9,320	9 %
Used for farming only	126	164	< 1	165	982	2	984	1 %
Gravel extraction	4	49	-	49	47	< 1	47	<1 %
Utilities	8	15	< 1	15	69	< 1	69	<1 %
Protected area / park / reserve	1	7	< 1	7	31	< 1	31	<1 %
Industrial	3	3	< 1	3	8	< 1	8	<1 %
Resource protection & research	1	< 1	-	< 1	6	-	6	<1 %
TOTAL	1,595	1,859	8	1,867	10,459	6	10,465	11 %

Table 5 illustrates 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.

The greatest potential to increase farmed land occurs on parcels with the mixed use “Used for farming” and “Residential”. Most other “Used for farming” parcels are almost fully utilized and offer little land in which to expand agricultural production.

Figure 7. ALR land cover that is available for farming on “Used for farming” parcels

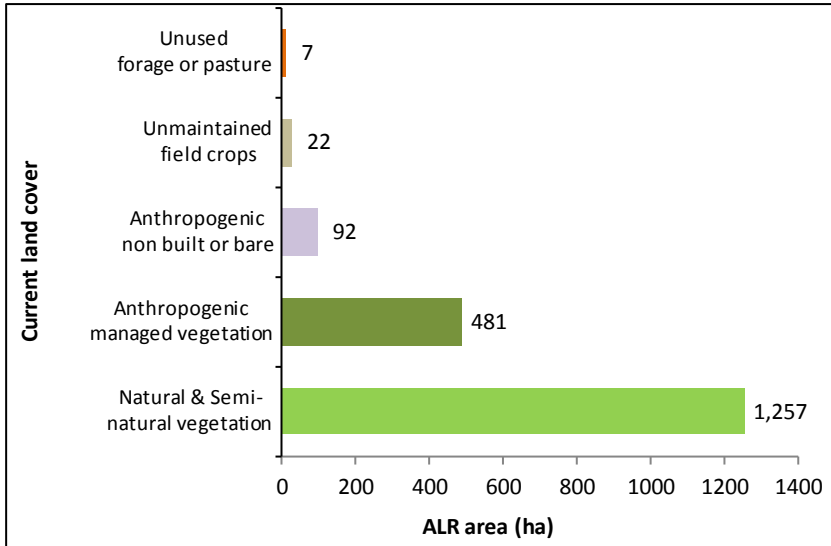


Figure 7 indicates that land currently in “Natural & Semi-natural vegetation” could provide the greatest gains in farming on parcels that are already “Used for farming”.

If this land were to be developed for agriculture, it would involve important trade-offs between the currently provided ecological goods and services, residents who value privacy and natural views, and the desire to increase agricultural production.

Figure 8. Natural & semi-natural vegetation in the ALR & available for farming on “Used for farming” parcels

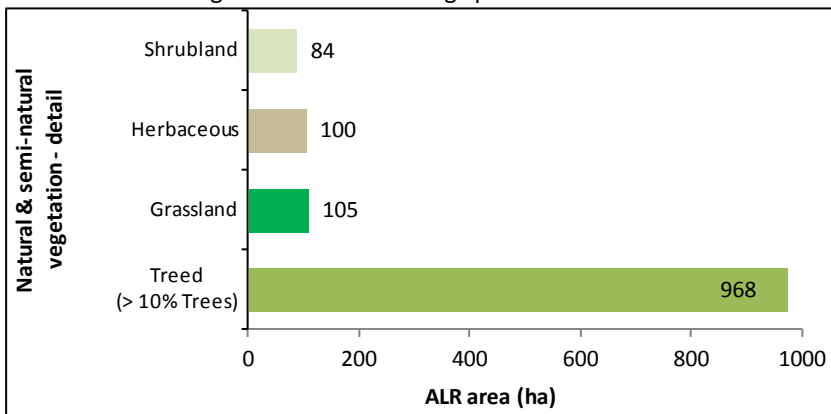


Figure 8 illustrates the types of “Natural & Semi-natural” land cover available for farming on “Used for farming” parcels.

The most abundant land cover is “treed”.

On Parcels “Not Used For Farming”

Table 6. 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	945	2461	44	2505	14 %	4
No apparent use	109	444	55	498	3 %	6
Gravel extraction	31	297	56	353	2 %	14
Industrial	17	81	-	81	<1 %	7
Utilities	11	65	<0.1	65	<1 %	8
Military	1	61	1	62	<1 %	93
Transportation	11	34	<0.1	34	<1 %	7
Institutional & community	10	12	0	12	<1 %	2
Water management	9	10	<0.1	10	<1 %	5
Wildlife management	1	3	<0.1	3	<1 %	5
Protected area / park / reserve	4	3	5	8	<1 %	7
Dumps & deposits	1	2	<0.1	2	<1 %	2
Recreation & leisure	2	1	1	2	<1 %	2
Commercial & service	2	0	5	6	<1 %	3
TOTAL	1,154	3,472	167	3,639	20 %	

Table 6 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.

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 4 ha.

Figure 9. ALR land cover that is available for farming on “Not used for farming” parcels

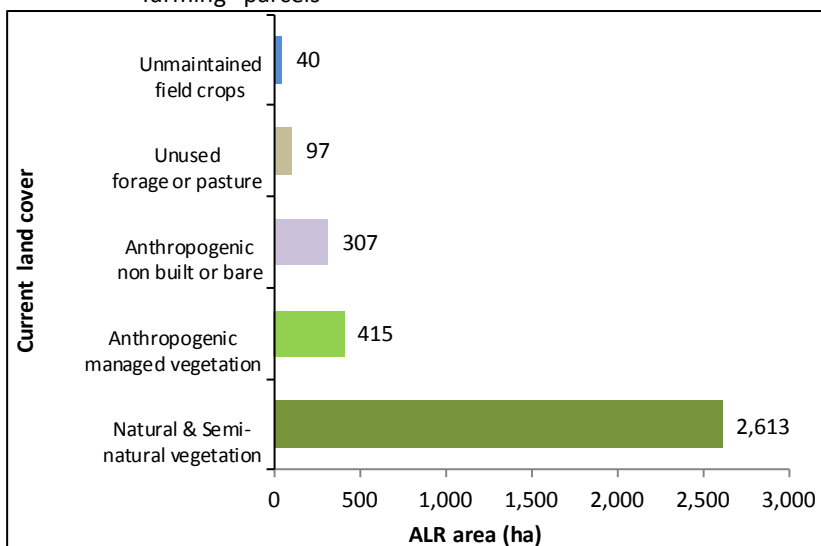


Figure 9 indicates that most of the available land on parcels “Not used for farming” is currently in “Natural & Semi-natural” land cover.

This land would need to be cleared before cultivation could occur. Converting this land to agriculture may infringe on other values such as residential privacy, natural views, and wildlife habitat. These values would have to be measured against the benefits from increased farming.

Some of the natural & semi natural vegetation may be associated with riparian areas.

Figure 10. Natural & semi-natural vegetation in the ALR & available for farming on “Not used for farming” parcels

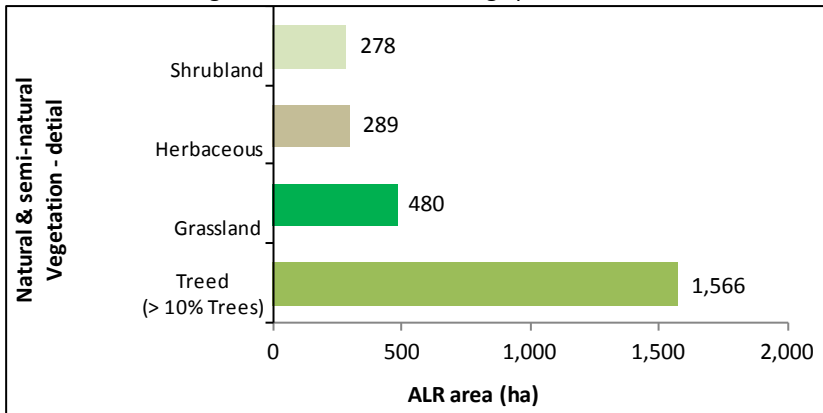


Figure 10 illustrates the types of “Natural and Semi-natural” land cover available for farming on “Not used for farming” parcels.

Figure 11. Size of areas available for farming but not farmed on parcels “Not used for farming” with ALR land

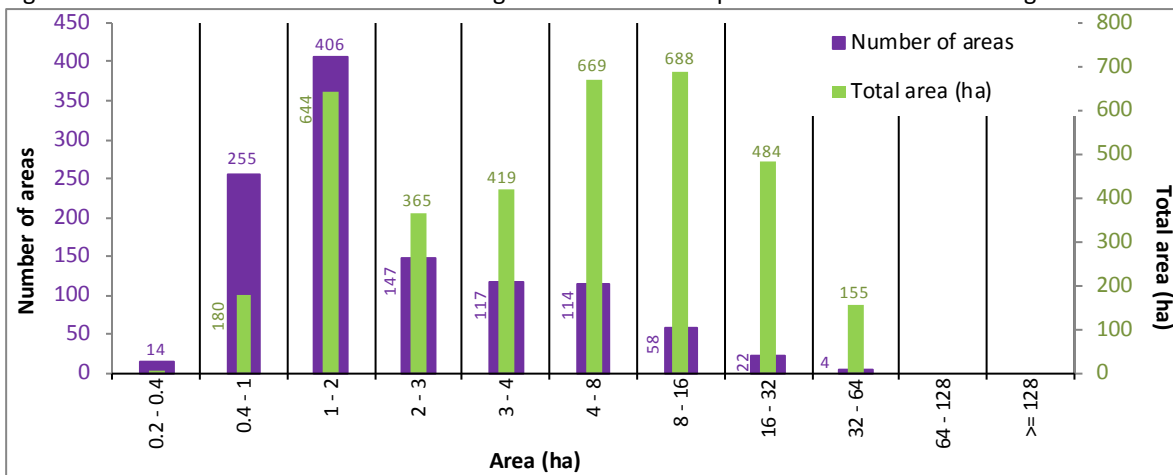


Figure 11 illustrates the number of areas available and with potential for farming in Abbotsford. The area of all adjacent available and cultivated land covers on a parcel are summed to arrive at the total area that could potentially be farmed. An area is considered available and with potential for farming if it is free from land cover limitations and is greater than 0.4 ha (1 acre). A single area may be comprised of multiple land covers on the same parcel.

The majority of the areas available for farming are less than 2 ha in size (675 of 1137 areas or 59%). Fewer options are available to efficiently farm small parcels. In general, areas should be at least 4 ha to provide the widest range of farming options.

There are 198 areas greater than 4 ha and available for farming but not farmed in Abbotsford. These areas have a total of 1,996 ha, or 55% of the total available land area (refer to Table 6).

Figure 12. Parcel size distribution of ALR parcels “Not used for farming” with land available for farming

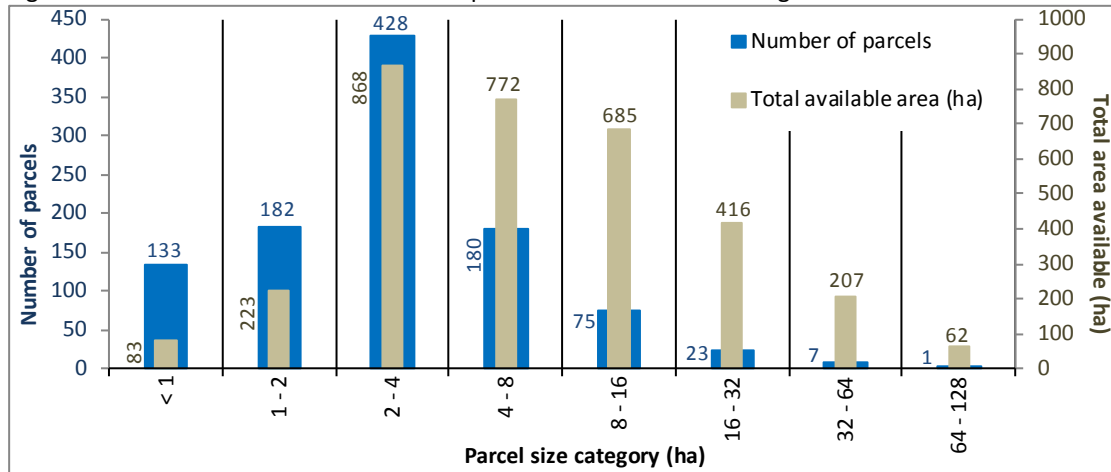


Figure 12 shows the number of ALR parcels that are currently “Not used for farming” and that have at least 50% of their parcel area and at least 0.4 ha of land available for farming.

In total, there are 1,029 parcels with 3,315 ha of available land that meet these criteria. Of these 1,029 available parcels, 315 parcels (31%) are less than 2 ha and 743 parcels (72%) are less 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.). Each crop type is then summarized to total land area and evaluated for field size characteristics.

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 Abbotsford are described by thirteen crop groupings:

- **Forage:** grass, legume, mixed grass/legume, forage cereal/peas, forage corn. Includes fields used exclusively for forage and field used for both forage and pasture.
- **Berries:** blueberries, raspberries, strawberries, cranberries, blackberries, mixed berries.
- **Pasture:** grass, mixed grass/legume. Fields are used only for grazing (not cut).
- **Vegetables:** potatoes, mixed vegetables (a variety of vegetable type cultivated together), sweet corn, carrots, cucurbits, legumes (beans, peas), leafy vegetables, misc. vegetables (includes peppers, tomatoes, asparagus, eggplant, shallots, green onions, okra).
- **Nursery & tree plantation:** nursery (forestry stock, ornamentals & shrubs, cedar hedging, mixed), tree plantations (Christmas trees, fibre/pulp/veneer trees).
- **Turf**
- **Cultivated land:** 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).
- **Floriculture**
- **Cereals & oilseeds:** barley, canola.
- **Vines:** grapes, kiwis.
- **Tree fruits:** apples, mixed tree fruits.
- **Nut trees**
- **Rhubarb**

Cultivated crops on Indian reserves are presented in Appendix B.

Figure 13. Main field crop types by percentage

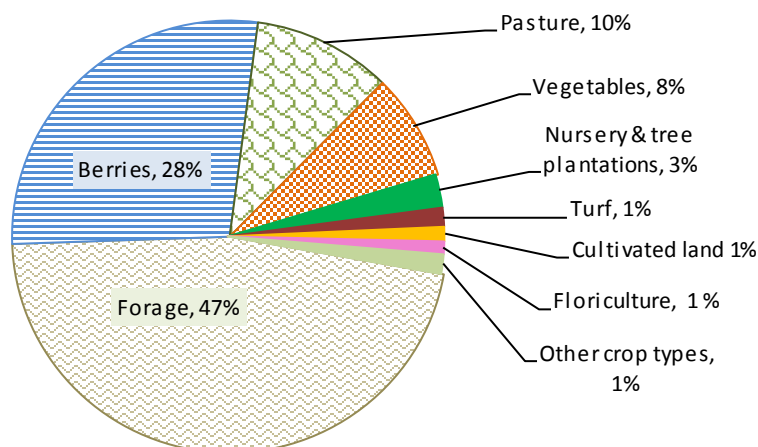


Figure 13 shows the proportion of the main field crop types across Abbotsford's cultivated land.

"Forage" combined with "berries", combined with "pasture" comprise 85% of all cultivated land.

Table 7. Main field crop types by area

Type	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land	Number of crop fields*
	In ALR (ha)	% of ALR				
Forage	7,641	28%	42	7,683	47%	1,039
Berries	4,477	16%	29	4,506	28%	848
Pasture	1,611	6%	91	1,702	10%	784
Vegetables	1,305	5%	2	1,307	8%	215
Nursery & tree plantations	398	1%	9	407	2%	196
Turf	235	1%	< 1	235	1%	18
Cultivated land**	176	< 1%	2	178	1%	59
Floriculture	157	< 1%	< 1	157	1%	31
Unused forage/pasture	113	< 1%	< 1	113	< 1%	49
Cereals & oilseeds	48	< 1%	< 1	48	< 1%	6
Vines	40	< 1%	1	41	< 1%	22
Tree fruits	20	< 1%	< 1	20	< 1%	16
Nut trees	16	< 1%	< 1	16	< 1%	8
Rhubarb	1	< 1%	-	1	< 1%	2
TOTAL	16,239	59%	176	16,415	100%	

* Crop field. A continuous or non-continuous area of the same crop type on one parcel. The number of crop fields is equal to the number of parcels where that specific type of crop occurs.

** Cultivated land. 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 7 shows the main field crop types produced on the 16,415 ha of cultivated land in Abbotsford.

“Forage” is the most common type cultivated field crop type accounting for 47% of all cultivated land and 28% of the ALR.

“Berries” are the second most common type of cultivated crop accounting for 28% of all cultivated land and 16% of the ALR.

Refer to Map 4 for more information.

Figure 14. All cultivated field crops by size⁹

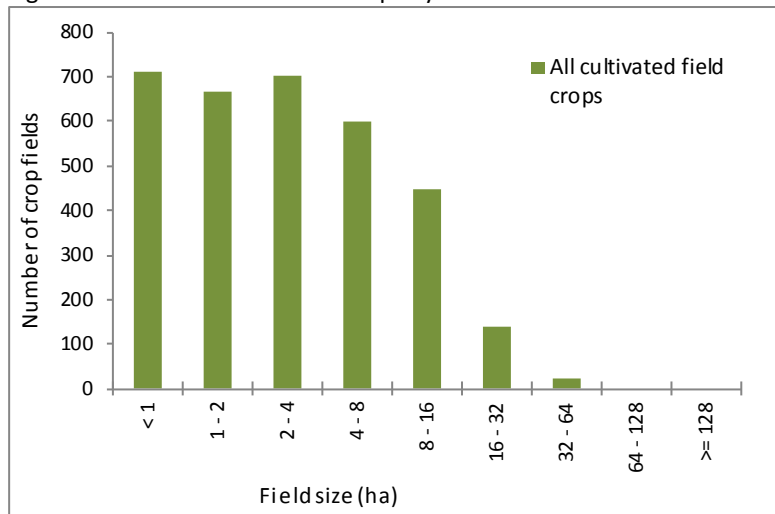


Figure 14 illustrates the number and size distribution of fields used for cultivated field crops.

In Abbotsford, there are 3,291 individual crop fields with an average crop area of 5 ha and a median crop area of 3 ha.

The average parcel size where field crops occur is 8 ha and the median parcel size is 4 ha.

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 fields.

⁹ 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.

Figure 15. Forage, pasture, berries, and vegetable fields by size

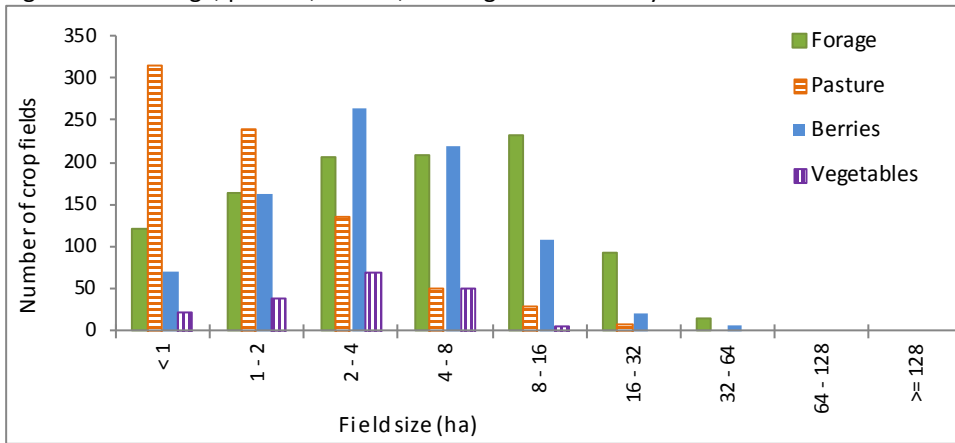


Figure 15 compares the top four main crop types by field sizes.

“Pasture” fields tend to have smaller field sizes, while “forage” and “berry” fields have a more even field size distribution.

Pasture fields account for 44% of all crop fields that are less than 1 ha.

There are no individual crop fields larger than 64 ha in Abbotsford.

Refer to Table A1 in Appendix A for more information.

Forage & pasture crops

Forage is a cultivated crop that is cut and made into silage or hay for livestock feed. Three levels of management are described:

- **Forage (intensively managed):** Management includes weed control & fertilizer / manure applications and crop is cut 4-8 times per year. Often there is no fencing and crop growth is vigorous, even and thick.
- **Forage (managed):** Management includes weed control & fertilizer / manure applications and crop is cut several times per year. Often there is no fencing and crop growth is generally healthy and even.
- **Forage (unmanaged):** Weed management & fertilizer / manure applications are minimal. Crop is cut only once per year. Crop growth is uneven with weeds.

Pasture is a cultivated crop that is used for grazing only and is not cut. Two levels of management are described:

- **Pasture (managed):** Management includes weed control & fertilizer / manure applications. Usually fields are large to accommodate equipment. Fencing is in good condition and crop growth is vigorous with few weeds.
- **Pasture (unmanaged):** Weed management & fertilizer / manure applications are minimal. Fencing is in good condition. Crop is varied (some weeds) and growth is uneven with signs of animal dung.

Some areas are used for both forage & pasture:

- **Forage & pasture (managed):** Crop is cut 1 to 3 times per year and made into silage or haylage. Also used for grazing for 1 to 3 months per season. Fencing is in good condition and crop growth is reasonably even with few weeds. Usually associated with dairy operations.

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

- **Unused** refers to forage or pasture which has not been cut or grazed during the current growing season.
- **Unmaintained** refers to forage or pasture which 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 8. Forage & pasture crops by area

Forage & pasture crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Forage	Grass	3,892	14%	42	3,934	24%
	Forage corn	2,991	11%	< 1	2,991	18%
	Mixed grass / legume	482	2%	< 1	482	3%
	Forage cereal / peas	5	< 1%	-	5	< 1%
	Legume	1	< 1%	-	1	< 1%
Subtotal		7,371	27%	42	7,413	45%
Forage & pasture	Grass	270	< 1%	< 1	270	2%
	Subtotal	270	< 1%	< 1	270	2%
Pasture	Grass	1,548	6%	91	1,639	10%
	Mixed grass / legume	63	< 1%	< 1	63	< 1%
Subtotal		1,611	6%	91	1,702	10%
Unmaintained	Grass	9	< 1%	< 1	9	< 1%
Unused	Grass	83	< 1%	< 1	83	< 1%
	Mixed grass / legume	21	< 1%	< 1	21	< 1%
Subtotal		113	12%	< 1	113	< 1%
TOTAL		9,365	46%	133	9,498	58%

Table 8 shows there is far more forage than pasture in Abbotsford. Forty-five percent of all cultivated crops are in forage, and 10% of all crops are in pasture. The majority of the forage is grown to support intensive dairy operations in the region.

In total, there are 7,413 ha in forage production, 1,702 ha in pasture, 270 ha in forage & pasture, and 113 ha in unused or unmaintained crops.

Grass is the main forage crop type, followed by forage corn.

Refer to Map 5 for more information.

Figure 16. Forage & pasture fields by size and type

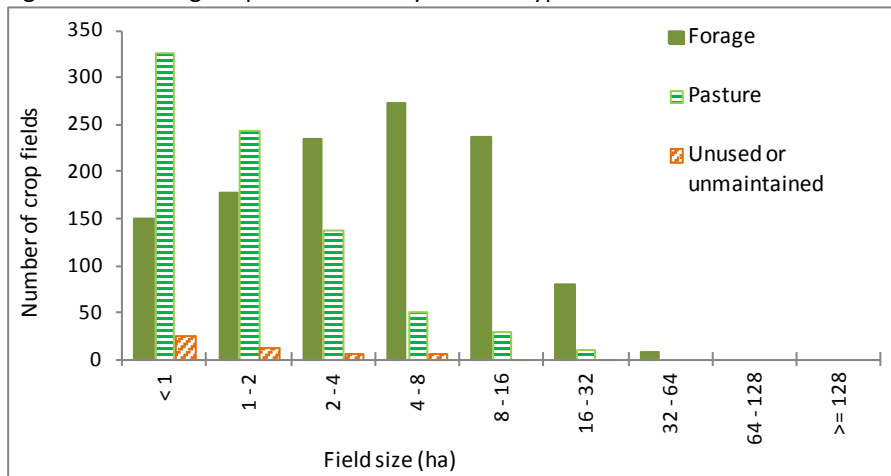


Figure 16 illustrates that most pasture fields (569 out of 794 or 72%) are less than 2 ha while most forage fields (835 out of 1,164 or 72%) are greater than 2 ha.

There are instances where multiple small forage fields, spanning multiple parcels are farmed as a single unit. This helps to efficiently bring smaller lots into production.

There are 794 pasture fields with an average crop area of 2 ha, a median crop area of 1 ha, and an average parcel size of 7 ha.

In comparison, there are 1,164 forage fields with an average crop area of 6 ha, a median crop area of 4 ha, and an average parcel size of 11 ha.

Forage fields generally need to be larger than pasture fields in order to accommodate large equipment.

Table 9. Forage crops by area (pasture crops excluded)

Forage crops*	ALR		Outside ALR (ha)	Total area (ha)	% of forage crops	% of cultivated land
	In ALR (ha)	% of ALR				
Grass	4,161	15%	42	4,204	55%	26%
Forage corn	2,991	11%	< 1	2,991	39%	18%
Mixed grass / legume	482	2%	< 1	482	6%	3%
Forage cereal / peas	5	< 1%	-	5	< 1%	< 1%
Legume	1	< 1%	-	1	< 1%	< 1%
TOTAL	7,641	28%	42	7,683	100%	47%

* Forage includes "forage" as well as "forage & pasture".

Table 9 shows that grass comprises 55% of all forage crops while forage corn comprises 39%.

Refer to Map 5 for more information.

Figure 17. Forage fields by size and type (pasture crops excluded)

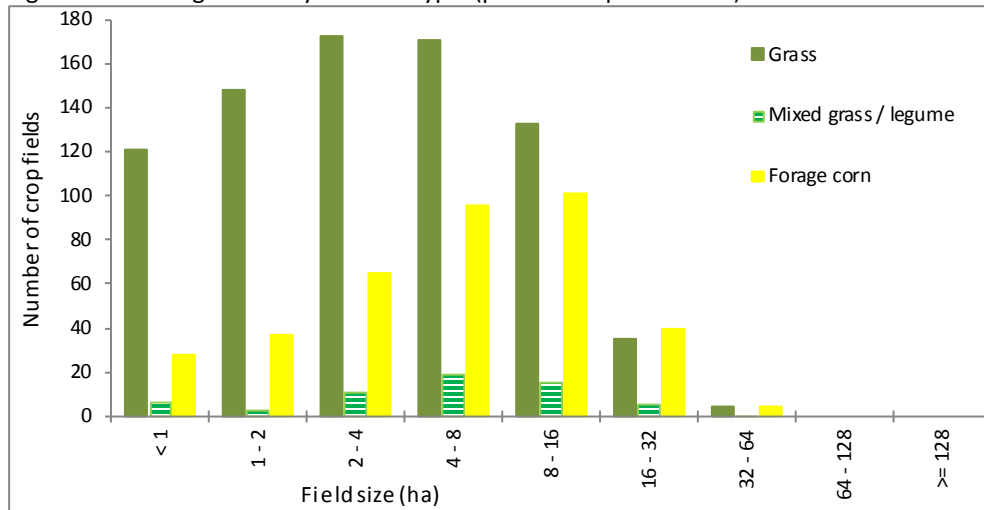


Figure 16 shows the field size distribution of forage crops in Abbotsford.

There are 784 forage grass fields with an average crop area of 5 ha, a median crop area of 3 ha, and an average parcel size of 10 ha.

In comparison, there are 371 forage corn fields with an average crop area of 8 ha, a median crop area of 6 ha, and an average parcel size of 13 ha.

Refer to Table A3 in Appendix A for more information.

Berry & vine crops

Berries and vines 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

Berry crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Blueberries	Mature	2,092	8%	< 1	2,092	13%
	Young	800	3%	< 1	800	5%
	Unmaintained	18	< 1%	< 1	19	< 1%
	Subtotal	2,910	11%	1	2,911	18%
Raspberries	Mature	1,092	4%	27	1,120	7%
	Young	20	< 1%	< 1	20	< 1%
	Unmaintained	14	< 1%	< 1	14	< 1%
	Subtotal	1,126	4%	27	1,154	7%
Mixed berries	Mature	291	1%	< 1	291	2%
	Young	5	< 1%	-	5	< 1%
	Subtotal	296	1%	< 1	296	2%
Cranberries	Mature	95	< 1%	-	95	< 1%
	Young	30	< 1%	-	30	< 1%
	Subtotal	124	< 1%	-	124	< 1%
Strawberries	Mature	6	< 1%	< 1	6	< 1%
	Young	2	< 1%	< 1	2	< 1%
	Subtotal	8	< 1%	< 1	8	< 1%
Blackberries	Mature	< 1	< 1%	-	< 1	< 1%
	Subtotal	< 1	< 1%	-	< 1	< 1%
Unknown type - berry	Mature	11	< 1%	-	11	< 1%
	Subtotal	11	< 1%	-	11	< 1%
TOTAL		4,477	17%	29	4,506	28%

Table 10 shows that Abbotsford has 4,506 ha in berry crops. This is 28% of all cultivated land.

Blueberries are the most significant berry type with 2,911 ha (18% of all cultivated land) followed by raspberries with 1,154 ha (7% of all cultivated land).

Refer to Map 6 for more information.

Table 11. Vine crops by area

Vine crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Vines	Grapes	34	< 1%	< 1	34	< 1%
	Kiwis	5	< 1%	1	6	< 1%
TOTAL		40	< 1%	1	41	< 1%

Table 11 shows that Abbotsford has 41 ha of vine crops.

Refer to Map 6 for more information.

Figure 18. Berry crop types by percentage of total area in berries

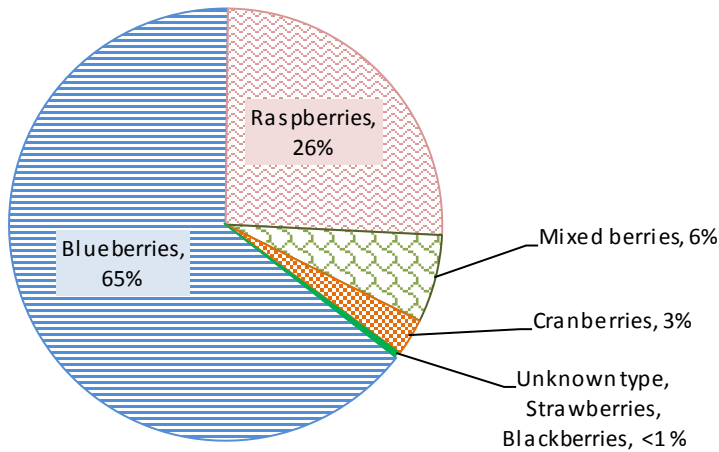


Figure 18 shows the proportion of berry crop types in Abbotsford.

Blueberries combined with raspberries comprise 91% of all berries in the city.

Figure 19. Berry fields by size

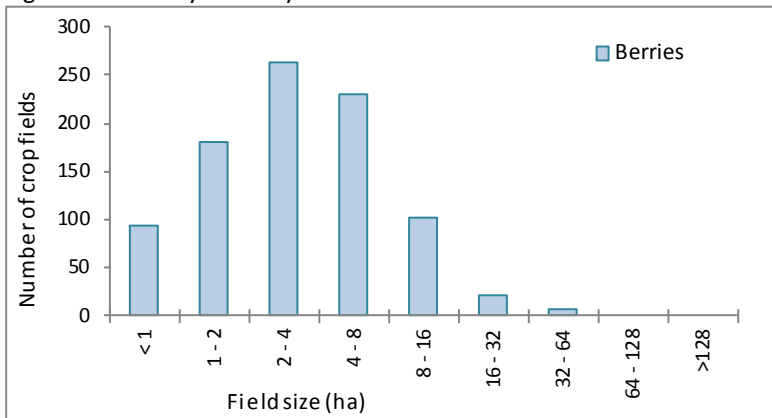


Figure 19 shows that most berry fields are 2 - 4 ha or 4 - 8 in size.

Abbotsford has 898 individual berry fields with an average crop area of 5 ha and a median crop area of 4 ha.

Berry crops occur on 868 parcels with an average parcel size of 7 ha and a median parcel size of 4 ha.

Refer to Table A4 in Appendix A for more information.

Figure 20. Blueberry, raspberry, mixed berry, and cranberry fields by size

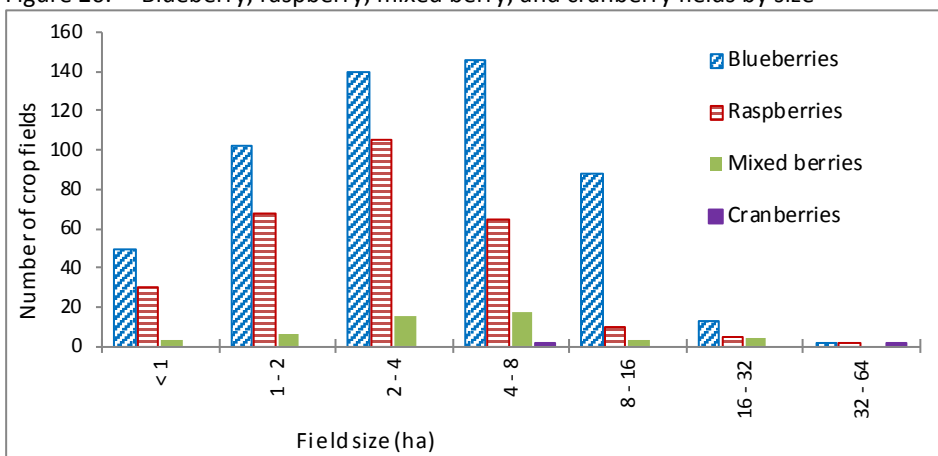


Figure 20 shows the field size distribution of the top berry crops.

Blueberries, raspberries, and mixed berry fields occur across most field sizes with berries.

There are 542 blueberry fields while there are only 286 raspberry, 48 mixed berry, and 4 cranberry fields

Blueberries have an average crop area of 5 ha and a median crop area of 4 ha.

In comparison, cranberry fields, have an average crop area of 31 ha and a median crop area of 31 ha. All cranberry fields occur on fields larger than 4 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 Abbotsford are described by eleven crop groupings:

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

Table 12. Vegetable crops by area

Vegetable crops	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR			
Potatoes	302	1%	< 1	302	2%
Mixed vegetables*	285	1%	< 1	285	2%
Sweet corn	223	< 1%	2	225	1%
Cole crops	172	< 1%	< 1	172	1%
Carrots	117	< 1%	-	117	< 1%
Cucurbits	72	< 1%	< 1	72	< 1%
Legumes	62	< 1%	< 1	62	< 1%
Misc. vegetables**	28	< 1%	< 1	28	< 1%
Leafy vegetables	21	< 1%	-	21	< 1%
Unknown	20	< 1%	-	20	< 1%
Asian vegetables^	3	< 1%	-	3	< 1%
TOTAL	1,305	5%	2	1,307	8%

* Refers to a field of a variety of vegetable types

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

^ Includes bok choy, choy sum, gai choy, sui choy, gai lan, chinese cabbage, daikon, lotus root

Table 12 presents the different vegetable crops in Abbotsford.

Potatoes are the most common vegetable crop with 302 ha, or 2% of all cultivated land.

Mixed vegetables are the second most common with 285 ha, followed by sweet corn with 225 ha.

Figure 21. Vegetable fields by size

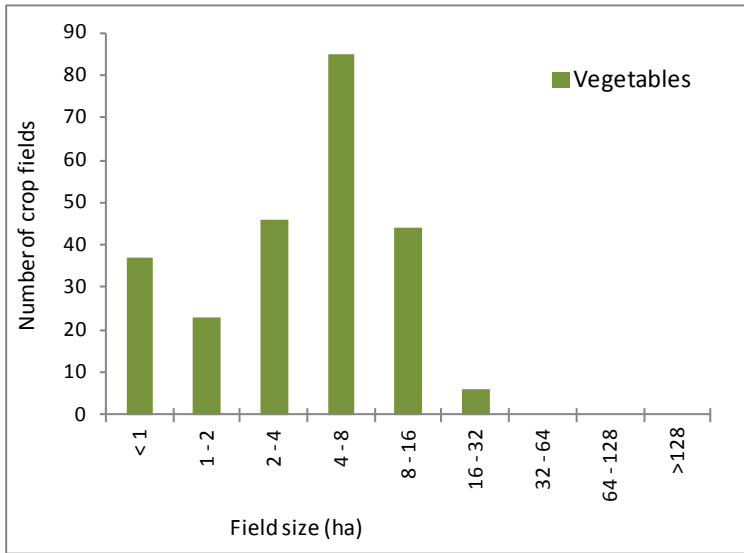


Figure 21 shows that vegetable fields are most likely to be 4 - 8 ha in size.

In Abbotsford, there are 241 individual vegetable crop fields with an average and median crop area of 5 ha.

Vegetable fields occur on 215 parcels with an average parcel area of 9 ha and a median parcel area of 8 ha.

Figure 22. Potato, mixed vegetable, sweet corn and Cole crop fields by size

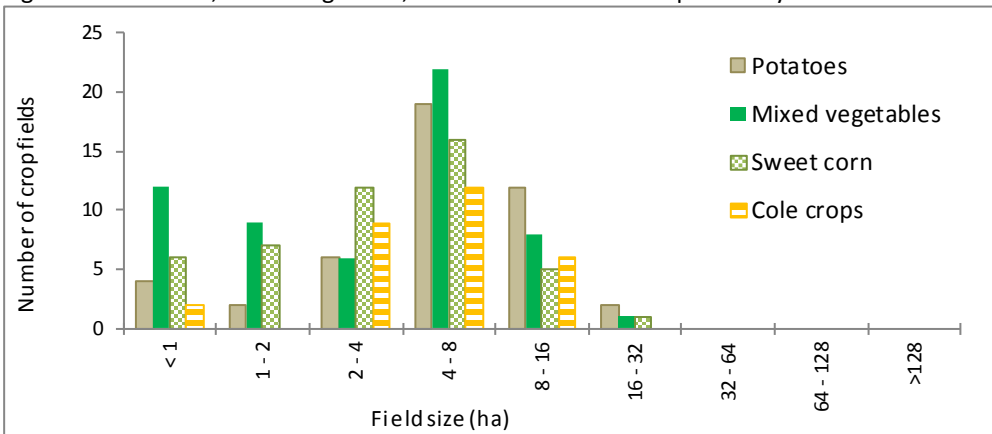


Figure 22 shows that potatoes, mixed vegetables, sweet corn and Cole crops are distributed across all parcel sizes that have vegetable crops.

Refer to Table A5 in Appendix A for more information.

Nursery & tree plantations

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

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

Table 13. Nursery & tree plantations by area

Nursery & tree plantations		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Nursery	Nursery - mixed	269	< 1%	1	270	2%
	Cedar hedging	59	< 1%	< 1	59	< 1%
	Ornamentals and shrubs	5	< 1%	< 1	5	< 1%
	Cedar hedging - unmaintained	5	< 1%	-	5	< 1%
	Nursery - unmaintained	6	< 1%	< 1	6	< 1%
Nursery total		343	1%	1	344	2%
Tree plantation	Unknown type	25	< 1%	8	33	< 1%
	Fibre/pulp/veneer trees	18	< 1%	< 1	18	< 1%
	Christmas trees	9	< 1%	< 1	9	< 1%
	Christmas trees - unmaintained	3	< 1%	< 1	3	< 1%
Tree plantation total		55	< 1%	8	63	< 1%
Nursery or tree plantation - unknown		< 1	< 1%	-	< 1	< 1%
TOTAL		398	1%	9	407	3%

Table 13 shows that Abbotsford has 407 ha in nursery and tree plantations.

There are 344 ha in nursery crops and 63 ha in tree plantations.

Refer to Map 4 more information.

Figure 23. Nursery & tree plantations by size and type

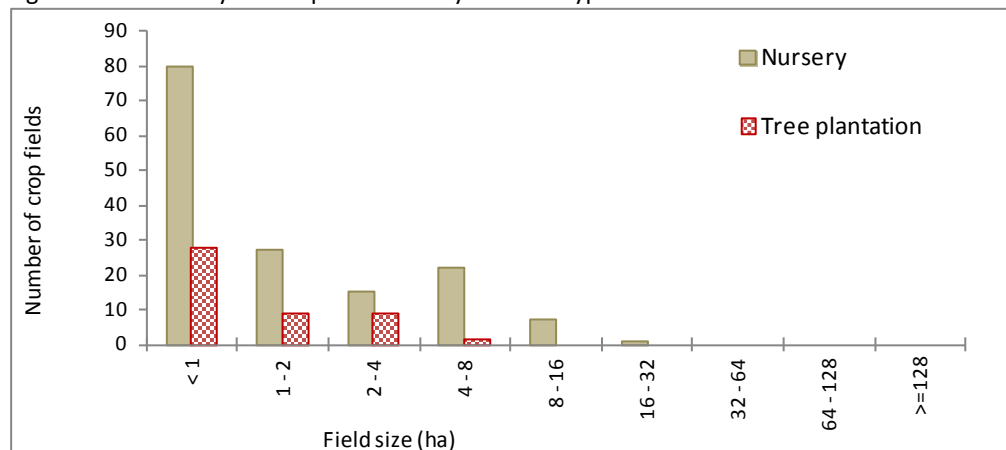


Figure 23 shows the field size distribution of nursery & tree plantation fields.

Over half of all fields (108 out of 200) are less than 1 ha.

There are 152 individual nursery crops with an average crop area of 5 ha and a median crops area of 3 ha.

In comparison, there are 48 tree plantation fields with an average and median area of 2 ha.

Refer to Table A6 in Appendix A for more information.

Top 20 Individual Crops

Table 14. Top 20 crop types by area

Cultivated field crop	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR			
Forage	7,641	28%	42	7,683	47%
Blueberries	2,892	11%	< 1	2,892	18%
Pasture	1,611	6%	91	1,702	10%
Raspberries	1,113	4%	27	1,140	7%
Potatoes	302	1%	< 1	302	2%
Mixed berries	296	1%	< 1	296	2%
Mixed vegetables	285	1%	< 1	285	2%
Nursery	269	< 1%	1	270	2%
Turf	235	< 1%	< 1	235	1%
Sweet corn	223	< 1%	2	225	1%
Cole crop	172	< 1%	< 1	172	1%
Cranberries	124	< 1%	-	124	< 1%
Carrots	117	< 1%	-	117	< 1%
Floriculture	106	< 1%	< 1	106	< 1%
Unused forage/pasture	104	< 1%	< 1	104	< 1%
Cultivated land	87	< 1%	< 1	87	< 1%
Cucurbits	67	< 1%	< 1	67	< 1%
Cedar hedging	59	< 1%	< 1	59	< 1%
Cover grass	55	< 1%	2	57	< 1%
Cereals, oilseeds	45	< 1%	-	45	< 1%
TOTAL	15,802	58%	166	15,968	97%

Table 14 shows the top 20 individual crops that account for 97% of the cultivated land in Abbotsford.

Forage, blueberries, pasture, and raspberries are the top four individual crops in terms of area. These four crop types account for 82% of all cultivated land in Abbotsford.

Figure 24. Top 10 crop types by area

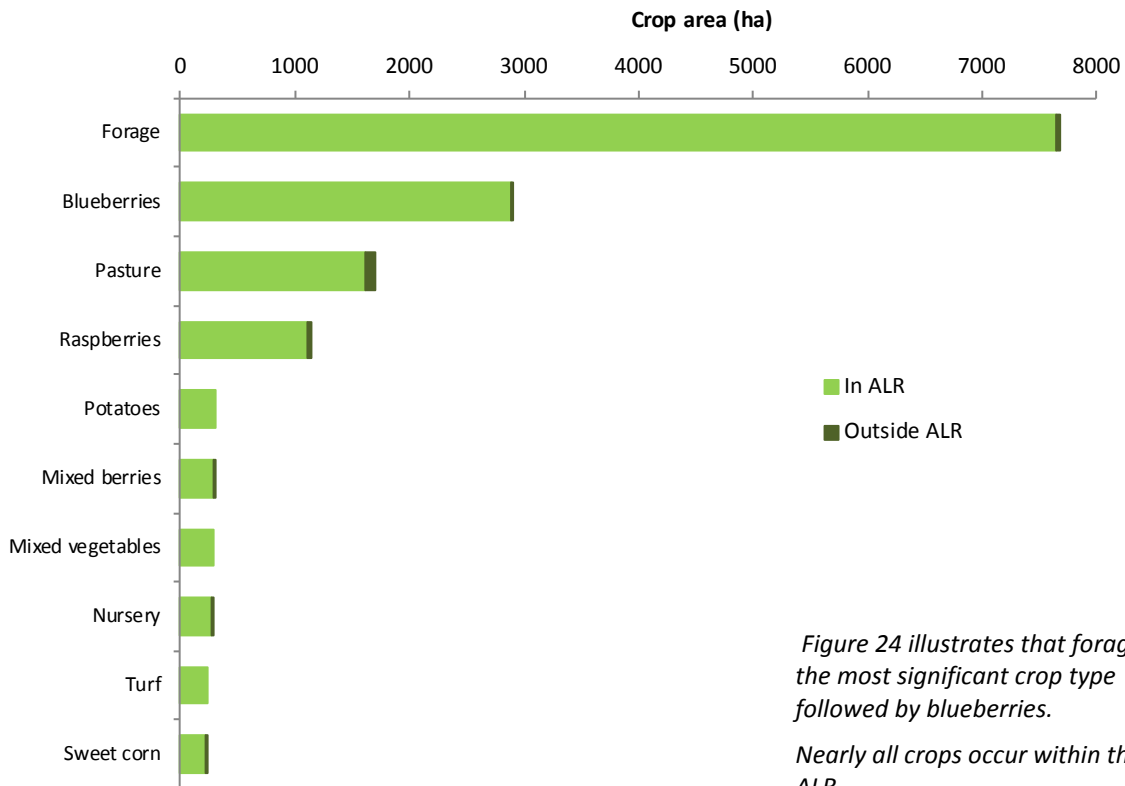


Figure 24 illustrates that forage is the most significant crop type followed by blueberries.

Nearly all crops occur within the ALR.

GREENHOUSES & CROPS BARN

Greenhouses are structures covered with translucent material and of sufficient size for a person to work inside¹⁰. 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 15. Greenhouses by area¹¹

Greenhouses		ALR		Outside ALR (ha)	Total area (ha)	% of greenhouse area
		In ALR (ha)	% of ALR			
Crop Barn	Mushroom	26	<0.1	<0.1	26	17%
Subtotal		26	< 1%	< 1	26	17%
Glass greenhouse	Vegetables	80	0.3%	<0.1	80	52%
	Nursery	4	<0.1	-	4	2%
	Floriculture	2	<0.1	-	2	1%
	Unknown	1	<0.1	-	1	1%
	Unmaintained	0.2	<0.1	-	0.2	0%
Subtotal		87	< 1%	< 1	87	57%
Poly greenhouse	Nursery	28	0.1%	<0.1	28	18%
	Unknown	8	<0.1	0.3	8	5%
	Vegetables	2	<0.1	-	2	1%
	Floriculture	1	<0.1	-	1	1%
	Mixed	<0.1	<0.1	-	<0.1	<0.1
	Empty	<0.1	<0.1	<0.1	<0.1	<0.1
	Unmaintained	1	<0.1	<0.1	1	0.5%
Subtotal		40	< 1%	< 1	40	26%
TOTAL		153	0.6%	< 1	153	100%

Table 15 shows that there are 153 ha of ALR land in greenhouses and crop barns; 26 ha are in crop barns, 87 ha are in glass greenhouses and 40 ha are in poly greenhouses.

Vegetables are the predominant crop found in glass greenhouses while nursery crops are the predominant crop type grown in poly greenhouses.

Refer to Map 4 for more information

Figure 25. Greenhouse and crop barn activities by building type and parcel size

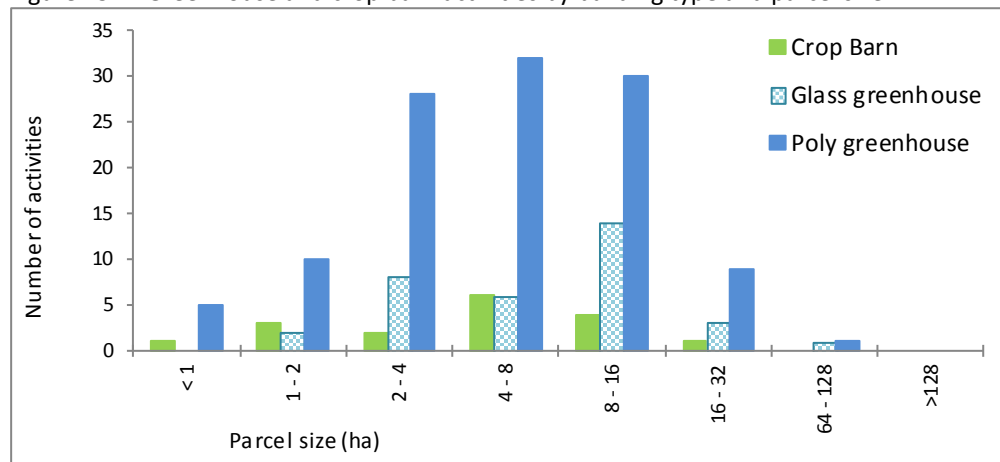


Figure 25 details the parcel size distribution of parcels with greenhouse or crop barn activities.

The average parcel size where greenhouse or crop barn activities occur is 8 ha.

The average parcel size by building type is:

- 6.6 ha – crop barns
- 10.2 ha – glass greenhouses
- 7.5 ha – poly greenhouses

¹⁰ Source: *Guide for Bylaw Development in Farming Areas*, 2013. Ministry of Agriculture.

¹¹ 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 26. Distribution of greenhouse and crop barn activities by size and building type¹²

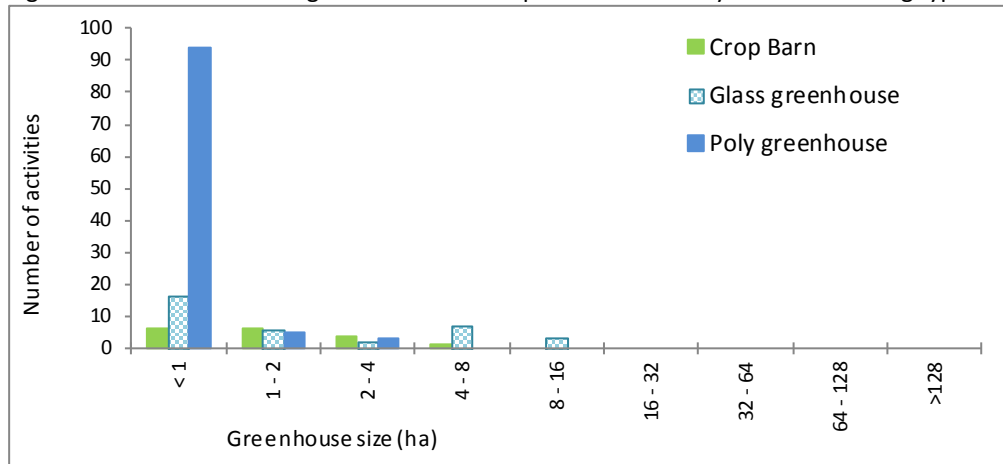


Figure 26 shows that most greenhouses are less than one ha in size.

In total, there are 102 poly greenhouse, 35 glass greenhouse, and 18 crop barn activities.

Nearly all of the poly greenhouse activities (94 or 92%) are less than 1 ha in size. All poly greenhouse activities are less than 4 ha.

Figure 27. Distribution of glass greenhouse and crop barn activities by size (poly greenhouse activities excluded)¹¹

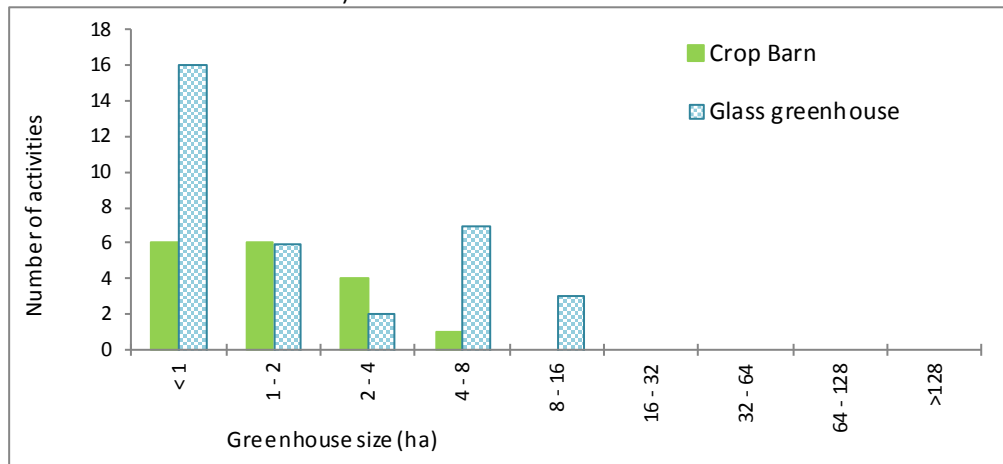


Figure 27 details the size distribution of crop barn and glass greenhouse activities.

There are 11 greenhouse/crop barn activities larger than 4 ha in Abbotsford; 10 are glass greenhouse and 1 is a crop barn associated with mushroom production.

Figure 28. Distribution of greenhouses and crop barn total area by building type¹¹

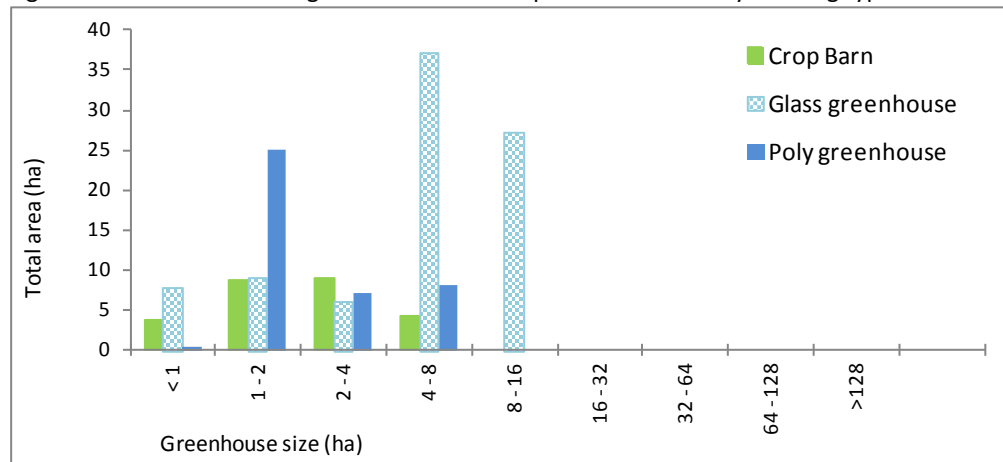


Figure 20 shows the total area of greenhouses and crop barns by building type

Glass greenhouses comprise a much larger area than poly greenhouses even though glass greenhouses are fewer in number.

¹² 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.

Irrigation on Indian reserves is reported in Appendix B.

Table 16. Main crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)					Total area irrigated (ha)	% of crop area irrigated
	Surface	Sprinkler	Centre pivot	Giant gun	Trickle		
Berries	-	448	-	178	3,720	4,345	96%
Forage	10	415	-	3,639	15	4,079	53%
Vegetables	-	244	-	990	26	1,261	96%
Nursery & tree plantations	< 1	235	-	38	2	275	67%
Turf	-	187	47	-	-	235	100%
Floriculture	-	98	-	32	< 1	130	83%
Pasture	6	58	-	55	-	119	7%
Cultivated land*	-	3	-	63	-	65	37%
Cereals & oilseeds	-	-	-	32	-	32	67%
Vines	-	< 1	-	-	26	26	65%
Tree fruits	-	5	-	-	5	10	52%
Nut trees	-	1	-	-	-	1	7%
Rhubarb	-	-	-	-	-	-	-
TOTAL FIELD CROP AREA IRRIGATED	16	1,694	47	5,028	3,794	10,579	64%
Greenhouses & crop barns	Flood and trickle irrigation					153	100%

* Cultivated land. 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 16 illustrates that 64% of all cultivated field crops are irrigated. The majority of all berry, vegetable, turf, and floriculture crops are irrigated. Although forage is the dominant crop type in Abbotsford, only 53% of the forage fields are irrigated.

Giant guns systems are the most commonly used irrigation system, irrigating 5,028 ha of crops and are found primarily on forage and vegetable crops. Trickle systems are the second most common system type, irrigating 3,794 ha and are found primarily on berries. Sprinkler systems are the third most common, with 1,694 and are found on a wide variety of crops.

In Abbotsford, center pivot systems are found exclusively on turf crops.

Refer to Map 4 for more information.

Figure 29. Irrigation systems by percentage of cultivated land

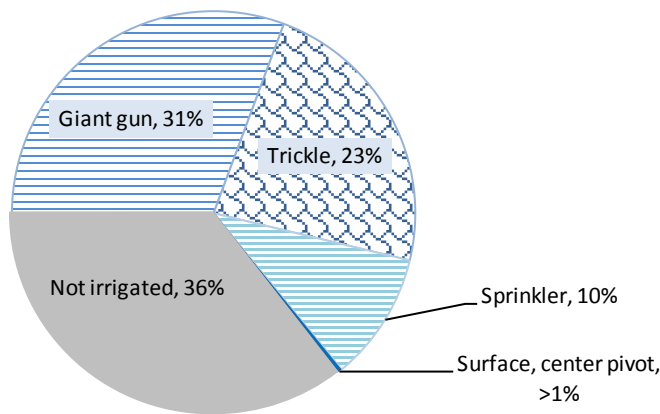


Figure 29 shows that 64% of the cultivated land in Abbotsford is irrigated. Giant gun irrigation is the most widely used system found on 31% of cultivated land followed by trickle systems on 23% of cultivated land, and sprinkler systems on 10%.

Table 17. Top 20 crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)					Area irrigated (ha)	% crop area irrigated
	Surface	Sprinkler	Centre pivot	Giant gun	Trickle		
Forage	10	415	-	3,639	15	4,079	53%
Blueberries	-	153	-	20	2,600	2,773	96%
Pasture	6	58	-	55	-	119	7%
Raspberries	-	112	-	105	903	1,120	98%
Potatoes	-	49	-	243	-	292	97%
Mixed berries	-	48	-	43	205	296	100%
Mixed vegetables	-	86	-	183	5	274	96%
Nursery	-	206	-	21	1	229	85%
Turf	-	187	47	-	-	235	100%
Sweet corn	-	28	-	196	-	224	100%
Cole crops	-	38	-	119	-	157	91%
Cranberries	-	124	-	-	-	124	100%
Carrots	-	-	-	117	-	117	100%
Floriculture	-	68	-	30	-	98	93%
Unused forage/pasture	-	-	-	-	-	-	-
Cultivated land	-	< 1	-	3	-	3	4%
Cucurbits	-	16	-	47	5	67	100%
Cedar hedging	-	15	-	12	-	27	46%
Cover grass	-	2	-	45	-	47	83%
Cereals, oilseeds	-	-	-	32	-	32	71%
TOTAL	16	1,605	47	4,913	3,734	10,316	

Table 17 outlines the type of irrigation systems used on the top 20 individual field crops in Abbotsford.

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

LIVESTOCK

Livestock activities are very difficult to measure using a windshield survey method. 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 unit¹³. 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).

¹³ Farm unit includes all the property belonging to a farm and may incorporate more than one parcel.

Table 18. Livestock and equine 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
Poultry	66	9	70	215	360	286	74	360	-
Dairy	9	43	74	73	199	147	52	179	20
Beef	22	73	18	2	115	9	106	111	4
Sheep / lamb / goat	55	21	1	-	77	-	77	75	2
Llama / alpaca	11	12	-	-	23	-	23	23	-
Swine	2	2	5	8	17	14	3	17	-
Specialty livestock	4	2	3	2	11	7	4	10	1
Unknown	38	70	-	-	108	-	108	106	2
Equine	139	204	5	-	348	-	348	344	4
TOTAL	346	436	176	300	1,258	463	795	1,225	33

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

Error! Reference source not found. summarizes the livestock activities in Abbotsford. Poultry is the most common type of livestock activity accounting for 29% (360 out of 1,258) of all livestock activities. Equine is the second most common livestock type with 348 activities or 28%, followed by dairy and beef activities.

Although equine operations are common, all activities are “non-intensive” and the scale of each operation is generally smaller than poultry, or dairy activities. Poultry and dairy have high proportions of “intensive” activities.

There are 108 “unidentified” livestock activities where, there was evidence of livestock, but the type could not be determined. All of these are “small” or “very small” scale and “non-intensive”.

Poultry, dairy, beef, sheep/ lamb/ goat and equine activities are described in further detail (refer to Tables 19 -23).

Table 19. 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)	42	19	61	-	61
	Small scale (100 -2500 birds)	6	2	8	4	4
	Medium scale (2500 - 10,000 birds)	55	1	56	53	3
	Large scale (>10,000 birds)	192	5	197	197	-
Subtotal		295	27	322	254	68
Duck	Very small scale (< 50 birds)	3	1	4	-	4
	Subtotal		3	1	4	-
Poultry - unknown type	Medium scale (2500 - 10,000 birds)	8	-	8	8	-
	Large scale (>10,000 birds)	1	-	1	1	-
Subtotal		9	-	9	9	-
Turkey	Very small scale (< 50 birds)	1	-	1	-	1
	Small scale (50 -1250 birds)	-	1	1	-	1
	Medium scale (1250 - 5000 birds)	4	2	6	6	-
	Large scale (>5000 birds)	17	-	17	17	-
Subtotal		22	3	25	23	2
TOTAL		329	31	360	286	74

Table 19 details the 360 poultry activities identified in Abbotsford. The majority of all poultry activities (286 or 79%) are “intensive”. “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 livestock homesites.

Table 20. Dairy activities

Scale of dairy activity	Type	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)		7	2	9	-	9	8	1
Small scale (2 - 25 cattle)		32	7	39	7	32	28	11
Small scale (2 - 25 cattle)	Dry cow	3	1	4	2	2	1	3
Medium scale (25 - 100 cattle)		67	4	71	62	9	67	4
Medium scale (25 - 100 cattle)	Dry cow	3	-	3	3	-	2	1
Large scale (> 100 cattle)		73	-	73	73	-	73	-
TOTAL		185	14	199	147	52	179	20
Inactive dairy operations				44				

Table 20 details the 199 dairy activities identified in Abbotsford. Only 179 of the 191 activities are “homesites” which indicates there may be 179 dairy operations in Abbotsford.

Also recorded were 44 former dairy homesites. An inactive operation was identified by the presence of empty and unused dairy infrastructure. Inactive operations are not counted in the total number of livestock activities in Abbotsford.

Table 21. 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)	12	10	22	-	22	22	-	
Small scale (2 -25 cattle)	65	8	73	1	72	70	3	
Medium scale (25 -100 cattle)	11	7	18	6	12	17	1	
Large scale (> 100 cattle)	1	1	2	2	-	2	-	
TOTAL		89	26	115	9	106	111	4

Table 21 details the 115 beef activities identified in Abbotsford. Only 9 of these activities are “intensive”. There are 2 “large” scale activities (>100 cows) and 15 “medium” scale activities (25 -100 cattle). The remaining beef activities (95 or 83%) are “small” or “very small” scale.

Table 22. Equine activities

Scale of equine 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)	118	21	139	-	139	138	1
Small scale (2-25 equine)	183	21	204	-	204	201	3
Medium scale (25-100 equine)	4	1	5	-	5	5	-
TOTAL		305	43	348	348	344	4

Table 22 details the 348 equine activities identified in Abbotsford. Although there are many equine activities, most are “small” or “very small” scale, with only 5 “medium” scale activities reported.

Table 23. Sheep activities

Activity	Scale	By parcel		Total number of activities	By activity type		By location	
		Main type	Secondary type		Intensive	Non intensive	Homesite	Non homesite
Goat	Very small scale (< 5 goats)	10	7	17	-	17	16	1
	Small scale (5 - 125 goats)	10	2	12	-	12	12	-
	Medium scale (5 - 125 goats)	1	-	1	-	1	1	-
Subtotal		21	9	30	-	30	29	1
Sheep / lamb	Very small scale (< 10 sheep)	16	22	38	-	38	37	1
	Small scale (10 - 250 sheep)	5	4	9	-	9	9	-
Subtotal		21	26	47	-	47	46	1
TOTAL		42	35	77	-	77	75	2

Table 20 details the 30 goat and the 47 sheep / lamb activities identified in Abbotsford. Most sheep / lamb / goat activities occur on the animals homesite.

Figure 30. Livestock activities by scale and type (equine excluded)

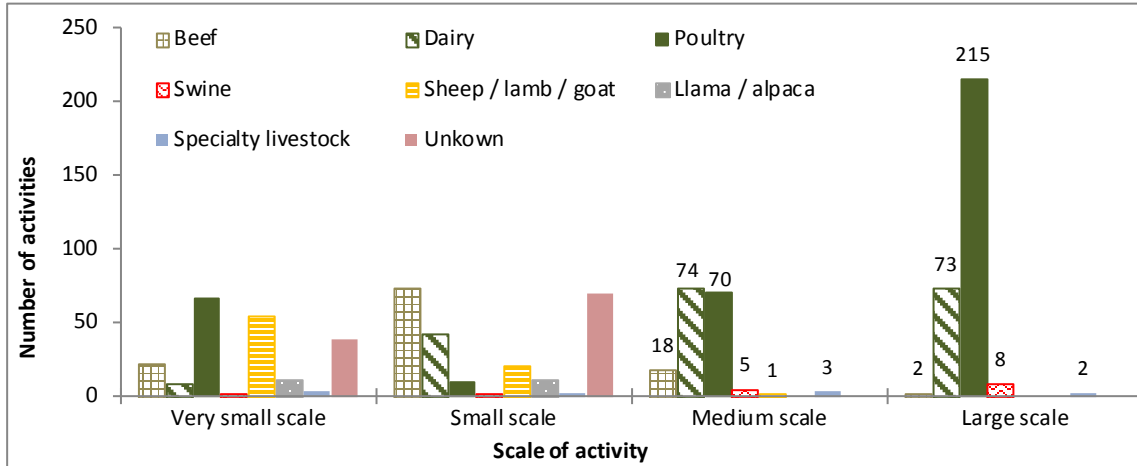


Figure 30 shows the scale distribution of livestock activities (equine excluded). The majority of the "large" scale livestock activities are poultry (215). There are also 73 dairy, 8 swine, 2 speciality (mink), and 2 beef "large" scale activities.

Figure 31. Livestock and equine activities by scale

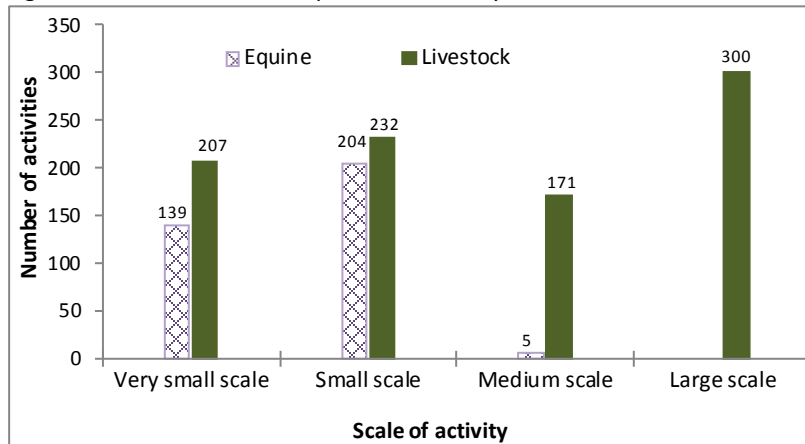


Figure 31 compares the scale of livestock and equine activities.

Even though 28% of all animal activities are equine, nearly all equine activities are "small" or "very small" scale.

Of all equine activities, only 5 or 1% are "medium" scale. In contrast, of the other livestock activities, 471 or 52% are "medium" and "large" scale.

Figure 32. Livestock activities by parcel size and scale (equine excluded)

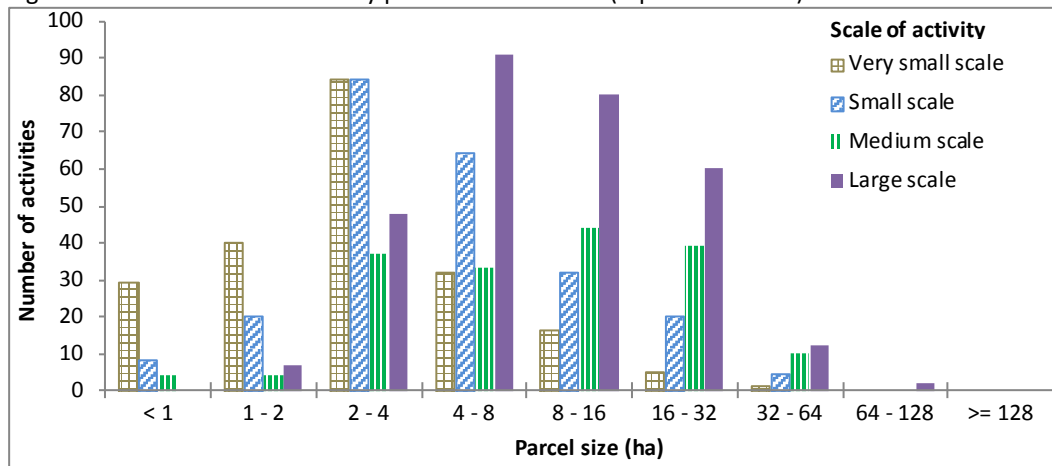


Figure 32 illustrates the distribution of livestock activities (equine excluded) by scale across parcel size categories.

“Large” scale activities occur across all parcels sizes with livestock activities that are greater than 1 ha. All “large” scale activities occurring on parcels less than 4 ha are associated with poultry.

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

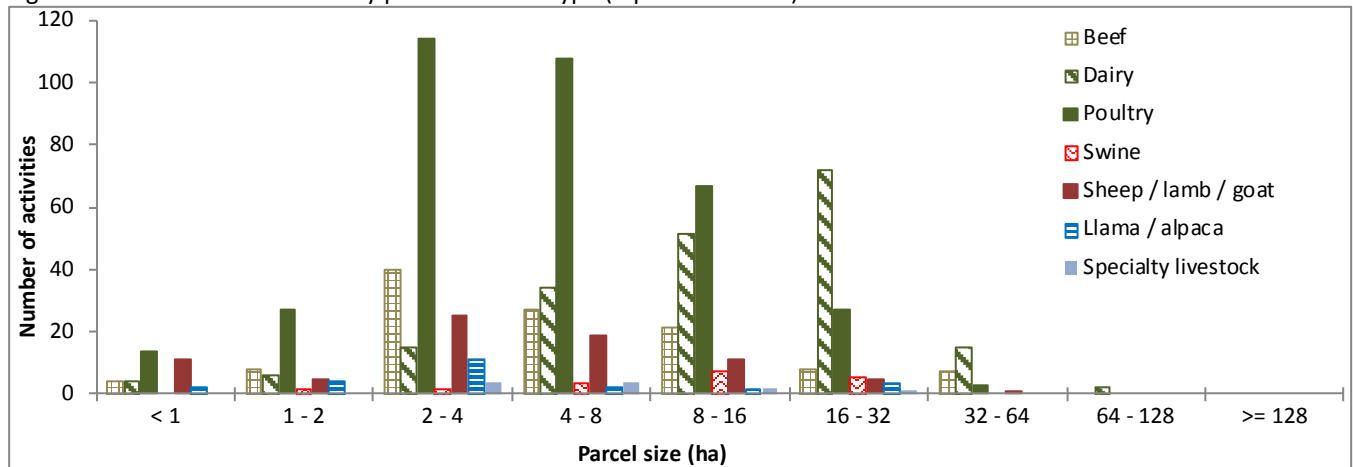


Figure 33 compares the distribution of different livestock types across parcel size categories.

Dairy activities occur across all parcel sizes less than 128 ha, including parcels less than 1 ha. Dairy is the only livestock type to occur on parcels greater than 64 ha. Poultry activities occur across all parcel size categories less than 64 ha.

Figure 34. Livestock and equine activities by parcel size

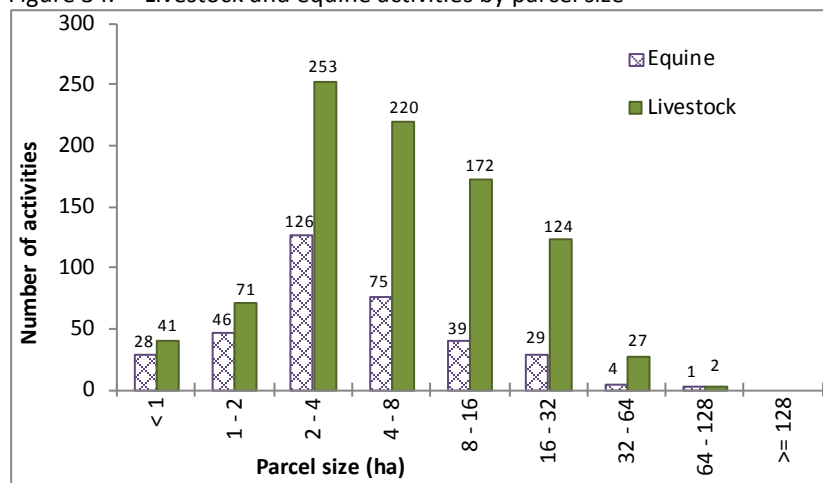


Figure 34 compares the distribution of equine and livestock activities across parcel size categories.

The majority (57%) of all equine activities occur on parcels less than 4 ha while the majority of livestock activities (60%) occur on parcels greater than 4 ha.

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

Figure 35. Average area in forage, pasture, and farm infrastructure on parcels with livestock activities (excluding very small scale)

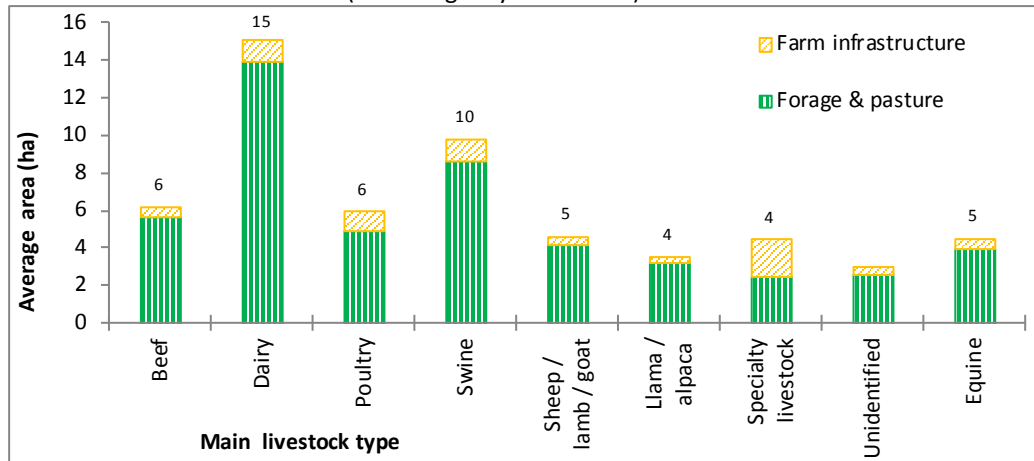


Figure 35 shows that on average, a dairy activity is associated with 14 ha of forage & pasture and 1 ha of farm infrastructure.

On average, a dairy activity uses more forage and pasture than any other livestock or equine activity.

Figure 36. Total area in forage, pasture, and farm infrastructure on parcels with livestock activities (excluding very small scale)

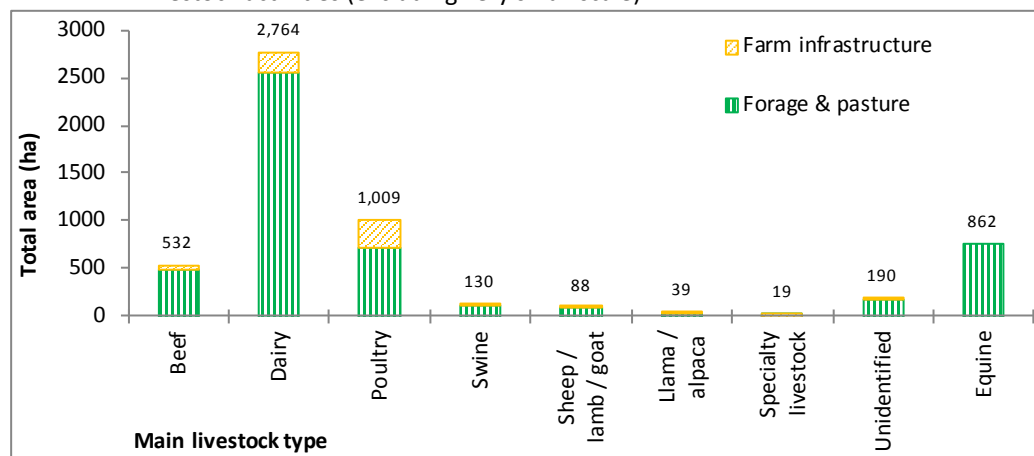


Figure 36 shows that dairy activities use a much greater total area for forage and pasture than any other livestock activity.

The actual area used for forage and pasture is often underestimated as not all forage and pasture fields are located on the same parcel as the livestock.

Figure 37. Percent of parcel area utilized for forage, pasture, and farm infrastructure on parcels with livestock activities (excluding very small scale)

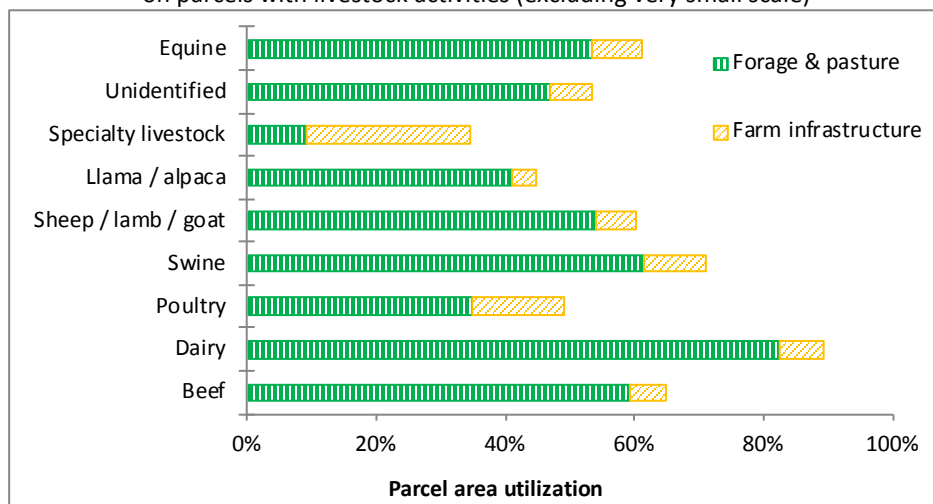


Figure 37 shows that on average, a dairy activity uses 89% of its parcel area for forage, pasture, & farm infrastructure.

On average, beef, swine, sheep / lamb / goat, and equine activities all utilize between 60% and 71% of their parcel areas for forage, pasture and farm infrastructure.

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 25,858 hectares of ALR on 4,596 parcels which is 94.3% of the ALR within Abbotsford. Another 313 hectares or 1% of ALR was inventoried on Indian reserves. ALR land on Indian reserves is not included in the following section as reserves function differently from municipalities in terms governance and decision making.

The remaining 5% of the ALR was excluded from the inventory as it is outside of legally surveyed parcels in rights-of-ways or on parcels with less than 500 square meters of ALR.

ALR boundaries do not always coincide 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 Abbotsford 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, 4,541 parcels, with 25,785 hectares or 94.1% of the ALR land meets the above criteria and is included in the further analysis of the ALR. This includes 2 parcels that have less than 50% of their area in the ALR. One of these parcels is associated with the Abbotsford International Airport and has an ALR area of 105 hectares. The other parcel is associated with Matsqui Institution and has an ALR area of 46 ha.

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:

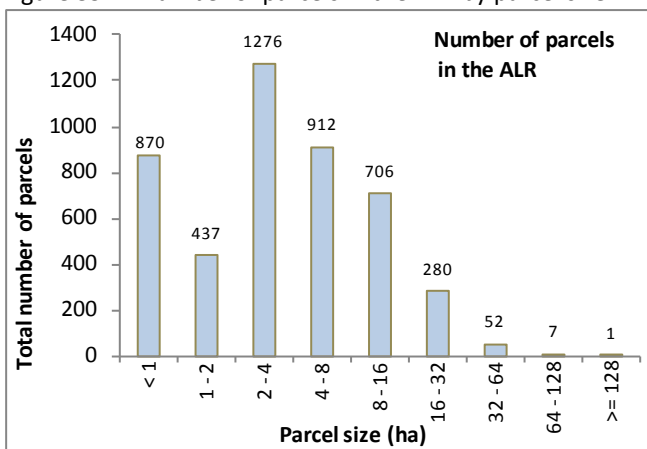
- lot C has less than 50% of its area and less than 10 ha in the ALR
- lot D is completely outside the ALR.

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), generally the smaller the parcel is, the fewer viable options there are for farming.

A farming operation may utilize more than one parcel as a farm unit¹⁴, 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 off. Larger parcels accommodate equipment more efficiently and reduce the need to move farm equipment on public roads. Smaller parcels are more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances, and small parcels are often subject to non-farm use applications and residential use.

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



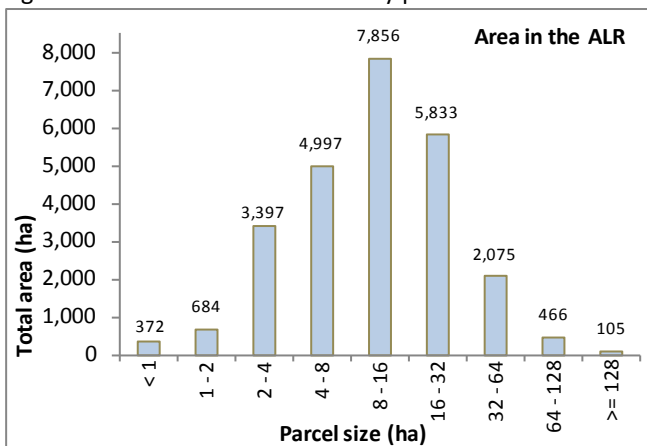
The average ALR parcel size in Abbotsford is 5.7 ha and the median parcel size is 3.4 ha.

Figure 39 illustrates that of the 4,541 parcels in the ALR:

- 19% (870 parcels) are less than 1 ha.
- 57% (2,583 parcels) are less than 4 ha.
- 20% (912 parcels) are between 4 and 8 ha.
- 16% (706 parcels) are between 8 and 16 ha.
- 7% (340 parcels) are greater than 16 ha.

Refer to Map 7 for more information.

Figure 40. Total area in the ALR by parcel size



In Abbotsford, the majority of the ALR area is in larger parcels.

Figure 40 illustrates that of the 25,785 ha in the ALR:

- 1% (372 ha) is on parcels less than 1 ha.
- 17% (4,453 ha) is on parcels less than 4 ha.
- 19% (4,997 ha) is on parcels between 4 and 8 ha.
- 31% (7,856 ha) is on parcels between 8 and 16 ha.
- 33% (8,479 ha) is on parcels greater than 16 ha.

¹⁴Farm 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 24. 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	2,558	56 %
Not used for farming	1,983	44 %
TOTAL	4,541	100 %

Table 24 demonstrates that of the 4,451 parcels in the ALR, only 2,558 or 56% are "Used for farming".

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

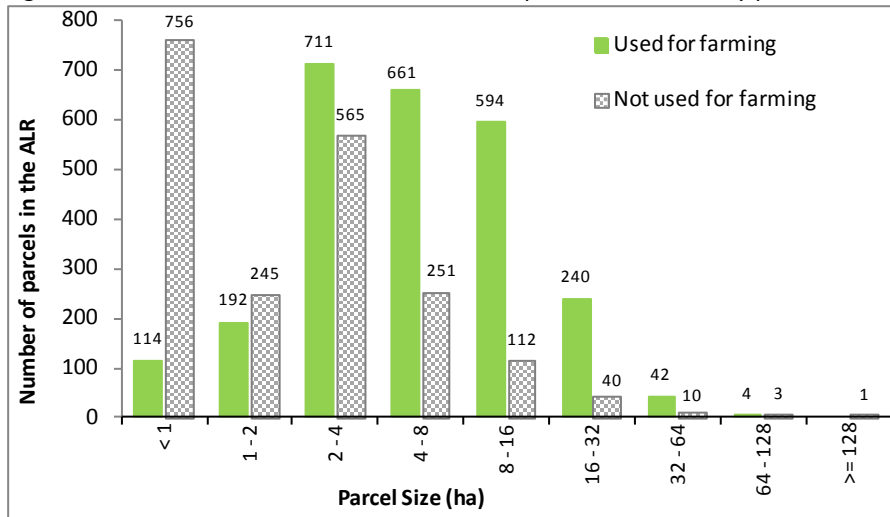


Figure 41 compares the distribution of "Used for farming" parcels with other parcels in the ALR.

Of the 1,983 parcels in the ALR and "Not used for farming":

- 756 (38%) are less than 1 ha,
- 1,566 (79%) are less than 4 ha

There are 8 parcels larger than 64 ha in Abbotsford's ALR; 4 of which are "Used for farming" and 4 are "Not used for farming". Of the "Not used for farming" parcels, 1 is associated with the Abbotsford airport, 1 is associated with Matsqui Institution, 1 is associated with Goose Lake Wildlife Society, and one is associated with Matsqui CFB Esquimalt.

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

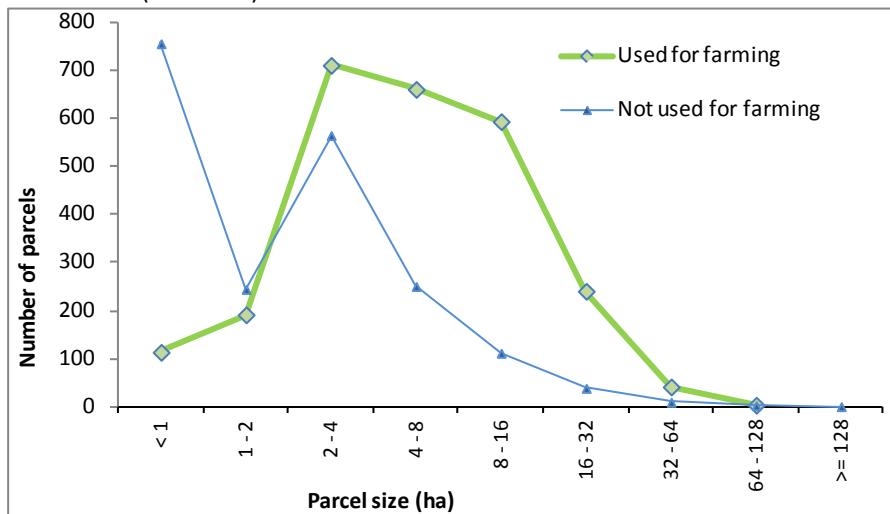


Figure 42 illustrates that although parcels of all sizes are "Used for farming", parcels less than 1 ha are far less likely to be farmed.

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

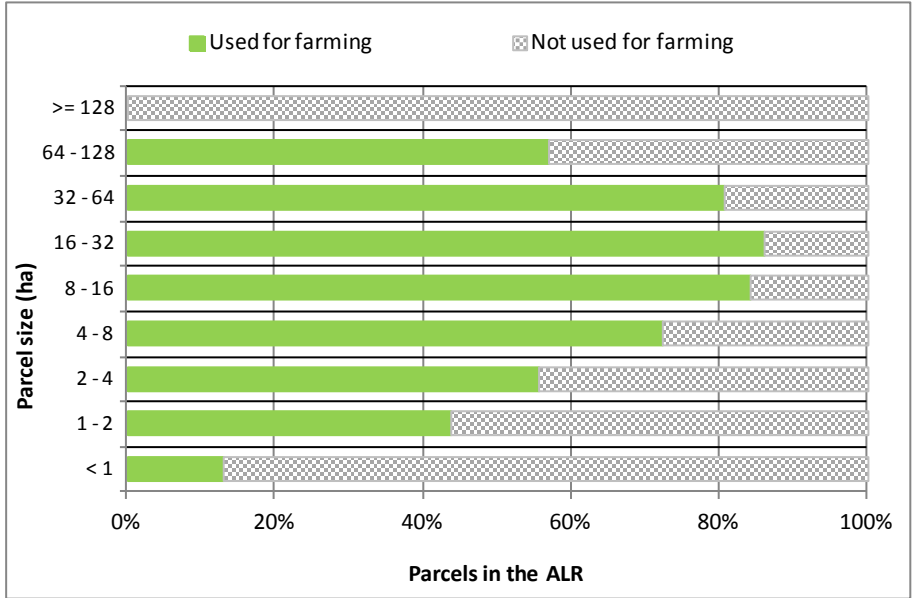
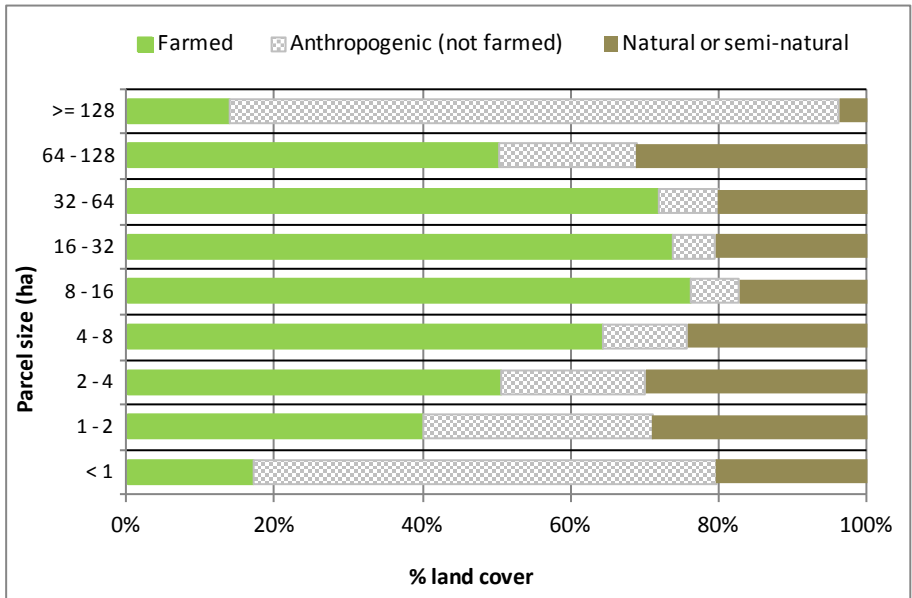


Figure 43 shows that the proportion of parcels “Used for farming” generally increases as the parcel size increases.

Only 13% of all ALR parcels less than 1 ha are “Used for farming”.

One parcel of 441 ha is “not used for farming” and is associated with the Abbotsford International Airport.

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, and on the one parcel >128 ha that is associated with the Abbotsford airport. The airport has 40 ha or 14% of its ALR area in “Farmed” land cover.

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 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 Abbotsford properties with residences in the ALR were as follows:

- estate single family house \$654,601
- large single family house \$406,957
- medium single family house \$256,349
- small single family house \$180,067
- single mobile home \$95,753

(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.

Table 25. Farming and residences in the ALR

Parcel status	With residence		Without residence		Total number of parcels
	Number of parcels	% of parcels	Number of parcels	% of parcels	
Used for farming	2,078	46%	480	11%	2,558
Not used for farming but available	1,094	24%	284	6%	1,378
Not used for farming and unavailable	386	9%	219	5%	605
TOTAL	3,558	78%	983	22%	4,541

Table 25 shows that 3,558 parcels or 78% of ALR parcels have residences and that 1,480 (or 42%) of these parcels are “Not used for farming”.

Table 26. Farming and residence type in the ALR

Parcel status	Residences *						Total residences	Total number of parcels
	Single mobile home	Small house	Medium house	Large house	Estate house	Other**		
Used for farming	132 (35)	620 (390)	1236 (1087)	420 (407)	157 (154)	10 (5)	2575	2078
Not used for farming but available	35 (10)	306 (231)	612 (549)	225 (211)	91 (89)	7 (4)	1276	1094
Not used for farming and unavailable	5 (4)	140 (136)	198 (193)	43 (43)	9 (9)	-	399	386
TOTAL RESIDENCES	172	1066	2046	688	257	21	4,250	
TOTAL PARCELS	49	757	1829	661	252	10		3,558

* xx (yy) - xx indicates the number of residences and (yy) indicates the number of parcels where the residence type is the largest on that parcel.

** Other includes 1 apartment, 1 duplex, 6 cabin/cottages, 4 motel, and 9 dormitory style residences. These occur on 10 parcels.

Table 26 demonstrates that there are 3,558 parcels in the ALR with 4,250 residences (some parcels have more than one residence). Most residences are “medium” houses.

There are 257 “estate” houses in the ALR, of which 100 or 39% are on parcels “Not used for farming”.

Figure 45. Total area in residential footprint by parcel size

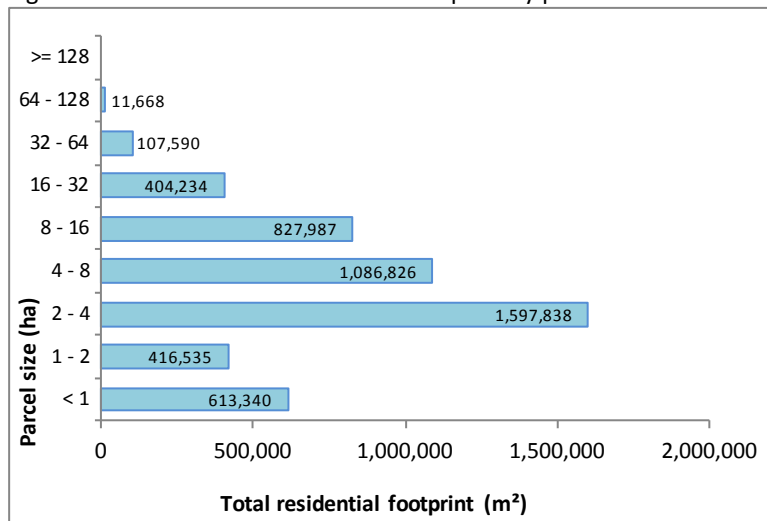


Figure 45 illustrates that there are over 506 ha (5,066,018 m²) of ALR land in residential footprints distributed across all parcel sizes less than 128 ha.

Figure 46. Proportion of parcels with residences by parcel size

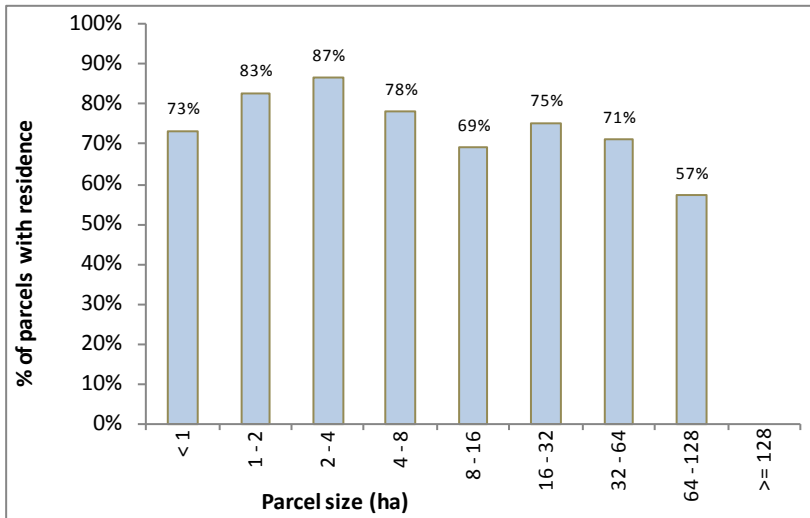


Figure 46 shows that there is a high proportion of parcels with residences across most parcel sizes in the ALR.

There are no parcels with residences on parcels ≥ 128 ha.

Figure 47. Average percent of parcel area in residential footprint by parcel size

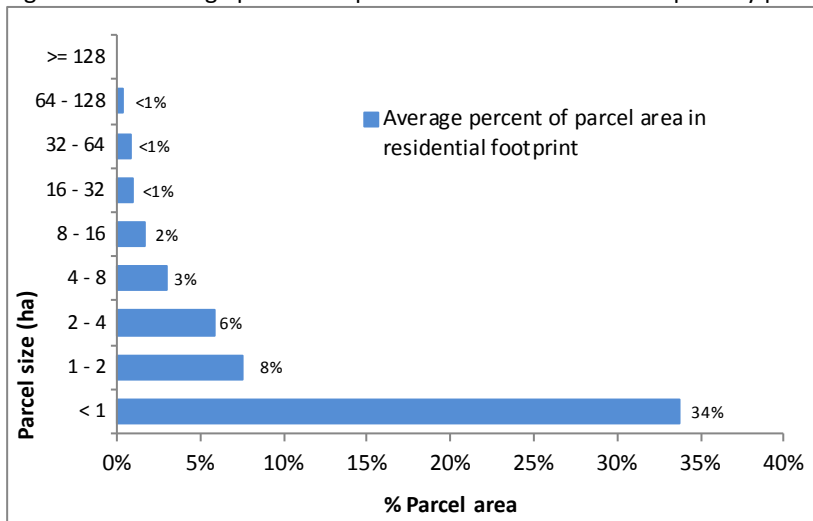


Figure 47 demonstrates that residential footprints on smaller parcels use a much greater proportion of the parcel area than those on larger parcels.

Figure 48. Average total area in residential footprint by parcel size

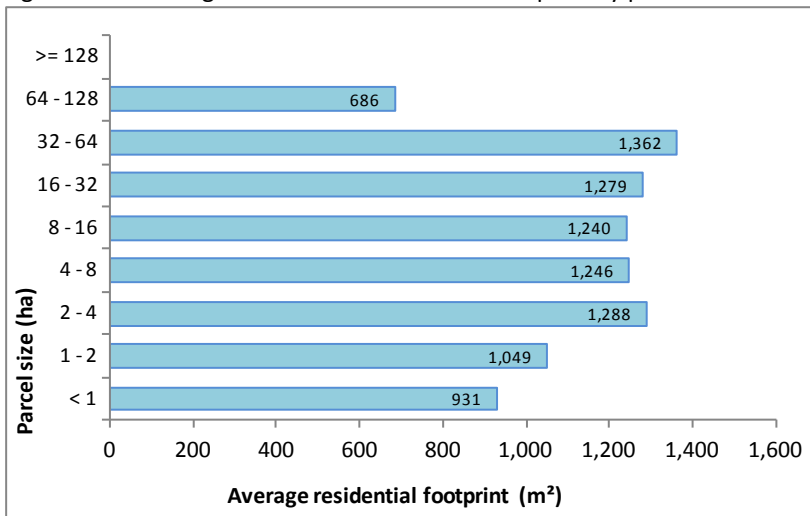
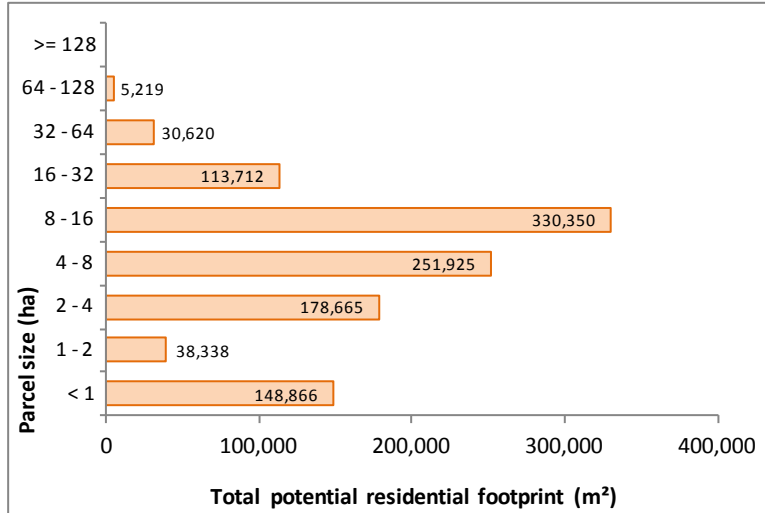


Figure 48 illustrates that even though residential footprints on small parcels use a greater proportion of the parcel area, the average size of the footprint is similar compared to the footprint on larger parcels.

Figure 49. Total and potential area in residential footprint by parcel size



There are 764 parcels in the ALR that are "Used for farming" or "Not used for farming but available" that do not yet have a residence (refer to Table 25).

If all 764 parcels built a residence using the average percent of parcel area in residential footprint presented above, Figure 49 shows that an additional 110 ha (1,097,696 m²) of ALR land would be permanently removed from potential production.

Table 27. Main agricultural activity and largest residence on parcels "Used for farming" in the ALR

Main agricultural activity	Largest residence on the parcel						Number of parcels
	Single mobile home	Small house	Medium house	Large house	Estate house	Other*	
Livestock	5	111	349	118	24	-	607
Berries	14	112	274	131	68	5	604
Forage	8	79	189	56	25	-	357
Equine	4	36	102	41	12	-	195
Vegetables	1	19	59	15	4	-	98
Pasture	-	13	29	17	4	-	63
Nursery	-	8	31	9	5	-	53
Cultivated land	-	2	13	4	1	-	20
Glass greenhouse	-	1	3	4	4	-	12
Trees (plantation)	-	1	8	2	1	-	12
Farm	-	3	7	-	-	-	10
Mushroom	-	1	5	1	3	-	10
Floriculture	1	1	4	1	1	-	8
Vines	1	-	4	2	1	-	8
Turf	-	1	2	2	1	-	6
Poly greenhouse	1	2	2	-	-	-	5
Nut trees	-	-	2	2	-	-	4
Tree fruits	-	-	3	1	-	-	4
Cereals & oilseeds	-	-	1	-	-	-	1
Rhubarb	-	-	-	1	-	-	1
TOTAL PARCELS	35	390	1,087	407	154	5	2,078

There are 2,078 parcels with residences that are "Used for farming" in the ALR (refer to Table 25).

Table 27 shows that 607 of these parcels have livestock activities as their main agricultural activity. Another 604 parcels have berries as the main agricultural activity.

*Other includes 1 dormitory and 4 motel style residences.

Table 28. Main agricultural activity on parcels "Used for farming" with large or estate residences in the ALR

Main agricultural activity	Parcels with "Large" or "Estate" residences			
	Number of parcels	Crop area utilized (ha)	Average % of parcel area in crop	Average parcel area (ha)
Berries	199	1,072	86 %	6
Livestock	142	1,201	73 %	11
Forage	81	504	76 %	8
Equine	53	267	74 %	7
Pasture	21	78	78 %	4
Vegetables	19	184	88 %	10
Nursery	14	84	80 %	7
Glass greenhouse	8	39	71 %	7
Cultivated land	5	11	80 %	3
Mushroom	4	13	36 %	10
Vines	3	4	54 %	2
Trees (plantation)	3	4	72 %	2
Turf	3	30	94 %	10
Floriculture	2	8	61 %	6
Nut trees	2	6	70 %	4
Rhubarb	1	<1	59 %	1
Tree fruits	1	2	89 %	2
TOTAL	561	3,506		

There are 561 parcels with "large" or "estate" residences in the ALR that are "Used for farming" (see Table 27).

Table 28 illustrates the type of farming activities associated with these "large" and "estate" residences. For example, there are 199 parcels using a combined area of 1,072 ha to support berry production.

Appendix A – Additional Information

CULTIVATED FIELD CROPS

Table A1. Distribution of crop field sizes for all cultivated land¹⁵

Crop Area (ha)	Number of crop fields														Total Number
	Forage	Pasture	Berries	Vegetables	Nursery & tree plantations	Turf	Cultivated land	Floriculture	Unused forage/pasture	Cereals & oilseeds	Vines	Tree fruits	Nut trees	Rhubarb	
< 1	122	315	69	25	105	-	16	11	24	1	9	10	2	2	711
1 - 2	164	241	163	23	35	1	19	-	11	-	6	2	3	-	668
2 - 4	205	137	263	40	25	-	10	6	6	1	5	3	2	-	703
4 - 8	209	51	219	69	23	4	9	7	5	2	2	1	1	-	602
8 - 16	231	29	107	51	8	6	5	7	2	1	-	-	-	-	447
16 - 32	92	9	20	7	1	7	-	-	1	1	-	-	-	-	138
32 - 64	15	-	7	-	-	-	-	-	-	-	-	-	-	-	22
64 - 128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
>= 128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FIELD COUNT	1,038	782	848	215	197	18	59	31	49	6	22	16	8	2	3,291
AVERAGE CROP AREA	7 ha	2 ha	5 ha	6 ha	2 ha	13 ha	3 ha	5 ha	2 ha	8 ha	2 ha	1 ha	2 ha	< 1 ha	5 ha
MEDIAN CROP AREA	4 ha	1 ha	4 ha	5 ha	< 1 ha	15 ha	2 ha	4 ha	1 ha	7 ha	1 ha	< 1 ha	2 ha	< 1 ha	3 ha
AVERAGE PARCEL SIZE	10 ha	7 ha	7 ha	9 ha	7 ha	14 ha	8 ha	10 ha	6 ha	15 ha	7 ha	9 ha	5 ha	3 ha	8 ha

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

Table A2. Distribution of forage & pasture fields

Field size (ha)	Number of forage & pasture fields					Total number
	Forage	Forage & pasture	Pasture	Unused*	Unmaintained*	
< 1	151	5	326	22	2	506
1 - 2	178	11	243	11	-	443
2 - 4	235	13	136	5	1	390
4 - 8	273	14	51	4	1	343
8 - 16	238	11	29	2	-	280
16 - 32	80	-	9	1	-	90
32 - 64	9	-	-	-	-	9
64 - 128	-	-	-	-	-	-
>= 128	-	-	-	-	-	-
TOTAL FIELD COUNT	1,164	54	794	45	4	2,061
AVERAGE CROP AREA (ha)	6 ha	5 ha	2 ha	2 ha	2 ha	5 ha
MEDIAN CROP AREA (ha)	4 ha	4 ha	1 ha	1 ha	2 ha	2 ha
AVERAGE PARCEL SIZE (ha)	11 ha	9 ha	7 ha	6 ha	6 ha	8 ha

* Unused forage/pasture refers to forage or pasture which has not been cut or grazed during the current growing season.

** Unmaintained forage/pasture refers to forage or pasture which would probably not warrant harvest.

¹⁵ 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.

Table A3. Distribution of forage fields by crop type (pasture crops excluded)

Field size (ha)	Number of forage fields					Total number
	Grass	Mixed grass / legume	Forage corn	Forage cereal / peas	Legume	
< 1	121	6	28	-	1	156
1 - 2	148	3	37	-	1	189
2 - 4	172	11	65	-	-	248
4 - 8	171	19	96	1	-	287
8 - 16	133	15	101	-	-	249
16 - 32	35	5	40	-	-	80
32 - 64	4	1	4	-	-	9
64 - 128	-	-	-	-	-	-
>= 128	-	-	-	-	-	-
TOTAL NUMBER OF FIELDS	784	60	371	1	2	1,218
AVERAGE CROP AREA (ha)	5 ha	8 ha	8 ha	5 ha	< 1 ha	6 ha
MEDIAN CROP AREA (ha)	3 ha	6 ha	6 ha	5 ha	-	4 ha
AVERAGE PARCEL SIZE (ha)	10 ha	15 ha	13 ha	16 ha	14 ha	10 ha

* Forage includes "forage" as well as "forage & pasture". Fields used only for pasture are not included.

Table A4. Distribution of berry fields¹⁶

Field size (ha)	Number of berry fields							Total number
	Blueberries	Raspberries	Mixed berries	Cranberries	Strawberries	Blackberries	Unknown type	
< 1	50	30	3	-	6	3	2	94
1 - 2	103	68	6	-	4	-	-	181
2 - 4	140	106	15	-	-	-	2	263
4 - 8	146	65	17	2	-	-	1	231
8 - 16	88	10	3	-	-	-	-	101
16 - 32	13	5	4	-	-	-	-	22
32 - 64	2	2	-	2	-	-	-	6
64 - 128	-	-	-	-	-	-	-	-
>128	-	-	-	-	-	-	-	-
TOTAL FIELD COUNT	542	286	48	4	10	3	5	898
AVERAGE CROP AREA (ha)	5 ha	4 ha	6 ha	31 ha	< 1 ha	< 1 ha	2 ha	5 ha
MEDIAN CROP AREA (ha)	4 ha	3 ha	4 ha	30 ha	< 1 ha	< 1 ha	2 ha	4 ha
AVERAGE PARCEL SIZE (ha)	7 ha	8 ha	8 ha	40 ha	7 ha	3 ha	13 ha	7 ha

¹⁶ 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.

Table A5. Distribution of vegetable fields¹⁷

Field size (ha)	Number of vegetable fields											Total Number
	Potatoes	Mixed vegetables	Sweet corn	Cole crops	Carrots	Cucurbits	Legumes	Misc_ vegetables	Leafy vegetables	Unknown	Asian vegetables	
< 1	4	12	6	2	1	6	2	2	-	1	1	37
1 - 2	2	9	7	-	-	4	1	-	-	-	-	23
2 - 4	6	6	12	9	-	2	3	4	1	2	1	46
4 - 8	19	22	16	12	8	4	2	1	1	-	-	85
8 - 16	12	8	5	6	3	4	3	1	1	1	-	44
16 - 32	2	1	1	-	2	-	-	-	-	-	-	6
32 - 64	-	-	-	-	-	-	-	-	-	-	-	-
64 - 128	-	-	-	-	-	-	-	-	-	-	-	-
>128	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL FIELD COUNT	45	58	47	29	14	20	11	8	3	4	2	241
AVGERAGE CROP AREA (ha)	7 ha	5 ha	5 ha	6 ha	8 ha	4 ha	6 ha	3 ha	7 ha	5 ha	1 ha	5 ha
MEDIAN CROP AREA (ha)	6 ha	5 ha	4 ha	6 ha	8 ha	2 ha	3 ha	3 ha	5 ha	3 ha	1 ha	5 ha
AVGERAGE PARCEL SIZE (ha)	9 ha	9 ha	10 ha	11 ha	10 ha	9 ha	15 ha	7 ha	10 ha	9 ha	3 ha	9 ha

Table A6. Distribution of nursery & tree plantation fields

Field size (ha)	Nursery activities				Tree plantation activities				Unknown type	Total number
	Nursery	Cedar hedging	Ornamentals and shrubs	Nursery total	Trees (plantation)	Fibre/pulp/v ener trees	Christmas trees	Plantation total		
< 1	47	28	5	80	9	5	14	28	1	109
1 - 2	14	13	-	27	5	2	2	9	-	36
2 - 4	11	3	1	15	6	3	-	9	-	24
4 - 8	20	2	-	22	1	1	-	2	-	24
8 - 16	6	1	-	7	-	-	-	-	-	7
16 - 32	1	-	-	1	-	-	-	-	-	1
32 - 64	-	-	-	-	-	-	-	-	-	-
64 - 128	-	-	-	-	-	-	-	-	-	-
>=128	-	-	-	-	-	-	-	-	-	-
TOTAL FIELD COUNT	99	47	6	152	21	11	16	48	1	201
AVERAGE CROP AREA (ha)	3 ha	1 ha	< 1 ha	2 ha	2 ha	2 ha	< 1 ha	1 ha	< 1 ha	2 ha
MEDIAN AREA (ha)	1 ha	< 1 ha	< 1 ha	< 1 ha	1 ha	1 ha	< 1 ha	< 1 ha	< 1 ha	< 1 ha
AVERAGE PARCEL SIZE (ha)	7 ha	6 ha	6 ha	7 ha	8 ha	6 ha	5 ha	4 ha	8 ha	7 ha

¹⁷ 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.

LIVESTOCK

Table A7. Livestock and equine activities

Livestock group	Livestock detail *	By parcel		Total activities	By activity type	
		Main type	Secondary type		Intensive	Non Intensive
Beef	Beef total	89	26	115	9	106
Dairy	Dairy	184	14	198	147	51
	Dairy (Beef)	1	-	1	-	1
	Dairy total	185	14	199	147	52
Poultry	Poultry	9	-	9	9	-
	Chicken	293	27	320	252	68
	Chicken (Turkey)	2	-	2	2	-
	Turkey	22	3	25	23	2
	Duck	3	1	4	-	4
	Poultry total	329	31	360	286	74
Swine	Swine total	14	3	17	14	3
Sheep / lamb / goat	Sheep / lamb	20	24	44	-	44
	Sheep / lamb (Llama)	1	2	3	-	3
	Goat	20	9	29	-	29
	Goat (Sheep / lamb)	1	-	1	-	1
	Sheep / lamb / goat total	42	35	77	-	77
Llama / alpaca	Llama	18	3	21	-	21
	Alpaca	2	-	2	-	2
	Llama / alpaca total	20	3	23	-	23
Specialty livestock	Game bird**	6	-	6	3	3
	Peacock	-	1	1	-	1
	Mink	4	-	4	4	-
	Specialty livestock total	10	1	11	7	4
Unknown	Unknown total	105	3	108	-	108
Equine	Horse	209	37	246	-	246
	Equine - other^	23	3	26	-	26
	Equine - unknown type	73	3	76	-	76
	Equine total	305	43	348	-	348
TOTAL		1,099	159	1,258	463	795

* When livestock type appears in parentheses (), it indicates the livestock activity is a mixed herd or flock.

** Game birds include partridges, pheasants, pigeons & quail.

^ Equine other includes ponies, miniature horses, donkeys, and mixed equine activities.

Appendix B – Indian reserves

LAND COVER ON INDIAN RESERVES

Table B1. Land cover and farmed area on Indian reserves

Land cover*		ALR		Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of ALR		
Actively farmed	Cultivated field crops	119	< 1%	-	119
	Greenhouses	<1	< 1%	-	<1
FARMED SUBTOTAL		119	< 1%	-	119
Anthropogenic (not farmed)	Managed vegetation	6	< 1%	-	6
	Non Built or Bare	<1	< 1%	<1	<1
	Residential footprint	4	< 1%	<1	4
	Settlement	3	< 1%	1	5
	Transportation	7	< 1%	6	13
	Utilities	4	< 1%	<1	4
	Built up - Other	<1	< 1%	-	<1
SUBTOTAL		24	< 1%	8	32
Natural and Semi-natural	Vegetated	161	< 1%	2	163
	Wetlands	5	< 1%	<1	5
	Waterbodies	6	< 1%	<1	6
SUBTOTAL		171	< 1%	2	173
TOTAL		313	1%	10	323

Table B1 shows the extent of different land cover types across inventoried land on Indian reserves.

* See "Land Cover" in the Definitions section for terms used in this table.

Table B2. Land cover and farmed area on Indian reserves by reserve name

Band name	Reserve name	Land Cover Category			Total area (ha)
		Farmed (ha)	Anthropogenic (not farmed) (ha)	Natural & Semi-natural (ha)	
Leq'a:mel First Nation	Aylechootlook 5	-	-	16	8
SUBTOTAL		-	-	16	8
Matsqui First Nation	Matsqui Main 2	11	27	226	132
	Sahhacum 1	9	-	25	17
SUBTOTAL		20	27	251	149
Sumas First Nation	Upper Sumas 6	98	4	229	166
SUBTOTAL		98	4	229	166
TOTAL		119	32	496	323

Table B2 shows the land cover types across the Indian reserves in Abbotsford. In total, 119 ha of reserve land is in "farmed" land cover, 32 ha is in anthropogenic (not farmed), and 496 ha is in natural & semi-natural land cover.

CULTIVATED FIELD CROPS ON INDIAN RESERVES

Table B3. Main field crop types by area on Indian reserves

Type	ALR		Outside ALR (ha)	Total area (ha)
	In ALR (ha)	% of ALR		
Vegetables	64	< 1%	-	64
Forage & pasture	52	< 1%	-	52
Nursery & tree plantations	2	< 1%	-	2
TOTAL	119	< 1%	-	119

Table B3 shows the 3 field crop types produced on surveyed Indian reserves.

Table B4. Vegetable crops on Indian reserves

Vegetable crops	ALR		Outside ALR (ha)	Total area (ha)
	In ALR (ha)	% of ALR		
Cole crops	33	< 1%	-	33
Potatoes	31	< 1%	-	31
TOTAL	64	< 1%	-	64

Table B4 details the vegetable crops found on Indian reserves in Abbotsford. In total, there are 33 ha of Cole crops and 31 ha of potatoes.

Table B5. Forage & pasture crops on Indian reserves

Forage & pasture crops		ALR		Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of ALR		
Forage (managed)	Grass	30	< 1%	-	30
Forage (managed)	Forage corn	22	< 1%	-	22
Subtotal		52	< 1%	-	52
Pasture (unmanaged)	Grass	< 1	< 1%	-	< 1
Subtotal		< 1	< 1%	-	< 1
TOTAL		52	< 1%	-	52

Table B5 details the forage & pasture crops on Indian reserves in Abbotsford. There are 30 ha in forage grass, 22 ha in forage corn, and <1 ha in pasture.

IRRIGATED CROPS ON INDIAN RESERVES

Table B6. Main crop types and irrigation on Indian reserves

Cultivated field crop	Irrigated by giant gun systems (ha)	% of crop area irrigated
Vegetables	64	100%
Forage & pasture	17	33%
Nursery & tree plantations	2	100%
TOTAL FIELD CROP AREA IRRIGATED	84	70%

Table B6 shows that 84 ha or 70% of the crop area on Indian reserves is irrigated.

Appendix C – Maps

City of Abbotsford 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 & pasutre crops (inlcuding irrigation)
- Map 6. Vine & berry crops (inlcuding irrigation)
- Map 7. ALR parcel size

Size: 30” x 44” 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