

Growing Knowledge

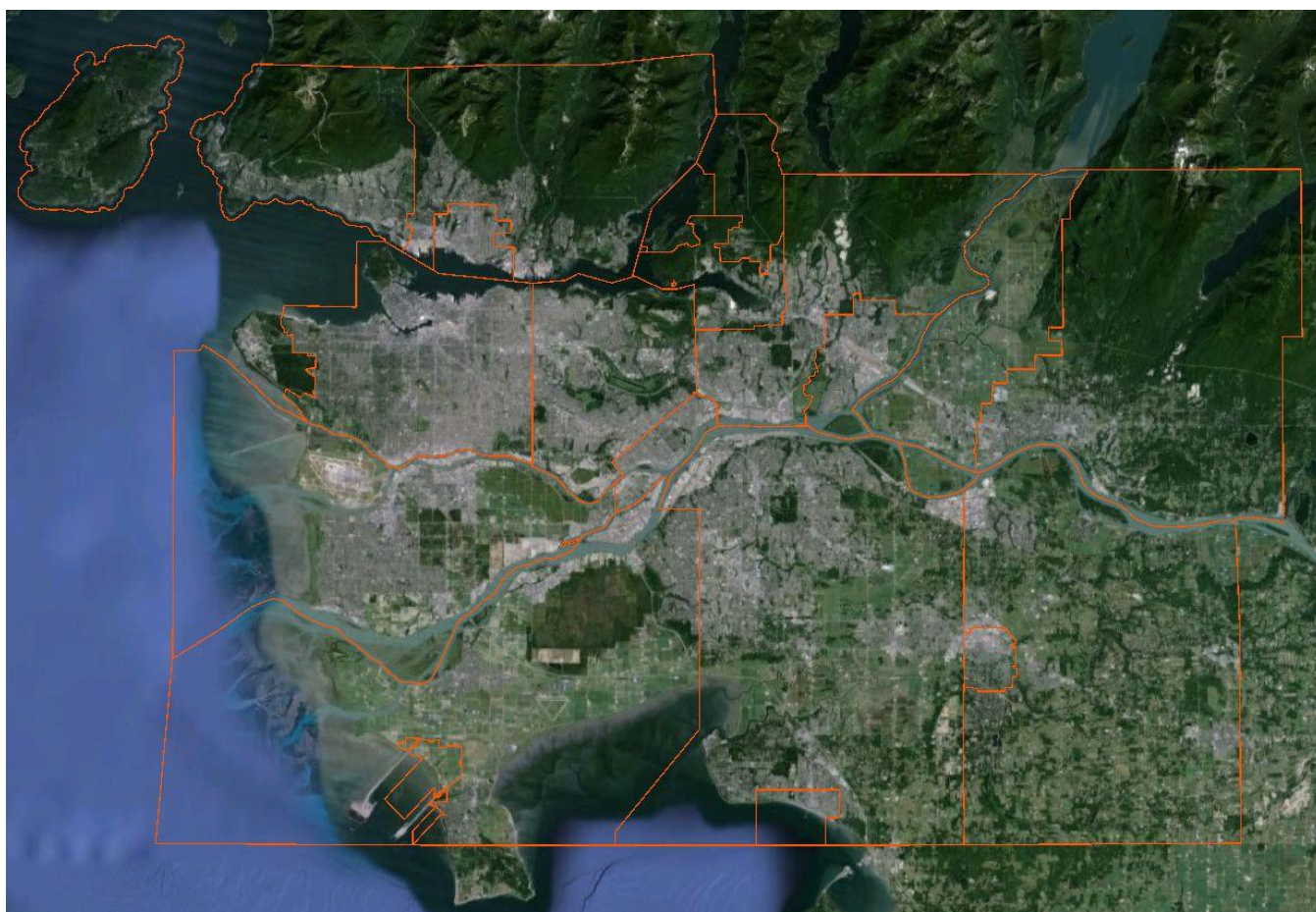


Ministry of
Agriculture

Land Use Inventory Report

Reference Number: 800.510-29.2014

Metro Vancouver Regional Report Summer 2010 & 2011



**Strengthening Farming Program
Ministry of Agriculture**

March 21, 2014

Acknowledgments

The Ministry of Agriculture would like to acknowledge and thank Greater Vancouver Regional District (Metro Vancouver) for its support in this project. Metro Vancouver contributed the funds necessary to hire the GIS Technicians to prepare the field survey maps and to assist with the field surveys throughout the region.

The Ministry of Agriculture would also like to acknowledge and thank the farmers who stopped to talk to the survey crews and to answer questions about the parcels they farmed and irrigated.

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Acronyms

AAC	Agricultural Advisory Committee
AAP	Agricultural Area Plan
AGRI	BC Ministry of Agriculture
ALC	Agricultural Land Commission
ALR	Agricultural Land Reserve
ALUI	Agricultural Land Use Inventory
GIS	Geographic Information Systems
GVRD	Greater Vancouver Regional District
RGS	Regional Growth Strategy
RGS AG	Regional Growth Strategy – “Agriculture” designation

List of Related Metro Vancouver Publications

Delta 2010 Land Use Inventory
Langley (Township) 2010 Land Use Inventory
Richmond 2010 Land Use Inventory
Surrey 2010 Land Use Inventory
Barnston Island 2010 Land Use Inventory
Maple Ridge 2011 Land Use Inventory
Pitt Meadows 2011 Land Use Inventory
North Metro Vancouver 2011 Land Use Inventory¹

¹ The North Metro Vancouver ALUI report includes Anmore, Belcarra, Bowen Island, Burnaby, Coquitlam, New Westminster, North Vancouver (District), Port Coquitlam, and Vancouver.

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.

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

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.

Land Use

Institutional & community – Includes government and First Nation administration, churches, cemeteries, hospitals, medical centers, educational facilities, and correctional facilities.

First Nations – Areas with First Nations band activities (administration, assembly) or traditional use (ceremonial, food or material harvesting, cultural landforms) as the primary land use.

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

Water management – Areas used to actively or inactively manage water; reservoirs, dikes, ditches, managed wetland.

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 50% 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.

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.

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.

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

Executive Summary

In the summer of 2010 and 2011, the BC Ministry of Agriculture (AGRI) conducted a series of Agricultural Land Use Inventories (ALUIs) in the Greater Vancouver Regional District (GVRD). Inventories took place in 18 of the 24 local authorities that comprise Metro Vancouver. The following 7 jurisdictions were inventoried and have an area specific ALUI document published:

- Delta, Richmond, Surrey, Langley (Township), Pitt Meadows, Maple Ridge, Barnston Island²

The following 9 jurisdictions were inventoried and have the results published in the North Metro Vancouver ALUI document:

- Anmore, Belcarra, Coquitlam, Port Coquitlam, Burnaby, New Westminster, Vancouver, North Vancouver (District), Bowen Island

The City of Langley and Tsawwassen First Nation were inventoried, and the results have been shared with interested groups. These 2 areas have not been published in area specific ALUI documents. Together, the 18 inventories form the Metro Vancouver ALUI. Reports for individual areas can be found on the Ministry of Agriculture website <http://www.al.gov.bc.ca/resmgmt/sf/gis/projects.htm>

The Metro Vancouver Regional ALUI document combines and summarizes data from the 18 inventoried areas to give a picture of agriculture across the Regional District. The regional project was supported and partially funded by Metro Vancouver.

ALUIs can be used to understand which agricultural activities are occurring in the surveyed area. The data provides an estimate of the capacity for agricultural expansion as well as quantifies the amount of land within the Agricultural Land Reserve (ALR) that is not available for agriculture. The data can also be used to estimate agricultural water demand with the use of an irrigation water demand model.

The ALUI for Metro Vancouver was conducted using a drive-by inventory that recorded land cover and land use on a per-parcel basis, as a “snapshot in time.” Included in the inventory were:

- 1) all parcels completely or partially in the ALR;
- 2) all parcels within Metro Vancouver’s Regional Growth Strategy (RGS) “Agriculture” designation;
- 3) all parcels within Metro Vancouver’s Regional Growth Strategy “Rural” designation and greater than one acre;
- 4) all parcels assessed as a farm by BC Assessment; and
- 5) parcels zoned by local governments to permit agriculture.

The ALR in Metro Vancouver consists of 60,893 hectares. Ninety-four percent (94%) of this or 57,378 hectares was surveyed as part of this inventory. The remaining 6% or 3,515 hectares was not inventoried as it was outside parcels in road rights of ways, water, and foreshore. An additional 13,443 hectares of land outside the ALR was surveyed, bringing the total survey area to 70,821 hectares on 15,755 parcels.

The data on each parcel was collected in two ways: land cover (the biophysical material at the surface of the earth) and land use (how people utilize the land). A parcel could have numerous land covers and was assigned up to two land uses.

² Barnston Island is part of Electoral Area A and is considered equivalent to a municipality for ALUI reporting purposes.

In the ALR by land cover, 29,790 hectares (49%) is farmed (both actively and inactive), 9,295 hectares (15%) is anthropogenically modified, and 18,293 hectares (30%) is in a natural or semi-natural state. The remaining 6% of the ALR was not included in the inventory. An additional 1,225 hectares of land outside the ALR is farmed. Delta has the largest proportion of its ALR in “Farmed” land cover (76%), followed by Richmond with 59%, Barnston Island with 58%, and Pitt Meadows with 57%.

In the ALR by parcel land use, 34,147 hectares (56%) were defined as “Used for farming,” and 23,231 hectares (38%) were defined as “Not used for farming”. In this analysis, farm residential uses and farm roads, were included in the “Used for farming” subtotal. The remaining 6% of the ALR was not surveyed and can be assumed to be not 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 57,378 hectares of ALR land in Metro Vancouver, 29,018 hectares (48%) was actively farmed. Another 1,371 hectares (2%) supports farming (e.g. houses, farm roads, farm buildings, etc). There are 9,573 hectares (16%) of the ALR unavailable for farming due to existing land use or land cover, with the largest land uses being protected area / park / reserve (3155 hectares) and recreation & leisure – golf (1,922 hectares). There are 2,221 hectares (4%) with limited potential for agriculture due to physical site limitations (e.g. drainage, flooding, topography). That leaves 15,193 hectares (25%) of the ALR that is available and has potential to be farmed. The majority of land available and with potential for farming (11,740 out of 15,193 hectares or 77%) is on “Not used for farming” parcels.

Further analysis shows that there are many small parcels available and with potential for farming. Of all “Not used for farming” parcels with land available and with potential for farming, 16% are on parcels smaller than 1 hectare, and 79% are on parcels smaller than 4 hectares.

In total, there are 28,792 hectares of cultivated field crops in 12 crop categories (27,733 hectares are in the ALR and 1,059 hectares area outside the ALR). Forage & pasture was the most common crop type accounting for 49% of all cultivated land. Berries were the next most common with 29% of the cultivated land, followed by vegetables with 14%, and nursery and tree plantations with 3%. Langley (Township) has the largest proportion of Metro Vancouver’s cultivated crops with 31%, followed by Delta with 23%, Surrey with 17%, and Pitt Meadows with 13%.

A total of 14,083 hectares of forage and pasture crops were recorded in Metro Vancouver: 8,141 hectares were in forage, 4,169 hectares were in pasture, 910 hectares were in forage & pasture , while 839 hectares were unused or unmaintained. Fifty percent (50%) of all forage & pasture crops are grown in Langley (Township), 18% are in Surrey, and 16% are in Delta.

A total of 8,437 hectares of berry crops were recorded in Metro Vancouver (8,418 hectares in the ALR and 19 hectares outside). The top berry crops included blueberries with 5,446 hectares, cranberries (2,596 hectares), raspberries (176 hectares), and strawberries (170 hectares). Twenty-nine (29%) of all berry crops are grown in Pitt Meadows.

A total of 4,035 hectares of vegetables were recorded in Metro Vancouver. Top vegetable crops include potatoes (1,470 hectares) and mixed vegetables (1,025 hectares). Sixty-two percent (62%) of all vegetable crops are grown in Delta.

In addition to the cultivated field crops, there were 491 hectares in greenhouse and crop barn activities (477 hectares in the ALR and 14 hectares outside). In total, 316 hectares are in glass greenhouses, 151

hectares are in poly greenhouses, and 25 hectares are in crop barns. The majority of all greenhouses and crop barns occur in Delta (34%), Langley (Township) (31%), and Surrey (15%).

Irrigation use was captured by crop type and irrigation system type, to aid in developing a water demand model for agriculture. Sprinkler systems were the most common (6,053 hectares) and were used on most crop types. Trickle systems were the next most common (4,174 hectares) and were found primarily on berry crops. Giant gun systems were third (3,407 hectares) and were found primarily vegetable and forage & pasture crops. Sub-surface irrigation (86 hectares) and landscape/ turf irrigation systems (4 hectares) were also used. In Metro Vancouver, 48% of all cultivated field crops are irrigated.

Livestock activities were also recorded, but are very difficult to measure using a windshield survey method. Livestock may be in barns, may be mobile, and may utilize more than one 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. In Metro Vancouver, equine is the most common type of livestock activity with 59% of all activities (1,585 out of 2,676 activities). Poultry is a distant second with 338 activities or 13%, followed by beef with 286 activities or 11%. Also recorded were sheep/ lamb/ goat (175 activities), unknown livestock (88 activities), dairy (86 activities), llama/ alpaca (77 activities), inactive (18 activities), specialty (17 activities) and swine (6 activities). All equine activities were “non-intensive” while two-thirds (66%) of all poultry activities and 51% of all dairy activities are “intensive”. 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.

Further analysis of ALR lands was conducted on 11,791 parcels or 93.7% of the ALR in Metro Vancouver. Of the 11,791 parcels in the ALR, 7,015 (59%) are “Not used for farming”. Of these 7,015 parcels, 39% are less than 1 hectare, 61% are less than 2 hectares, and 83% are less than 4 hectares.

Summary

This report provides the necessary background to understand the current status of agriculture on the land base and help make informed decision on how to best manage the agricultural land base in order to support and strengthen farming in the future.

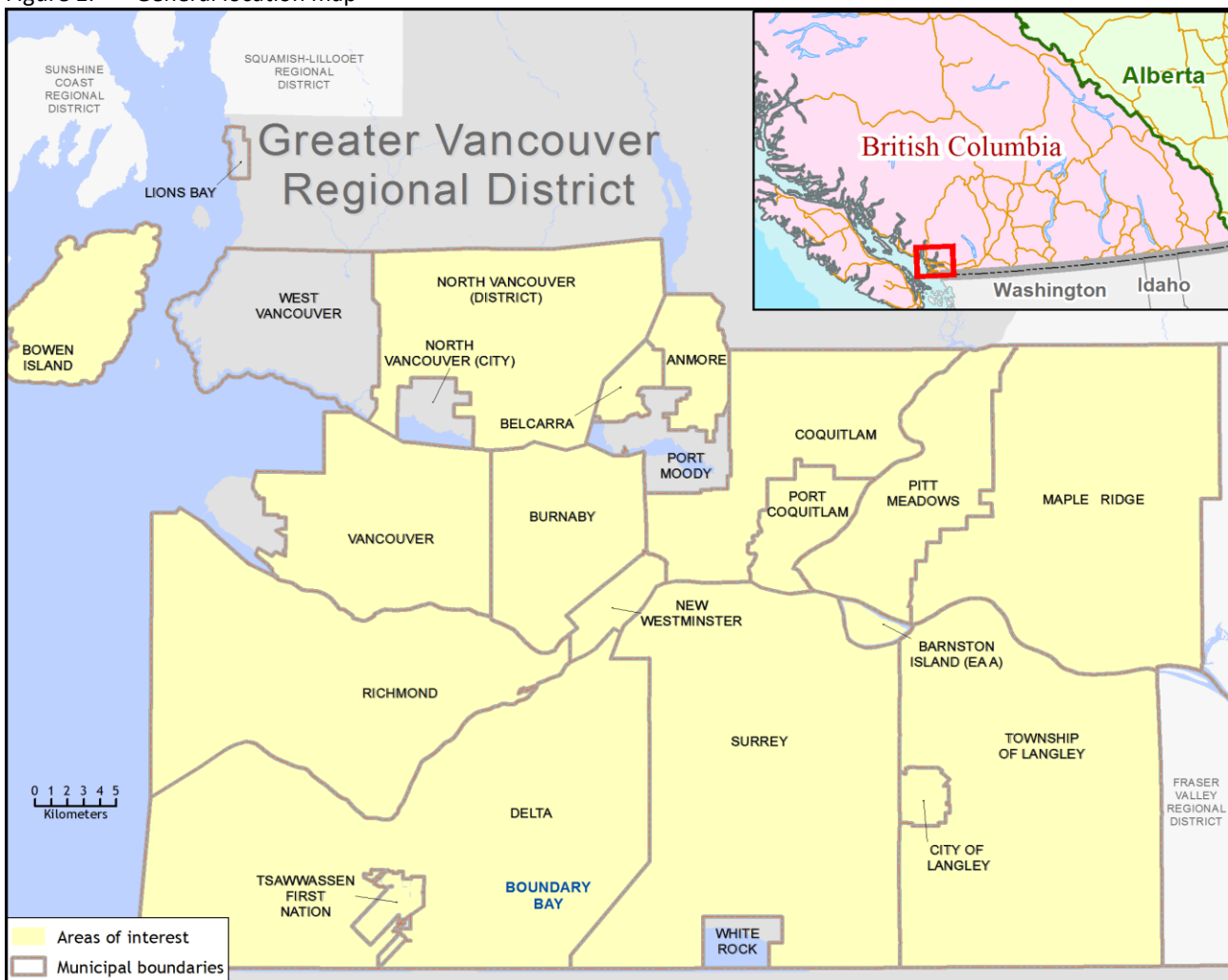
General Information

Greater Vancouver Regional District (Metro Vancouver) is comprised of 24 local authorities (22 municipalities, one electoral area, and one First Nation). One local authority (Abbotsford) is part of the GVRD for parks purposes only and is not considered part of Metro Vancouver for agricultural land use inventory (ALUI) reporting.

Land use inventories occurred across 18 local authorities. This included 16 municipalities, a portion of Electoral Area A (Barnston Island), and Tsawwassen First Nation. The municipalities of White Rock, Port Moody, West Vancouver, North Vancouver (City), Lions Bay, and the majority of Electoral Area A were not inventoried as these areas do not have any land that meets the inventory criteria (see page 7).

Data for individual survey areas can be found in municipality specific ALUI reports. Individual ALUI reports have been published for Richmond, Delta, Surrey, Langley (Township), Pitt Meadows, Maple Ridge, and Barnston Island³. Data for the areas of Anmore, Belcarra, Coquitlam, Port Coquitlam, New Westminster, Burnaby, Vancouver, North Vancouver (District), and Bowen Island can be found in the “North Metro Vancouver” ALUI report. The ALUI data for Tsawwassen First Nation⁴ and Langley (City) have not been published in area specific reports; however, this data is available upon request.

Figure 1. General location map



³ Barnston Island is part of GVRD Electoral Area A. For the purposes of this report Barnston Island is treated as equivalent to a local government.

⁴ The Tsawwassen First Nation (TFN) treaty came into effect in 2009, granting the TFN constitutional powers similar to that of a local government.

AGRICULTURAL LAND RESERVE

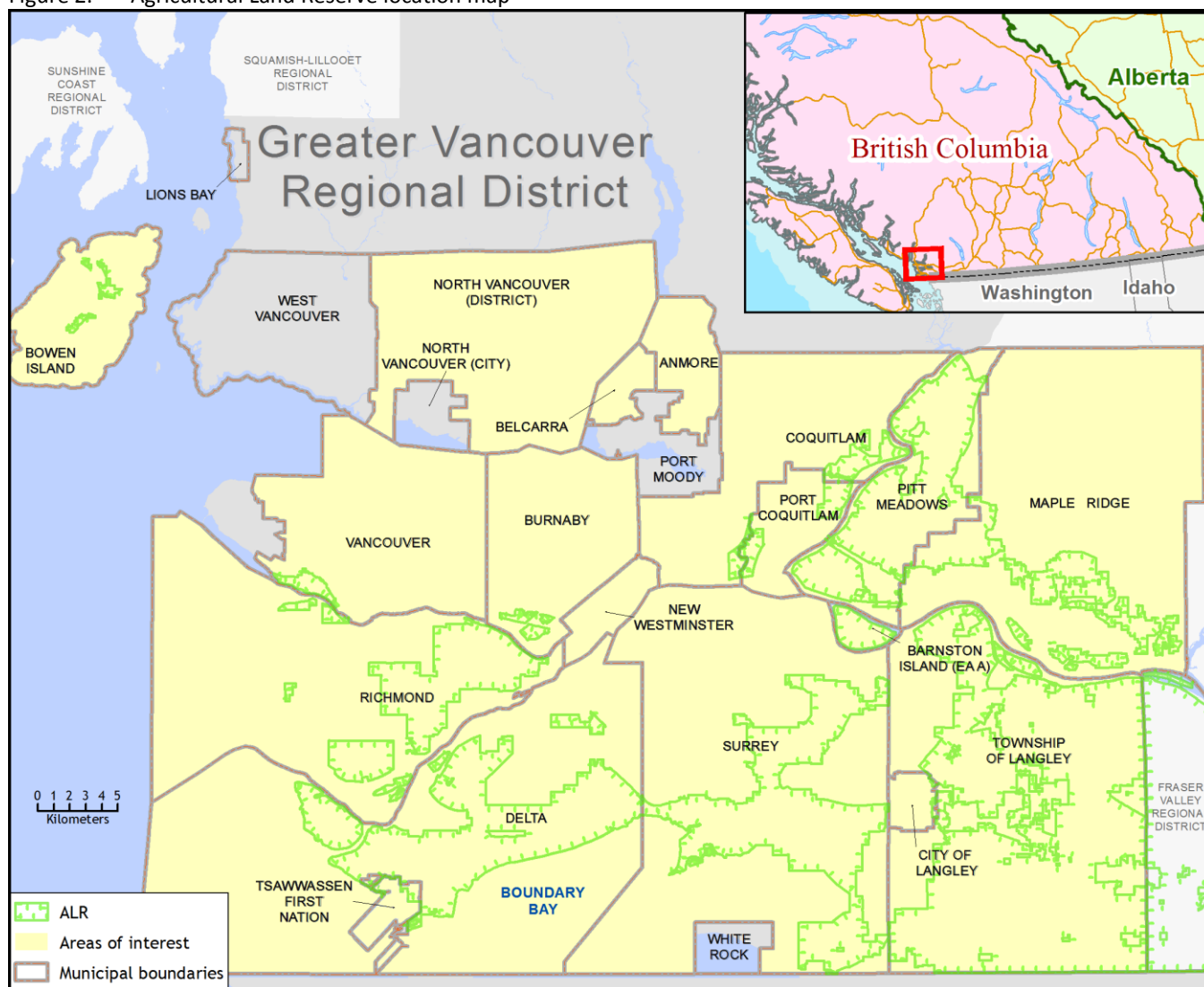
The Agricultural Land Reserve (ALR) is a provincial land use zone that was designated in 1973 in which agriculture is recognized as the priority use. Within the ALR, farming is encouraged and non-agricultural uses are controlled.

In 2011, there were 60,893 hectares⁵ of ALR land within the Greater Vancouver Regional District (shown in Figure 2). The Agricultural Land Commission (ALC) reports the total ALR as 60,938⁶ hectares. This difference of 45 hectares, or less than 0.08% of the regional districts ALR area, comes from GIS calculation methodologies (projections) that could not be replicated.

Metro Vancouver has a total land area of 278,709 hectares⁷. With 60,893 hectares in the ALR, 22% of Metro Vancouver's land area is in the ALR. This area includes:

- 57,378 hectares in surveyed parcels
- 3,515 hectares outside surveyed parcels

Figure 2. Agricultural Land Reserve location map



⁵ Agricultural Land Commission, ALR mapping, Land and Resource Data Warehouse, 2010-01-31 (area calculated in GIS).

⁶ Provincial Agricultural Land Commission (ALC) Annual Report 2009/10 & 2010/11 Pg 39. http://www.alc.gov.bc.ca/publications/Annual_Report_2009-10_and_2010-11.pdf

⁷ Calculated in GIS.

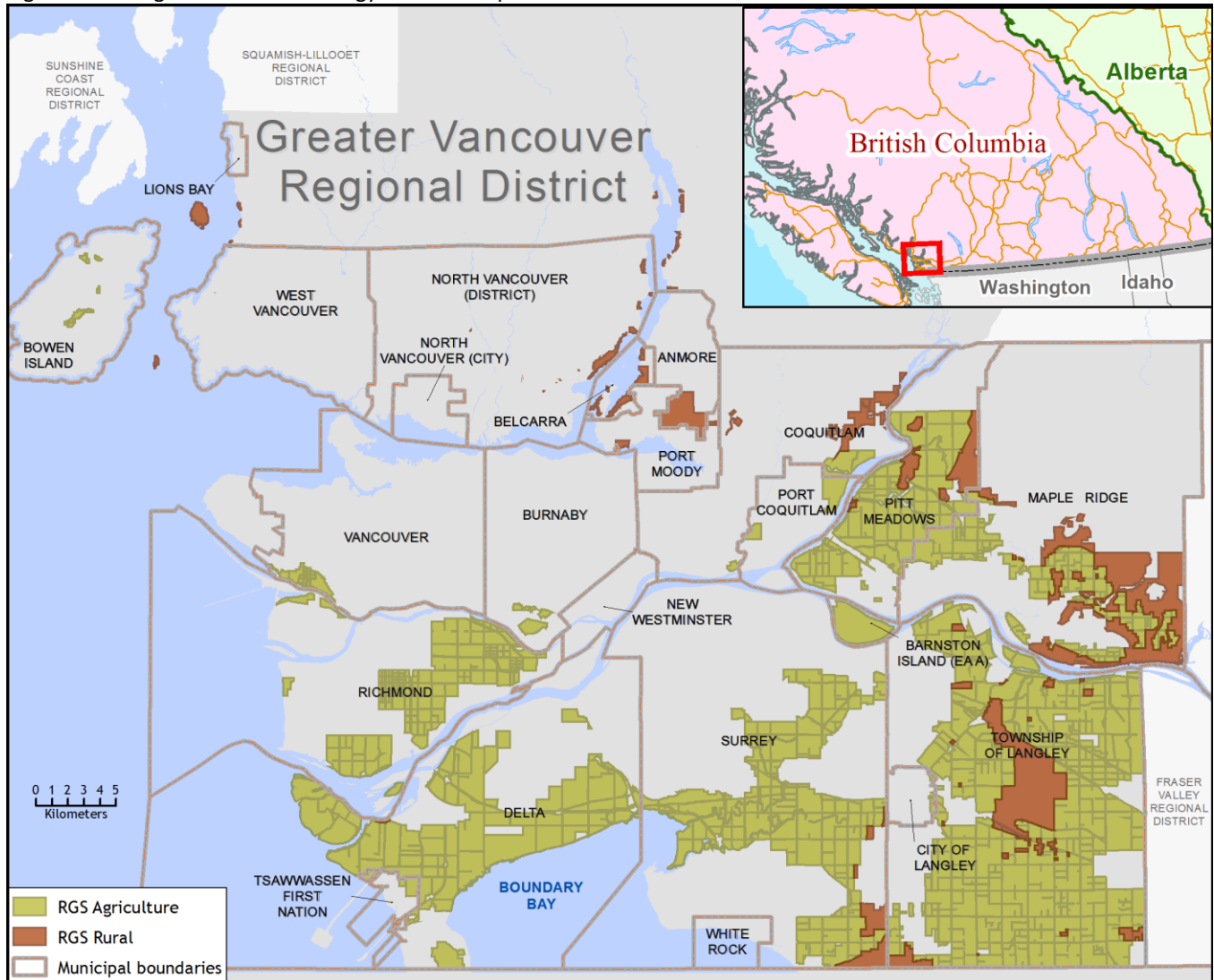
REGIONAL GROWTH STRATEGY

Metro Vancouver has a regional growth strategy entitled “Metro Vancouver 2040 – Shaping our Future”⁸. The document looks out to 2040 and provides a framework on how to accommodate the expected growth in Metro Vancouver. The plan provides ways to manage growth in a manner that enhances the livability and sustainability of the region.

The regional growth strategy (RGS) includes several urban and non-urban land use designations. Non-urban land use designations are intended to protect existing low density land uses and include “Rural”, “Agricultural”, and “Conservation and Recreation” designations. Permitted uses in “Rural” areas include low density residential, small scale commercial, industrial, institutional, and agricultural. “Agricultural” areas are intended primarily for agricultural uses, facilities and supporting services.

There are 52,517 hectares in Metro Vancouver’s RGS “Agriculture” designation, of which 52,286 hectares were inventoried. Also inventoried were 6,888 hectares in the RGS “Rural” designation, 6,840 hectares in the RGS “Conservation & Recreation” designation, and 4,807 hectares in other designations.

Figure 3. Regional Growth Strategy location map



⁸ Metro Vancouver – Shaping our future. 2011. <http://www.metrovancouver.org/PLANNING/DEVELOPMENT/STRATEGY/Pages/default.aspx>

INVENTORY AREA

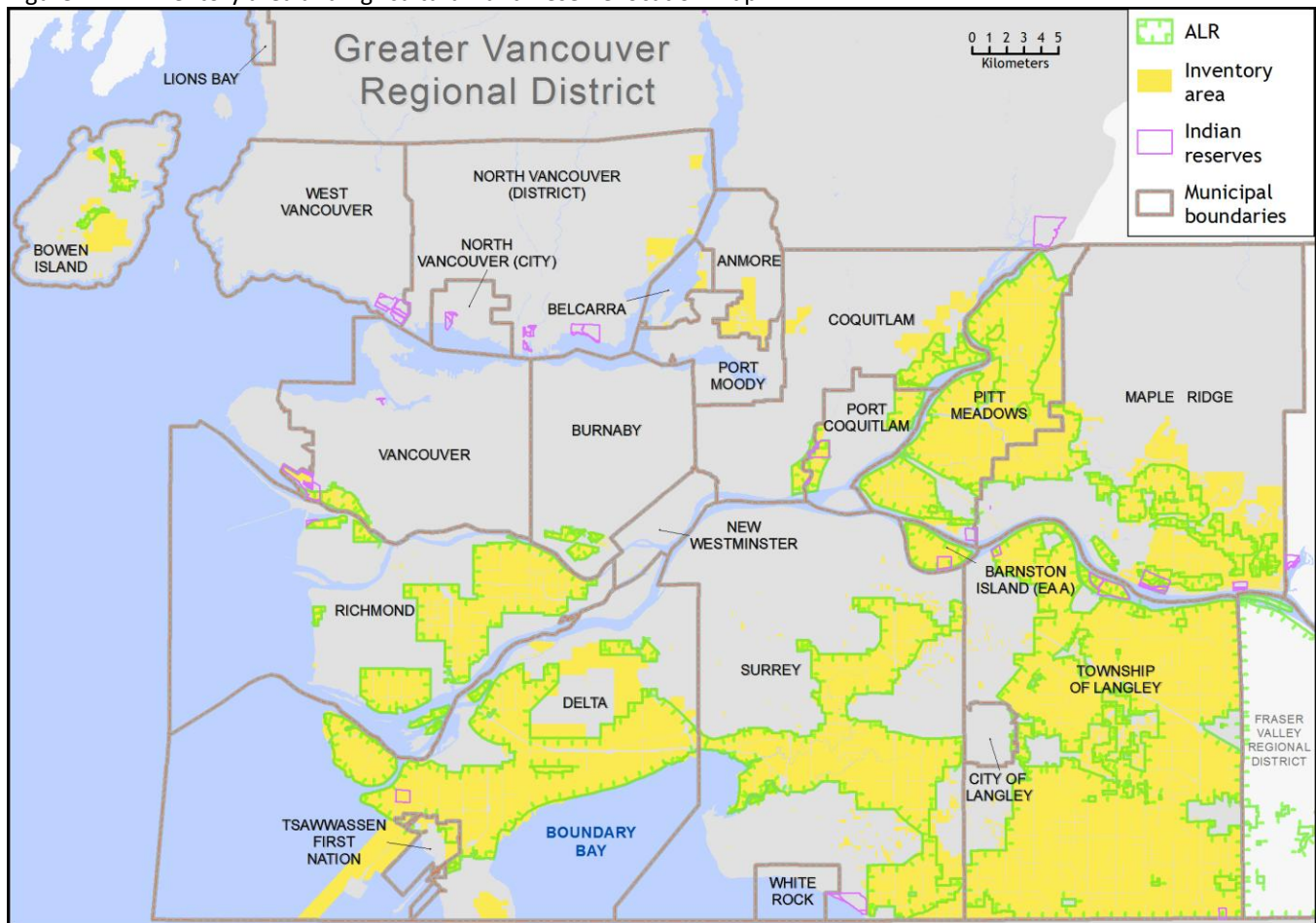
The total inventory area encompasses 15,755 parcels with a combined area of 70,821 hectares. Included are all parcels:

- completely or partially within the Agricultural Land Reserve,
- within Metro Vancouver's Regional Growth Strategy "Agriculture" designation,
- within Metro Vancouver's Regional Growth Strategy "Rural" designation & greater than 1 acre⁹,
- classified by BC Assessment as having "Farm" status for property tax assessment, or
- zoned to permit agriculture by municipal bylaws

The amount of ALR land included in the inventory area is 57,378 hectares located on 11,989 parcels. This area is 94% of the ALR within Metro Vancouver. The remaining 6% of the ALR was excluded from the inventory as it is in parcels less than 100 square metres, or outside surveyed land parcels in designated rights-of-way or water and foreshore.

Indian reserves were included in the inventory if they met one of the above criteria. In total, 10 reserves with a combined area of 634 hectares were inventoried. These areas are included in the tables and charts as part of the municipality that surrounds each reserve.

Figure 4. Inventory area and Agricultural Land Reserve location map



⁹ One acre is approximately 0.404 hectares.

Table 1. ALR and inventory area by local government

Local government	% of regional ALR area	Surveyed parcel area		
		In ALR (ha)	Outside ALR (ha)	Total Area (ha)
Langley (Township)	37 %	22,281	1,630	23,911
Delta	15 %	8,843	3,056	11,899
Surrey	14 %	8,670	1,388	10,058
Pitt Meadows	10 %	6,384	972	7,356
Richmond	8 %	4,756	78	4,833
Maple Ridge	6 %	3,633	3,549	7,182
Coquitlam	1 %	792	764	1,556
Barnston Island*	1 %	614	4	619
Port Coquitlam	<1 %	542	64	606
Vancouver	<1 %	258	84	342
Burnaby	<1 %	223	31	254
Bowen Island	<1 %	178	741	918
Tsawwassen First Nation	<1 %	164	167	332
Langley (City)	<1 %	41	2	43
Anmore	-	-	536	536
North Vancouver (District)	-	-	286	286
Belcarra	-	-	86	86
New Westminster	-	-	5	5
TOTAL	94 %	57,378	13,443	70,821
Not surveyed - outside parcels	6 %	3,515		
TOTAL	100 %	60,893		

* Barnston Island is part of GVRD Electoral Area A. In this report Barnston Island is treated as equivalent to a municipality and is referred to as a local government.

Table 1 details the ALR area and survey area by local government.

There is ALR land in 14 of the 18 surveyed jurisdictions.

Langley (Township) has the most ALR land with 22,281 hectares or 37% of Metro Vancouver's ALR. Delta has 8,843 hectares, or 15% of Metro Vancouver's ALR and Surrey has 8,670 hectares or 14%.

Figure 5. Proportion of Metro Vancouver's ALR by local government

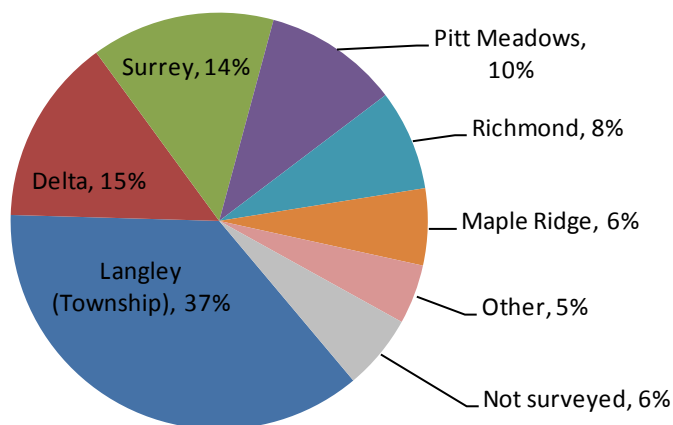


Figure 5 shows the proportion of Metro Vancouver's ALR by local government.

The ALR in Langley (Township) combined with the ALR in Delta, Surrey, and Pitt Meadows comprise 75% of the ALR in Metro Vancouver.

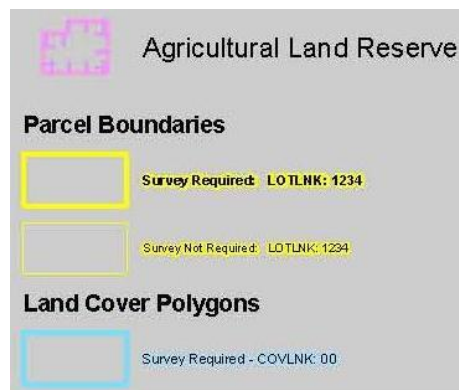
Agricultural Land Use Inventory

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 Metro Vancouver land use inventory project is comprised of a series of land use inventories in 18 Metro Vancouver jurisdictions. The inventories were conducted in the summer of 2010 and 2011 by professional and BC Ministry of Agriculture agrologists. A GIS technician and a driver assisted the agrologist for each inventory area. The survey crew visited each property and observed land use, land cover, and agriculture activity from the road. Where visibility was limited, data was interpreted from aerial photography in combination with local knowledge. The technician entered the survey data into a database on a laptop computer.



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

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



¹⁰ Cadastre mapping (2010) was provided by local governments through the Integrated Cadastral Information Society and compiled by Metro Vancouver Regional District staff.

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:

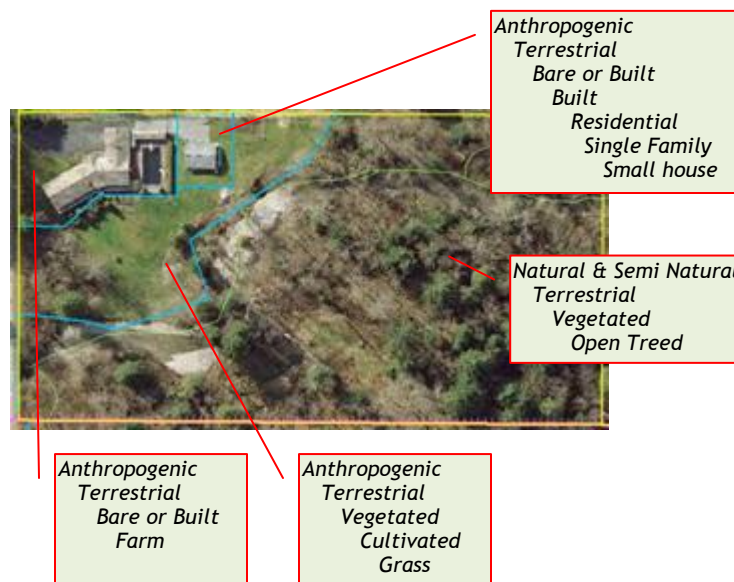
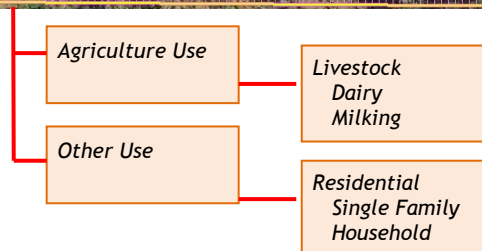
- The actual human use of land and related structures and modifications to the landscape
- Use-related land cover (where land cover implies a use or is important to interpreting patterns of use)
- Declared interests in the land (which may limit use) such as parks

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.

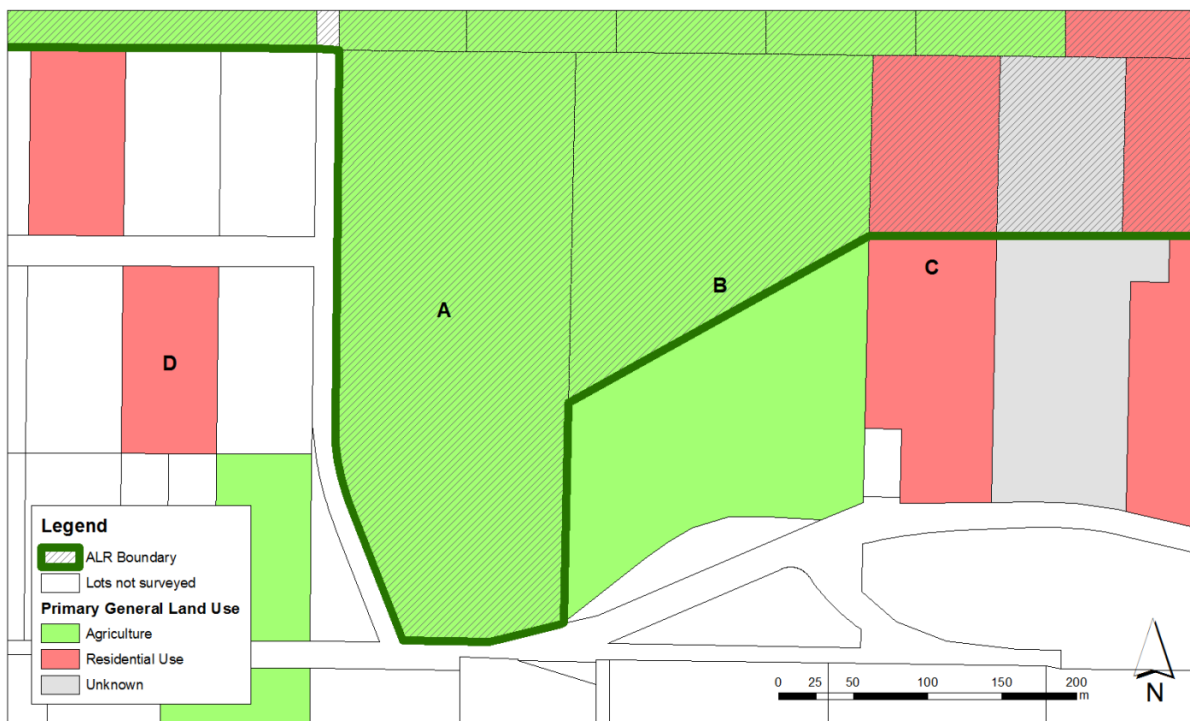
DETERMINATION OF PARCELS WITHIN THE ALR

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

Figure 6 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 6. Parcel inclusion in the ALR



1. 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 2 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, anthropogenic wetland, 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” and not “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”.

Table 2. Land cover and farmed area

Land cover*		ALR		Outside ALR (ha)	Total area (ha)	RGS Agriculture		% of inventory area
		In ALR (ha)	% of ALR			In RGS Ag	% of RGS Ag	
Actively farmed	Cultivated field crops	26,974	44%	1,010	27,984	26,447	50%	40%
	Farm Infrastructure	1,580	3%	152	1,732	1,548	3%	2%
	Greenhouses	441	< 1%	11	453	433	< 1%	< 1%
	Crop barn	23	< 1%	<1	23	22	< 1%	< 1%
Inactively farmed	Unused forage or pasture	643	1%	37	680	591	1%	< 1%
	Unmaintained field crops	116	< 1%	11	128	116	< 1%	< 1%
	Unmaintained greenhouses	11	< 1%	2	13	11	< 1%	< 1%
	Unmaintained crop barn	2	< 1%	-	2	2	< 1%	< 1%
FARMED SUBTOTAL		29,790	49%	1,225	31,015	29,171	56%	44%
Anthropogenic (not farmed)	Managed vegetation	2,917	5%	739	3,655	2,679	5%	5%
	Golf fairway/green	1,501	2%	80	1,581	1,400	3%	2%
	Residential footprint	1,653	3%	818	2,471	1,562	3%	3%
	Settlement	721	1%	242	963	684	1%	1%
	Non Built or Bare	729	1%	518	1,247	671	1%	2%
	Built up - Other	143	< 1%	18	162	137	< 1%	< 1%
	Transportation	633	1%	251	885	440	< 1%	1%
	Waterbodies	501	< 1%	27	528	461	< 1%	< 1%
	Utilities	496	< 1%	74	570	398	< 1%	< 1%
SUBTOTAL		9,295	15%	2,767	12,062	8,432	16%	17%
Natural and Semi-natural	Vegetated	15,863	26%	8,049	23,912	13,565	26%	34%
	Wetlands	1,958	3%	345	2,303	761	1%	3%
	Waterbodies	472	< 1%	1,057	1,529	357	< 1%	2%
SUBTOTAL		18,293	30%	9,451	27,744	14,683	28%	39%
TOTAL		57,378	94%	13,443	70,821	52,286	100%	100%
Not surveyed	Outside parcels, parcels < 100 m ²	3,515	6%					
SUBTOTAL		3,515	6%					
TOTAL		60,893	100%					

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

Table 2 shows the extent of different land cover types across Metro Vancouver.

In Metro Vancouver, 31,015 hectares are in "Farmed" land cover although 823 of these hectares are "Inactively farmed" in unused forage or pasture, unmaintained field crops, or unmaintained greenhouses and crop barns.

Forty-nine percent (49%) of the ALR is in "Farmed" land cover, 15% is in anthropogenic (not farmed) land cover, and 30% is in natural and semi-natural land cover.

Figure 7. Land cover and farmed area in the ALR

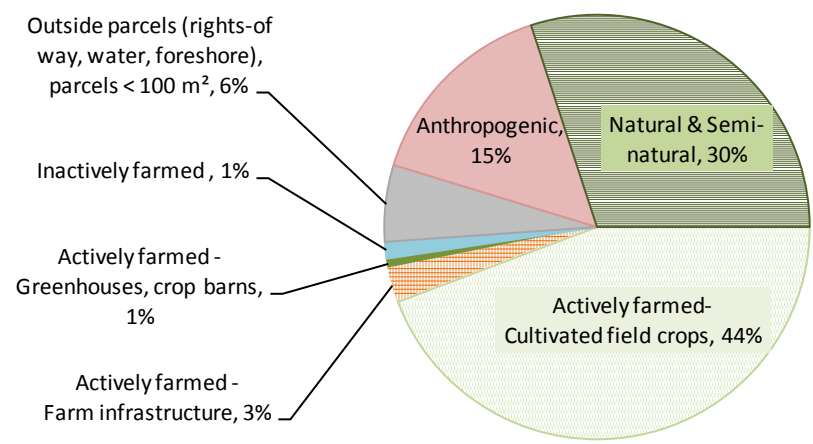


Figure 7 shows the proportions of the different land cover types across the ALR in Metro Vancouver.

Of all ALR land, 48% is “Actively farmed” while 1% is in unused forage & pasture, unmaintained field crops, and unmaintained greenhouses and crop barns (“Inactively Farmed”).

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

Table 3. Land cover and farmed area in the ALR by local government

Local government	Land Cover Category						Total	
	Farmed		Anthropogenic (not farmed)		Natural & Semi-natural			
	In ALR (ha)	% of municipal ALR area	In ALR (ha)	% of municipal ALR area	In ALR (ha)	% of municipal ALR area	In ALR (ha)	% of municipal ALR area
Langley (Township)	9,751	44%	3,283	15%	9,247	42%	22,281	100%
Delta	6,691	76%	996	11%	1,155	13%	8,843	100%
Surrey	4,886	56%	1,424	16%	2,359	27%	8,670	100%
Pitt Meadows	3,669	57%	1,280	20%	1,435	22%	6,384	100%
Richmond	2,797	59%	1,032	22%	927	19%	4,756	100%
Maple Ridge	942	26%	698	19%	1,992	55%	3,633	100%
Barnston Island	357	58%	48	8%	210	34%	614	100%
Coquitlam	261	33%	55	7%	476	60%	792	100%
Tsawwassen First Nation	154	93%	10	6%	1	< 1%	164	100%
Port Coquitlam	123	23%	152	28%	268	49%	542	100%
Burnaby	103	46%	77	35%	42	19%	223	100%
Vancouver	32	13%	205	79%	21	8%	258	100%
Bowen Island	20	11%	8	5%	150	84%	178	100%
Langley (City)	5	12%	26	64%	10	24%	41	100%
TOTAL REGIONAL ALR	29,790	49%	9,295	15%	18,293	30%	57,378	94%
Not surveyed - outside parcels, parcels < 100 m ²							3,515	6%
TOTAL ALR							60,893	100%

Table 3 shows the extent of different land cover types in Metro Vancouver's ALR by local government.

Of all the jurisdictions with ALR land, Langley (Township) has the greatest amount of farmed land cover (9,751 hectares) in the ALR.

In 2010, Tsawwassen First Nation had the largest proportion of its ALR land in "Farmed" land cover. Land cover in Tsawwassen First Nation has undergone significant changes since the Tsawwassen First Nation Treaty.

Delta has the next largest proportion of its ALR area in "Farmed" land cover (76%), followed by Richmond (59%), Barnston Island (58%), Pitt Meadows (57%) and Surrey (56%).

Vancouver has the largest proportion of its ALR in Anthropogenic (not farmed) land cover (79%). Golf courses comprise the majority of this.

Bowen Island has the highest proportion of its ALR in natural & semi-natural land cover (84%).

Refer to Figure 8 for a visual comparison.

Figure 8. Proportion of land cover type in the ALR by local government

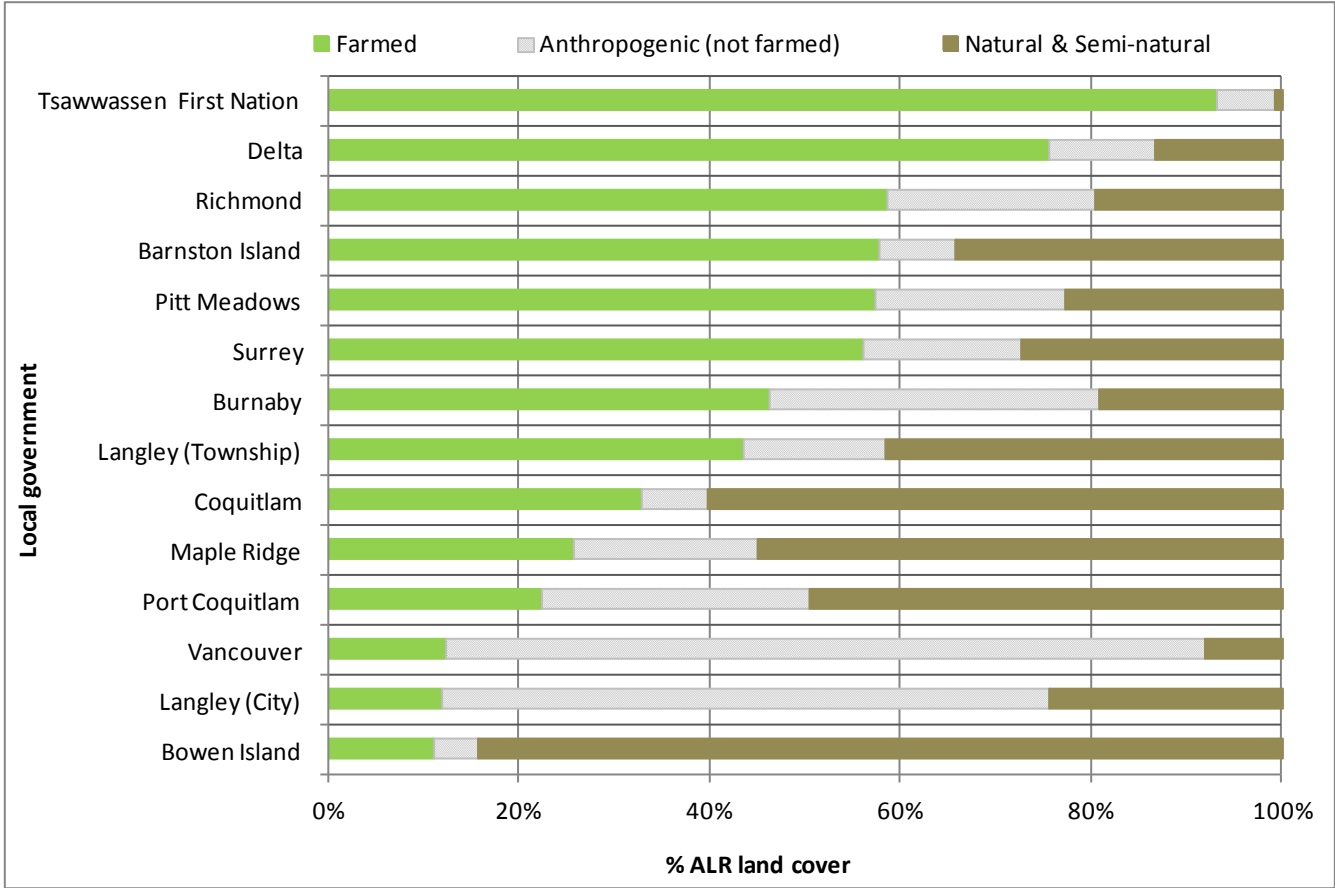


Figure 8 shows the percentage of ALR land in “Farmed”, anthropogenic (not farmed), and natural & semi-natural land cover by local government.

Tsawwassen First Nation and Delta had the highest proportions of ALR land in “Farmed” land cover, while Vancouver and Langley (City) had the highest proportions in anthropogenic (not farmed) land cover.

Refer to Table 3 for actual percentages in each land cover category.

2. 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. If one parcel is a hotel and the other is a retail store, they are both considered as “Commercial” land use.

Up to two general land uses (e.g. residential, commercial) are recorded for each parcel with each considered an equally important function of the 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.

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.

Table 4. 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		8,174	13 %	425	8,599	12 %	1,369	9 %	6
Used for farming - Mixed use	Residential	22,757	37 %	834	23,591	33 %	3,695	23 %	6
	Transportation & communications	756	1 %	99	855	1 %	15	<1 %	57
	Protected area / park / reserve	755	1 %	73	828	1 %	21	<1 %	39
	Commercial & service	457	<1 %	70	527	<1 %	50	<1 %	11
	Utilities	341	<1 %	25	366	<1 %	14	<1 %	26
	Recreation & leisure	205	<1 %	14	219	<1 %	12	<1 %	18
	Land in transition	165	<1 %	< 1	165	<1 %	5	<1 %	33
	Water management	130	<1 %	< 1	131	<1 %	6	<1 %	22
	First Nations**	109	<1 %	< 1	109	<1 %	1	<1 %	109
	Institutional & community	100	<1 %	17	117	<1 %	10	<1 %	12
	Dumps & deposits	93	<1 %	< 1	93	<1 %	4	<1 %	23
	Industrial	77	<1 %	21	98	<1 %	9	<1 %	11
	Recreation & leisure - golf	29	<1 %	< 1	29	<1 %	1	<1 %	29
USED FOR FARMING SUBTOTAL		34,147	56 %	1,579	35,726	50 %	5,212	33 %	
Not used for farming	Residential	11,123	18 %	4,026	15,150	21 %	7,693	49 %	2
	No apparent use	3,751	6 %	2,318	6,069	9 %	1,424	9 %	4
	Protected area / park / reserve	3,385	6 %	1,873	5,259	7 %	258	2 %	20
	Recreation & leisure - golf	1,948	3 %	216	2,165	3 %	115	<1 %	19
	Transportation & communications	685	1 %	1,234	1,918	3 %	292	2 %	7
	Military	421	<1 %	< 1	421	<1 %	2	<1 %	210
	Recreation & leisure	376	<1 %	349	725	1 %	78	<1 %	9
	Commercial & service	263	<1 %	51	313	<1 %	115	<1 %	3
	Water management	224	<1 %	145	369	<1 %	185	1 %	2
	Land in transition	220	<1 %	139	359	<1 %	67	<1 %	5
	Dumps & deposits	220	<1 %	273	493	<1 %	14	<1 %	35
	Institutional & community	209	<1 %	260	468	<1 %	120	<1 %	4
	Industrial	134	<1 %	151	285	<1 %	91	<1 %	3
	Utilities	112	<1 %	470	582	<1 %	69	<1 %	8
	First Nations**	97	<1 %	< 1	97	<1 %	4	<1 %	24
	Gravel extraction	64	<1 %	358	422	<1 %	16	<1 %	26
NOT USED FOR FARMING SUBTOTAL		23,231	38 %	11,863	35,095	50 %	10,543	67 %	
TOTAL		57,378	94 %	13,443	70,821	100 %	15,755	100 %	
Not surveyed	Outside parcels (rights-of way, water, foreshore), parcels < 100 m ²	3,515	6 %						
SUBTOTAL		3,515	6 %						
TOTAL		60,893	100 %						

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

** First Nations. Areas with First Nation band activities (administration, assembly) or traditional use (ceremonial, food or material harvesting, cultural landforms) as the primary land use.

Table 4 shows that 34,147 hectares or 56% of the ALR in Metro Vancouver is on parcels "Used for farming".

Most "Used for farming" parcels are also used for other purposes with only 13% of the ALR area exclusively "Used for farming."

The most extensive land use in the ALR is "Residential". Parcels with the mixed use "Used for farming" and "Residential" comprise 22,757 hectares or 37% of the ALR.

Table 5. 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		7,354	12 %	333	<1 %	487	<1 %	8,174	13 %
Used for farming - mixed use	Residential	18,532	30 %	2,015	3 %	2,210	4 %	22,757	37 %
	Transportation & communications	442	<1 %	173	<1 %	141	<1 %	756	1 %
	Protected area / park / reserve	438	<1 %	40	<1 %	277	<1 %	755	1 %
	Commercial & service	306	<1 %	60	<1 %	91	<1 %	457	<1 %
	Utilities	303	<1 %	12	<1 %	25	<1 %	341	<1 %
	Land in transition	138	<1 %	26	<1 %	2	<1 %	165	<1 %
	Recreation & leisure	113	<1 %	29	<1 %	64	<1 %	205	<1 %
	Water management	98	<1 %	5	<1 %	27	<1 %	130	<1 %
	Dumps & deposits	88	<1 %	5	<1 %	-	-	93	<1 %
	Institutional & community	80	<1 %	12	<1 %	8	<1 %	100	<1 %
	Industrial	62	<1 %	11	<1 %	4	<1 %	77	<1 %
	Recreation & leisure - golf	19	<1 %	10	<1 %	-	-	29	<1 %
First Nations	19	<1 %	7	<1 %	84	<1 %	109	<1 %	
SUBTOTAL		27,990	46 %	2,737	4 %	3,420	6 %	34,147	56 %
Not used for farming		1,800	3 %	6,558	11 %	14,873	24 %	23,231	38 %
SUBTOTAL		29,790	49 %	9,295	15	18,293	30 %	57,378	94 %
Not surveyed - outside parcels, parcels < 100 m²								3,515	6 %
TOTAL ALR								60,893	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 of this report.

Table 5 combines land use and land cover on ALR land in Metro Vancouver. For example, parcels with the mixed use "Used for farming" and "Residential" have a total of 18,532 hectares in "Farmed" land cover, 2,015 hectares in "Anthropogenic" (not farmed) land cover, and 2,210 hectares in "Natural & Semi-natural" land cover.

Although 34,147 hectares or 56% of Metro Vancouver's ALR is on parcels "Used for farming" (refer to Table 4), only 27,990 hectares or 46% 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 (30%) is on parcels also used for "Residential" purposes.

3. Availability of Land for Farming

The demand for locally grown agricultural products is anticipated to grow as the population grows¹¹. This demand along with a number of other factors, such as commodity types and farm management requirements (nutrient management, bio-security), will influence agricultural land needs in the future. Lands suitable for agricultural development may not be available and agricultural sectors that require large land bases, such as dairy or berry, may find it difficult to access sufficient land. Future agriculture growth may come from new commodity types and intensifying land use rather than finding new land for development.

The analysis of the availability of land for farming examines how much land is available for farming, has 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 farming regardless of any existing non-farm use. In addition, properties with an existing use compatible with agriculture, such as residential, are considered available for farming since the existing land use can be maintained.

Properties not currently farmed with an established non-farm use that is incompatible with agriculture are considered unavailable for farming. These properties tend to have very high land values making it more difficult for a farmer to acquire and convert this land to farmland.

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 soil control), and non-built or bare areas are considered to have 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 not to 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.

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

Table 6. Status of the land base with respect to farming

Land status		ALR		Outside ALR (ha)	Total area (ha)	% of inventory area
		In ALR (ha)	% of ALR Area			
Actively farmed	Cultivated field crops	26,974	44 %	1,010	27,984	40 %
	Farm Infrastructure	1,580	3 %	152	1,732	2 %
	Greenhouses	441	<1 %	11	453	<1 %
	Crop barn	23	<1 %	< 1	23	<1 %
ACTIVELY FARMED		29,018	48 %	1,174	30,192	43 %
Anthropogenic areas supporting farming	Residential footprint	661	1 %	65	726	1 %
	Built up - Other	432	<1 %	13	445	<1 %
	Waterbodies	207	<1 %	4	211	<1 %
	Transportation	74	<1 %	5	79	<1 %
SUPPORTING FARMING		1,374	2 %	87	1,461	2 %
Unavailable for farming due to existing land use	Protected area / park / reserve	3,155	5 %	1,864	5,019	7 %
	Recreation & leisure - golf	1,922	3 %	216	2,138	3 %
	Transportation & communications	479	<1 %	1,173	1,652	2 %
	Residential	471	<1 %	769	1,240	2 %
	Military	421	<1 %	< 1	421	<1 %
	Recreation & leisure	199	<1 %	217	416	<1 %
	Water management	155	<1 %	133	288	<1 %
	Land in transition	111	<1 %	66	177	<1 %
	Institutional & community	72	<1 %	78	150	<1 %
	Commercial & service	62	<1 %	24	86	<1 %
	Utilities	35	<1 %	77	113	<1 %
	Industrial	33	<1 %	89	122	<1 %
	No apparent use	13	<1 %	16	28	<1 %
	First Nations	4	<1 %	< 1	4	<1 %
	Dumps & deposits	3	<1 %	-	3	<1 %
	Gravel extraction	< 1	<1 %	273	274	<1 %
Unavailable for farming due to existing land cover	Residential footprint	758	1 %	383	1,141	2 %
	Built up - Other	569	<1 %	182	752	1 %
	Waterbodies	494	<1 %	43	537	<1 %
	Wetlands	418	<1 %	40	458	<1 %
	Transportation	198	<1 %	75	273	<1 %
UNAVAILABLE FOR FARMING		9,573	16 %	5,719	15,291	22 %
Site limitations	Drainage	1,114	2 %	329	1,444	2 %
	Topography and / or soils	608	<1 %	3,308	3,916	6 %
	Operational	443	<1 %	146	590	<1 %
	Flooding	55	<1 %	9	64	<1 %
LIMITED POTENTIAL FOR FARMING		2,221	4 %	3,793	6,014	8 %
Available & with potential for farming	Natural & Semi-natural - Vegetated	11,561	19 %	2,030	13,590	19 %
	Anthropogenic - Vegetated - Managed	2,368	4 %	503	2,871	4 %
	Unused forage or pasture	639	1 %	37	676	<1 %
	Anthropogenic - Non Built or Bare	475	<1 %	88	563	<1 %
	Unmaintained field crops	116	<1 %	10	126	<1 %
	Natural & Semi-natural - Wetlands	21	<1 %	-	21	<1 %
	Unmaintained/unused greenhouses	11	<1 %	2	13	<1 %
	Unmaintained crop barn	2	<1 %	-	2	<1 %
AVAILABLE & WITH POTENTIAL FOR FARMING		15,193	25 %	2,670	17,862	25 %
TOTAL		57,378	94 %	13,443	70,821	100 %
Not surveyed ALR	Outside parcels (rights-of-way, water, foreshore), parcels < 100 m ²	3,515	6 %			
	TOTAL ALR	60,893	100 %			

Table 6 shows that 29,018 hectares or 48% of the ALR is actively used for farming; 2% is used in support of farming (farm residences, roads, etc); 16% is unavailable for farming; 4% has limited potential for farming; and 25% is available and has potential for farming.

CHARACTERISTICS OF NOT FARMED BUT AVAILABLE LANDS

The potential for future agriculture expansion is affected by the size of the area available. Small areas can effectively be used for some intensive agricultural operations such as mushrooms, floriculture, greenhouses, poultry, and container nurseries. Small areas are also suitable for start-up farmers, horse enthusiasts, farmers testing new technologies, or established farmers wanting to expand through leases. Despite these opportunities, small areas provide fewer farming choices than large lots. They specifically exclude dairy, hogs, and vegetable greenhouses. For example, a dairy cow produces sufficient manure per year to fertilize 0.4 hectares of forage production which means a dairy operation consisting of 50 cows would require access to 20 hectares of land. 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.

Table 7. Land available and with potential for farming but not farmed by local government

Local government	ALR		Outside ALR (ha)	Total area (ha)	% of available but not farmed ALR area (ha)
	In ALR (ha)	% of ALR			
Langley (Township)	8,003	13 %	621	8,624	53 %
Surrey	2,465	4 %	765	3,230	16 %
Maple Ridge	1,458	2 %	953	2,412	10 %
Delta	1,166	2 %	202	1,368	8 %
Richmond	908	1 %	5	913	6 %
Pitt Meadows	583	<1 %	45	628	4 %
Coquitlam	182	<1 %	32	214	1 %
Barnston Island	196	<1 %	< 1	196	1 %
Port Coquitlam	151	<1 %	2	153	<1 %
Burnaby	40	<1 %	4	45	<1 %
Bowen Island	20	<1 %	11	31	<1 %
Tsawwassen First Nation	1	<1 %	25	26	<1 %
Vancouver	13	<1 %	< 1	14	<1 %
Langley (City)	5	<1 %	< 1	5	<1 %
Anmore	-	-	3	3	-
TOTAL	15,193	25 %	2,670	17,862	100 %

Table 7 illustrates that over half (53%) of all ALR land available and with potential for farming but not farmed is in Langley (Township). Surrey has the next most available ALR land with 2,465 hectares or 16% of all available land.

Figure 9. Proportion of ALR land available and with potential for farming but not farmed by local government

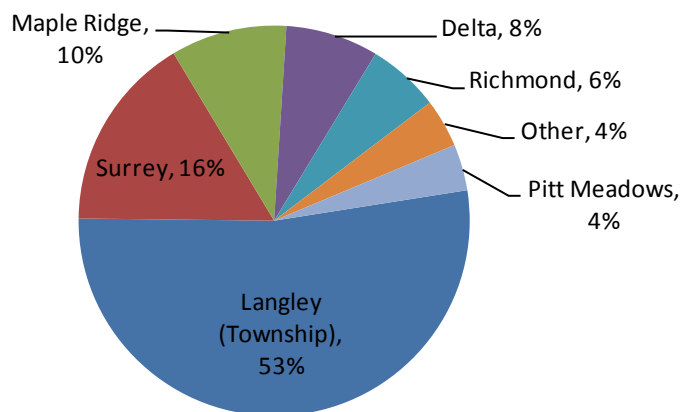


Figure 9 shows that the available for farming but not farmed land in Langley (Township) combined with available land in Surrey, Maple Ridge and Delta accounts for 87% of all available ALR land.

Figure 10. Number of parcels with land cover available and with potential for farming but not farmed in the ALR by parcel size¹²

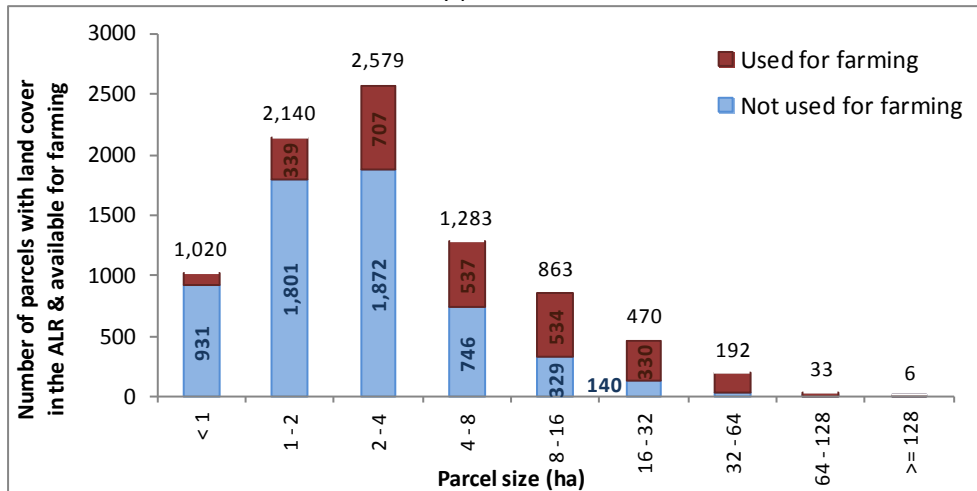


Figure 10 shows the number of parcels in the ALR with at least one acre of land available and with potential for farming.

There are a total of 8,586 parcels with available land cover: 2,723 are already “Used for farming” and 5,863 parcels are “Not used for farming”. The “Not used for farming” parcels are new areas that can be brought into agricultural production.

There are many small parcels available and with potential for farming. Of the 5,863 “Not used for farming” parcels:

- 16% (931 parcels) are less than 1 hectare
- 79% (4,604 parcels) are less than 4 hectares
- 3% (184 parcels) are greater than 16 hectares

Figure 11. Total area of land cover available and with potential for farming in the ALR by parcel size

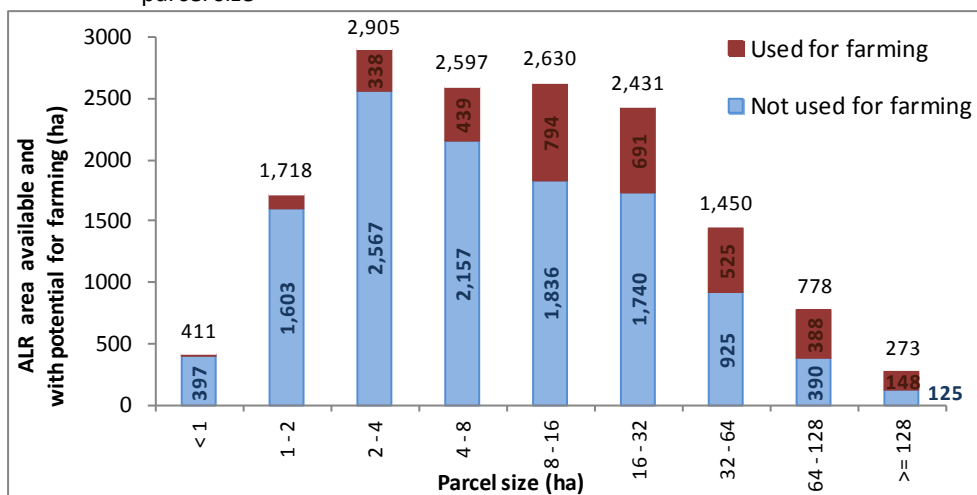


Figure 11 shows the area of parcels in the ALR with land available and with potential for farming but not farmed.

There are 15,193 hectares of available land: 3,453 hectares are on parcels “Used for farming” and 11,740 hectares are on parcels “Not used for farming”

Of the 11,740 hectares on parcels “Not used for farming”:

- 3% (397 hectares) are on parcels less than 1 hectare
- 39% (4,567 hectares) are on parcels less than 4 hectares
- 27% (3,180 hectares) are on parcels greater than 16 hectares

¹² One acre is approximately 0.404 hectares.

On Parcels “Used For Farming”

Table 8. Land use on “Used for farming” parcels with land available for farming but not farmed

Mixed land use on "Used for farming" parcels	Number of parcels	Land not farmed but with potential for farming			% potential increase to total ALR farmed area
		In ALR (ha)	Outside ALR (ha)	Total area (ha)	
Residential	3,230	2,436	159	2,595	8 %
Used for farming only	414	516	88	604	2 %
Commercial & service	65	90	8	98	<1 %
Transportation & communications	29	152	5	156	<1 %
Protected area / park / reserve	27	63	< 1	64	<1 %
Recreation & leisure	18	62	< 1	62	<1 %
Institutional & community	13	10	4	14	<1 %
Utilities	9	25	< 1	25	<1 %
Industrial	8	6	7	13	<1 %
Dumps & deposits	6	5	-	5	<1 %
Land in transition	2	5	-	5	<1 %
First Nations	1	84	< 1	84	<1 %
Recreation & leisure - golf	1	< 1	-	< 1	<1 %
TOTAL	3,823	3,453	272	3,725	12 %

Table 8 illustrates that for parcels currently “Used for farming”, the greatest potential for increasing actively farmed land would come from parcels with “Residential” use.

Figure 12. Land cover available for farming but not farmed on ALR parcels
“Used for farming”

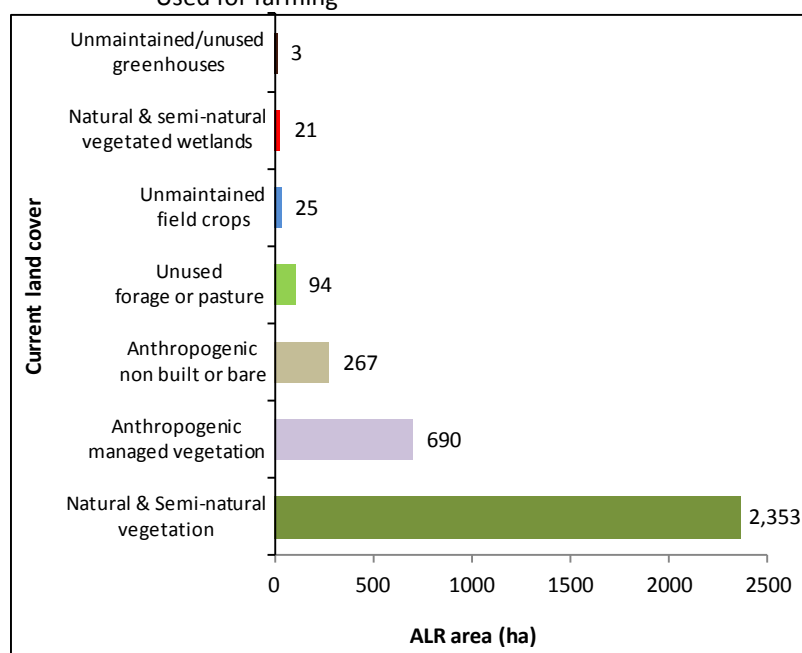


Figure 12 indicates that clearing land with natural and semi-natural land cover would provide the greatest gains in farmed land on parcels currently “Used for farming”.

Figure 13. Natural & semi-natural land cover available for farming but not farmed on ALR parcels “Used for farming”

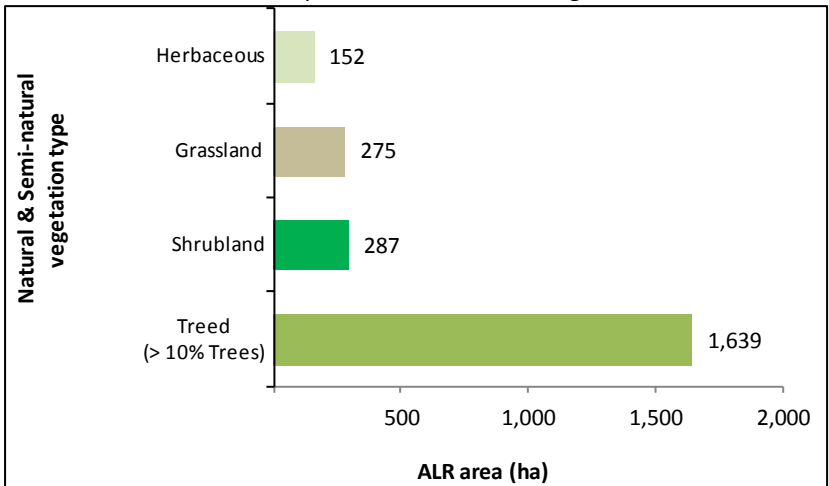


Figure 13 illustrates the types of natural & semi-natural land cover that are available for farming on parcels already “Used for farming”.

The majority of all available natural and semi natural land (70%) is in treed land cover. This would have to be removed before the parcel could be used for most types of agriculture.

Figure 14. Proportion of land cover available for farming on parcels “Used for farming”

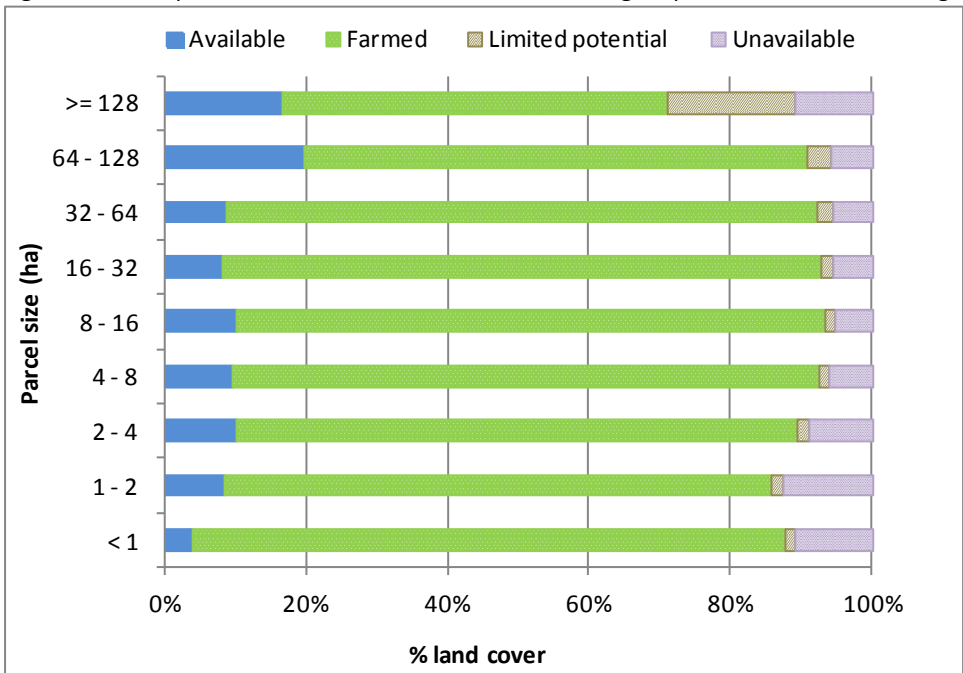


Figure 14 shows the proportion of different land cover types on “Used for farming” parcels with land available and with potential for farming.

There is little land available for farming on parcels already “Used for farming” in Metro Vancouver.

There is the potential to increase “Farmed” land cover in the ALR by 12% or 3,453 hectares by bringing this land into production (refer to Table 8).

It is assumed the available land cover is not used for wind breaks, dust control, erosion control, or privacy.

On Parcels “Not Used For Farming”

Table 9. Land use on “Not used for farming” parcels with land available for farming but not farmed

Mixed land use on "Used for farming" parcels		Number of parcels	Land not farmed but with potential for farming			% potential increase to total ALR farmed area
			In ALR (ha)	Outside ALR (ha)	Total area (ha)	
Not used for farming	Residential	8,065	7,409	1,538	8,946	26 %
	No apparent use	1,288	3,067	552	3,619	11 %
	Commercial & service	95	123	15	138	<1 %
	Institutional & community	77	93	64	157	<1 %
	Industrial	59	58	34	92	<1 %
	Recreation & leisure	44	116	23	140	<1 %
	Utilities	31	53	36	89	<1 %
	Protected area / park / reserve	27	226	10	235	<1 %
	Land in transition	25	80	13	94	<1 %
	Transportation & communications	21	137	21	158	<1 %
	Gravel extraction	16	4	43	47	<1 %
	Dumps & deposits	13	172	45	216	<1 %
	Water management	10	39	4	43	<1 %
	First Nations	6	86	< 1	86	<1 %
	Recreation & leisure - golf	6	25	< 1	25	<1 %
	No apparent use	2	39	-	39	<1 %
	Residential	2	4	-	4	<1 %
	Recreation & leisure	1	9	-	9	<1 %
	TOTAL	9,788	11,740	2,398	14,137	40 %

Table 9 illustrates that for parcels currently “Not used for farming”, the greatest potential for increasing actively farmed land would come from parcels with “Residential” use.

Figure 15. Land cover available for farming but not farmed on ALR parcels “Not used for farming”

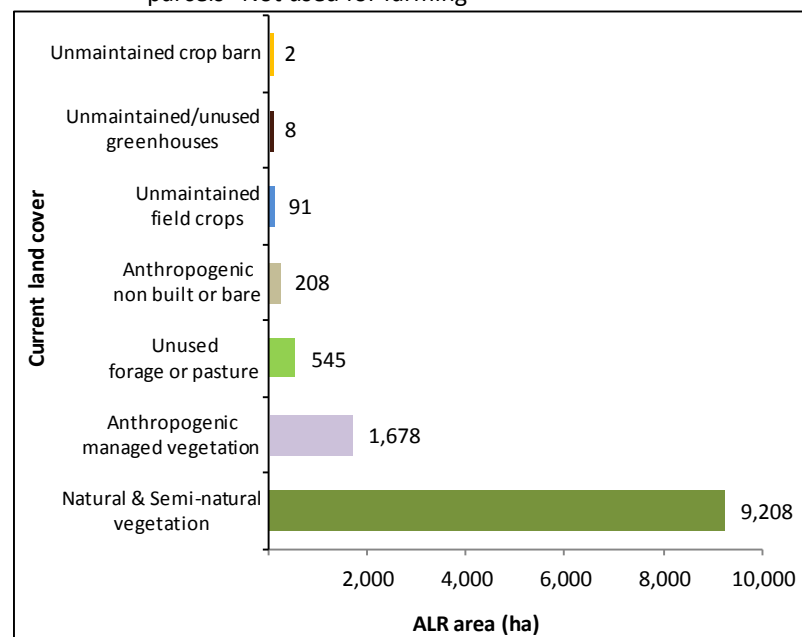


Figure 15 indicates that clearing land with natural and semi-natural land cover would provide the greatest gains in farmed land on parcels currently “Used for farming”.

Figure 16. Natural & semi-natural land cover available for farming on ALR parcels “Not used for farming”

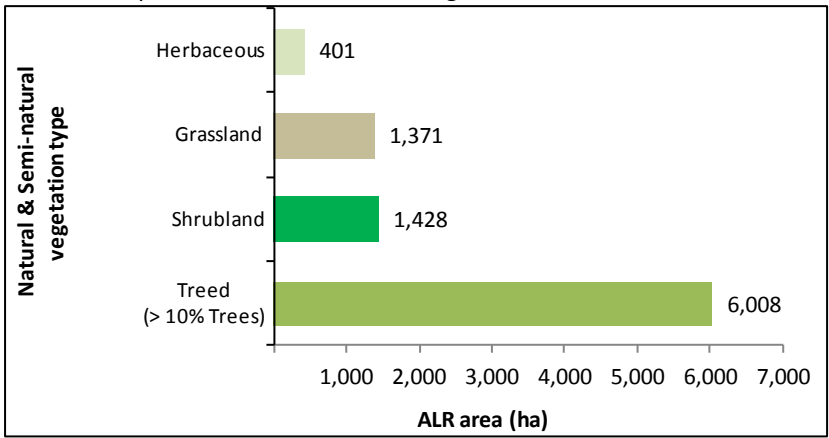


Figure 16 illustrates the types of natural & semi-natural land cover that are available for farming on parcels “Not used for farming”

Nearly two-thirds all available natural and semi-natural land (65%) is in treed land cover. This would have to be removed before the parcel could be used for most types of agriculture.

There are 3,200 hectares in herbaceous, grassland, and shrubland land cover that are available and have potential for farming.

Figure 17. Proportion of land cover available for farming on parcels “Not used for farming”

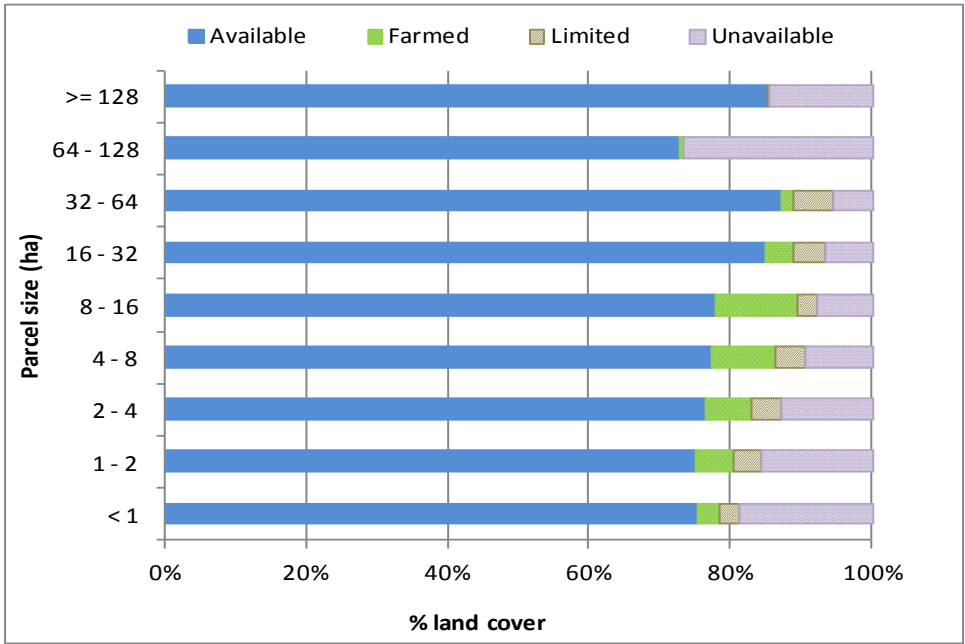


Figure 17 shows the proportion of land cover types on “Not used for farming” parcels with land available and with potential for farming.

On “Not used for farming” parcels, 75%-85% of the land cover across all parcels sizes is available for farming

4. 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.

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 Metro Vancouver are described by twelve crop groupings:

- **Forage & pasture:** grass, legumes, forage corn
- **Berries:** blueberries, cranberries, strawberries, raspberries, mixed berries, blackberries
- **Vegetables:** potatoes, mixed vegetables, legumes, sweet corn, cucurbits, cole crops, root vegetables (other), Asian vegetables, carrots, miscellaneous vegetables, leafy vegetables
- **Nursery & tree plantations:** Nursery (ornamentals & shrubs, cedar hedging, forestry stock, mixed), Tree plantations (Christmas trees, fibre/pulp/veneer trees)
- **Cereals:** barley, oats, wheat, mixed
- **Other:** bare cultivated land (land that is tilled or plowed, but with no visible crop), 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 to manage soil moisture/erosion associated with a cultivated crop
- **Turf**
- **Vines:** grapes, kiwis
- **Nut trees:** hazelnut/filbert, walnut
- **Tree fruits:** apples, cherries, pears, plums, mixed
- **Specialty:** herbs, rhubarb
- **Floriculture**

Table 10. Main field crop types by total area

Type	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR			
Forage & pasture	13,398	22%	686	14,083	49%
Berries	8,418	14%	19	8,437	29%
Vegetables	3,834	6%	201	4,035	14%
Nursery & tree plantations	946	2%	39	985	3%
Cereals	539	< 1%	99	638	2%
Other*	351	< 1%	3	354	1%
Turf	108	< 1%	< 1	108	< 1%
Vines	48	< 1%	3	51	< 1%
Nut trees	43	< 1%	2	45	< 1%
Tree fruits	29	< 1%	6	35	< 1%
Specialty	14	< 1%	-	14	< 1%
Floriculture	6	< 1%	< 1	6	< 1%
TOTAL	27,733	46%	1,059	28,792	100%

Table 10 shows the 12 main field crop types produced on the 28,792 hectares of cultivated land in Metro Vancouver.

“Forage & pasture” is the most common type of cultivated field crop accounting for 49% of all cultivated land and 22% of Metro Vancouver’s ALR.

Berries are the second most common type of cultivated crop accounting for 29% of all cultivated land and 14% of the ALR.

* Other. Includes bare cultivated land (land that is tilled or plowed, but with no visible crop), 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 or under mulch to manage soil moisture/erosion associated with a cultivated crop.

Figure 18. Main field crop types by percentage

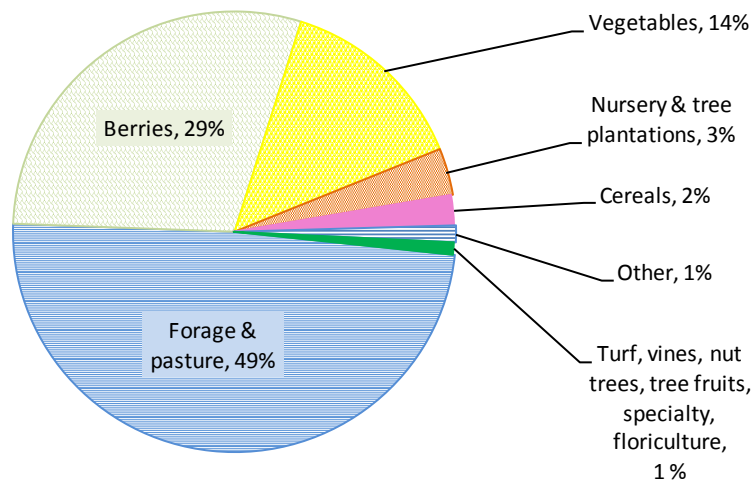


Figure 18 shows the proportion of main field crop types across Metro Vancouver’s cultivated land.

“Forage & pasture” combined with “Berries”, combined with “Vegetables” comprise 92% of all cultivated land in Metro Vancouver.

Figure 19. All cultivated field crops by size

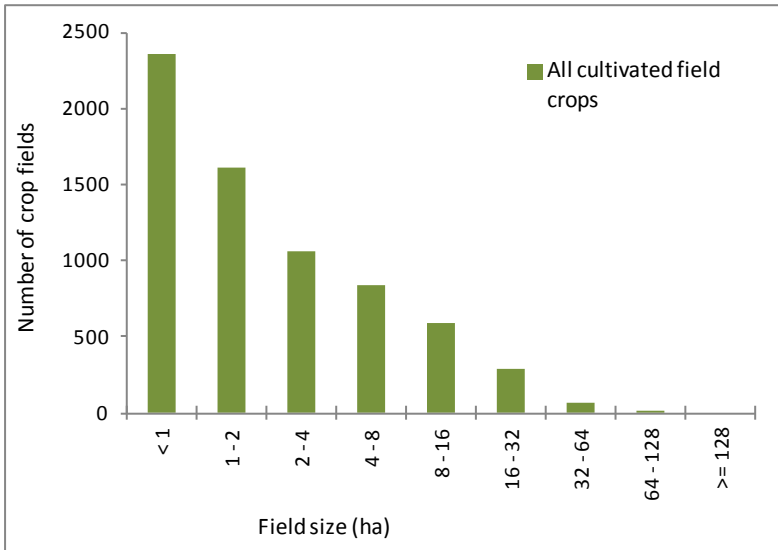


Figure 19 illustrates the number and size distribution of fields used for cultivated field crops.

In Metro Vancouver, cultivated fields are most likely to be < 1 hectare in size.

There are 6,838 individual crop fields with an average crop area of 4 hectares and a median crop area of 2 hectares.

The average parcel size where field crops occur is 6 hectares and the median parcel size is 3 hectares.

Figure 20. Forage & pasture, berry and vegetable fields by size

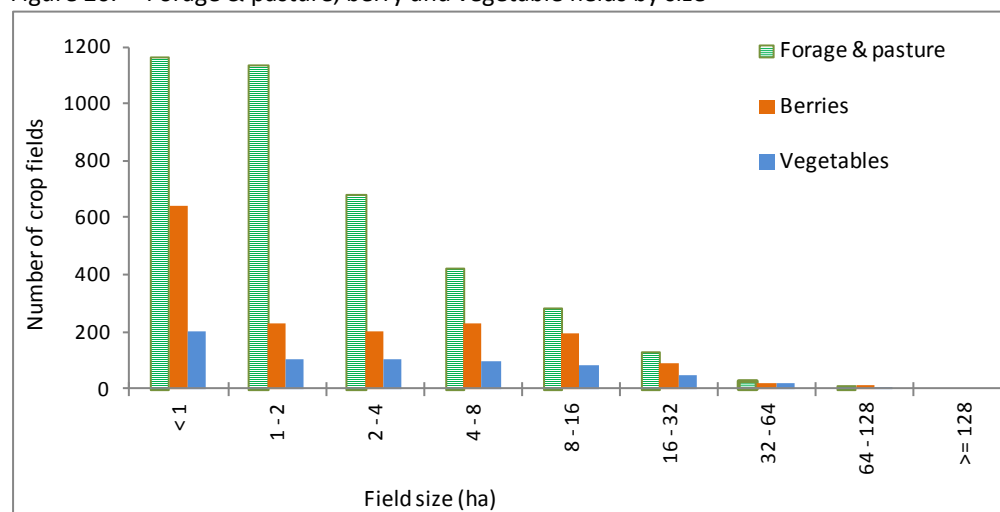


Figure 20 compares the top three main crop types by field sizes.

“Forage & pasture”, “Berry”, and “Vegetable” fields occur on a variety of field sizes.

There are 13 crop fields larger than 64 hectares; 9 are in berries, 3 are in forage & pasture, and 1 is in vegetables.

Table 11. Cultivated field crops by local government

Local government	Cultivated field crops (ha)				% of all cultivated land
	In ALR (ha)	% of ALR	Outside ALR (ha)	Total area (ha)	
Langley (Township)	8,787	14%	167	8,954	31%
Delta	6,344	10%	188	6,532	23%
Surrey	4,611	8%	352	4,963	17%
Pitt Meadows	3,546	6%	29	3,576	13%
Richmond	2,641	4%	15	2,656	9%
Maple Ridge	800	1%	140	940	3%
Barnston Island	350	< 1%	-	350	1%
Coquitlam	257	< 1%	2	259	< 1%
Tsawwassen First Nation	152	< 1%	126	278	< 1%
Port Coquitlam	111	< 1%	4	115	< 1%
Burnaby	96	< 1%	11	107	< 1%
Bowen Island	19	< 1%	15	34	< 1%
Vancouver	17	< 1%	< 1	17	< 1%
Langley (City)	3	< 1%	< 1	3	< 1%
Anmore	-	-	5	5	< 1%
New Westminster	-	-	4	4	< 1%
TOTAL	27,733	46%	1,059	28,792	100%

Table 11 shows the distribution of cultivated field crops by local government.

Langley (Township) has the greatest amount of cultivated field crops with 8,954 hectares or 31% of all cultivated land in Metro Vancouver.

Delta has the second highest with 6,532 hectares or 23% of all cultivated land.

Figure 21. Proportion of cultivated field crops by local government

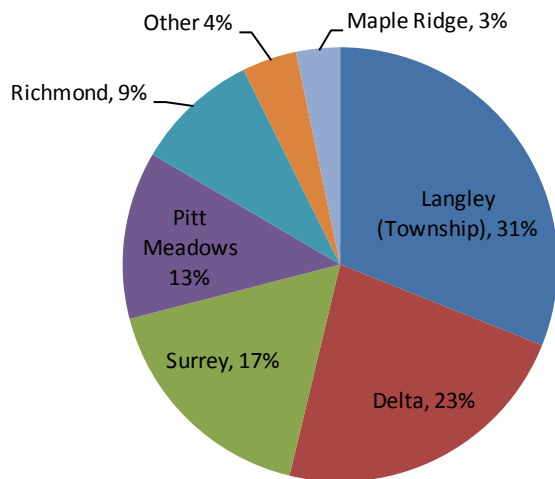


Figure 21 shows the percentage of Metro Vancouver’s cultivated field crops by local government.

The field crops in Langley (Township), combined with the crops in Delta, Surrey, and Pitt Meadows comprise 84% of all cultivated field crops in Metro Vancouver.

Figure 22. Percent of ALR in cultivated field crops by local government

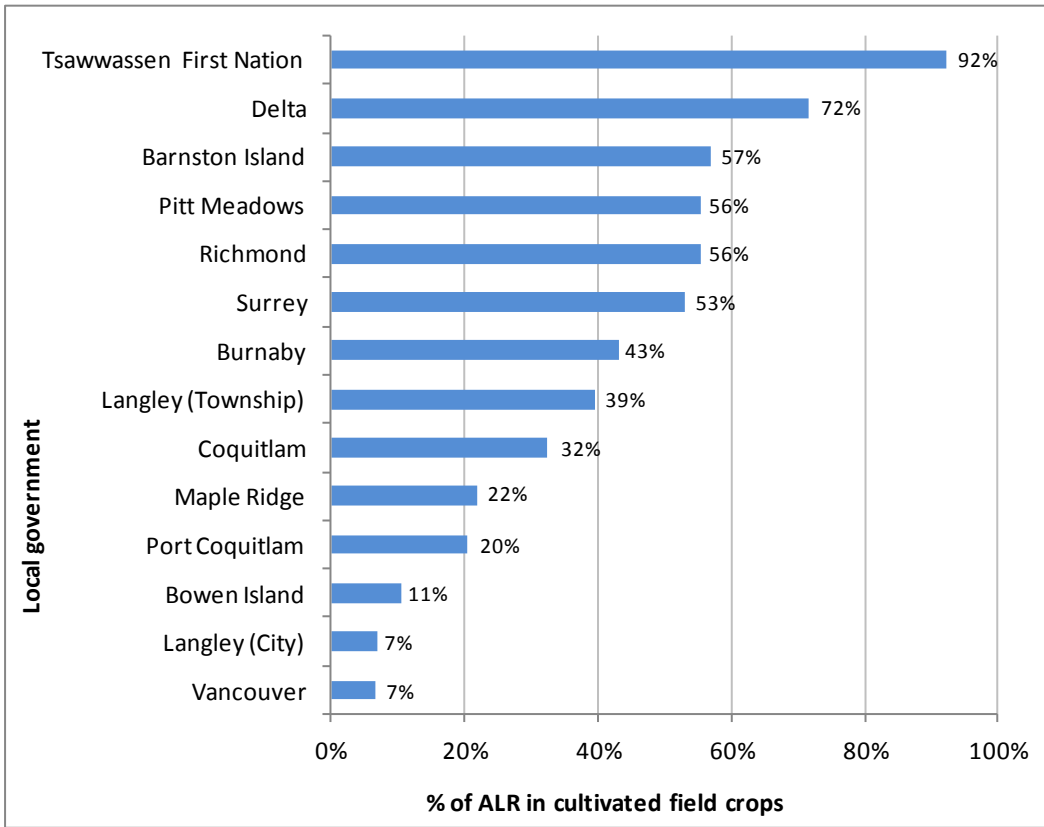


Figure 22 shows the percentage of the ALR area in cultivated field crops by local government.

In 2010, Tsawwassen First Nation had 92% of its ALR area in cultivated crops.

Delta has 72% of its ALR area in cultivated crops

Although Langley (Township) has the most land in the ALR (refer to Table 1), only 39% of its ALR area is in cultivated crops.

Forage & pasture crops

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

The Delta Farmland and Wildlife Trust (DFWT) is a group in Delta that encourages farmers to set aside fields planted in grasses or clover in order to restore the soil and to provide habitat for wildlife. DFWT set asides are fallowed for up to 4 years before being brought back into active forage & pasture production.¹³

¹³ Delta Farmland and Wildlife Trust; <http://www.deltafarmland.ca/subpage/our-programs/grassland-set-aside-stewardship-program>

Table 12. Forage & pasture crops by area

Forage & pasture crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Forage (intensively managed)	Grass	51	< 1%	9	60	< 1%
Forage (intensively managed)	Mixed grass / legume	4	< 1%	-	4	< 1%
Forage (managed)	Forage corn	1,389	2%	3	1,391	5%
Forage (managed)	Grass	3,423	6%	94	3,517	12%
Forage (managed)	Mixed grass / legume	1,804	3%	19	1,823	6%
Forage (unmanaged)	Grass	330	< 1%	18	348	1%
Forage (unmanaged)	Mixed grass / legume	676	1%	21	697	2%
Forage^	Grass	200	< 1%	6	206	< 1%
Forage^	Mixed grass / legume	91	< 1%	5	96	< 1%
Subtotal		7,967	13%	175	8,141	28%
Pasture (managed)	Grass	580	< 1%	25	605	2%
Pasture (managed)	Mixed grass / legume	569	< 1%	11	580	2%
Pasture (unmanaged)	Grass	977	2%	338	1,315	5%
Pasture (unmanaged)	Legume	< 1	< 1%	-	< 1	< 1%
Pasture (unmanaged)	Mixed grass / legume	1,460	2%	45	1,505	5%
Pasture^	Grass	85	< 1%	21	106	< 1%
Pasture^	Mixed grass / legume	51	< 1%	6	58	< 1%
Subtotal		3,722	6%	447	4,169	14%
Forage & pasture (managed)	Grass	115	< 1%	7	122	< 1%
Forage & pasture (managed)	Mixed grass / legume	777	1%	10	788	3%
Subtotal		893	1%	17	910	3%
Forage or pasture	Unknown	23	< 1%	1	24	< 1%
Subtotal		23	< 1%	1	24	< 1%
DFWT set aside*	Grass	128	< 1%	-	128	< 1%
Unused	Grass	315	< 1%	28	343	1%
Unused	Mixed grass / legume	328	< 1%	9	337	1%
Unused	Clover	< 1	< 1%	-	< 1	< 1%
Subtotal		771	1%	37	808	3%
Unmaintained	Grass	14	< 1%	9	23	< 1%
Unmaintained	Mixed grass / legume	7	< 1%	< 1	8	< 1%
Subtotal		22	< 1%	9	31	< 1%
TOTAL		13,398	22%	686	14,083	49%

^ Forage or pasture where the level of management could not be determined.

* DFWT set aside. Land set temporarily set aside through the Delta Farmland and Wildlife Trust to restore soil and provide wildlife habitat.

Table 12 details the types of forage & pasture in Metro Vancouver. There is nearly twice as much forage (8,141 hectares) as there is pasture (4,169 hectares).

Forage (managed) is the most common forage management type while grass and mixed grass/legume are the most common crop types for both forage and pasture.

Figure 23. Proportion of forage & pasture types

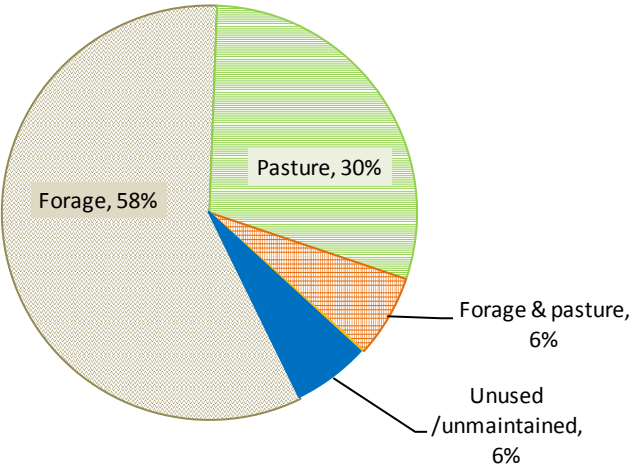


Figure 23 shows the proportion of forage and pasture types in Metro Vancouver.

Of all forage & pasture crops, 58% is in forage while 30% is in pasture, and 6% is in both forage & pasture.

Table 13. Forage crops by area (pasture excluded)

Forage crops*	ALR		Outside ALR (ha)	Total area (ha)	% of forage crops	% of cultivated land
	In ALR (ha)	% of ALR				
Grass	4,120	7%	134	4,253	47%	15%
Mixed grass / legume	3,351	5%	55	3,407	38%	12%
Forage corn	1,389	2%	3	1,391	15%	5%
Subtotal	8,859	15%	192	9,051	100%	31%

Table 13 illustrates that grass and mixed grass / legume crops comprise 85% of all forage crops while forage corn comprises 15%.

* Includes "forage" and "forage & pasture".

Table 14. Forage & pasture crops in the ALR by local government

Local government	ALR area (ha)						Total area (ha)	% of forage & pasture crops (ha)
	Forage	Pasture	Forage & pasture	Unknown	Unused	Unmaintained		
Langley (Township)	3,267	2,200	807	-	401	4	6,680	50%
Surrey	1,699	566	63	-	25	9	2,362	18%
Delta	1,708	246	3	-	192	-	2,149	16%
Pitt Meadows	637	153	-	-	-	-	790	6%
Maple Ridge	125	390	16	-	< 1	2	533	4%
Richmond	385	66	3	23	-	3	481	4%
Barnston Island	210	45	-	-	8	-	263	2%
Port Coquitlam	36	20	-	-	14	-	69	< 1%
Coquitlam	25	4	-	-	2	-	31	< 1%
Bowen Island	-	14	-	-	-	3	17	< 1%
Vancouver	-	15	-	-	< 1	< 1	16	< 1%
Tsawwassen First Nation	< 1	3	-	-	-	-	3	< 1%
Langley (City)	3	-	-	-	-	-	3	< 1%
TOTAL	8,095	3,722	893	23	643	22	13,398	100%

Table 14 illustrates the area and type of forage & pasture crops across Metro Vancouver's ALR by local government.

Fifty percent (50%) of the forage and pasture crops in Metro Vancouver's ALR are in Langley (Township).

In areas with significant amounts of forage & pasture crops, there tends to be more forage than pasture. Maple Ridge is an exception, as the amount of pasture is over three times greater than the amount of forage. It is interesting to note that Maple Ridge is also associated with a large number of equine activities (refer to Table 24).

Figure 24. Distribution of forage & pasture crops in the ALR by local government

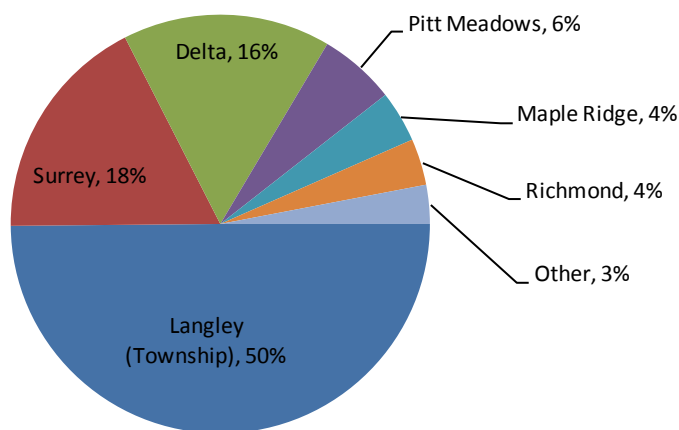


Figure 24 shows the distribution of forage & pasture crops in the ALR by Metro Vancouver local government.

The forage & pasture in Langley (Township) combined with that in Surrey and Delta, account for 84% of all forage and pasture crops in Metro Vancouver's ALR.

Berry crops

Berry crops are primarily perennials. Perennial berry crops do not change frequently as they require several years to mature and some crop types require extensive land preparation. Strawberries are a perennial plant which is usually rotated or grown on different land each year 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 15. Berry crops by total area

Berry crops		ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
		In ALR (ha)	% of ALR			
Blueberries	Mature	4,032	7%	16	4,048	14%
	Young	1,340	2%	< 1	1,341	5%
	Unmaintained	58	< 1%	< 1	58	< 1%
	Subtotal	5,430	9%	17	5,446	19%
Cranberries	Mature	2,157	4%	< 1	2,157	7%
	Young	437	< 1%	2	439	2%
	Subtotal	2,594	4%	2	2,596	9%
Raspberries	Mature	161	< 1%	< 1	161	< 1%
	Young	13	< 1%	< 1	13	< 1%
	Unmaintained	2	< 1%	-	2	< 1%
	Subtotal	176	< 1%	< 1	176	< 1%
Strawberries	Mature	146	< 1%	< 1	146	< 1%
	Young	21	< 1%	< 1	21	< 1%
	Unmaintained	3	< 1%	-	3	< 1%
	Subtotal	170	< 1%	< 1	170	< 1%
Berries - unknown	Mature	34	< 1%	< 1	34	< 1%
	Subtotal	34	< 1%	< 1	34	< 1%
Mixed berries	Mature	12	< 1%	-	12	< 1%
	Subtotal	12	< 1%	-	12	< 1%
Blackberries	Mature	3	< 1%	-	3	< 1%
	Young	< 1	< 1%	-	< 1	< 1%
	Subtotal	4	< 1%	-	4	< 1%
TOTAL		8,418	14%	19	8,437	29%

Table 15 shows Metro Vancouver has 8,437 hectares in berry crops.

Blueberries are the most significant berry type with 5,446 hectares followed by cranberries with 2,596 hectares.

Nearly all berry crops occur in the ALR with only 19 hectares outside.

Figure 25. Proportion of berry crop types

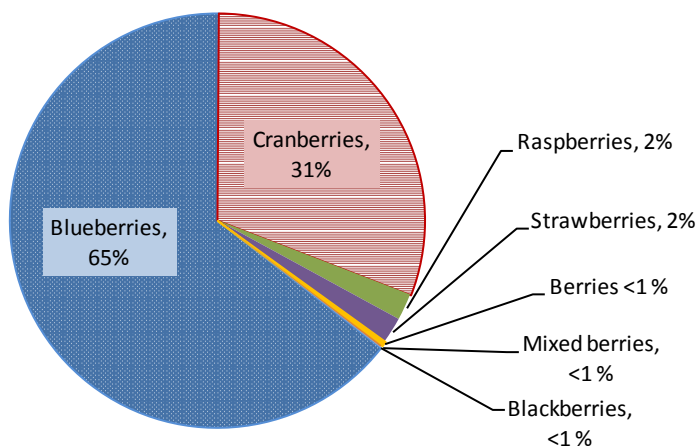


Figure 26 shows the percentage of berry crop types in Metro Vancouver.

Blueberries comprise nearly two thirds (65%) of all berry crops while cranberries comprise 31%.

Table 16. Berry crops in the ALR by local government

Local government	ALR area (ha)					Total area (ha)	% of berry crops (ha)
	Blueberries	Cranberries	Raspberries	Strawberries	Other berry		
Pitt Meadows	1,522	948	4	2	-	2,476	29%
Richmond	492	871	7	62	-	1,431	17%
Surrey	1,379	10	11	5	2	1,407	17%
Langley (Township)	870	255	141	37	35	1,338	16%
Delta	848	305	13	63	13	1,241	15%
Coquitlam	222	-	-	-	-	222	3%
Maple Ridge	59	57	-	-	-	116	1%
Barnston Island	-	86	-	-	-	86	1%
Burnaby	< 1	61	-	-	-	62	< 1%
Port Coquitlam	39	-	-	-	-	39	< 1%
TOTAL AREA	5,430	2,594	176	170	50	8,418	100%

Table 16 illustrates the area and type of berry crops in the ALR by local government.

Of all local governments, Pitt Meadows has the greatest area in berry crops (2,476 hectares).

In municipalities with significant amounts of berry crops, there are generally more blueberries than cranberries. Richmond is an exception, where the ALR area in cranberries is greater than the ALR area in blueberries. The area in cranberries and blueberries is similar in Maple Ridge.

Figure 26. Distribution of berry crops in the ALR by local government

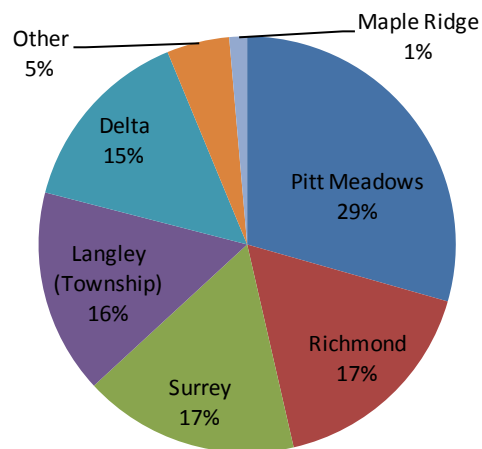


Figure 26 shows the distribution of berry crops in the ALR by local government.

Twenty-nine percent (29%) of all berry crops or 2,476 hectares are found in Pitt Meadows.

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 build-up of crop-specific pest and disease problems and avoid exhausting the soil of nutrients. Since this inventory is a snapshot in time, the annual vegetable crops seen during the survey year will probably not be present in the same location the following year.

Vegetables in Metro Vancouver are described by eleven crop groupings:

- **Potatoes**
- **Mixed vegetables:** a variety of vegetable types cultivated in a field
- **Legumes:** beans, peas
- **Sweet corn**
- **Cucurbits:** includes squash, cucumber, zucchini, pumpkins
- **Cole crops:** Includes broccoli, brussels sprouts, cabbage, cauliflower, kale, collards, and kohlrabi.
- **Root vegetables:** Includes carrots, garlic, dry onions, rutabagas, turnips, beets, radishes, (potatoes reported separately)
- **Asian vegetables:** includes bok choy, choy sum, gai choy, sui choy, gai lan, Chinese cabbage, daikon, lotus root
- **Miscellaneous vegetables:** Includes peppers, sweet corn, leek, tomatoes, asparagus (producing & non producing), eggplant, shallots, green onions, okra.
- **Leafy vegetables:** Includes lettuces, spinach, swiss chard, celery.

Table 17. Vegetable crops by area

Vegetable crops	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR			
Potatoes	1,369	2%	101	1,470	5%
Mixed vegetables	994	2%	31	1,025	4%
Legumes	817	1%	57	874	3%
Sweet corn	185	< 1%	2	187	< 1%
Cucurbits	145	< 1%	9	154	< 1%
Cole crops	129	< 1%	< 1	129	< 1%
Root vegetables	122	< 1%	-	122	< 1%
Asian vegetables	53	< 1%	-	53	< 1%
Misc. vegetables	15	< 1%	< 1	16	< 1%
Leafy vegetables	4	< 1%	-	4	< 1%
Vegetables	3	< 1%	-	3	< 1%
TOTAL	3,834	6%	201	4,035	14%

Table 17 shows Metro Vancouver has a total of 4,035 hectares in vegetable crops

Potatoes are the most common crop with 1,470 hectares, followed by mixed vegetables with 1,025 hectares.

Figure 27. Proportion of vegetable crop types

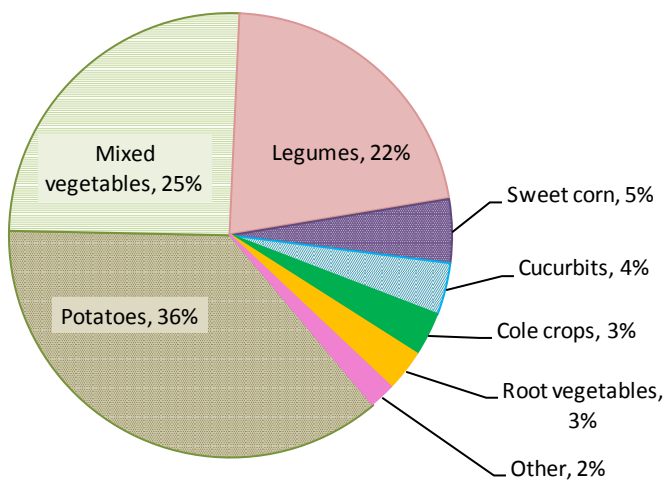


Figure 27 shows the proportion of vegetable crop types in Metro Vancouver.

Potatoes account for 36% of all vegetable crops, while mixed vegetables comprise 25% and legumes comprise 22%

Table 18. Vegetable crops in the ALR by local government

Local government	ALR area (ha)									Total area (ha)	% of vegetable crops (ha)
	Potatoes	Mixed vegetables	Legumes	Sweet corn	Cucurbits	Cole crops	Root vegetables	Asian vegetables	Other		
Delta	1,169	184	778	66	30	49	95	24	< 1	2,396	62%
Surrey	20	422	-	32	56	-	26	28	-	585	15%
Richmond	127	298	10	57	23	36	-	-	6	557	15%
Langley (Township)	-	34	-	30	8	44	-	-	15	131	3%
Tsawwassen First Nation	52	9	29	-	15	-	-	-	-	106	3%
Burnaby	-	27	-	-	-	-	-	-	-	27	< 1%
Maple Ridge	-	12	-	-	11	-	-	1	-	24	< 1%
Coquitlam	-	4	-	-	-	-	-	-	-	4	< 1%
Port Coquitlam	-	< 1	-	-	2	-	-	-	-	2	< 1%
Pitt Meadows	-	1	-	-	-	-	-	-	-	1	< 1%
Bowen Island	-	< 1	-	-	-	-	-	-	-	< 1	< 1%
Barnston Island	-	< 1	-	-	-	-	-	-	-	< 1	< 1%
TOTAL AREA (HA)	1,369	994	817	185	145	129	122	53	21	3,834	100%

Table 18 illustrates the area and type of vegetable crops across Metro Vancouver's ALR by local government.

Delta has nearly two-thirds (62%) of all vegetable crops in Metro Vancouver's ALR. Potatoes are the most abundant vegetable crop type; most potatoes (85%) are grown in Delta.

Mixed vegetables are the second most abundant crop type and occur in all local governments with vegetable crops.

Figure 28. Distribution of vegetable crops in the ALR by local government

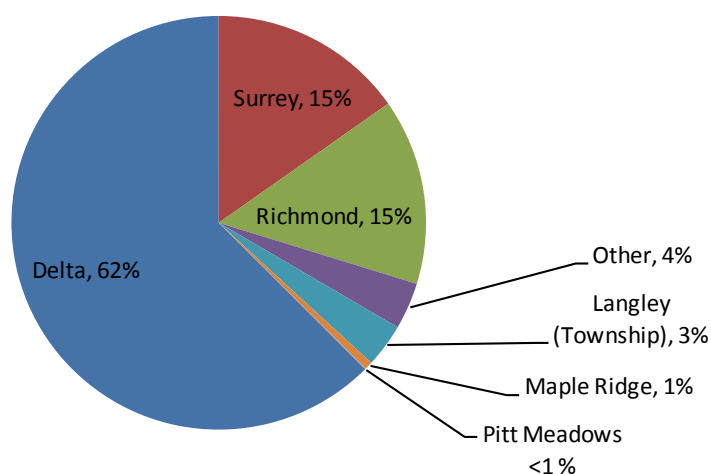


Figure 28 shows the distribution of vegetable crops in the ALR by local government.

The vegetables in Delta combined with those in Surrey and Richmond, account for 92% of all vegetable crops in Metro Vancouver.

GREENHOUSES & CROPS BARNs

Greenhouses are structures covered with translucent material and of sufficient size for a person to work inside¹⁴. 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 crops such as mushrooms.

Table 19. Greenhouses by area¹⁵

Greenhouses		ALR		Outside ALR (ha)	Total area (ha)	% of greenhouse area	Number of activities
		In ALR (ha)	% of ALR				
Crop barn	In use	23	< 0.1%	< 1	23	5%	25
	Unmaintained	2	< 0.1%	-	2	< 1%	2
Subtotal		25	< 0.1%	< 1	25	5%	27
Glass greenhouse	In use	311	0.5%	2	313	64%	127
	Unused/unmaintained	2	< 0.1%	< 1	2	< 1%	4
Subtotal		314	0.5%	2	316	64%	131
Poly greenhouse	In use	130	0.2%	10	140	28%	414
	Unused/unmaintained	9	< 0.1%	2	11	2%	31
Subtotal		138	0.2%	12	151	31%	445
TOTAL		477	0.8%	14	491	100%	603

Table 19 shows that 477 hectares or 0.8% of ALR land is covered by greenhouses and crop barns.

Glass greenhouses make up 314 hectares of ALR land while poly greenhouses make up 138 hectares and crop barns comprise 25 hectares of ALR land.

Most greenhouses and crop barns are in the ALR with only 14 hectares outside.

Table 20. Greenhouses and crop barns in the ALR by local government

Local government	ALR (ha)			Total area (ha)	% of greenhouse area
	Glass greenhouse	Poly greenhouse	Crop barn		
Delta	152	11	-	162	34%
Langley (Township)	83	43	21	148	31%
Surrey	39	30	2	71	15%
Pitt Meadows	26	11	-	37	8%
Richmond	7	24	< 1	31	6%
Maple Ridge	7	11	1	20	4%
Burnaby	-	6	-	6	1%
Port Coquitlam	-	2	-	2	< 1%
Coquitlam	-	< 1	-	< 1	< 1%
Langley (City)	< 1	< 1	-	< 1	< 1%
Vancouver	< 1	-	-	< 1	< 1%
Barnston Island	-	< 1	-	< 1	< 1%
Bowen Island	-	< 1	-	< 1	< 1%
TOTAL	314	138	25	477	100%

Table 20 shows that the largest greenhouse and crop barn areas are found in Delta with 162 hectares and Langley (Township) with 148 hectares.

Twenty-one (21) of the 25 hectares of crop barns are found in Langley (Township).

¹⁴ Source: *Guide for Bylaw Development in Farming Areas*, 2013. Ministry of Agriculture.

¹⁵ 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 29. Distribution of greenhouse and crop barn area in the ALR by local government

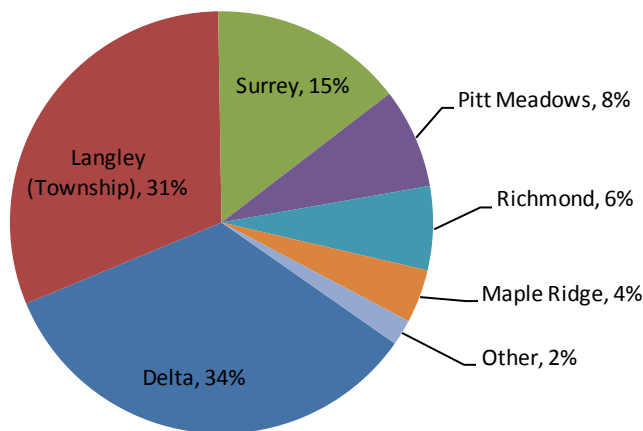


Figure 29 shows the distribution of greenhouse and crop barn areas in the ALR by local government.

The area in Delta combined with the area in Langley (Township) and Surrey comprises 80% of the total ALR greenhouse and crop barn area.

Figure 30. Number of greenhouse and crop barn activities by building type¹⁶

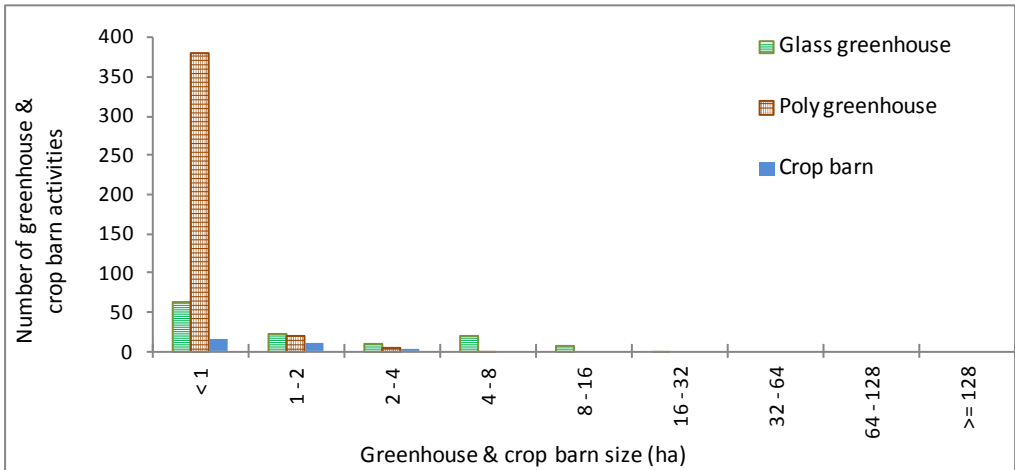
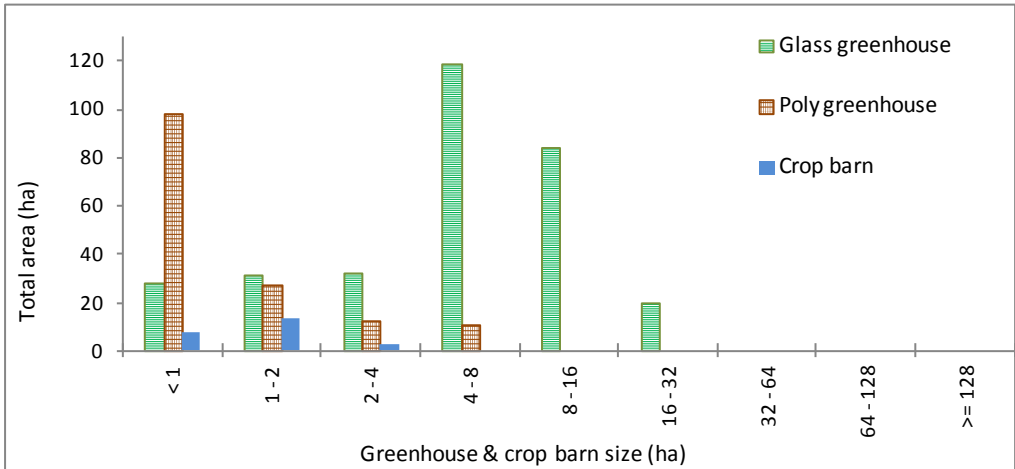


Figure 30 shows there are significantly more poly greenhouse activities (408) than glass greenhouse (128) or crops barn (27) activities.

The majority of all greenhouses are less than 1 hectare in size.

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



Although there are fewer glass than poly greenhouse activities in Metro Vancouver, (refer to Figure 30) Figure 31 shows that glass greenhouse activities comprise a larger total area.

¹⁶ Multiple greenhouses of the same building type may be present on a single land cover. Each distinct greenhouse land cover is counted as one greenhouse activity.

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, maintenance of managed vegetation, and control of soil erosion or dust. The potential to irrigate is often limited by the quality and quantity of available irrigation water. High salinity or microbial contamination renders water unsuitable for irrigation. Insufficient water sources or water delivery infrastructure limits the potential to increase agricultural production through irrigation.

Irrigation is captured at the field or land cover level by system type (sub-surface, sprinkler, 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 set temporarily set aside for wildlife or other purposes, and land under preparation for planting.

Refer to the Metro Vancouver Agriculture Water Demand Model¹⁷ for information on current agricultural water use and future agricultural water demands for the regional district.

Table 21. Main crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)					Total area irrigated (ha)	% of crop area irrigated
	Sprinkler	Trickle	Giant gun	Sub-surface	Landscape / turf		
Berries	2,897	4,114	171	27	-	7,208	85%
Vegetables	1,012	7	1,862	30	3	2,914	72%
Forage & pasture	1,518	-	1,328	22	-	2,867	20%
Nursery & tree plantations	426	20	25	-	< 1	471	48%
Turf	108	-	-	-	-	108	100%
Other*	27	-	17	7	-	51	14%
Vines	5	33	-	-	-	38	74%
Cereals	33	-	4	-	-	38	6%
Specialty	13	-	-	-	-	13	97%
Tree fruits	11	-	< 1	-	< 1	11	32%
Floriculture	3	1	-	-	-	5	73%
Nut trees	-	-	-	-	-	-	-
TOTAL FIELD CROP AREA IRRIGATED	6,053	4,174	3,407	86	4	13,725	48%
Greenhouses and crop barns	Mix of flood and trickle irrigation					491	100%

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

Table 21 illustrates that 48% of all cultivated field crops are irrigated. The majority of all berry crops (85%) are irrigated, nearly three-quarters (72%) of vegetable crops are irrigated, and only 20% of forage & pasture crops are irrigated.

Sprinkler systems are the most common type of irrigation system with 6,053 hectares, followed by trickle (4,174 hectares), and giant gun systems (3,407 hectares). Sprinkler systems were found on nearly all main irrigated crop types. Trickle systems were found primarily on berry crops, and giant gun systems were found mainly on vegetable and forage & pasture crops.

¹⁷ Agricultural Water Demand Model. Report for Metro Vancouver.
http://www.agf.gov.bc.ca/resmgmt/water/Ag_Water_Management.html

Figure 32. Irrigation systems by percentage of cultivated land

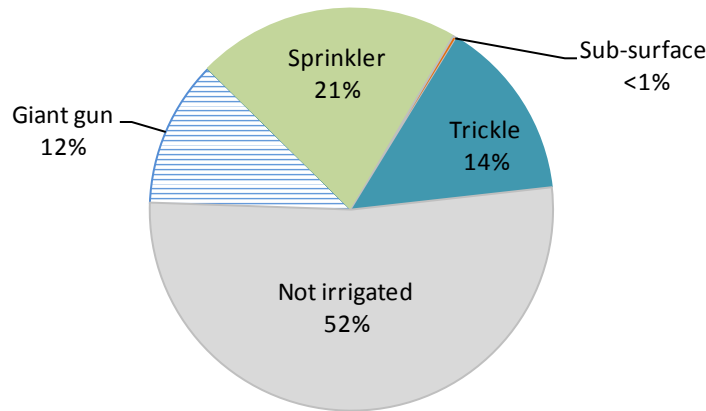


Figure 32 shows just under half (48%) of the cultivated land in Metro Vancouver is irrigated.

Sprinkler irrigation is the most widely used system found on 21% of all cultivated land followed by trickle systems on 14% and giant gun systems on 12% of all cultivated land.

Table 22. Irrigation by local government

Local government	Crop area irrigated (ha)			% of municipal crop area that is irrigated
	In ALR (ha)	Outside ALR (ha)	Total area (ha)	
Delta	4,049	46	4,094	63%
Surrey	3,236	108	3,344	67%
Pitt Meadows	2,392	4	2,397	67%
Langley (Township)	1,787	11	1,798	20%
Richmond	1,535	3	1,538	58%
Maple Ridge	129	5	134	14%
Tsawwassen First Nation	77	51	129	46%
Burnaby	96	10	106	99%
Coquitlam	88	< 1	88	34%
Barnston Island	87	-	87	25%
Port Coquitlam	5	< 1	5	4%
Vancouver	3	< 1	3	19%
Bowen Island	1	2	3	8%
New Westminster	-	1	1	29%
TOTAL CROP AREA IRRIGATED	13,484	241	13,725	48%

Table 22 outlines the total area under irrigation by local government.

Delta has the greatest area of irrigated crops (4,094 hectares) followed by Surrey (3,344 hectares), and Pitt Meadows (2,9397).

Ninety-nine percent (99%) of all field crops in Burnaby are irrigated. In Surrey and Pitt Meadows, 67% of the field crops are irrigated.

Figure 33. Percentage of Metro Vancouver’s irrigated crop area by local government

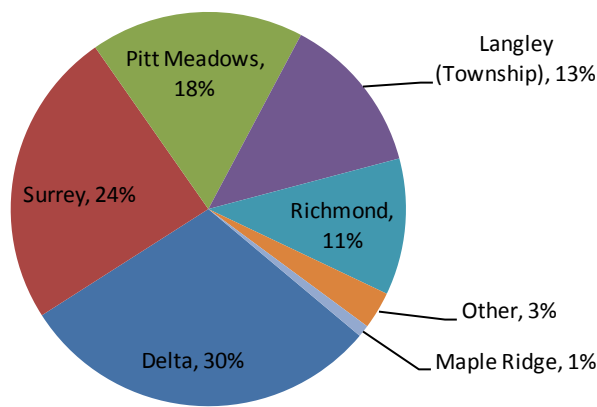


Figure 33 illustrates the distribution of irrigated crop areas in Metro Vancouver.

Cultivated field crops in Delta, Surrey, and Pitt Meadows comprise 52% of all field crops in Metro Vancouver (refer to Table 11). The irrigated crop areas in these municipalities comprise 72% of Metro Vancouver’s irrigated crops

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.

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).

Table 23. Livestock activities by type and intensity

Livestock group	Total activities	By activity type	
		Intensive	Non Intensive
Equine	1,585	-	1,585
Poultry	338	137	201
Beef	286	6	280
Sheep / lamb / goat	175	-	175
Unknown livestock	88	-	88
Dairy	86	44	42
Llama / alpaca	77	-	77
Inactive	18	15	3
Specialty livestock*	17	6	11
Swine	6	-	6
TOTAL	2,676	208	2,468

* Specialty livestock includes ratites (emu, ostrich, emu, peacock); game birds (partridge, pheasant, pigeon, quail); fur bearing; and deer, fallow.

Table 23 shows equine is the most common type of livestock activity in Metro Vancouver accounting for 59% (1,585 out of 2,67) of all livestock activities. Poultry is a distant second with 338 activities or 13% of all livestock activities.

Nearly two thirds of all intensive activities are poultry (137 out of 208 activities or 66%). There are also intensive beef, dairy, and specialty livestock activities.

Of all livestock types, poultry and dairy have the largest proportions of intensive activities.

All equine activities are all non-intensive.

Figure 34. Proportion of livestock activities by type

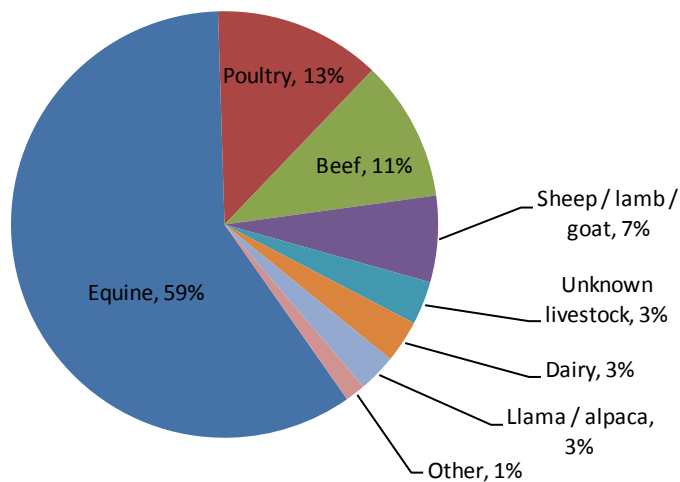


Figure 34 illustrates the proportion of each type of livestock activity in Metro Vancouver.

Equine activities comprise the majority (59%) of all activities.

Table 24. Livestock activities by type and local government

Municipality	Type of livestock activity										Total activities
	Equine	Poultry	Beef	Sheep / lamb / goat	Unknown livestock	Dairy	Llama / alpaca	Inactive	Specialty livestock	Swine	
Langley (Township)	950	197	198	97	34	37	42	6	11	3	1,575
Maple Ridge	308	46	28	29	40	6	17	-	4	-	478
Surrey	102	54	33	26	-	17	13	8	1	-	254
Delta	71	10	10	4	-	11	4	-	-	1	111
Pitt Meadows	36	6	6	3	10	8	-	-	-	-	69
Vancouver	57	3	-	-	-	-	-	-	-	-	60
Richmond	32	11	4	4	-	6	1	1	-	-	59
Bowen Island	4	4	-	6	2	-	-	-	1	2	19
Barnston Island	5	2	2	5	-	1	-	3	-	-	18
Port Coquitlam	6	3	4	-	2	-	-	-	-	-	15
Anmore	7	-	-	-	-	-	-	-	-	-	7
Coquitlam	3	-	1	1	-	-	-	-	-	-	5
Tsawwassen First Nation	3	1	-	-	-	-	-	-	-	-	4
New Westminster	1	-	-	-	-	-	-	-	-	-	1
Burnaby	-	1	-	-	-	-	-	-	-	-	1
TOTAL	1,585	338	286	175	88	86	77	18	17	6	2,676

Table 24 demonstrates that Langley (Township) has the most livestock activities with 1,575 or 59% of all Metro Vancouver activities. Of these 1,575 activities, 950 or 60% are equine.

Maple Ridge has the second highest number of livestock activities with 478 or 18% of all activities. Sixty-four percent of all livestock activities in Maple Ridge are equine.

Figure 35. Proportion of livestock activities by local government

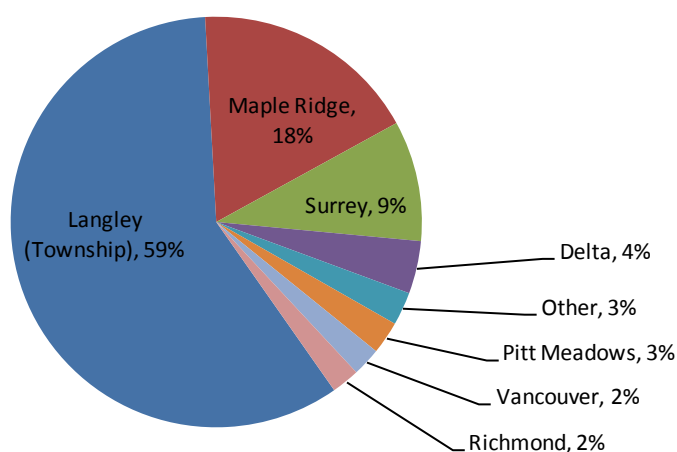


Figure 35 illustrates the distribution of livestock activities by local government across Metro Vancouver.

Activities in Langley (Township) combined with activities in Maple Ridge and Surrey comprises 86% of all livestock activities in Metro Vancouver.

Figure 36. Livestock activities (excluding equine) by scale and type

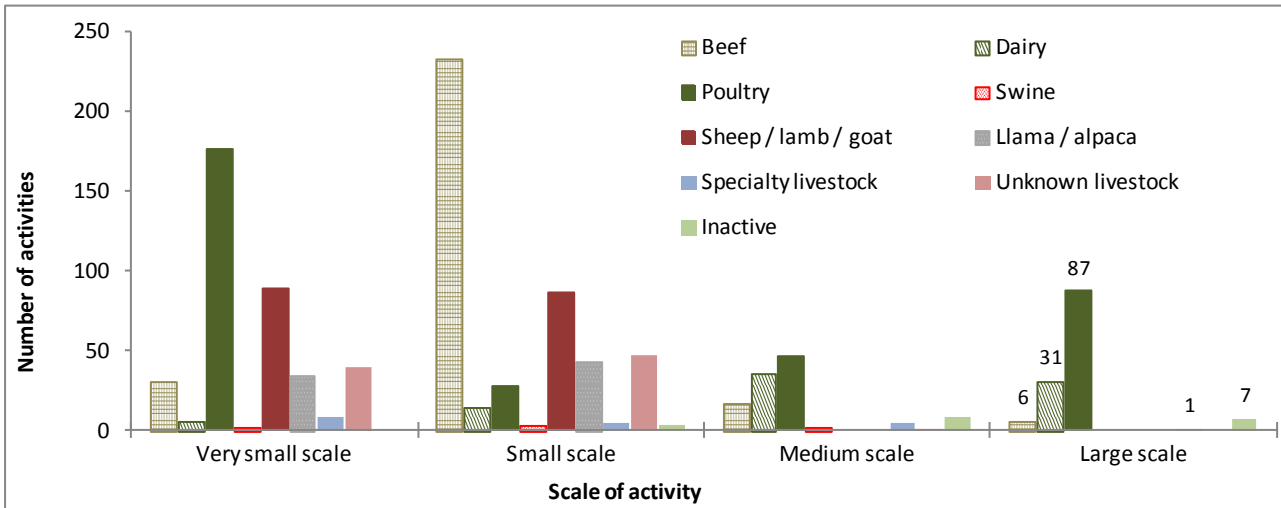


Figure 36 illustrates the scale of livestock activities (excluding equine) across Metro Vancouver. The majority of all livestock activities are “small” or “very small” scale. Sheep / lamb / goat and llama / alpaca activities occur exclusively on “small” and “very small” scales. Most “large” scale activities are poultry (87 of 132 “large” scale activities). There are also “large” scale dairy (31), beef (6), specialty - game bird (1) and inactive operations (7).

Figure 37. Livestock and equine activities by scale

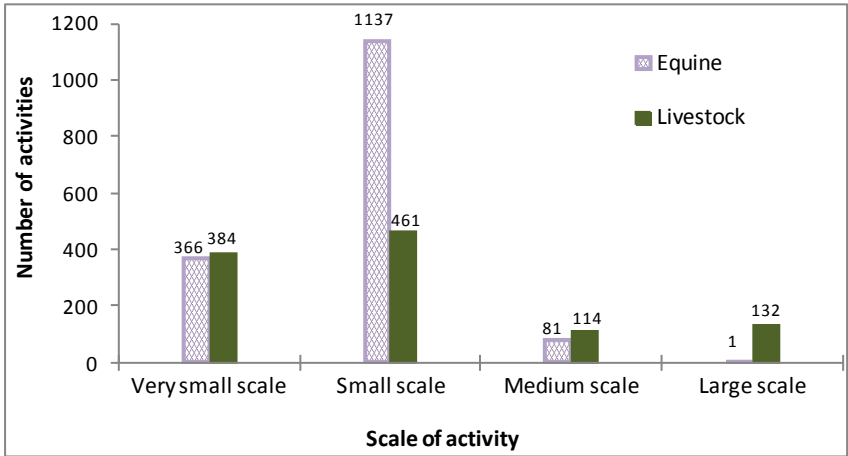


Figure 37 compares the scale of livestock and equine activities. Even though 1,585 of the 2,676 livestock activities are equine, most are “small” or “very small” scale. There are 132 “large” scale livestock activities, while there is only 1 “large” scale equine activity.

Figure 38. Livestock activities (excluding equine) by parcel size and scale

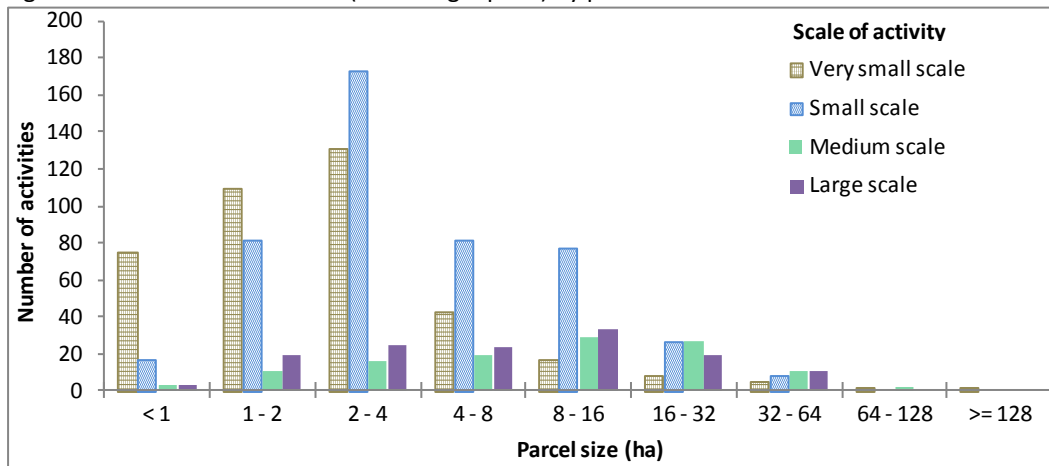


Figure 38 illustrates the distribution of livestock activities (excluding equine) by scale across parcel size categories.

The majority of all livestock activities (60%) occur on parcels less than 4 hectares.

“Very small” activities occur across all parcel sizes including one activity on a parcel of 447 hectares (>=128)

“Large” scale activities occur on all parcel sizes less than 128 hectares including parcels less than 1 hectare.

Figure 39. Livestock activities (excluding equines) by parcel size and type

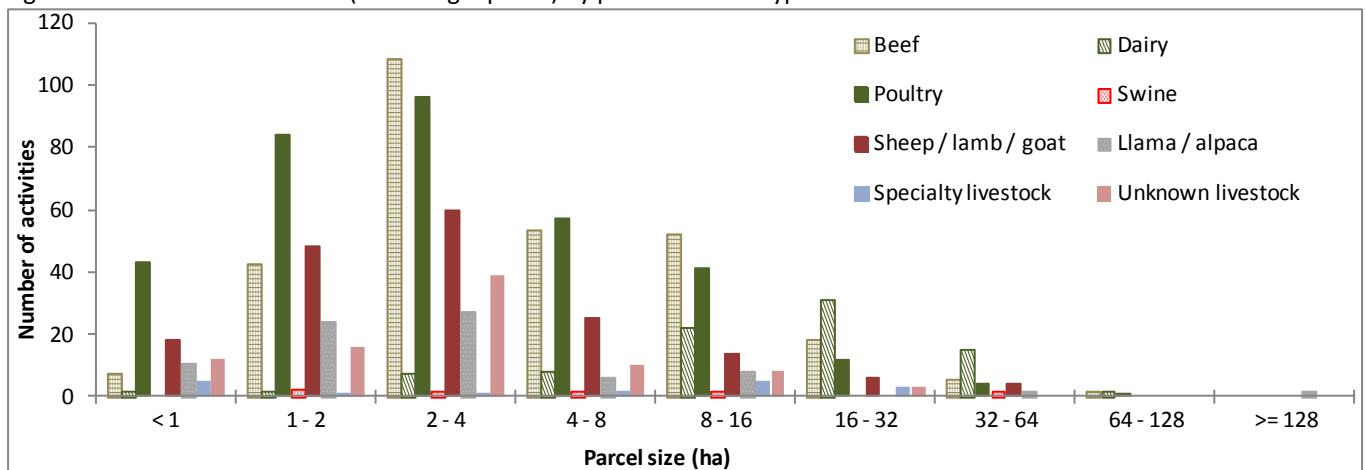


Figure 39 compares the distribution of different livestock types across parcel size categories. Most livestock types are distributed across all parcel sizes less than 128 hectares.

One “very small” scale llama / alpaca activity occurs on a parcel of 447 hectares (>=128).

Figure 40. Livestock and equine activities by parcel size

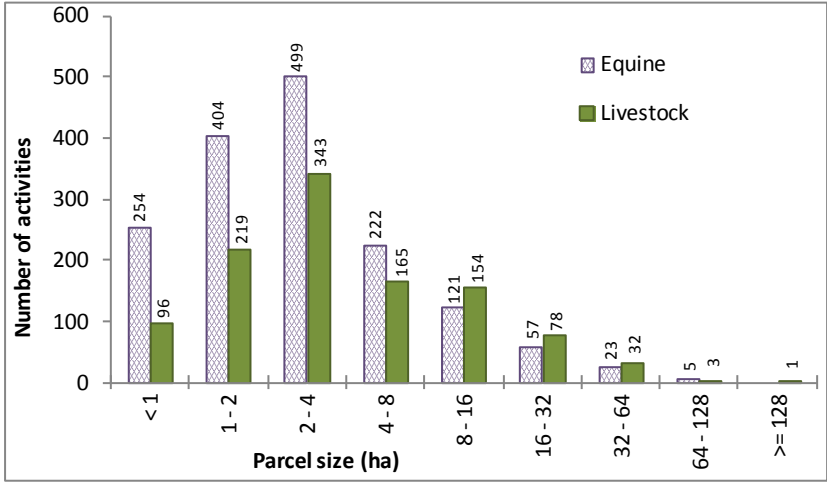


Figure 40 compares the distribution of equine and livestock activities across parcel size categories.

There are significant amounts of livestock and equine activities on small parcels. Seventy-three percent (73%) of all equine activities and 60% of other livestock activities occur on parcels less than 4 hectares.

Five percent (5%) of all equine activities (85 out of 1,585) are on parcels greater than 16 hectares while 10% of other livestock activities (114 out of 1,091) occur on these larger parcels.

5. 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 57,378 hectares of ALR on 11,989 parcels which is 94.2% of the ALR within Metro Vancouver. The remaining ALR was excluded from the inventory as it is in parcels less than 100 square metres in size or outside surveyed land parcels in designated rights-of-way or water and foreshore.

ALR boundaries are not always coincident 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 Metro Vancouver, 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, 11,791 parcels, with 57,123 hectares or 93.7% of Metro Vancouver's ALR land meets the above criteria and is included in the further analysis of the ALR.

This includes 9 parcels that have less than 50% of their area in the ALR but each contains greater than 10 hectares of ALR land. These 9 parcels have a combined ALR area of 363 hectares.

Figure 41. Parcel inclusion in the ALR

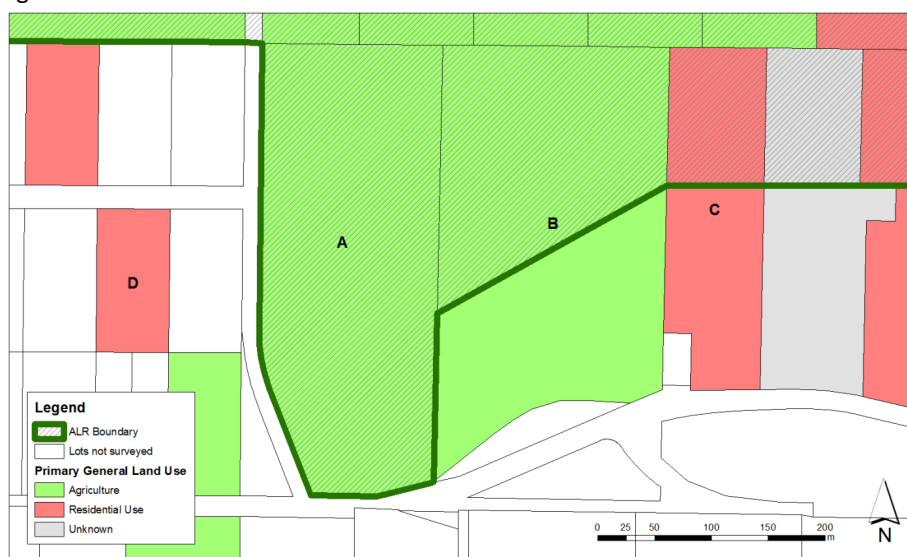


Figure 41 illustrates the distinction between parcels considered to be within or outside the ALR:

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:

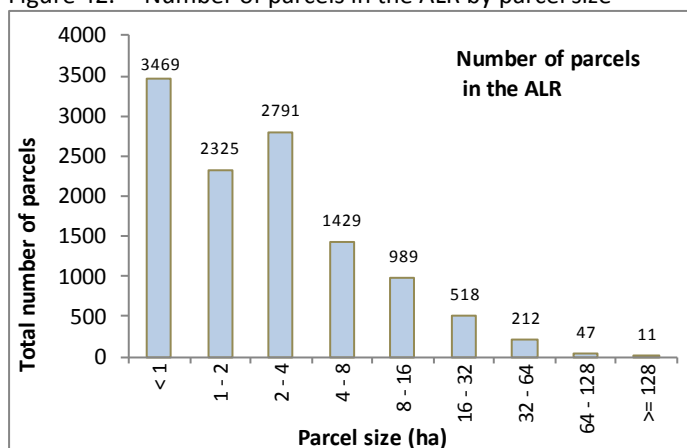
- lot C has less than 50% of its area and less than 10 hectares in the ALR
- lot D is completely outside the ALR.

PARCEL SIZE & FARMING IN THE ALR

Parcel size must be considered when determining the agricultural potential of a land 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, greenhouse operations, 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 unit¹⁸, however it is generally more efficient to run a farm on fewer larger parcels than many smaller parcels. Larger parcels accommodate equipment more efficiently and reduce the need to move farm equipment on public roads. Smaller parcels are more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances, and may encourage alternative land uses such as residential.

Figure 42. Number of parcels in the ALR by parcel size

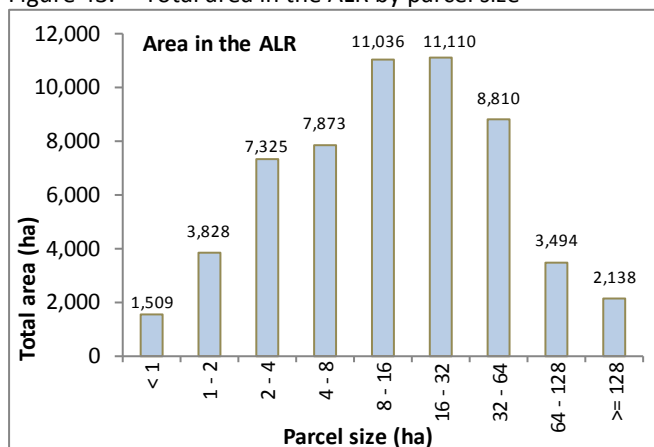


Of the ALR parcels in Metro Vancouver, 29% are less than one hectare. The average ALR parcel size is 5 hectares and the median size is 2 hectares.

Figure 42 illustrates that of the 11,791 parcels in the ALR:

- 29% (3,469 parcels) are less than 1 hectare.
- 73% (8,585 parcels) are less than 4 hectares.
- 12% (1,429 parcels) are between 4 and 8 hectares.
- 8% (989 parcels) are between 8 and 16 hectares.
- 7% (788 parcels) are greater than 16 hectares.

Figure 43. Total area in the ALR by parcel size



Even though Metro Vancouver has a large number of small parcels, most of its ALR is in larger parcels.

Figure 43 illustrates that of the 57,123 hectares in the ALR:

- 3% (1,509 hectares) is on parcels less than 1 hectare.
- 22% (12,662 hectares) is on parcels less than 4 hectares.
- 14% (7,873 hectares) is on parcels between 4 and 8 hectares.
- 20% (11,036 hectares) is on parcels between 8 and 16 hectares.
- 45% (25,552 hectares) is on parcels greater than 16 hectares.

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

Table 25. ALR parcel size by local government

Local Government	Average ALR parcel size (ha)	Median ALR parcel size (ha)	Number of ALR parcels
Tsawwassen First Nation	18.2	11.4	12
Barnston Island	11.9	5.0	52
Delta	11.6	3.3	877
Coquitlam	11.3	2.8	71
Pitt Meadows	8.9	3.7	732
Bowen Island	8.7	2.1	29
Surrey	6.7	2.8	1,300
Langley (Township)	4.6	2.0	4,810
Port Coquitlam	4.0	2.0	136
Langley (City)	3.5	2.3	12
Burnaby	3.2	0.8	71
Maple Ridge	2.6	1.6	1,473
Vancouver	2.4	0.5	137
Richmond	2.3	0.4	2,079
METRO VANCOUVER	5.0	2.0	11,791

Table 25 details the average and median parcel size in Metro Vancouver by local government.

The average parcel size for the entire Metro Vancouver Region is 5 hectares and the median parcels size is 2 hectares.

Table 26. 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	4,776	41 %
Not used for farming	7,015	59 %
TOTAL	11,791	100 %

Table 26 shows that of the 11,791 parcels in the ALR, only 4,776 or 41% are "Used for farming".

Figure 44. Number of farmed and not farmed parcels in the ALR by parcel size

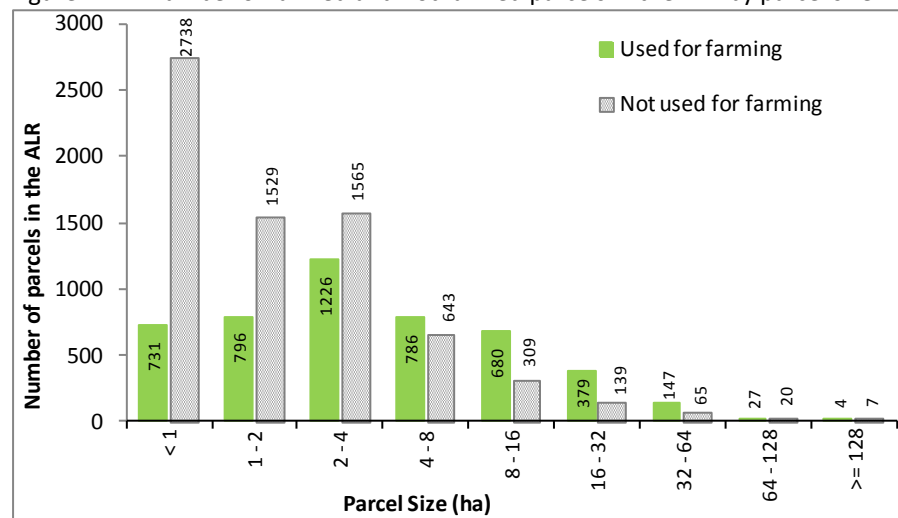


Figure 44 shows that of the 7,015 "Not used for farming" parcels in the ALR,

- 2,378 parcels or 39% are less than one hectare
- 4,267 parcels or 61% are less than 2 hectares
- 5,832 parcels or 83% are less than 4 hectares

Small parcels are less likely to be farmed.

Figure 45. Number of farmed and not farmed parcels in the ALR by parcel size (line chart)

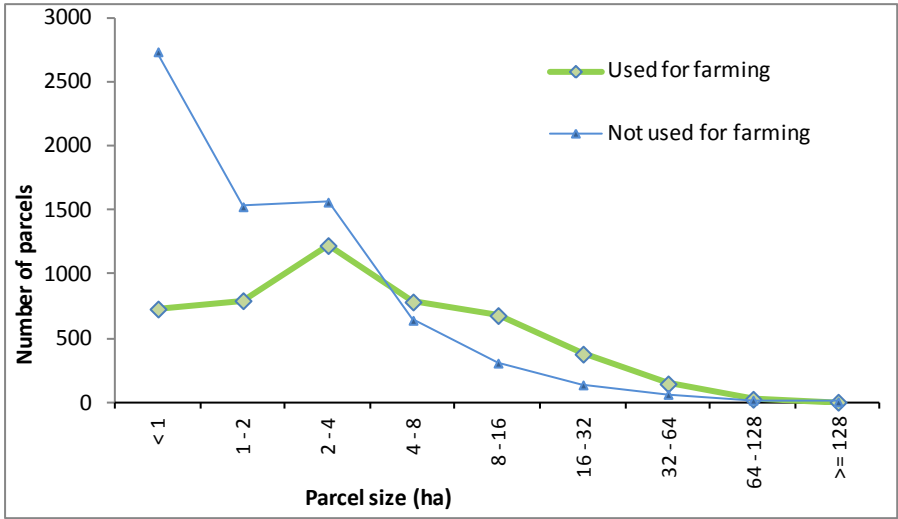


Figure 45 illustrates the relationship between parcel size and used and not “Used for farming” parcels.

Parcels less than 4 hectares are more frequently “Not used for farming”.

Figure 46. Proportion of parcels farmed and not farmed by parcel size in the ALR

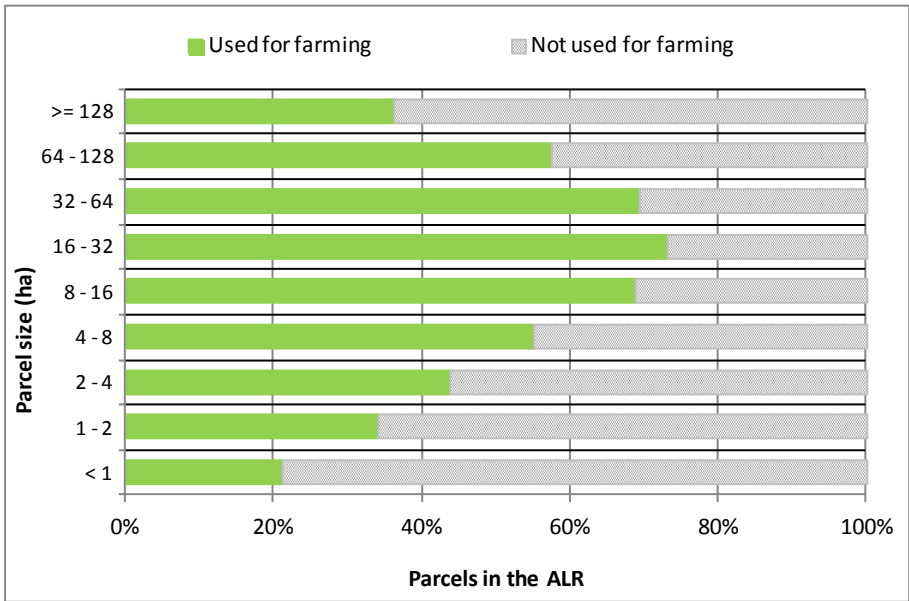
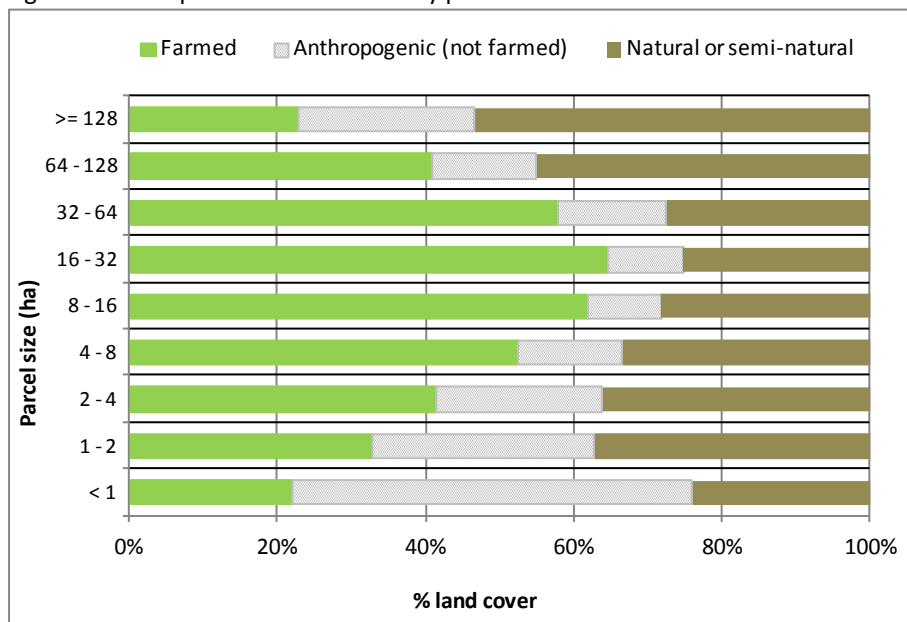


Figure 46 shows that in Metro Vancouver the proportion of parcels “Used for farming” generally increases as the parcel size increases.

Twenty one percent (21%) of parcels < 1 hectare are “Used for farming”. This is heavily influenced by Richmond’s McLennan area where there are many small parcels which are farmed as a single continuous area. Seventy-one percent (71%) of all “Used for farming” parcels < 1 hectare, are in Richmond.

Figure 47. Proportion of land cover by parcel size in the ALR



Similar to Figure 46, Figure 47 shows that in Metro Vancouver, the proportion of farmed land cover generally increases as the parcel size increases.

Parcels < 1 hectare have the largest proportion of anthropogenic (not farmed) land cover (54%).

Table 27. Number of farmed and not farmed parcels in the ALR by local government

Local government	Number of parcels		Total number of parcels	% of local ALR parcels used for farming
	Used for farming	Not used for farming		
Langley (Township)	1,853	2,957	4,810	39%
Richmond	962	1,117	2,079	46%
Maple Ridge	262	1,211	1,473	18%
Surrey	629	671	1,300	48%
Delta	477	400	877	54%
Pitt Meadows	428	304	732	58%
Vancouver	35	102	137	26%
Port Coquitlam	46	90	136	34%
Burnaby	32	39	71	45%
Coquitlam	11	60	71	15%
Barnston Island	28	24	52	54%
Bowen Island	4	25	29	14%
Langley (City)	1	11	12	8%
Tsawwassen First Nation	8	4	12	67%
TOTAL	4,776	7,015	11,791	41%

Table 27 shows the percentage of ALR parcels that are “Used for farming” by local government.

Areas with the largest proportion of “Used for farming” parcels are Tsawwassen First Nation, Pitt Meadows, Delta, and Barnston Island.

Figure 48. Proportion of parcels farmed and not farmed by parcel size in the ALR by local government

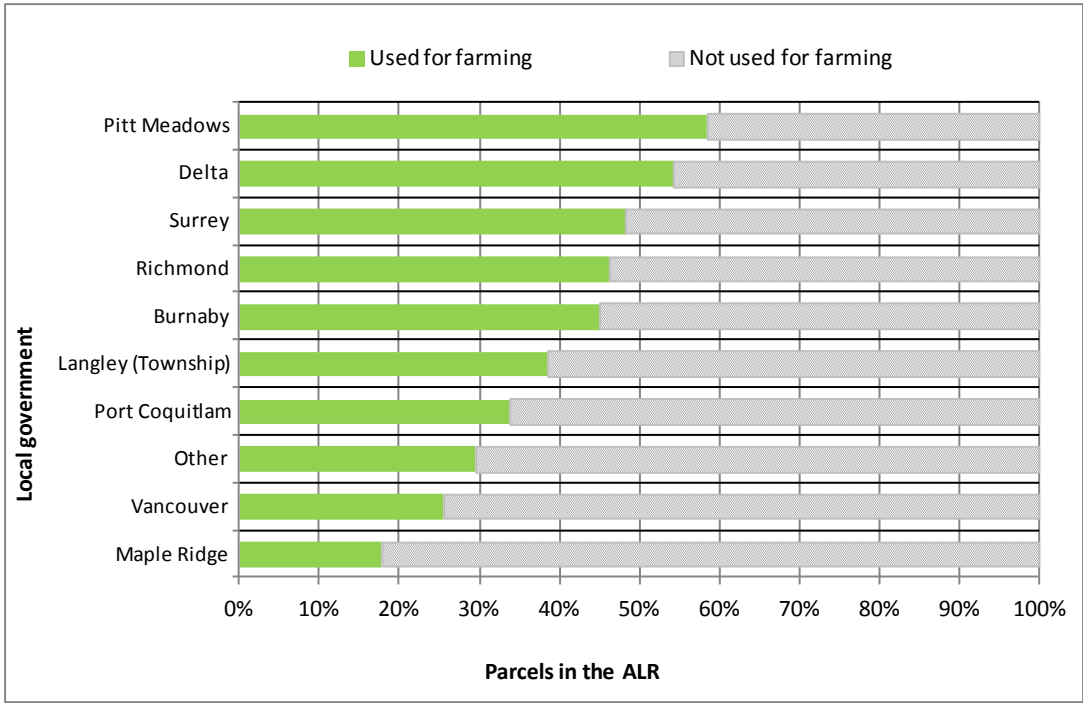


Figure 48 illustrates the proportion of “Used for farming” and “Not used for farming” parcels in the ALR by local government.

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 estimated size of the building:

- Small single-family house <1,500 sq. ft. (140 m²)
- Medium single-family house 1,500 – 3,500 sq. ft. (140 m²– 325 m²)
- Large single-family house 3,500 – 5,000 sq. ft. (325 m²– 465 m²)
- Estate (very large) single-family house > 5,000 sq. ft. (> 465 m²)

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 28. 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	3,388	29%	1,388	12%	4,776
Not used for farming	5,032	43%	1,983	17%	7,015
TOTAL	8,420	71%	3371	29%	11,791

Table 28 shows that 8,420 parcels or 71% of ALR parcels have residences and that 5,032 of these parcels are “Not used for farming”.

Figure 49. Total area in residential footprint by parcel size

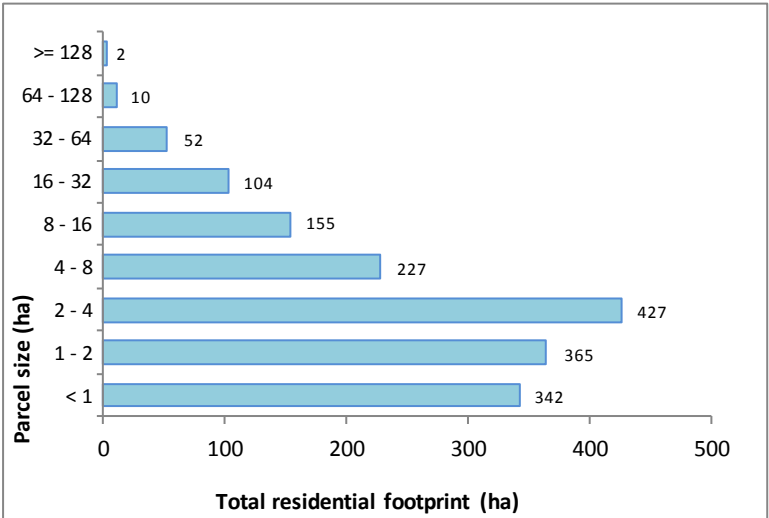


Figure 49 illustrates there are over 1,683 hectares of ALR land in residential footprints distributed across all parcel sizes.

Two thirds (67%) of all residential footprints in the ALR occur on parcels less than 4 hectares.

Figure 50. Proportion of parcels with residences by parcel size

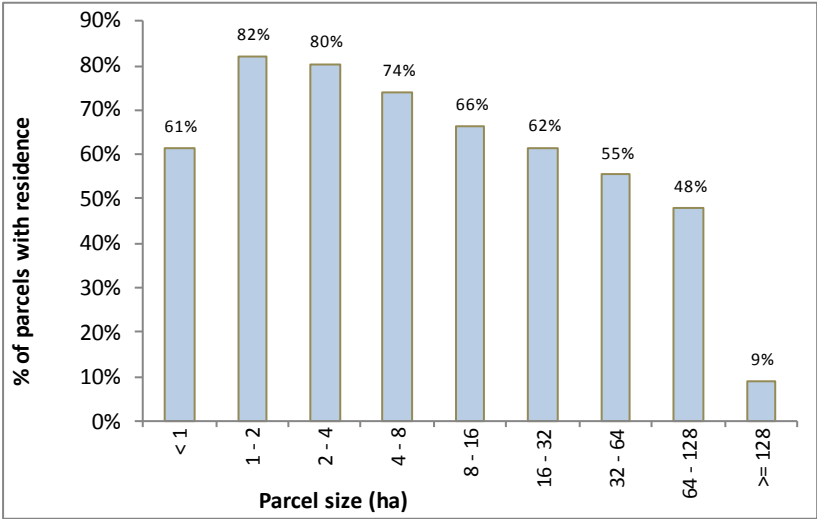


Figure 50 shows all parcel sizes less than 128 hectares have a high proportion of parcels with residences.

Figure 51. Average percent of parcel area in residential footprint by parcel size

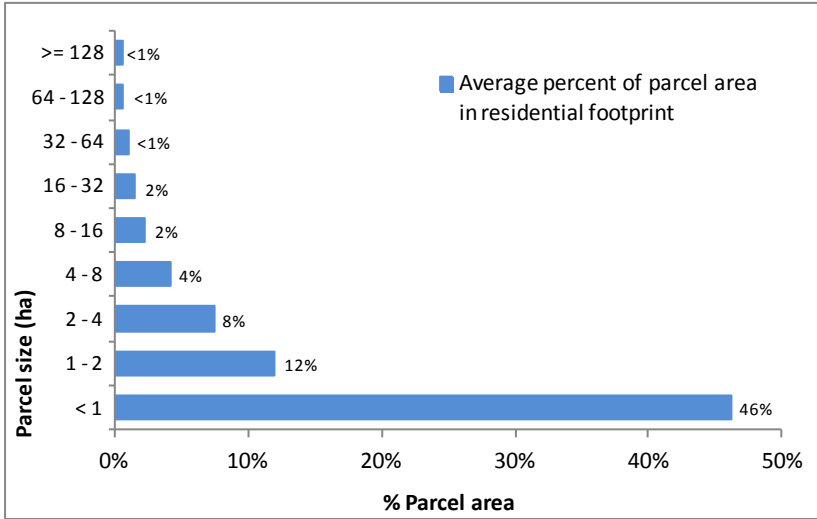


Figure 51 demonstrates that residential footprints on smaller parcels use a much greater proportion of the parcel area than those on larger parcels.

Figure 52. Average total area in residential footprint by parcel size

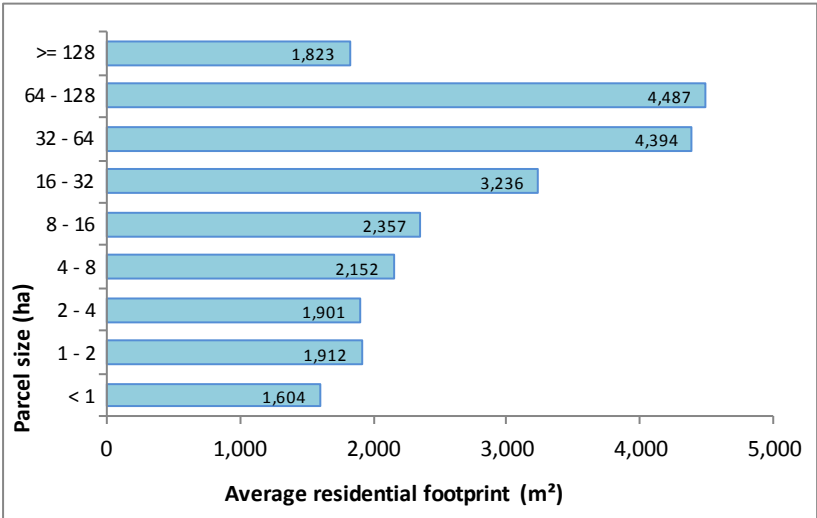


Figure 52 illustrates that even though residential footprints on small parcels use a greater proportion of the parcel area (refer to Figure 51), the average size of the footprint is smaller than the average footprint on larger parcels.

6. Indian Reserves

“Indian reserve” is a legal term used by the Government of Canada and defined by the Indian Act. An Indian reserve is defined as a tract of land that has been set apart for the use and benefit of an Indian band where the legal title is held by the federal Crown¹⁹.

There are 23 Indian reserves associated with 8 First Nation bands in the Metro Vancouver region. These reserves have a total area of 1,475 hectares.

Indian reserves in Metro Vancouver were surveyed if they were wholly or partially within the ALR. Land on 10 reserves, and associated with 5 different bands (Katzie, Kwantlen, Kwikwetlem, Matsqui, and Musquem First Nations) was included in the inventory.

A total of 634 hectares of reserve land was surveyed. This included 495 hectares of land in the ALR and 139 hectares outside of the ALR.

Tsawwassen First Nation lands are not included in the Indian reserve total. The Tsawwassen First Nation treaty came into effect April 2009 and grants the Tsawwassen First Nation constitutional powers similar to that of a local government²⁰.

Table 29. Inventoried areas on Indian reserves

Band name	English reserve name	Local government	In ALR (ha)	Outside ALR (ha)	Total area (ha)
Katzie	Barnston Island 3	Barnston Island	56	<1	56
	Katzie 2	Langley (Township)	23	<1	23
	Subtotal		78	<1	79
Kwantlen First Nation	McMillan Island 6	Langley (Township)	147	12	159
	Langley 5	Maple Ridge	77	50	126
	Whonnock 1	Maple Ridge	-	2	2
	Subtotal		224	63	287
Kwikwetlem First Nation	Coquitlam 2	Port Coquitlam	80	<1	80
	Coquitlam 1	Coquitlam	3	-	3
	Subtotal		83	<1	83
Matsqui	Matsqui 4	Langley (Township)	23	<1	23
	Subtotal		23	<1	23
Musquem	Musquem 4	Delta	57	<1	57
	Musquem 2	Vancouver	29	75	104
	Subtotal		87	75	161
TOTAL			495	139	634

Table 29 details the area of reserve land included in the inventory by First Nation and reserve name. A total of 634 hectares was surveyed on 10 reserves.

¹⁹ Terminology, Aboriginal Affairs and Northern Development Canada. <http://www.aadnc-aandc.gc.ca/eng/1100100014642/1100100014643>

²⁰ Government of BC; Aboriginal Relations and Reconciliation, Treaties and Other Negotiations. <http://www.gov.bc.ca/arr/firstnation/tsawwassen/>

Table 30. Inventoried areas on reserves by associated municipality

Local government	In ALR (ha)	Outside ALR (ha)	Total area (ha)	Number of reserves
Langley (Township)	193	12	205	3
Port Coquitlam	80	<1	80	1
Maple Ridge	77	52	128	2
Delta	57	<1	57	1
Barnston Island	56	<1	56	1
Vancouver	29	75	104	1
Coquitlam	3	-	3	1
TOTAL	495	139	634	10

Throughout the report, land surveyed on reserves is included in the tables and charts as part of the municipality that surrounds each reserve.

Table 30 summarizes the surveyed reserve land by its associated municipality. Seven jurisdictions have some reserve land included in their inventory totals.

Table 31. Land cover and farmed area on reserves

Land cover*		ALR		Outside ALR (ha)	Total area (ha)	% of inventory area
		In ALR (ha)	% of ALR			
Actively farmed	Cultivated field crops	72	< 1%	-	72	< 1%
	Farm Infrastructure	<1	< 1%	-	<1	< 1%
FARMED SUBTOTAL		72	< 1%	-	72	< 1%
Anthropogenic (not farmed)	Managed vegetation	6	< 1%	10	16	< 1%
	Golf fairway/green	19	< 1%	58	77	< 1%
	Residential footprint	31	< 1%	<1	31	< 1%
	Settlement	1	< 1%	6	7	< 1%
	Non Built or Bare	50	< 1%	4	54	< 1%
	Built up - Other	<1	< 1%	-	<1	< 1%
	Transportation	7	< 1%	2	8	< 1%
SUBTOTAL		114	< 1%	79	193	< 1%
Natural and Semi-natural	Vegetated	302	< 1%	59	361	< 1%
	Wetlands	1	< 1%	-	1	< 1%
	Waterbodies	6	< 1%	<1	7	< 1%
SUBTOTAL		309	< 1%	60	369	< 1%
TOTAL		495	< 1%	139	634	< 1%

Table 31 shows that of the surveyed ALR land on Indian reserves, 72 hectares was actively farmed, 114 hectares was in anthropogenic (not farmed) land cover, and 309 hectares was in natural and semi-natural land cover.

See "Land Cover" in the definitions section for term used in this table.

Table 32. Cultivated field crops on Indian reserves

Crop type	ALR		Outside ALR (ha)	Total area (ha)	Number of crop fields
	In ALR (ha)	% of ALR			
Vegetables	38	< 1%	-	38	2
Forage & pasture	18	< 1%	-	18	4
Cereals	15	< 1%	-	15	1
TOTAL	72	< 1%	-	72	7

Table 32 illustrates the 3 main crop types found on Indian reserves wholly or partially within the ALR.

Thirty-eight (38) hectares of vegetables, 18 hectares of forage & pasture, and 15 hectares of cereals were recorded.