

Agricultural Land Use Inventory Alberni-Clayoquot Regional District

Summer 2016



**British Columbia Ministry of Agriculture
Strengthening Farming Program**

December 4, 2017



Acknowledgments

This project was made possible by a partnership between Alberni-Clayoquot Regional District, the BC Ministry of Agriculture, and the Partnership for Water Sustainability in BC.

We would like to acknowledge the farmers and residents who stopped to talk to the survey crew about farming in the region.

Funding for this project has been provided in part by the Governments of Canada and British Columbia through *Growing Forward 2*, a federal-provincial territorial initiative.

Additional project funding was provided by Alberni-Clayoquot Regional District and additional in-kind contributions were provided by the City of Port Alberni.



Disclaimer: The governments of Canada and British Columbia are committed to working with industry partners. Opinions expressed in this document are those of the authors and not necessarily those of the Government of Canada.

Citation

BC Ministry of Agriculture. Agricultural Land Use Inventory: Alberni-Clayoquot Regional District, Summer 2016. (Reference No. 800.510-61.2016).

Contact Information

For further information on the content and development of this report please contact:

Ministry of Agriculture
Innovation & Adaptation Services Branch,
Strengthening Farming Program
1767 Angus Campbell Rd, Abbotsford, BC V3G 2M3
(604) 556-3001 or 1-888-221-7141 (toll free)

Table of Contents

Acknowledgments.....	i
Citation.....	i
Contact Information.....	i
Table of Contents.....	ii
Acronyms	iii
Executive Summary.....	1
Agrologist Comments.....	3
1. General Information	4
1.1 Overview.....	4
1.2 Agricultural Land Reserve.....	5
1.3 Inventory Area.....	6
2. Land Cover and Farmed Area.....	7
2.1 Land Cover and Farmed Area	7
3. Farming Activities.....	9
3.1 Cultivated Field Crops.....	9
3.2 Irrigation	12
3.3 Livestock	13
3.4 Aquaculture	17
4. ALR Utilization.....	18
4.1 Parcel Inclusion in the ALR	18
4.2 Land Use and Farm Use.....	19
4.3 Parcel Size and Farm Use.....	21
5. ALR Availability for Farming.....	23
5.1 ALR Parcel Availability Overview	23
5.2 Available For Farming – Privately Owned ALR Parcels.....	25
5.3 Unavailable For Farming – Privatley Owned ALR Parcels.....	26
6. Methodology.....	27
6.1 Inventory Methodology.....	27
6.2 Description of the Data	28
6.3 Presentation of the Data	29
Appendix A – Glossary	30

Acronyms

ACRD	Alberni Clayoquot Regional District
AGRI	BC Ministry of Agriculture
ALR	Agricultural Land Reserve
ALUI	Agricultural Land Use Inventory
AUE	Animal Unit Equivalent
GIS	Geographic Information Systems

Executive Summary

In the summer of 2016, the BC Ministry of Agriculture and its partners conducted an Agricultural Land Use Inventory (ALUI) in Alberni-Clayoquot Regional District. The ALUI was funded by Alberni-Clayoquot Regional District and *Growing Forward 2*, a federal-provincial territorial agreement. The Partnership for Water Sustainability in BC & the City of Port Alberni provided in-kind contributions.

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

Area of Interest and Methodology

Included in the inventory were all parcels:

- completely or partially within the ALR, or
- classified by BC Assessment as having “Farm” status for tax assessment, or
- containing an active water licence for farming or irrigation purposes, or
- zoned by local government bylaws to permit agriculture and indicating signs of agriculture on aerial photography

The ALR in ACRD consists of 7,776 ha. Of this area:

- 92% or 7,180 ha was inventoried
- 5% or 342 ha was in Indian reserves
- 3% or 254 ha was outside of legally surveyed parcels in Crown land

The inventoried 7,180 ha of ALR is considered the “**effective ALR**” as it is within legally surveyed parcels and may be subject to local or regional planning decisions.

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

Land Cover and Farming Activities

Three quarters of the effective ALR (75% or 5,383 ha) was in a natural or semi-natural state. The remainder of the effective ALR was anthropogenically modified in vegetation, buildings, and roads (7% or 483 ha), or was farmed (18% or 1,312 ha). An additional 149 ha of land outside the ALR was farmed bringing the total farmed land cover area to 1,462 ha.

There were 1,394 ha of cultivated field crops in ACRD (1,259 ha in the ALR and 135 ha outside the ALR). Forage & pasture was the most common crop accounting for 97% of all cultivated land. Forage accounted for 837 ha, pasture accounted for 307 ha, and fields used for both forage and pasture accounted for 208 ha.

Also recorded were Christmas trees (14 ha), vines & berries (10 ha), oats (10 ha), vegetables (7 ha), tree fruits (< 1 ha), and nursery crops (<1 ha).

Irrigation information was captured by crop type and irrigation type to aid in developing an agricultural water demand model. Irrigation is not overly common in ACRD with only 26% of the cultivated land utilizing irrigation. Over one-third (35%) of forage fields were irrigated, while only 2% of pasture fields were irrigated. Giant gun systems were the most common irrigation type.

Livestock

Livestock activities were recorded, but were difficult to measure using a windshield survey. Livestock may not be visible if they are housed in barns, or are on another land parcel. The inventory data does not identify animal movement between parcels that make up a farm unit, but reports livestock at the parcel where the animals or related structures were observed. Livestock findings are reported as a range of animal unit equivalents for each parcel.

In ACRD, equine and beef are the most abundant types of livestock. Equine accounts for 41% of the estimated animal unit equivalents (AUEs) while beef accounts for 34% of the AUEs. Equines had the greatest number of individual occurrences, however, most equine operations had only a few animals.

ALR Utilization

Parcels were categorized as “Used for farming” or “Not used for farming” based on the proportion of the parcel in cultivated crops, farm infrastructure, and/or the scale of livestock production. “**Used for farming**” parcels have the majority of their area in agricultural use or have a significant intensity of farming activity. Refer to the glossary for the full definition.

In the ALR by land use, 21% of the parcels were “Used for farming” (167 parcels) and 79% of the parcels were “Not used for farming” (641 parcels). The median parcel size of a “Used for farming” parcel was 3.3 ha while the median parcel size of a “Not used for farming” parcel was smaller at 2.0 ha.

ALR Availability

Parcel availability for farming was assessed based on the extent of existing land uses and land covers and their compatibility with agriculture. Parcels considered “Not used for farming” were further categorized as available or unavailable for farming. “Unavailable for farming” parcels either had a land use making agricultural development improbable (e.g. golf course, school, etc.) or had little land with potential for farming. Of the **privately owned** ALR parcels:

- 167 parcels (21%) were used for farming
- 502 parcels (62%) were available for farming
- 139 parcels (17%) were unavailable for farming

A parcel is considered to be “Available for farming” if it is not already “Used for farming”, does not have a land use that excludes agriculture, and has at least 50% of its area and at least 0.4 ha in land with potential for farming. Available for farming parcels provide an initial selection of parcels that may be available for agricultural expansion. Land prices and ecological goods and services are not considered when assessing parcel availability. Of the **privately owned and available** ALR parcels:

- 156 parcels (36%) are less than 2 ha in size
- 265 parcels (61%) are less than 4 ha in size
- 168 parcels (39%) are greater than 4 ha in size
- 65 parcels (15%) are greater than 16 ha in size

There is evidence that small parcels are less likely than larger parcels to be utilized for farming. In ACRD there are 153 ALR parcels less than 1 ha. Of these parcels, only 10% (15 parcels) are “Used for farming”, while 61% (94 parcels) are “Unavailable for farming”. Residential use accounts for the majority of the small and “Unavailable for farming” parcels.

Agrologist Comments

Alberni Valley lies within the traditional ancestral lands of the Nuu-chah-nulth (translation: "all along the mountains and sea"). Two among the nation's 14 bands reside in the Alberni Valley: the Tseshaht and the Hupacasath First Nation.

The Alberni inlet was named after Spanish Explorer Don Pedro de Alberni in 1789. The HMS Hecate mapped the inlet in 1861, keeping the Alberni name. That same summer, the first sawmill was established on the Somass River and was the first BC built sawmill for the export of lumber.

Lumber, fishing and mining attracted settlers to the Alberni Valley and agriculture soon followed. In the late 1930's the Farmers Institute held the first agricultural fair to showcase the wide variety of livestock and produce grown in the area. The Alberni District Fall Fair is still a vibrant part of the rural community today.

An excerpt from the Alberni Valley Agriculture Plan, 2011 is indicative of changes to farming. *"McKinnon's dairy plant says a lot about what has happened to Alberni agriculture. The dairy processing plant is long gone and the milk production that provided the jobs in the plant has moved out of the valley. The vineyard, a short distance away, is now the local landmark for agriculture - an indicator of where the industry could be heading?"*

As with most farming areas on the North Island, profitability is a concern for farmers. When compared to the main farming areas on the Island the Alberni Valley has the lowest revenue per hectare; half of what is generated in the Comox Valley. The higher number of small farms and the lower number of commodity operations like dairy and poultry is likely the main reason. Additionally, isolation requires farmers in this region to pay more for inputs and extra transportation costs to get their products to processors and consumers.

Cooler, wetter winters and hotter, dryer summers make the growing conditions in the Alberni Valley unique on Vancouver Island. A relaxed outdoor lifestyle coupled with an abundance of high quality land often at a lower per acre valuation is attracting a new generation of farmers and rural residents to the area. This is reflected in the predominant livestock being small scale recreational horses and the largest crop by land base being forage.

Additionally, the proximity to the West Coast communities of Tofino and Ucluelet which are experiencing an increasing population base and tourism industry is opening up new opportunities for small scale producers of fruit, vegetables and grains. It is also encouraging a growing valued added food sector.

Community support for agriculture is strong with the local governments, first nations, community organizations and individuals promoting self-sufficiency and a healthy vibrant food sector. Local initiatives are going a long way to support the next generation of farmers and food producers in the region.

Jill Hatfield P.Ag.
Regional Agrologist

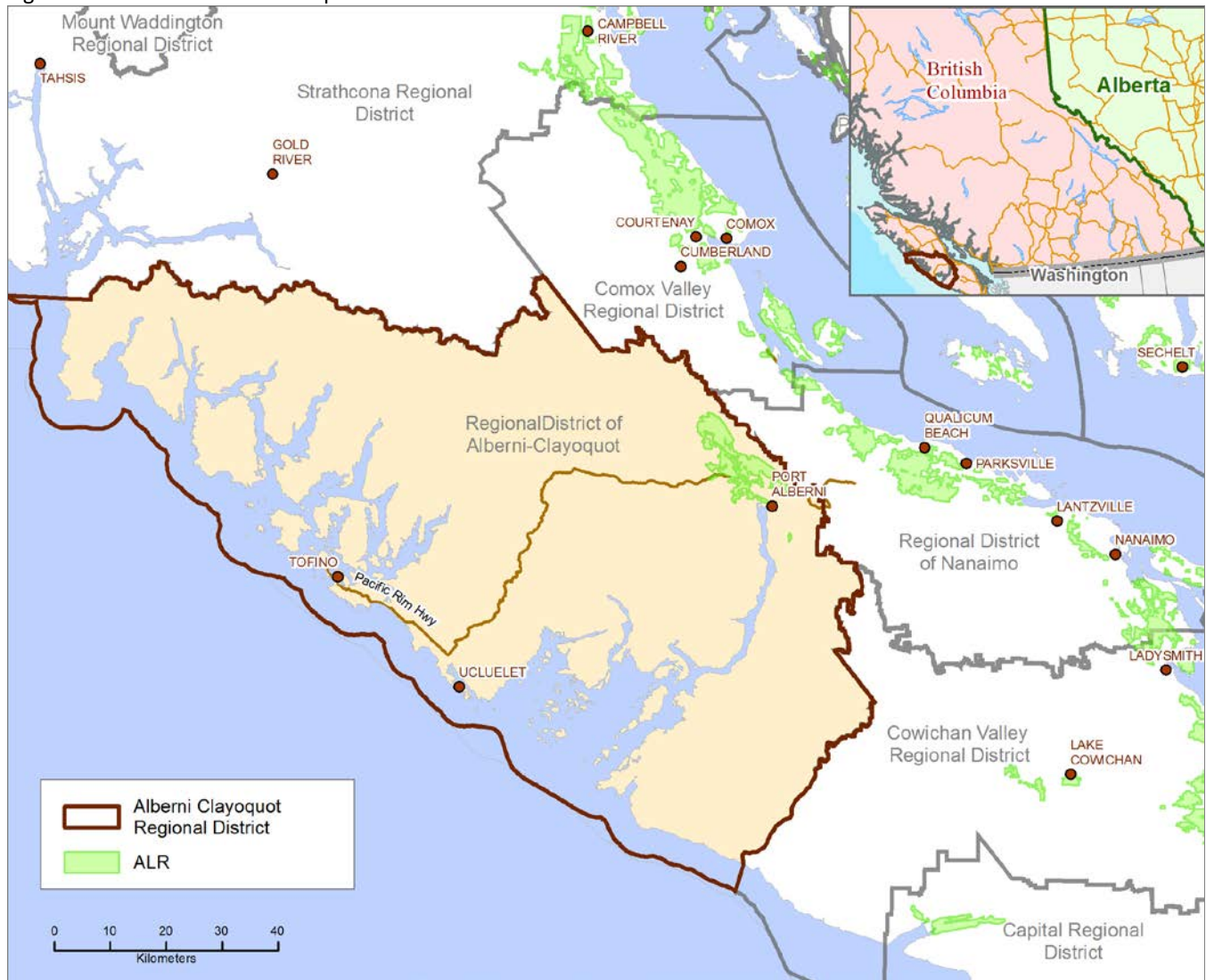
1. General Information

1.1 OVERVIEW

Alberni Clayoquot Regional District (ACRD) is located on central Vancouver Island and includes the municipalities of Port Alberni, Tofino, and Ucluelet. In 2016, the regional district had a population of 30,980¹, with two-thirds (pop. 20,710) residing in Port Alberni.

Port Alberni is the primary commercial hub for the region and includes a deep sea port that opens to the Pacific Ocean. The area has a long history with natural resource management and processing, with BC's first sawmill being constructed in Port Alberni in 1860². Forestry and wood manufacturing continue to be key economic drivers for the region. Fishing, tourism, agriculture, and aquaculture are also important economic industries.

Figure 1. General location map



¹ Statistics Canada, 2016 Census of Population; <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/index-eng.cfm>

² City of Port Alberni, Economic Development; <https://www.portalberni.ca/community-profile>

1.2 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 2016, there were 7,776 ha³ of ALR in ACRD (see Figure 1). This is approximately 1% of the regional districts total land area (869,630 ha⁴) and 3.5% of the area in legally surveyed parcels (224,627 ha⁴).

The ALR area includes:

- 7,180 ha on inventoried parcels
- 342 ha on Indian reserves
- 254 ha outside legally surveyed parcels (unsurveyed Crown land)

The 7,180 ha of ALR on inventoried parcels is considered the ‘**effective ALR**’, as these areas are within legally surveyed parcels and are subject to local and regional planning decisions.

Figure 2. Proportion of ALR by category

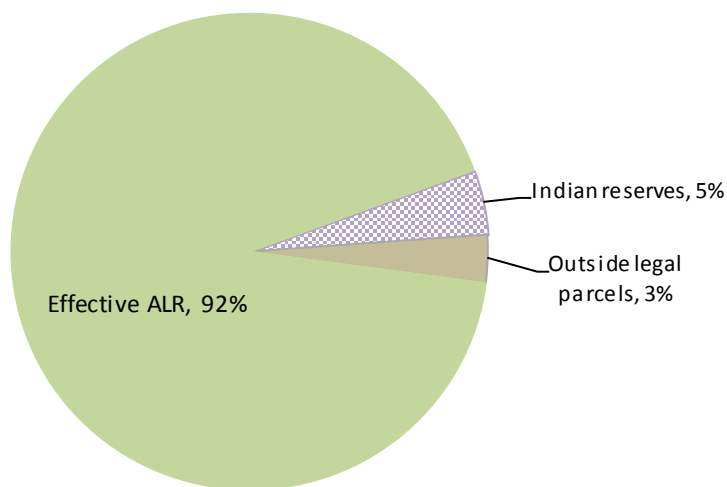


Figure 2 shows the proportion of different categories of ALR land in ACRD.

In total, 92% of the ALR is considered the “effective ALR” and forms the basis of this report.

The remaining area is outside of legally surveyed parcels in unsurveyed Crown land (3%), or on Indian reserves (5%).

³ Provincial Agricultural Land Commission (ALC), Library, ALC Reports, Annual Report 2013/14 Pg 31, Annual Report 2014/15 Pg 30, Annual Report 2015/16 Pg 29 <http://www.alc.gov.bc.ca/alc/content/library/commission-reports>

⁴ Calculated in GIS.

1.3 INVENTORY AREA

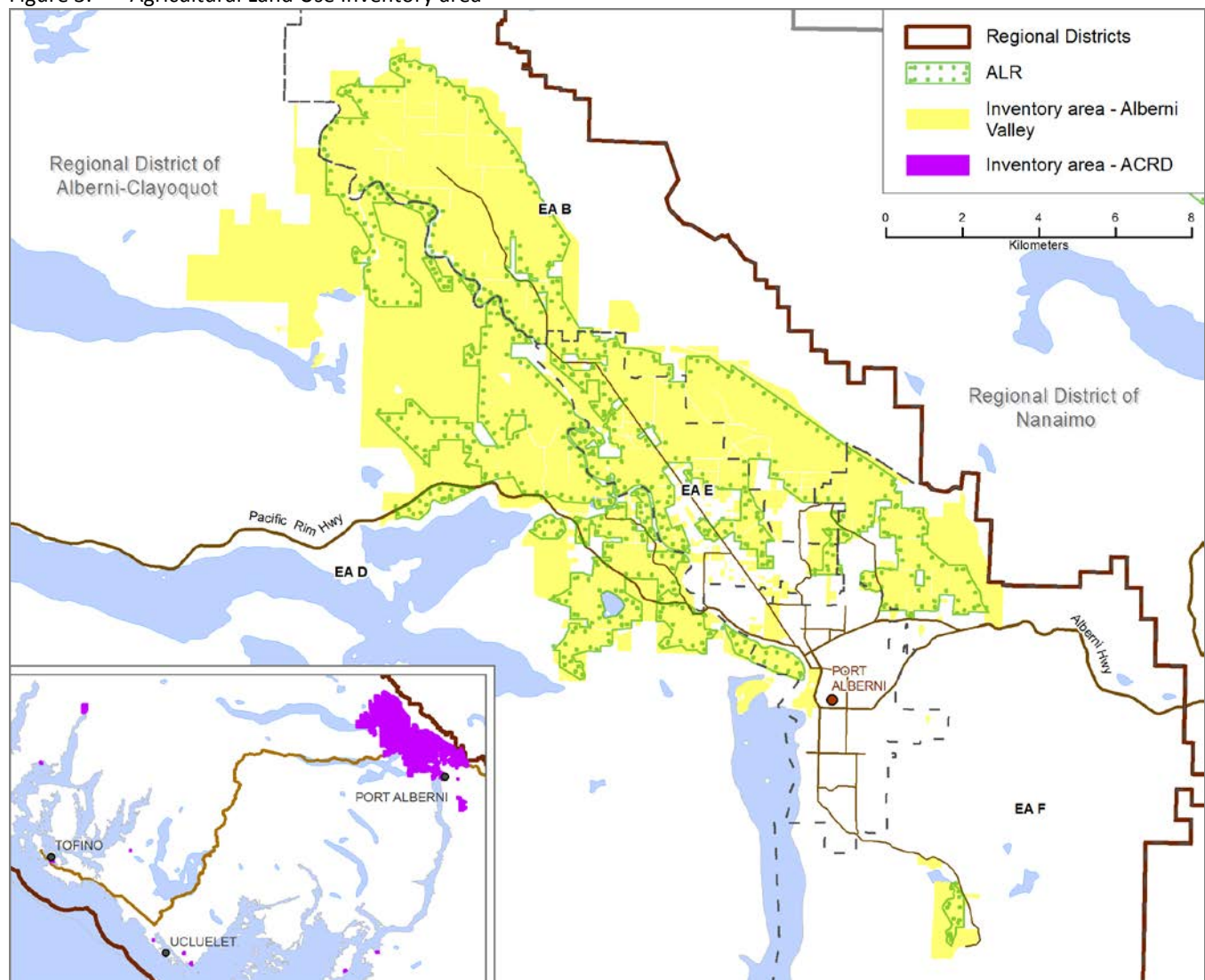
The total inventory area encompassed 1,037 parcels with a combined area of 8,903 ha. Included were all parcels:

- completely or partially within the ALR, or
- classified by BC Assessment as having “Farm” status for property tax assessment, or
- zoned to permit agriculture by local government bylaws and/or exhibiting signs of agriculture or aquaculture on aerial photography, or
- containing an active water licence for farming or irrigation purposes

The amount of ALR land included in the inventory area is 7,180 ha. Another 1,723 ha of inventoried land was on parcels completely outside the ALR that met one of the other inventory criteria.

The majority of the inventory was conducted in the Alberni Valley. There were also 15 parcels outside of the Valley that were included in the survey; most of these parcels are associated with aquaculture.

Figure 3. Agricultural Land Use Inventory area



2. Land Cover and Farmed Area

2.1 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. Refer to Section 4 for information on land use.

Land cover is surveyed by separating the parcel into polygons of homogeneous components and assigning each a description such as landscape lawn, natural open treed, natural waterbody, blueberries, road, or small single family house. Most surveyed parcels have multiple 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 than land use, which is assigned on a parcel basis.

Four land cover types are considered “**Farmed**”:

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

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

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

Table 1. Land cover and farmed area

Land cover*		In ALR (ha)	% of effective ALR*	Outside ALR (ha)	Total area (ha)
Actively farmed	Cultivated field crops	1,190	17%	121	1,310
	Farm infrastructure	50	< 1%	14	64
	Greenhouses	3	< 1%	<1	3
Inactively farmed	Unused/unmaintained field crops	70	1%	14	84
FARMED SUBTOTAL		1,312	18%	149	1,462
Anthropogenic (not farmed)	Managed vegetation	247	3%		
	Residential footprint	85	1%		
	Non Built or Bare	72	1%		
	Transportation	59	1%		
	Settlement	16	< 1%		
	Waterbodies	4	< 1%		
ANTHROPOGENIC SUBTOTAL		483	7%		
Natural & Semi-natural	Vegetated	5,283	74%		
	Wetlands & waterbodies	97	1%		
	Natural bare areas	2	< 1%		
NATURAL & SEMI-NATURAL SUBTOTAL		5,383	75%		
Not surveyed	Unknown	2	< 1%		
TOTAL ALR INVENTORIED		7,180	100%		

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

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

There are 1,312 ha of “Farmed” land cover, which includes 70 ha of unused or unmaintained field crops within the ALR. An additional 149 ha of “Farmed” land cover was identified outside the ALR.

Figure 4. Land cover in the effective ALR

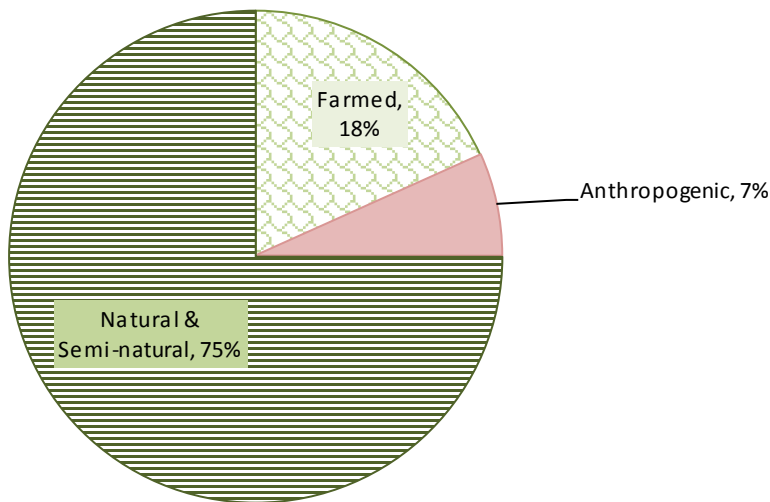


Figure 4 shows the proportion of different land cover categories across the effective ALR in ACRD.

Seventy-five percent (75%) of the effective ALR is in “Natural & semi-natural” while 18% is in “Farmed” land cover.

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

3. Farming Activities

3.1 CULTIVATED FIELD CROPS

Cultivated field crops were captured in a geographic information system (GIS) at the field or land cover level by crop type (e.g. vegetables, forage or pasture, berries). The total land area was then evaluated for each crop.

Included with cultivated field crops is fallow farmland 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.

Forage & pasture is the main crop type in Alberni-Clayoquot Regional District.

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

Also recorded were

- Christmas trees
- Vines & berries
- Cereals: oats
- Vegetables
- Tree fruits
- Nursery

Figure 5. Main field crop types by percentage

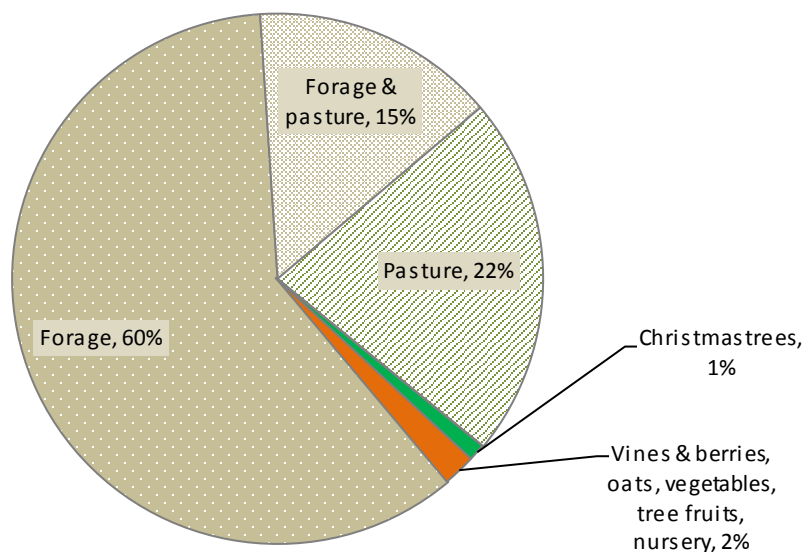


Figure 5 shows the proportion of the crop types in ACRD.

Forage, pasture, and fields used for both forage & pasture account for 97% of all cultivated crops.

Table 2. Cultivated crop type by area

Crop type	ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of effective ALR			
Forage	786	11%	52	837	60%
Forage & pasture	196	3%	11	208	15%
Pasture	246	3%	61	307	22%
Christmas trees	13	< 1%	< 1	14	1%
Vines & berries	6	< 1%	4	10	< 1%
Oats	10	< 1%	-	10	< 1%
Vegetables	1	< 1%	6	7	< 1%
Tree fruits	< 1	< 1%	< 1	< 1	< 1%
Nursery	-	-	< 1	< 1	< 1%
TOTAL	1,259	18%	135	1,394	100%

Table 2 shows the total area of cultivated crops produced in ACRD.

In addition to forage and pasture crops, 41 ha other crops types were recorded.

Figure 6. Forage and pasture fields by size and type

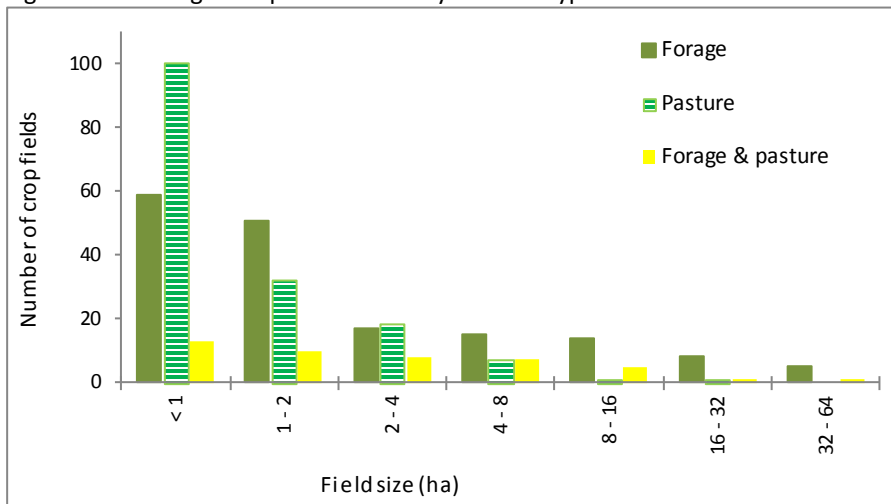


Figure 6 illustrates the size distribution of forage and pasture fields in ACRD.

There are similar numbers of forage and pasture fields, however, most pastures are small. In total, 63% of all cultivated pastures are less than 1 ha.

Pastures in ACRD have an average field size of 1.4 ha and a median field size of 0.8 ha.

Forage fields have an average crop area of 5 ha and a median crop area of 1.4 ha.

All Cultivated Crops

Table 3. All cultivated crops by area

Cultivated field crop	In ALR (ha)	% of effective ALR	Outside ALR (ha)	Total area (ha)	% of cultivated land
Forage	786	11%	52	837	60%
Pasture	176	2%	47	224	16%
Forage & pasture	196	3%	11	208	15%
Unused forage/pasture*	70	1%	14	84	6%
Christmas trees	13	< 1%	1	14	1%
Oats	10	< 1%	-	10	1%
Grapes	5	< 1%	2	7	< 1%
Mixed vegetables	1	< 1%	4	5	< 1%
Blueberries	< 1	< 1%	1	2	< 1%
Sweet corn	-	-	1	1	< 1%
Vegetables	< 1	< 1%	< 1	< 1	< 1%
Mixed fruits	< 1	< 1%	< 1	< 1	< 1%
Mixed berries	< 1	< 1%	-	< 1	< 1%
Apples	< 1	< 1%	-	< 1	< 1%
Berries	< 1	< 1%	-	< 1	< 1%
Table grapes	< 1	< 1%	-	< 1	< 1%
Mixed nursery	-	-	< 1	< 1	< 1%
Vines & berries	< 1	< 1%	-	< 1	< 1%
Strawberries	-	-	< 1	< 1	< 1%
TOTAL	1,259	18%	135	1,394	100%

* Unused forage/pasture has been cultivated, but not cut or grazed this year.

Table 3 details the 19 individual crops that account for all of the cultivated land in ACRD.

3.2 IRRIGATION

Irrigation is the application of water to soil or plants and may be used to assist in the growing of agricultural crops, the maintenance of managed vegetation, and the control of soil erosion or dust. The availability of water delivery infrastructure and good quality water for irrigation are often requirements for growing high-value crops. Insufficient water sources or water delivery infrastructure can limit the potential to increase agricultural production through irrigation.

Irrigation information was recorded at the field or land cover level by system type (e.g. 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 temporarily set aside for wildlife or other purposes, and land under preparation for planting.

Crop and irrigation data from the Agricultural Land Use Inventory are key inputs into an Agricultural Water Demand Model (AWDM). The AWDM is a water management planning tool that estimates current and future agricultural water needs based on climate change scenarios and water management practices.

Table 4. Crop type and irrigation

Cultivated field crop	Irrigation system in use (ha)			Total area irrigated (ha)	% of crop area irrigated
	Sprinkler	Giant gun	Trickle		
Forage	10	280	-	291	35%
Forage & pasture	21	33	-	54	26%
Vines & berries	-	-	8	8	83%
Vegetables	4	2	< 1	7	91%
Pasture	6	-	-	6	2%
Tree fruits	< 1	-	-	< 1	31%
Nursery	< 1	-	-	< 1	100%
Christmas trees	-	-	-	-	-
Cereals	-	-	-	-	-
TOTAL CROP AREA IRRIGATED	41	315	9	365	26%

Table 4 shows the total area of crops under irrigation by crop type. Forage is the predominant crop type in ACRD (refer to Table 2), however, only 35% of the total crop area is irrigated.

In total, 365 ha or 26% of the cultivated crop area utilizes irrigation.

3.3 LIVESTOCK

Livestock activities are challenging to measure using a windshield survey. Livestock are often confined to structures making it difficult 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. This inventory reports on livestock homesites where the animals or related structures were observed.

Intensity

"**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, the livestock were not visible, and the specific type of livestock could not be determined.

Homesite

Homesite refers to the location of the main ranch or main barn of a livestock operation or farm unit⁵. Other types of farm infrastructure, such as corrals, paddocks, barns, and feeding/watering facilities, as well as the farm residence, are also often at this location. The homesite is the primary location of the farm unit where most livestock management occurs.

Non Homesite refers to a location where livestock were observed, but do not permanently reside. Non-homesites are often used only for pasturing and are secondary to an operation's primary (or homesite) location. Non homesite locations are not included in this report.

Scale

An animal unit equivalent (AUE) scale system is used to describe livestock operations. AUEs are a standard measure used to compare different livestock types. One animal unit equivalent is equal to approximately one adult cow or horse. The scale system includes 4 levels:

- "**Very Small**" Approximately 1 cow or horse or bison, 3 hogs, 5 goats, sheep or deer, 50 turkeys, 100 chickens (1 animal unit equivalent). Estimated AUE: 1
- "**Small**" LESS THAN 25 cows or horses or bison, 75 hogs, 125 goats, sheep or deer, 1250 turkeys, 2500 chickens (2 - 25 animal unit equivalents). Estimated AUE: 13
- "**Medium**" LESS THAN 100 cows or horses or bison, 300 hogs, 500 goats, sheep or deer, 5000 turkeys, 10,000 chickens (25 - 100 animal unit equivalents). Estimated AUE: 63
- "**Large**" MORE THAN 100 cows or horses or bison, 300 hogs, 500 goats, sheep or deer, 5000 turkeys, 10,000 chickens (over 100 animal unit equivalents). Estimated AUE: 150

Estimated animal unit equivalents are calculated using the midpoint of each scale range described above. This number enables the relative importance of each livestock type to be compared. The actual number of animals may be under estimated, especially for large operations.

Number of activities. Each occurrence of livestock on a parcel is counted as one activity. A small mixed farm with 1-2 cows and a large commercial milking operation are each counted as one activity. If two types of livestock are recorded on the same parcel, each is identified as a unique activity.

⁵ The farm unit includes all the property owned, rented, or leased by a farm and may incorporate more than one parcel.

Table 5. Livestock activities

Livestock group	Estimated animal unit equivalents	Count of activities
Equine	1,150	114
Beef	960	34
Dairy	160	2
Sheep / goat	160	23
Unknown livestock	150	20
Poultry	110	39
Llama / alpaca	70	7
Specialty livestock*	30	2
Swine	<10	3
TOTAL	2,790	244

* In ACRD, specialty livestock includes ratites (emu) and deer.

Table 5 details the number of estimated animal unit equivalents by livestock type.

Equine and beef activities have the highest estimated AUEs.

Although equine and beef have similar AUEs, equine activities occur on far more individual parcels.

Estimated Animal Unit Equivalents (AUEs)

Figure 7. Proportion of livestock activities by estimated animal unit equivalents

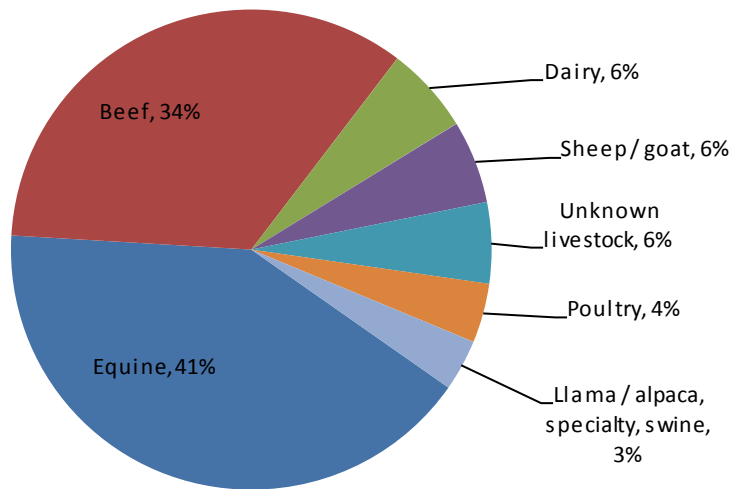


Figure 7 illustrates the proportion of livestock in ACRD by estimated animal unit equivalents.

Of all estimated AUEs, 41% are equine and 34% are beef.

Figure 8. Estimated animal unit equivalents by livestock type and intensity

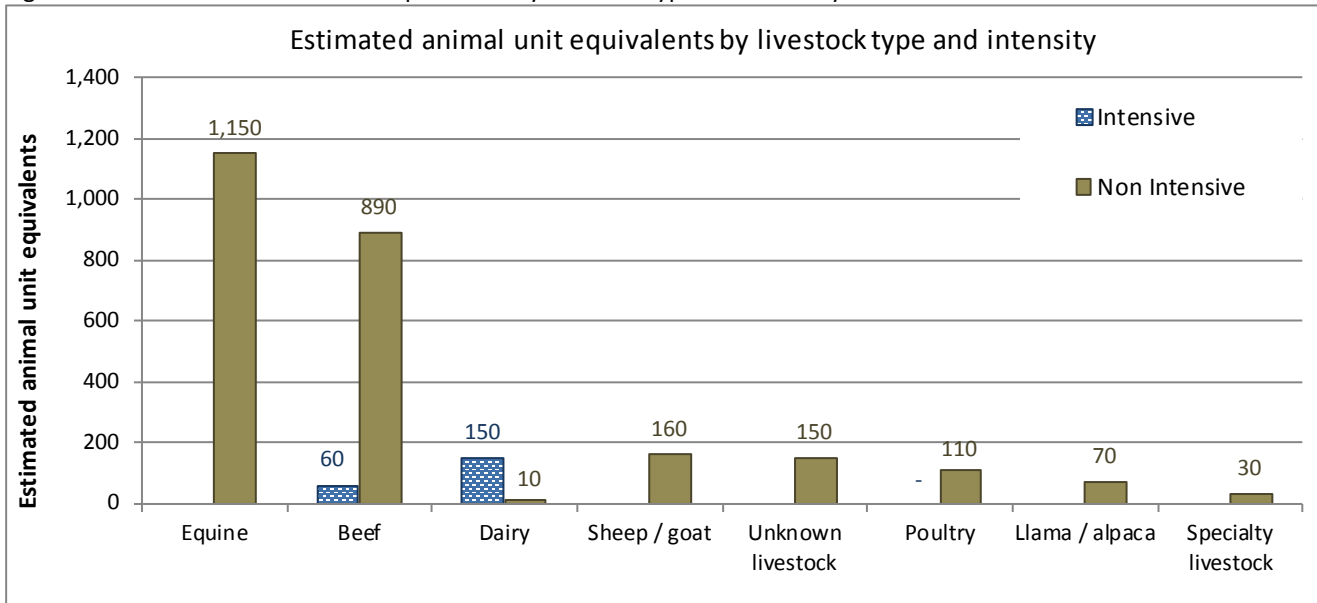


Figure 8 illustrates the number of estimated animal unit equivalents by livestock type and intensity in ACRD. Most livestock are found in “non-intensive” facilities. Dairy is an exception, where nearly all (94%) of AUEs utilize intensive facilities with specialized infrastructure that is designed for confined feeding at higher stocking densities.

Figure 9. Estimated animal unit equivalents by livestock type and scale

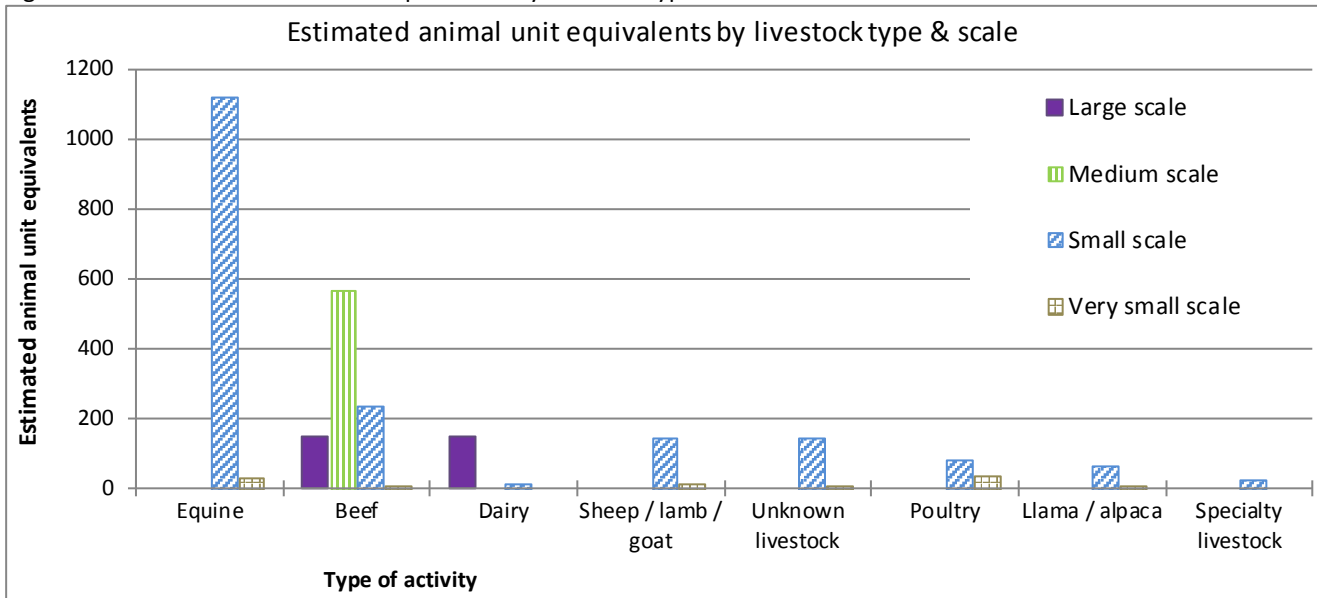


Figure 9 illustrates the number of estimated animal unit equivalents by livestock type and scale in ACRD. While there are similar AUEs for equine and beef, (refer to Table 5), all equine occur on a “small scale” with less than 25 animals, while three quarters (75%) of the beef AUEs are in “medium” or “large” scale operations.

Beef and dairy are the only livestock types to occur on a large scale with greater than 100 animal unit equivalents.

Number of livestock activities (occurrences)

Figure 10. Number of livestock activities by livestock type and scale

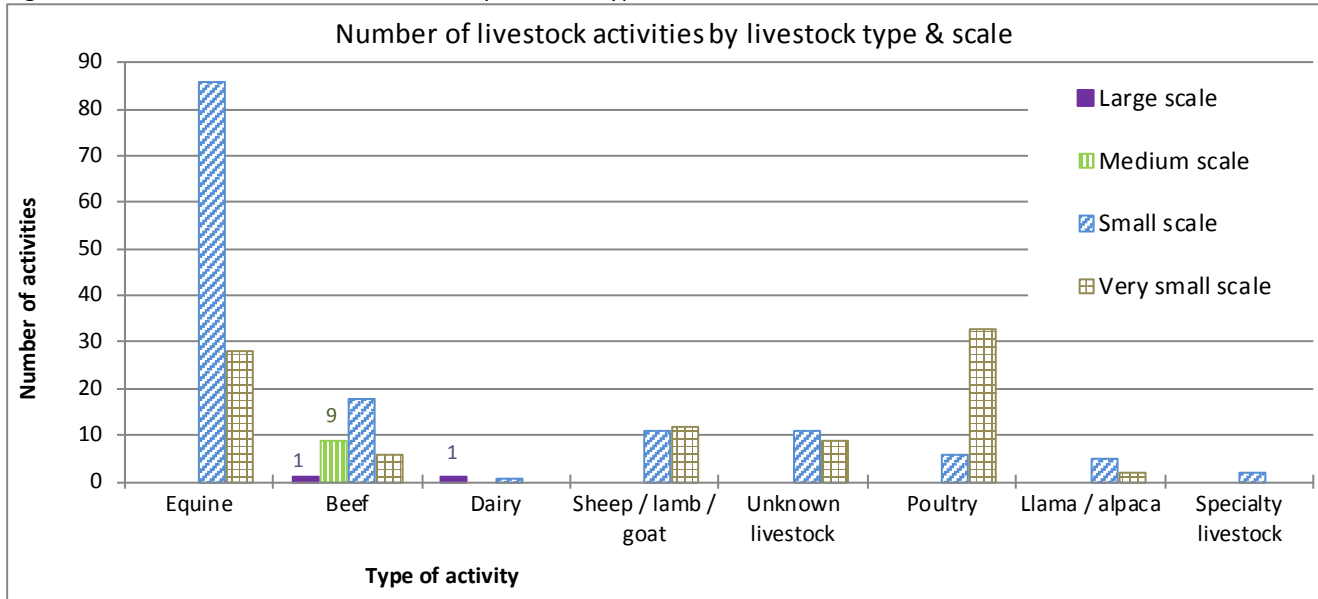


Figure 10 illustrates the number of livestock activities by livestock type and scale in ACRD. Equine activities are the most frequently occurring, however, nearly all occurrences are “small” or “very small” scale with less than 25 animals.

Beef and dairy each have 1 large scale operation with greater than 100 cattle. Beef also has 9 medium scale operations with 25 – 100 cattle.

3.4 AQUACULTURE

Aquaculture is the farming of fish, shellfish, and aquatic plants in fresh or salt water environments. In British Columbia, there are three main species groups that are currently cultured: salmon and other finfish, shellfish, and marine plants. Hatcheries used for conservation purposes are not considered as aquaculture.

Aquaculture is a large scale commercial industry in British Columbia. In 2015, the BC aquaculture sector produced 96,000 tonnes of fish and shellfish generating \$497.2 million in farmgate value⁶.

The ALUI scale system used to describe aquaculture activities is based on the volume of product generated and the method of distribution. The scale system includes 3 levels:

- “**Small**” scale can generate a limited amount of product or services for sale. Management requires less than one full time worker.
- “**Medium**” scale can generate product or services for sale to small local markets. Product can be distributed without utilizing a commercial distribution network.
- “**Large**” scale can generate bulk product or services for of farm sales. Usually requires the utilization of a commercial distribution network.

The majority of aquaculture activities in ACRD occurs outside of parcel boundaries on ocean foreshore or deepwater sites. These sites were not captured as part of the land use inventory. Land based aquaculture sites and nearshore operations within parcel boundaries were inventoried.

Table 6. Inland aquaculture activities

Aquaculture type	Scale	Number of activities	Average parcel size (ha)
Finfish	Small scale	1	2.7
	Medium scale	2	4.2
	Large scale	2	6.7
Shellfish	Large scale	1	8.0
NUMBER OF INLAND ACTIVITIES		6	5.4

Table 6 summarizes the inland aquaculture activities recorded in ACRD. There were 5 inland finfish activities and 1 inland shellfish activities.

⁶ Ministry of Agriculture. Fast Stats 2015: British Columbia's Agrifood and Seafood Sector. <http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/agriculture-and-seafood/statistics/industry-and-sector-profiles/fast-stats/faststatsbc-2015.pdf>

4. ALR Utilization

4.1 PARCEL INCLUSION IN THE ALR

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

Figure 11 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.

To achieve an accurate picture of the ALR in ACRD, only parcels that meet the following criteria are included in this section of the report:

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

In total, 808 parcels, with 7,106 ha or 99% of the effective ALR met the above criteria. 'Effective ALR' is the total ALR area excluding land outside of legally surveyed parcels and excluding land on Indian reserves.

Of the 808 parcels in the ALR:

- 706 have private ownership or Crown municipal ownership, and
- 102 have Crown provincial ownership

Figure 11. Example of parcel inclusion in the ALR

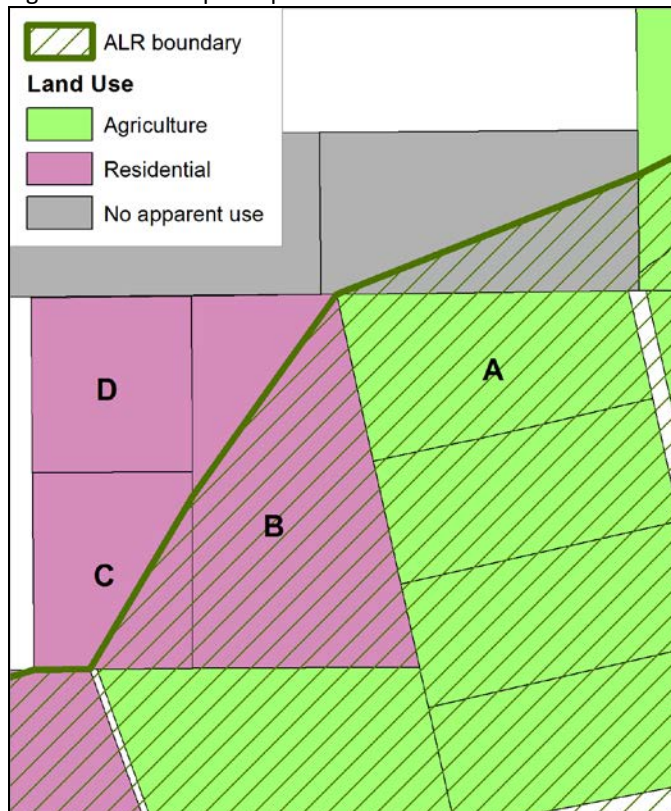


Figure 11 illustrates the distinction between parcels considered to be within or outside the ALR:

Considered to be within the ALR:

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

Considered to be outside the ALR:

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

4.2 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. Another example is commercial land use; if one parcel is a hotel, another is a retail store, and a third is a gas station, all are considered to have commercial land use.

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

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

Not used for farming – Parcels that do not meet the “Used for farming” definition.

Table 7. Land use and farming use in the ALR

Parcel land use*		Number of ALR parcels	% of ALR parcels	Average parcel size	Median parcel size (ha)
Used only for farming - no other use		33	4 %	7	2.0
Farming - Mixed use	Residential	126	16 %	12	3.6
	Transportation & utilities	2	<1 %	1	1.4
	Industrial	2	<1 %	12	12.0
	Gravel extraction	2	<1 %	59	59.5
	Recreation & leisure	1	<1 %	25	25.4
	Commercial & service	1	<1 %	41	41.4
USED FOR FARMING SUBTOTAL		167	21 %	12	3.3
Not used for farming	Residential	370	46 %	5	2.0
	No apparent use	123	15 %	9	2.9
	Forestry	79	10 %	52	11.0
	Transportation & utilities	25	3 %	16	0.9
	Protected area / park / reserve	17	2 %	19	8.2
	Recreation & leisure - golf	8	1 %	8	2.0
	Industrial	7	1 %	3	1.9
	Recreation & leisure	6	1 %	2	1.6
	Land in transition	3	<1 %	7	2.2
	Gravel extraction	2	<1 %	543	542.8
	Heritage	1	<1 %	13	12.8
NOT USED FOR FARMING SUBTOTAL		641	79 %	14	2.0
TOTAL		808	100 %	13	2.1

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

Table 7 shows the number of ALR parcels that are “Used for farming” and “Not used for farming” by land use in ACRD.

In total, 21% of the ALR parcels (167 parcels) are “Used for farming” and 79% (808 parcels) are “Not used for farming”.

Figure 12 provides more information on “Used for farming” ALR parcels and Figure 13 provides more information on “Not used for farming” ALR parcels.

Figure 12. Land use on “Used for farming” ALR parcels

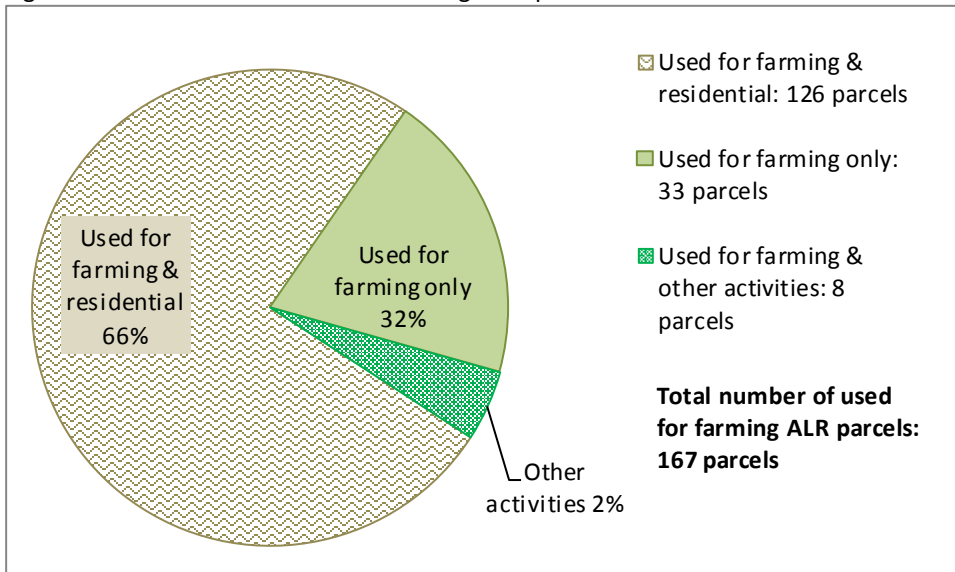


Figure 12 illustrates the proportion of “Used for farming” ALR parcels by their land use.

Two-thirds (66%) of the ALR parcels that are “Used for farming” are also used for residential purposes.

Figure 13. Land use on “Not used for farming” ALR parcels

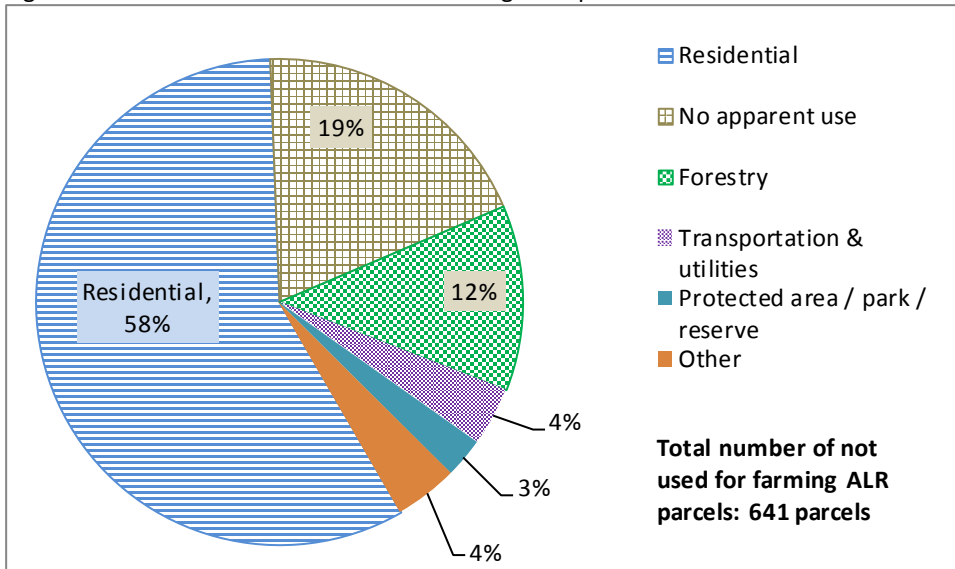


Figure 13 illustrates the proportion of “Not used for farming” ALR parcels by their land use.

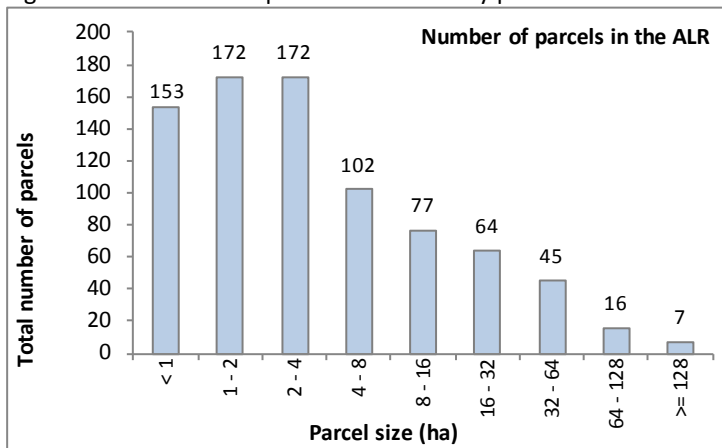
Fifty-eight percent (58%) of the “Not used for farming” ALR parcels have a residential use, and 19% have no apparent use.

4.3 PARCEL SIZE AND FARM USE

Parcel size must be considered when determining the agricultural potential of a parcel. Larger parcels usually allow farmers greater flexibility to expand or change their type of operation as the economy and markets change. Some types of agriculture can be successful on small parcels, (e.g. intensive market gardens, nurseries, poultry), however, the number of viable farming options generally decreases with a reduced parcel size. Small parcels may also be suitable for start-up farmers and established farmers wanting to expand through leases.

A farming operation may utilize more than one parcel as a farm unit⁷, however, it is generally more efficient to run a farm on fewer large parcels than on many small parcels. Smaller parcels generally cost more per hectare than larger parcels and can easily be disassembled from larger farm units and sold. Larger parcels accommodate equipment more efficiently and reduce the need to move farm equipment on public roads. Furthermore, smaller parcels are more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances.

Figure 14. Number of parcels in the ALR by parcel size



The average ALR parcel size in ACRD is 13.3 ha and the median parcel size is 2.1 ha.

Figure 14 illustrates that of the 808 parcels in the ALR:

- 19% (153 parcels) are less than 1 ha.
- 62% (497 parcels) are less than 4 ha.
- 13% (102 parcels) are between 4 and 8 ha.
- 9% (77 parcels) are between 8 and 16 ha.
- 16% (132 parcels) are greater than 16 ha.

Figure 15. Total area in the ALR by parcel size

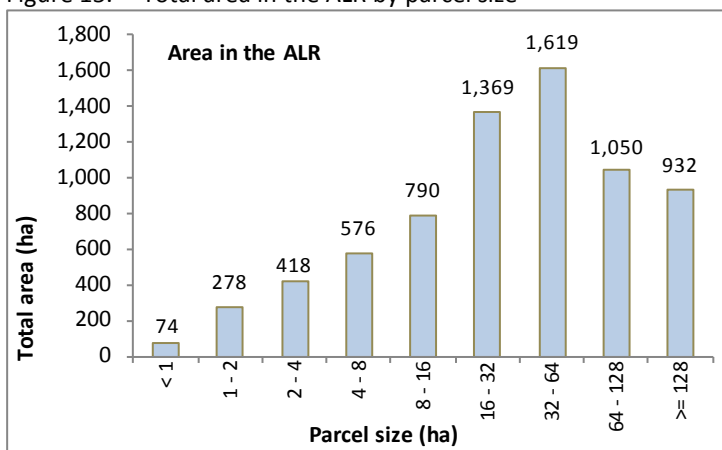


Figure 15 illustrates that of the 7,106 ha in the ALR:

- 1% (74 ha) is on parcels less than 1 ha.
- 11% (770 ha) is on parcels less than 4 ha.
- 8% (576 ha) is on parcels between 4 and 8 ha.
- 11% (790 ha) is on parcels between 8 and 16 ha.
- 70% (4,970 ha) is on parcels greater than 16 ha.

⁷ The farm unit includes all the property owned, rented, or leased by a farm and may incorporate more than one parcel.

Table 8. Number of parcels in the ALR by farming status

Parcel status with respect to farming	Number of parcels	% of parcels in the ALR
Used for farming	167	21 %
Not used for farming	641	79 %
TOTAL	808	100 %

Table 8 demonstrates that of the 808 parcels in the ALR, only 21% are considered "Used for farming".

Figure 16. Number of parcels in the ALR by farming status and parcel size

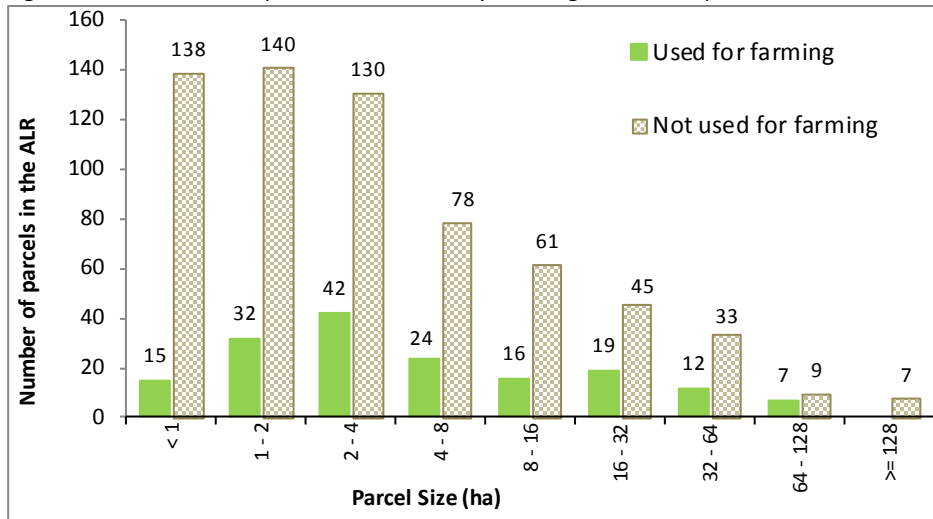


Figure 16 compares the size distribution of ALR parcels by their farming status.

High proportions of "Not used for farming" parcels are found across most parcel size categories.

On parcels less than 1 ha, 95% are "Not used for farming".

In general, small parcels are less likely to be utilized for farming.

Figure 17. Proportion of parcels in the ALR by farming status and parcel size

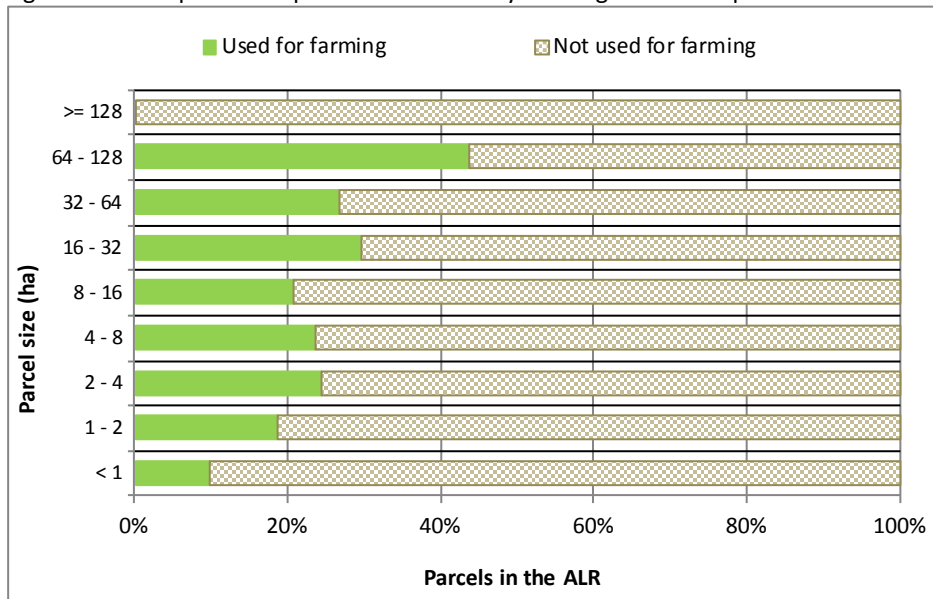


Figure 17 shows the proportion of parcels used and not used for farming by parcel size.

There are seven parcels >=128 ha considered to be in the ALR. Four of these parcels have less than 1/3 of their total parcel area within the ALR, yet account for 635 ha of ALR.

5. ALR Availability for Farming

5.1 ALR PARCEL AVAILABILITY OVERVIEW

There is a strong demand for agricultural goods produced in British Columbia that is expected to increase with population growth. An available agricultural land base will be important to meet future agricultural needs. This section presents analysis on the characteristics of **privately owned** parcels that are available and unavailable for farming. Crown lands are not considered in this section as they offer little opportunity for capital investment and intensive agricultural development.

Used for farming – Parcels where the majority of the parcel area is utilized for farming or parcels which exhibit significant intensity of farming. Refer to the glossary for a complete definition.

Not used for farming – Parcels that do not meet the “Used for farming” definition. Includes parcels that are *available* and *unavailable* for farming.

Unavailable for farming – “Not used for farming” parcels where future agricultural development is improbable due to a conflicting land use or due to limited land with potential for farming. Land uses such as golf courses, parks, schools, and small residential lots that utilize the majority of the parcel are considered incompatible with agriculture. These properties are serving an established purpose, may be altered in a way that is incompatible with agriculture, or may have very high land values from the build infrastructure. Parcels with little to no land available for farming are also considered “Unavailable for farming”. E.g. A parcel completely covered by trees and a steep slope is considered “Unavailable for farming” due to the limited farming potential on the slope. It is usually uneconomical for a farmer to acquire and convert these properties to farmland.

Available for farming – “Not used for farming” parcels where agricultural activity may be possible. These parcels have no apparent land use, or have an existing land use that is considered compatible with agriculture. Available for farming parcels have at least 50% of their parcel area and least 0.4 ha in land cover that has potential for farming. Areas considered to have **potential for farming** include:

- Natural and semi-natural vegetation that is free from physical limitations such as steep slopes, rocky soils and riparian areas. Although some crops can thrive in areas with physical limitations (e.g. grapes on steep slopes), it is assumed these areas will not be utilized for farming purposes. Natural areas that are grazed are considered to have potential for more intensive farming.
- Anthropogenic managed vegetation (managed for landscaping, dust or soil control). E.g. Very large lawns or rough grass areas (> 0.4 ha) may be available for conversion to agriculture. Parks and golf courses are not considered to have potential for farming.

Built structures, wetlands and waterbodies are considered to have no potential for farming. It is assumed these areas would not likely be removed or filled in to create land with cultivation potential.

Available for farming parcels reflect the maximum amount of land that may be available for farming. It should be noted that these parcels may be providing value that was not accounted for in the ALUI. For example, parcels may be providing ecological goods and services such as soil stabilization, water purification, or wildlife habitat, or may be serving purposes that were not apparent during the field survey. Additionally, parcels may have an unrecorded physical limitation (rocky soils, poor drainage, etc.). Available for farming parcels provide an initial selection of parcels that may be available for agricultural expansion. Detailed investigation is required to confirm the suitability and trade-offs associated with converting these areas to agriculture.

Table 9. Farm and availability status of parcels in the ALR

Parcel status with respect to farming	Privately owned ALR parcels			
	Number of parcels	% of parcels	Total ALR area (ha)*	% ALR area (ha)
Used for farming	167	24 %	1,884	31 %
Available for farming	433	61 %	3,296	55 %
Unavailable for farming	106	15 %	862	14 %
TOTAL	706	100 %	6,042	100 %

* The entire ALR area or parcel area may not be farmed or available for farming.

Table 9 demonstrates that of the 706 privately owned parcels in the ALR, 61% are potentially available for agricultural production.

Figure 18. Availability status of privately owned parcels in the ALR by parcel count

Availability by parcel count

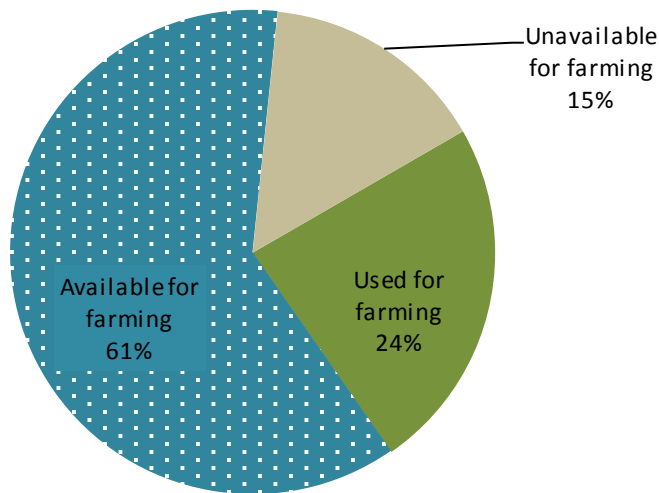


Figure 18 illustrates the proportion of privately owned ALR parcels by their availability for farming.

Sixty-one percent (61%) of the ALR parcels are “Available for farming” while 15% are “Unavailable for farming”.

Figure 19. Parcel size distribution of privately owned parcels in the ALR by farming status

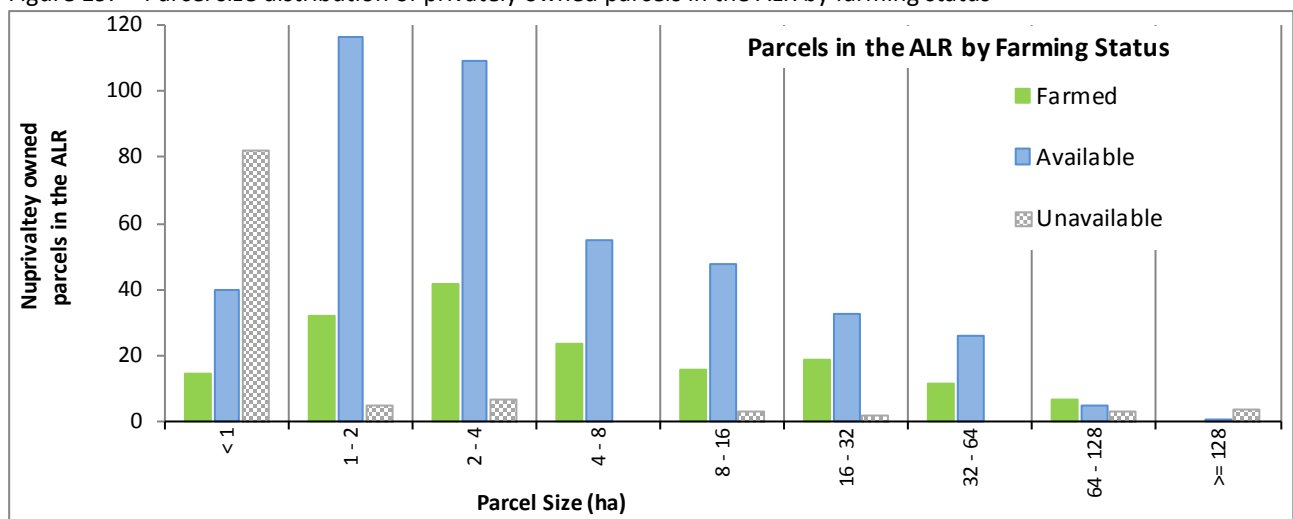


Figure 19 shows the size distribution of ALR parcels by farming status. There is a high proportion of parcels that may be available for farming across most parcel sizes. Over sixty percent (61%) of the available parcels are less than 4 ha in size.

Of the “Unavailable for farming” parcels, over-three quarters (77%) are less than 1 ha.

5.2 AVAILABLE FOR FARMING – PRIVATELY OWNED ALR PARCLES

Privately owned ALR parcels that are “Available for farming” offer the greatest potential for agricultural expansion. For a parcel to be considered available for farming it:

- Must not already be “Used for farming”
- Must not have an existing use that excludes agricultural development (e.g. parks, golf courses)
- Must have at least 50% of the parcel area and at least 0.4 ha in land that has potential for farming

Parcels that have no apparent land use may provide the simplest opportunities to increase agricultural use. These parcels generally have little to no development and generally have low improvement values.

Figure 20. Land use and parcel size distribution of “Available for farming” parcels in the ALR

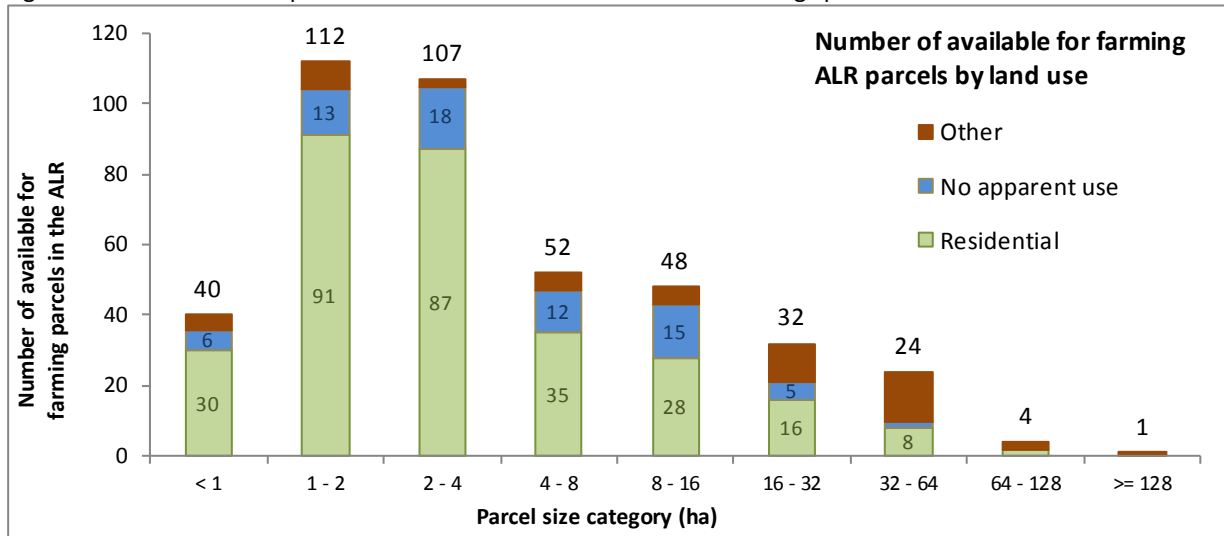


Figure 20 illustrates the existing land uses on the 433 parcels in the ALR that are privately owned and “Available for farming”. Many of these parcels (69%) have an existing residential use. Of the available parcels:

- 36% (156 parcels) are less than 2 ha
- 39% (168 parcels) are greater than 4 ha
- 61% (265 parcels) are less than 4 ha
- 15% (65 parcels) are greater than 16 ha

Figure 21. Land cover with potential for farming on “Available for farming” parcels in the ALR

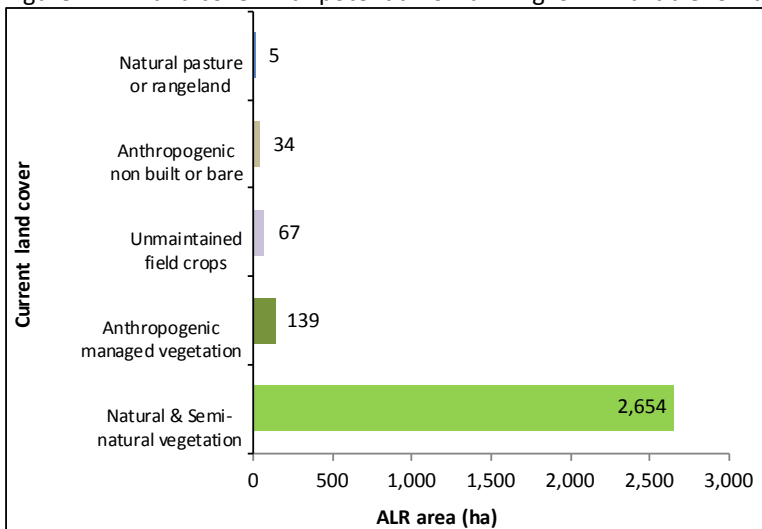


Figure 21 shows that ALR land in natural & semi-natural vegetation offers the greatest opportunities to increase cultivation on parcels that are “Available for farming”.

These gains in cultivated land would have to be measured against the potential loss of ecological values such as wildlife habitat and societal values such as natural views and privacy

The majority of the available natural & semi-natural vegetation (83% or 2,197 ha) is currently treed and would require clearing if cultivation were to occur.

5.3 UNAVAILABLE FOR FARMING – PRIVATLEY OWNED ALR PARCELS

Parcels that are unavailable for farming have an existing land use that excludes agricultural development (e.g. golf courses, schools, small lot residential), or lack sufficient land cover that has potential for farming. Parcels that do not meet the minimum parcel availability criteria (>50% of the parcel area and >0.4 ha in land cover with potential for farming) are considered unavailable for farming. Examples of parcels not meeting the minimum availability criteria include:

- A parcel completely covered in trees and a steep slope. There is no available land as sloped areas are considered to have limited potential for farming.
- A parcel with 0.3 ha of available land.
- A parcel with 45% if its total area in land with potential for farming.

Figure 22. Parcel size distribution of unavailable for farming parcels in the ALR

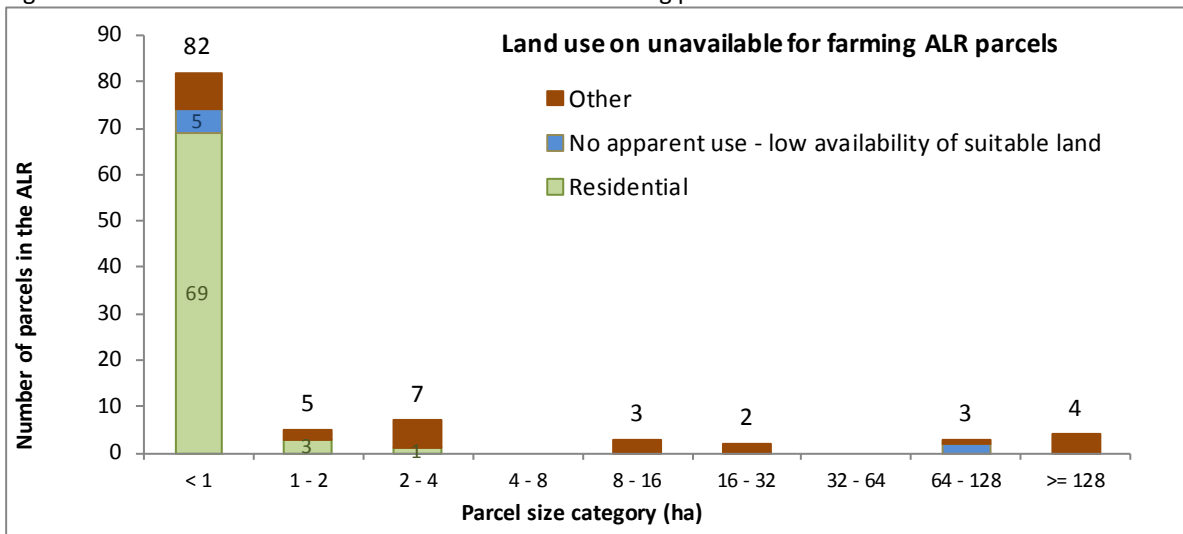


Figure 22 shows the number of privately owned ALR parcels that that are unavailable for farming. These parcels have an existing land use or low availability of suitable land that makes them unavailable for farming purposes.

Residential use is the primary reason many small parcels (<1 ha) are “unavailable for farming”. Forestry and recreation & leisure are the top land uses within the ‘Other’ category.

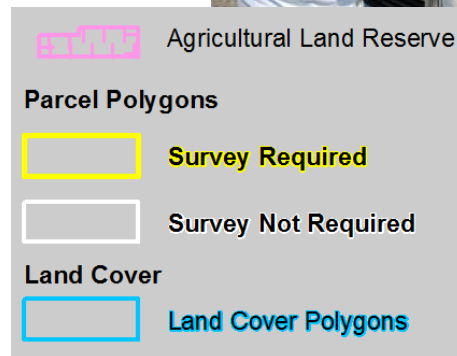
6. Methodology

6.1 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:

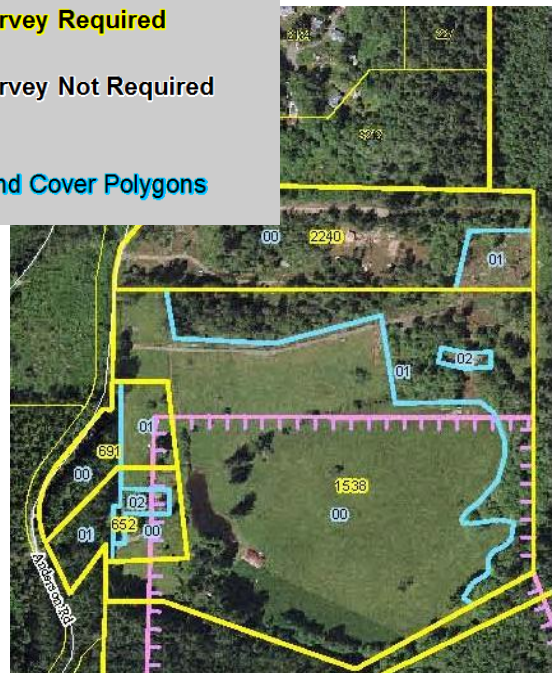
- AgFocus – A Surveyor's Guide to Conducting an Agricultural Land Use Inventory
- AgFocus – Field Guide to Conducting an Agricultural Land Use Inventory
- AgFocus – A GIS Analyst's Guide to Agricultural Land Use Inventory Data

The ACRD Agricultural Land Use Inventory was conducted in the summer of 2016 by a Professional Agrologist, a data technician, and a driver. 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 provide the basis for the survey and include:

- Legal parcel boundaries (cadastre)⁸
- Unique identifier for each legal parcel
- Preliminary land cover polygon boundaries (digitized prior to field survey using aerial photogra
- 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



⁸ Cadastre mapping was provided through the Integrated Cadastral Information Society.

6.2 DESCRIPTION OF THE DATA

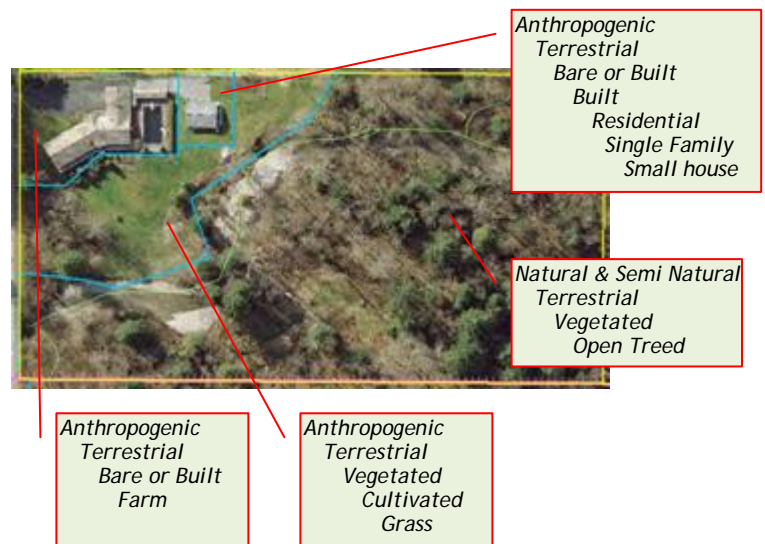
For each property in the study area, data was collected on general land use and land cover. For properties with agricultural activities, data was collected on agricultural practices, irrigation, crop production methods, livestock, agricultural support (storage, compost, waste), and activities which add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

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

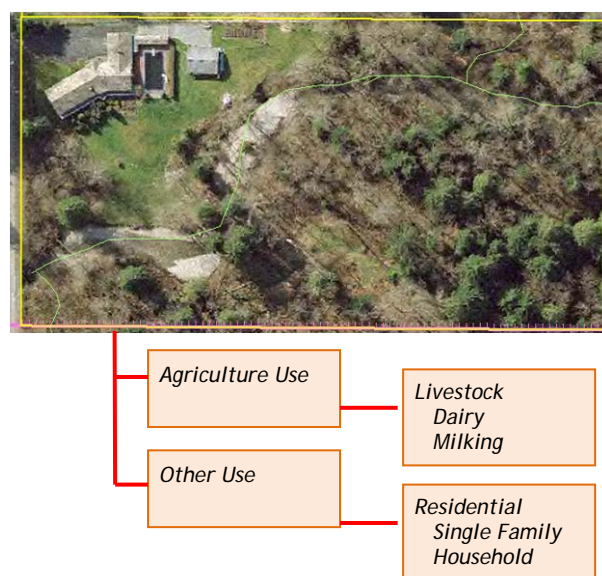


In most cases, more than one land cover was recorded for each parcel surveyed.

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 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.

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 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.

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.

6.3 PRESENTATION OF THE DATA

The data in this report is presented in the form of summarized tables and charts. In the final formatting of the tables and charts, data values are rounded to the nearest whole number. As a result, the data may not appear to add up correctly.

Appendix A – Glossary

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

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

Animal Unit Equivalent – A standard measure used to compare different livestock types. One animal unit equivalent is approximately equal to one adult cow or horse.

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

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

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

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

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

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

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

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

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

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

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

BC Assessment – The Crown corporation which produces annual, uniform property assessments that are used to calculate local and provincial taxation. The database purchased from BC Assessment

contains information about property ownership, land use, and farm classification, which is useful for land use surveys.

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

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

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

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

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

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

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

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

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

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

Greenhouses – See **Crop cover structures**.

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

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

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

Land use – Dumps & deposits – Parcels with landfills, green waste, or outdoor composting facilities. Also includes parcels with significant fill deposits.

Land use – First Nations – Parcels designated for ceremonial use, food & material harvesting, or cultural landforms. These parcels are outside of federally designated Indian reserves.

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

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

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

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

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

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

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

Limited potential for farming – See **potential for farming**.

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

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

Natural and Semi-natural – Grass – Land cover dominated by naturally occurring grasses with some sedges or rushes. May include non-native naturalized species. If greater than 50% cover is grass, the land is categorized as grass.

Natural and Semi-natural – Herbaceous – Land cover dominated by low, non woody plants such as ferns, grasses, horsetails, clovers and dwarf woody plants. If greater than 10% crown cover is trees, the land is categorized as treed.

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

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

Natural and Semi-natural – Rangeland – Larger areas usually on Crown land with uncultivated (not sown) natural or semi-natural vegetation used for grazing domestic livestock.

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

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

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

Natural and Semi-natural – Vegetation – Land covered by **Natural and Semi-natural** vegetation including, grasses, herbs, shrubs, and trees. **Natural pasture or rangeland** is reported separately.

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

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

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

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

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

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

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

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

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

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

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

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

Used for farming – 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 40% parcel area in cultivated field crops (excluding unused forage or pasture)
- at least 40% 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 23% parcel area in cultivated field crops (excluding unused forage or pasture) and at least 45% 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 30% parcel area in cultivated field crops (excluding unused forage or pasture) or farm infrastructure
- at least 15% parcel area and at least 15 ha in cultivated field crops (excluding unused forage or pasture)
- at least 20% parcel area and at least 10 ha in cultivated field crops (excluding unused forage or pasture)
- at least 25% 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)

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