BRITISH COLUMBIA | Ministry of Agriculture

Agricultural Land Use Inventory

Reference Number: 800.510-27.2013

District of Kent

Fraser Valley Regional District

Summer 2013

Photo credit: Cedar Isle Farms. www.urbangrains.ca

Strengthening Farming Program
Ministry of Agriculture
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We would like to thank the farmers who stopped to talk to the survey crew and to answer questions about farming in the Fraser Valley.

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Acronyms

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

Executive Summary

In the summer of 2013, the BC Ministry of Agriculture conducted an Agricultural Land Use Inventory (ALUI) in the District of Kent. The ALUI was funded by the Fraser Valley Regional District and the BC Ministry of Agriculture.

ALUIs can be used to understand the type and extent of agricultural activities within the ALR. The ALUI data quantifies how much land is currently used for agriculture, how much land is unavailable for agriculture, and 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.

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
- zoned by local government bylaws to permit agriculture, and greater than 1 acre (approximately 0.4 ha) and showing signs of agriculture on aerial photography

The ALR in Kent consists of 6,502 ha. Of this area:

- 65% or 4,192 ha met one of the inventory criteria and was included in the survey
- 7% or 464 ha was outside of legally surveyed parcels in rights-of way, water, foreshore, or unsurveyed Crown land
- 28% or 1,846 ha was on Indian reserves.

The 65% of the ALR that excludes the ALR outside of legally surveyed parcels and ALR on Indian reserves is considered the "**effective ALR**". This area forms the basis of the ALUI analysis.

The 1,846 ha of ALR on Indian reserves was inventoried, however, the findings are presented separately due to differences in levels of governance, planning, and decision making processes. ALUI findings on Indian reserves are presented in Appendix A.

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

In the ALR by land cover, 75% of the effective ALR (3,169 ha) was farmed, 7% of the effective ALR (294 ha) was anthropogenically modified in vegetation, buildings, and roads, and 18% (730 ha) was in a natural or semi-natural state. An additional 84 ha of land outside the ALR was farmed.

Land use was applied on a parcel basis. To determine land use, the entire parcel was examined and a "Used for farming" or "Not used for farming" category was assigned based on the percentage of the parcel in cultivated crops, farm infrastructure, and/or the scale of livestock production. Refer to the glossary for the "Used for farming" definition. In the ALR by land use, 50% of the ALR parcels were "Used for farming" (343 parcels) and 50% of the parcels were "Not used for farming" (345 parcels). Of the "Used for farming" parcels, 67% were also used for residential purposes and 30% were used exclusively for farming. The average "Used for farming" parcel size is 12 ha while the average "Not used for farming" parcel size is much smaller at 2 ha. Of the "Not used for farming" ALR parcels, 65% have a residential use.

Land cover, land use, and physical site limitations were used to assess how much land is available and may have potential for farming in the future. Of the 4,192 ha of inventoried ALR, 75% (3,148 ha) were farmed or supporting farming (e.g. crops, barns, farm houses, etc.). Seven percent (7% or 299 ha) were unavailable for farming due to existing land use or land cover and another 7% (294 ha) had limited potential for farming due to a physical site limitations such as topography or flooding. The remaining 11% (451 ha) was available and may have potential to be developed for agriculture.

Despite there being 451 ha of ALR land that may be available for farming, there are few large ALR parcels available and with potential for farming. A parcel is considered available and with potential for farming if it has at least 50% of its area and at least 0.4 ha available for farming. In total, there are 82 ALR parcels considered available for farming: 41 parcels (50%) are less than 2 ha in size, and 59 parcels (72%) are less than 4 ha in size. Of the ALR parcels considered available for farming but not farmed in Kent, only 23 are larger than 4 ha.

The District of Kent has strong agricultural attributes that include good quality soil, an abundance of good quality water and a moderate climate. These natural attributes, in addition to a policy framework meant to encourage farming, support investment in high value agriculture enterprises. Farmers are managing intensive livestock and cropping operations and investing heavily in their farm businesses through technology, machinery, and buildings. The result is that the land in District of Kent is efficiently utilized, with many high value agriculture operations.

There are 3,156 ha of cultivated field crops in Kent (3,073 ha in the ALR and 83 ha outside the ALR). The most common crops are forage with 2,384 ha (76% of all cultivated land), pasture with 362 ha (11% of all cultivated land), and berries with 152 ha (5% of all cultivated land). Most forage crops are highly managed and are primarily grown to support dairy, beef and other livestock production. Of the forage crops, 39% is in forage corn and 61% is in grass or mixed grass / legume crops. Other crops in Kent include 83 ha of nut trees, 75 ha in fibre/pulp/veneer trees, 46 ha in nursery crops, 40 ha in vegetables, and 15 ha in other miscellaneous crops.

In addition to cultivated crops, there are 3.1 ha in greenhouses and crop barns; 1.7 ha are in glass greenhouses, 1 ha are in poly greenhouses and 0.4 ha are in crop barns.

Irrigation use was captured by crop type and irrigation system type to aid in developing an agricultural water demand model. Irrigation in Kent is relatively rare with only 22% (707 ha) of all cultivated crops being irrigated. Forage crops account for 509 ha of the irrigated land (71%) and utilized giant gun and sprinkler irrigation systems. Berries account for 124 ha of the irrigated land (17%) and utilized trickle and sprinkler systems. Blueberries (102 ha) and cranberries (22 ha) are the types of irrigated berries.

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. No actual livestock numbers were obtainable through the survey, so the results are reported as a range in terms of animal unit equivalents for each parcel. Livestock activities with specialized structures such as barns feedlots, or stockyards designed for confined feeding at high stocking densities are considered “intensive” while livestock activities with the ability to graze on pasture and that utilize non-intensive infrastructure are defined as “non-intensive”.

Kent has numerous farms dedicated to producing high value dairy and poultry products under a supply-managed marketing system. The dairy industry is important to the District of Kent, in terms of overall agriculture output and in terms of the contribution to milk production in the Lower Mainland. There were 38 identified dairy homesite activities of which 89% (34 activities) are defined as "intensive". These types of operations require large investments in land, livestock, technology, equipment and machinery. There were 15 large (>100 cattle), 19 medium (25 -100 cattle) and 4 small (2 - 25 cattle) dairy activities.

The next most common group of livestock are equine. There were 37 equine activities in Kent. There are a few that are commercial breeding or boarding operations, including 3 which are "medium" scale (25-100 equine). There are an additional 24 "small" scale activities (2-25 equine) and 10 "very small" scale activities (1 equine). Although equine activities are numerous, all are considered "non-intensive".

The third most common livestock group was poultry. Fifteen poultry activities were recorded; 10 were very small scale or backyard flocks (<100 birds), 1 was small scale (100 – 2,500 birds) and 4 were large scale and were defined as "intensive". Of the large scale activities, 3 were chicken (>10,000 birds) and 1 was turkey (>5,000 birds). Also recorded were 12 beef and 6 sheep, and 3 goat activities.

Of note are the milk goat operations in the District of Kent. There are three commercial milk goat activities, two of which are conventional and one organic.

Further analysis was conducted on the 688 ALR parcels. The average ALR parcel size in Kent is 2.7 ha and the median parcel size is 1.9 ha. Of the ALR parcels, 343 were "Used for farming" and 345 were "Not used for farming" (50%). Eighty-nine percent of the "Not used for farming" parcels are less than 4 ha with the vast majority being less than 1 ha in size. By contrast, 85% of the ALR parcels greater than 4 ha are "Used for farming". Small parcels are less likely to be farmed than larger parcels and are more prone to non-farm use than larger parcels.

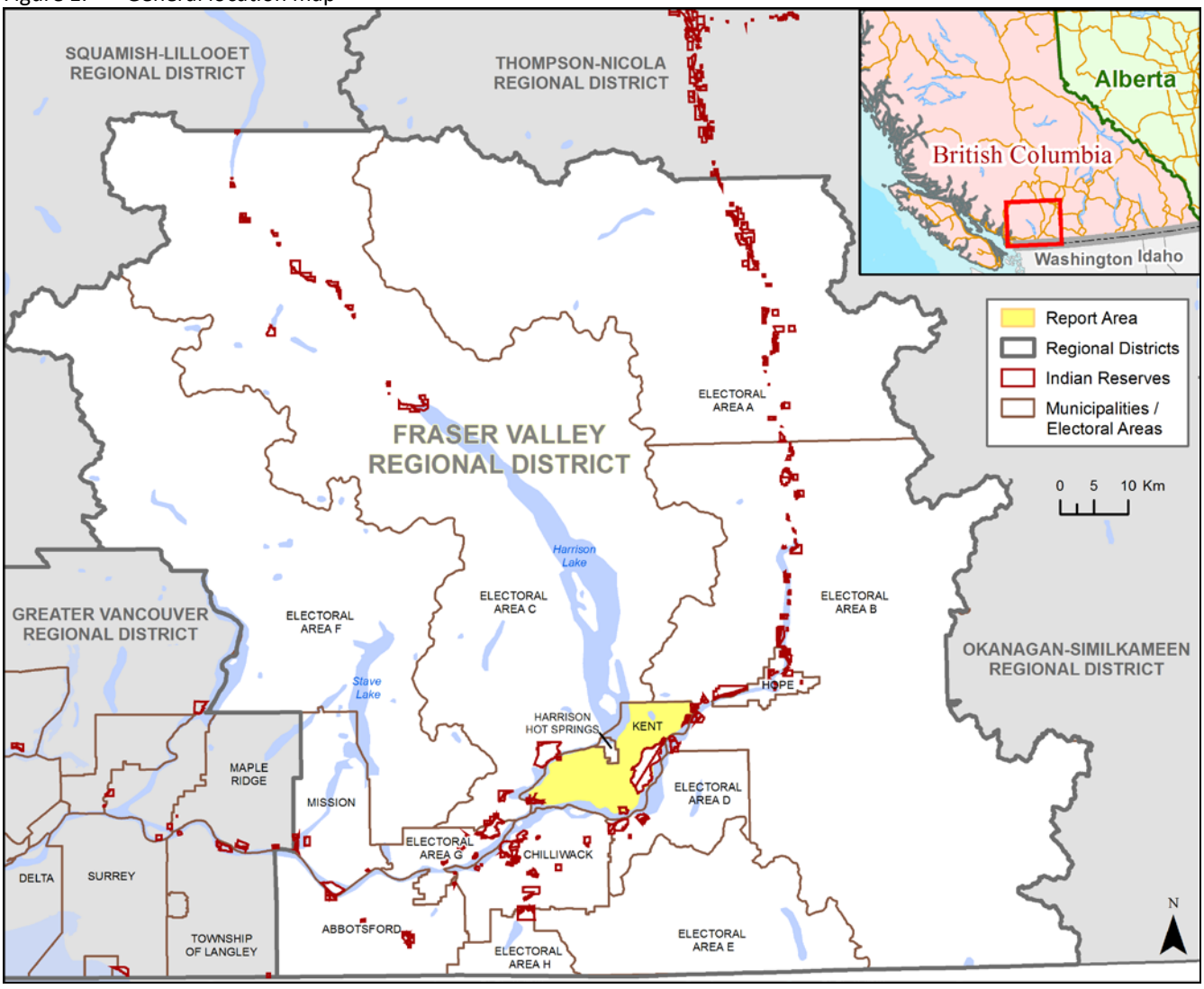
1. General Information

The District of Kent is located in the south-central region of the Fraser Valley Regional District (FVRD). Kent is bordered by the Fraser River, FVRD Electoral Area D, and Chilliwack to the south, FVRD Electoral Area C to the North, and FVRD Electoral Area B and Hope to the east. District of Kent includes the communities of Agassiz and Harrison-Mills and surrounds the Seabird Island First Nation.

The Fraser River plays a significant role in shaping the characteristics of Kent. Much of the District is comprised of fertile alluvial floodplain from the Fraser River. This rich floodplain soil, in combination with an abundance of good quality water and a moderate climate, have contributed to Kent having a rich agricultural history. Agricultural activities continue to play a pivotal role in Kent's economy.

In 2011, the District of Kent had a population of 5,664[1] (excluding people living on Indian reserves) and approximately 1,235 people living on nearby Indian reserves. Kent is growing quickly and experienced a population growth rate of 8.7% between the 2006 and 2011 census years. The District of Kent has a total area of 22,132 ha[2], with 18,776 ha in land and 3,356 ha in waterbodies and watercourses.

Figure 1. General location map



[1] Statistics Canada, 2011 Census; http://www12.statcan.gc.ca/census-recensement/index-eng.cfm

[2] Calculated in GIS.

AGRICULTURAL LAND RESERVE

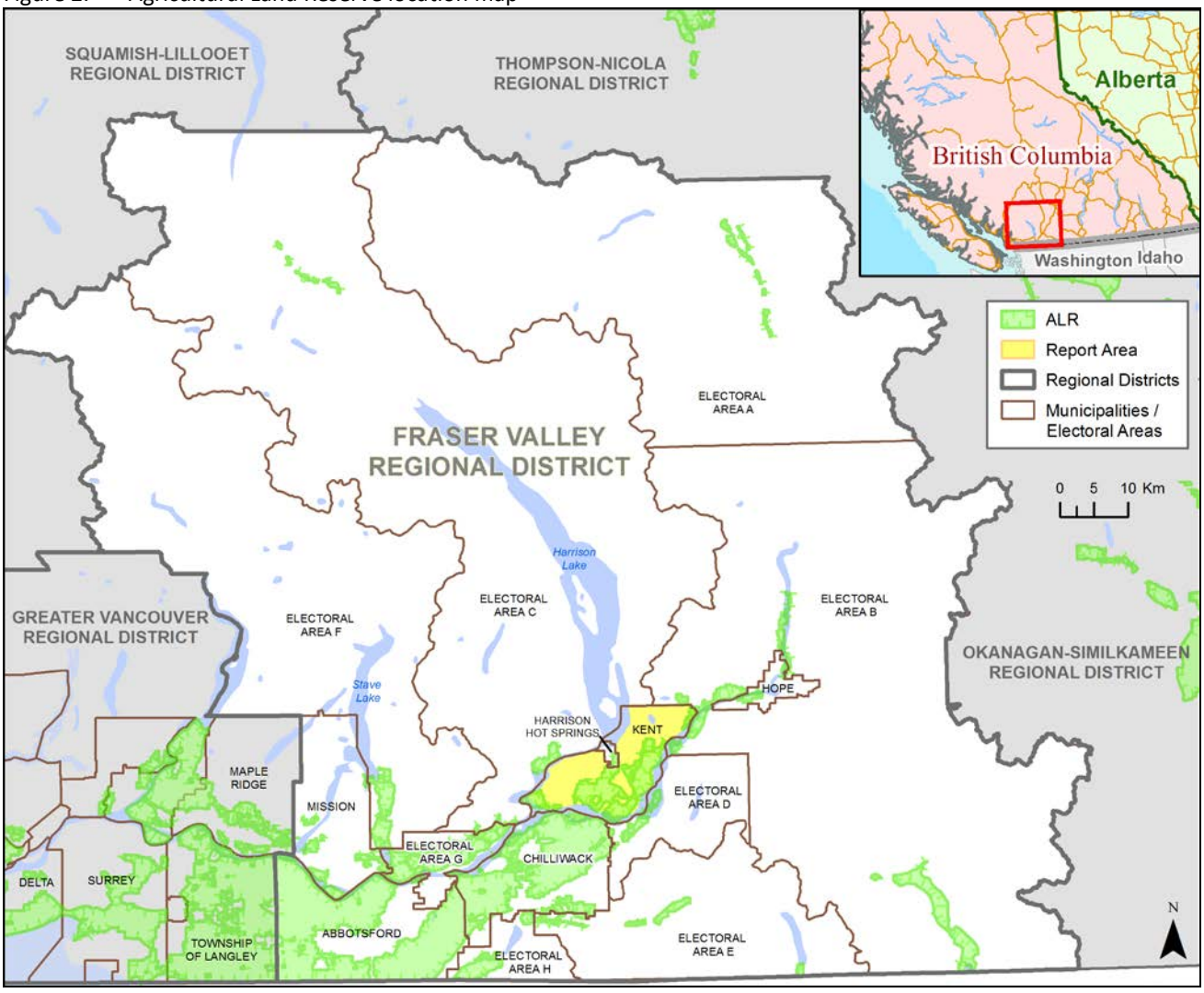
The Agricultural Land Reserve (ALR) is a provincial land use zone that was designated in 1973 in which agriculture is recognized as the priority use. Within the ALR, farming is encouraged and non-agricultural uses are controlled.

There are 71,865 ha[3] of ALR land within the Fraser Valley Regional District (see Figure 2). The District of Kent contains 6,502 ha[4] of ALR land, which is 9% of the ALR within FVRD. Of this area, 4,656 ha is under the jurisdiction of Kent and 1,846 ha is on associated Indian reserves.

The total land area of Kent is 18,776 ha[5], however, only 9,370 ha are in legally surveyed parcels. With 6,502[3] ha in the ALR, 35% of Kent's total land area is in the ALR, and 69% of the legally surveyed parcel area is in the ALR. The ALR area includes:

- 4,192 ha on inventoried parcels
- 1,846 ha on Indian reserves (ALUI findings are presented in Appendix A)
- 464 ha outside legally surveyed parcels (rights-of-way, water, foreshore, unsurveyed Crown land)

Figure 2. Agricultural Land Reserve location map



[3] Provincial Agricultural Land Commission (ALC), Library, ALC Reports, Annual Report 2009/10 & 2010/11 Pg 39. http://www.alc.gov.bc.ca
[4] Agricultural Land Commission, ALR mapping, Land and Resource Data Warehouse, 2012-10-31 (area calculated in GIS)
[5] Calculated in GIS.

INVENTORY AREA

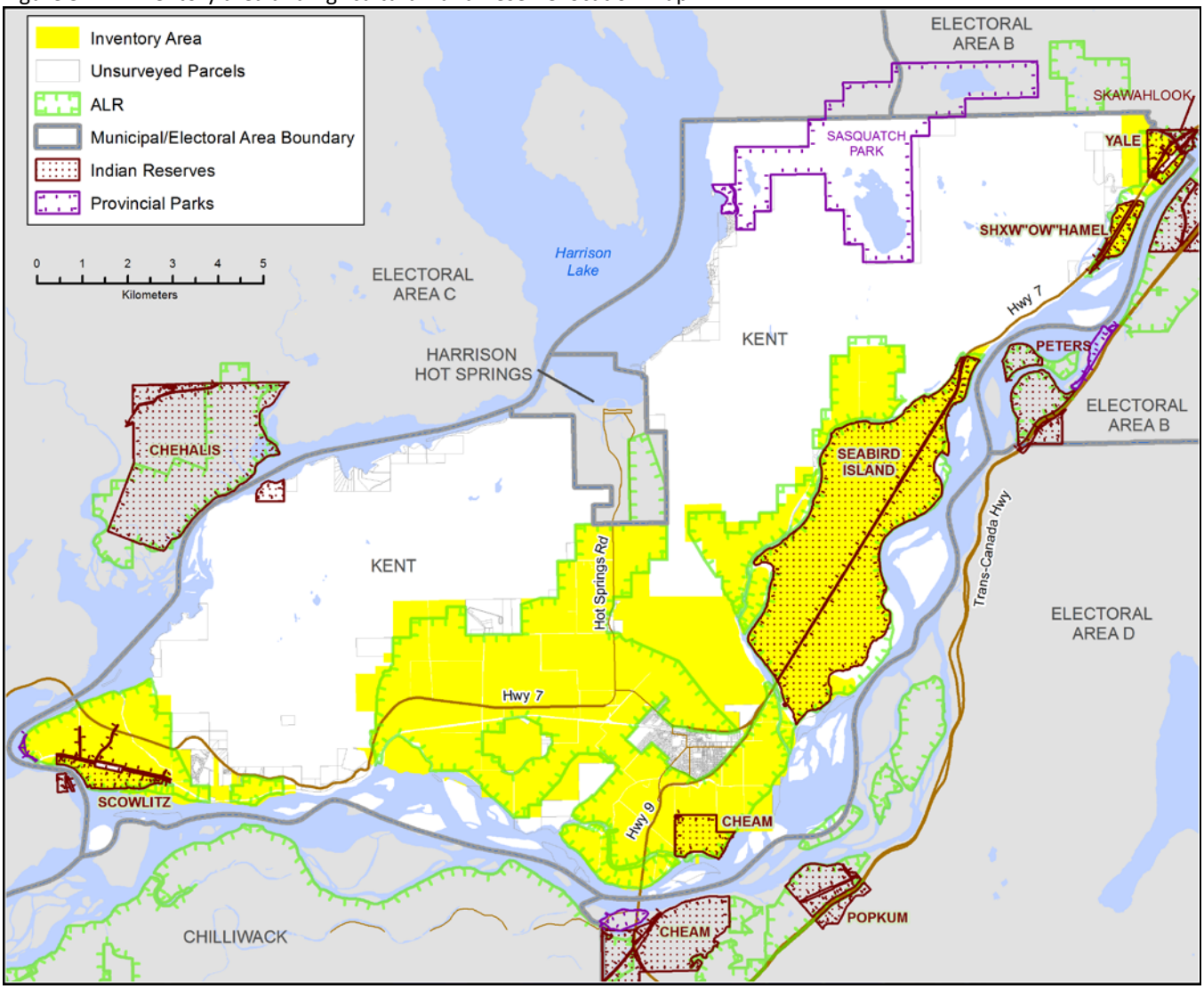
The total inventory area (excluding Indian reserves) encompasses 734 parcels with a combined area of 5,366 ha. Included were all parcels:

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

The amount of ALR land included in the inventory (excluding Indian reserves) is 4,192 ha. This area is 65% of the total ALR with Kent and is considered the "**effective ALR**".

Indian reserves were surveyed if they met one of the above inventory criteria. In total, 1,858 ha of land on Indian reserves associated with the Cheam, Scowlitz, Seabird Island, Shxw"hamel, and Yale First Nations was inventoried (1,846 ha in the ALR and 12 ha outside). ALUI findings for these areas are presented in Appendix A due to differences in levels of governance, planning, and decision making processes.

Figure 3. Inventory area and Agricultural Land Reserve location map

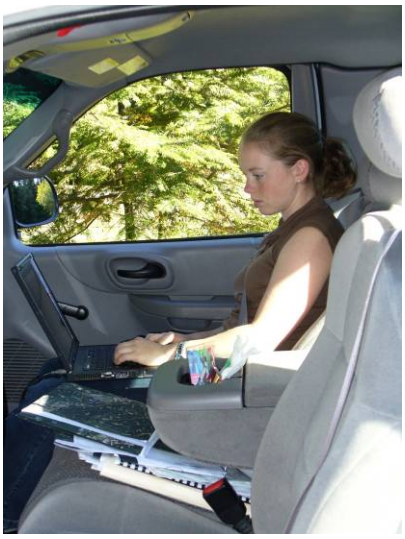


2. Methodology

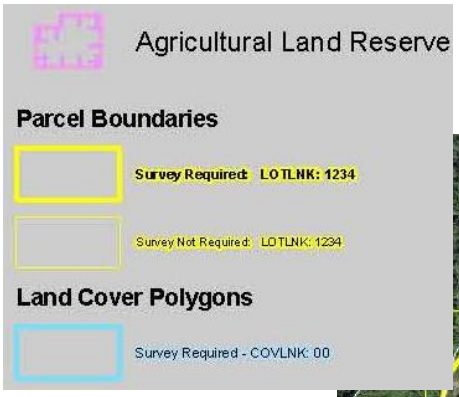
INVENTORY METHODOLOGY

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

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



The District of Kent Agricultural Land Use Inventory was conducted in the summer of 2013 by a professional agrologist with the assistance of a GIS technician and a driver[6]. The survey crew visited each property and observed land use, land cover, and agriculture activity from the road. Where visibility was limited, data was interpreted from aerial photography in combination with local knowledge. The technician entered the survey data into a database on a laptop computer.



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

- The legal parcel boundaries (cadastre)[7]
- Unique identifier for each legal parcel
- The preliminary land cover polygon boundaries (digitized prior to field survey using aerial photography)
- Unique identifier for each preliminary land cover polygon
- The boundary of the Agricultural Land Reserve (ALR)
- Base features such as streets, street names, watercourses and contours
- Aerial photography

[6] Vehicle and driver provided by Fraser Valley Regional District.
[7] Cadastre mapping (2012) was provided by District of Kent.

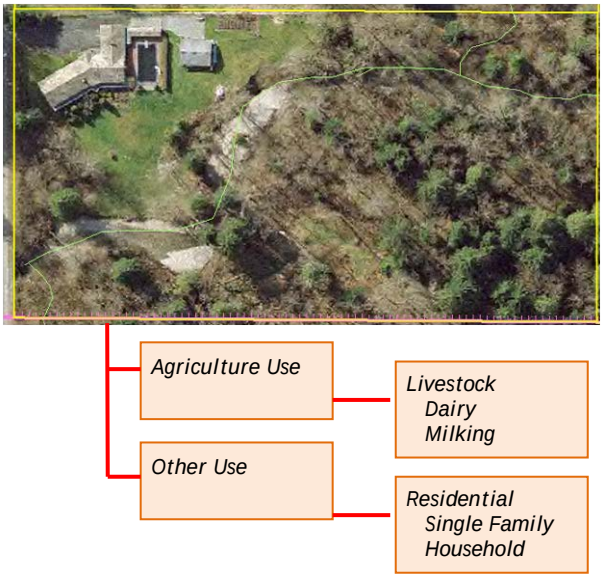
DESCRIPTION OF THE DATA

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

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

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

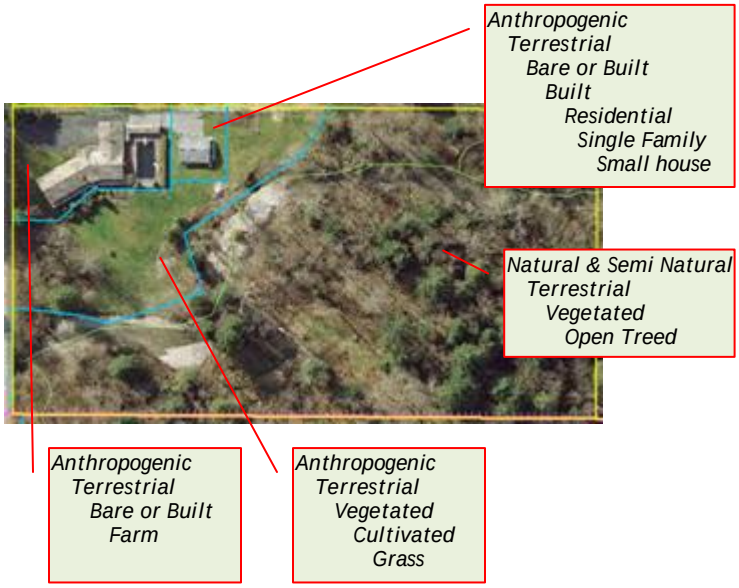
- The actual human use of land and related structures and modifications to the landscape
- Use-related land cover (where land cover implies a use or is important to interpreting patterns of use)
- Declared interests in the land (which may limit use) such as parks



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

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

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



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

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

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

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

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

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

PRESENTATION OF THE DATA

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

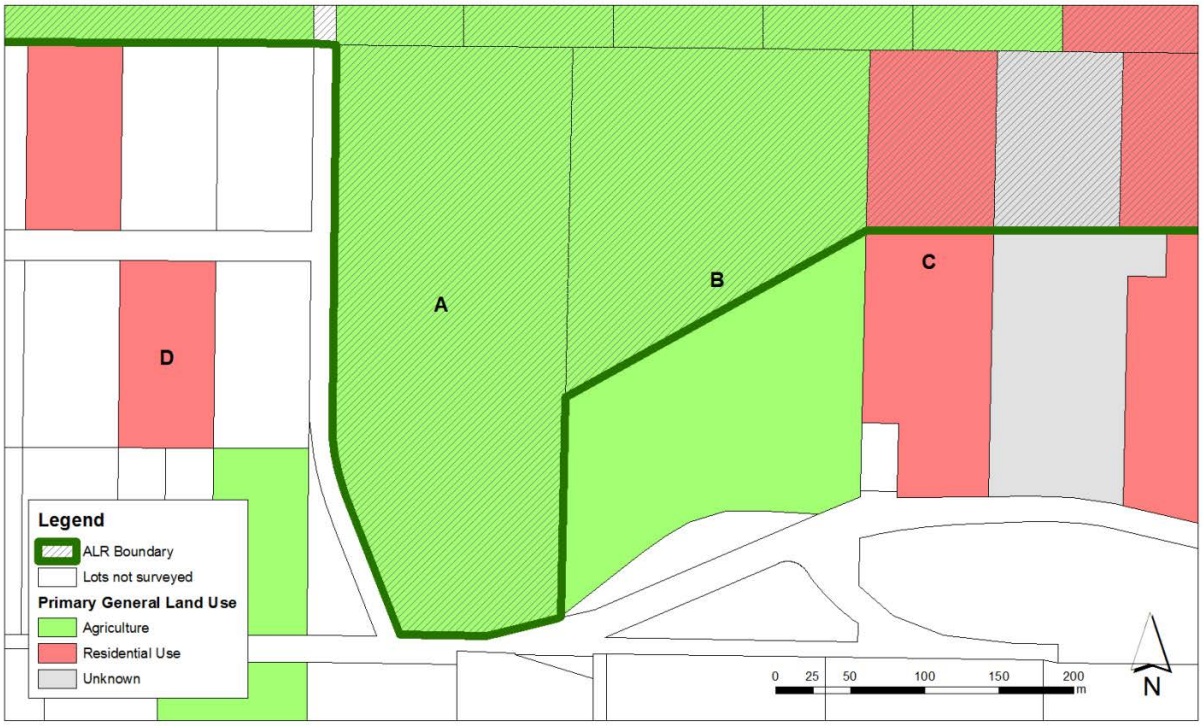
DETERMINATION OF PARCELS WITHIN THE ALR

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

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

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

Figure 4. Parcel inclusion in the ALR



3. Land Cover and Farmed Area

Land cover describes the biophysical material at the surface of the earth and is distinct from land use which describes how people utilize the land.

Land use is surveyed by assigning the parcel up to two land uses. Some examples of land use are residential, commercial, and industrial. Refer to Section 4 of this report for more information on land use.

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

Four land cover types are considered "Farmed":

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

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

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

Land cover on Indian reserves is presented in Appendix A.

Table 1. Land cover and farmed area

Land cover*		ALR			Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of total ALR area	% of effective ALR**		
Actively farmed	Cultivated field crops	3,030	47%	72%	81	3,111
	Farm infrastructure	92	1%	2%	<1	93
	Greenhouses or Crop barns	3	< 1%	< 1%	<1	4
Inactively farmed	Unused forage or pasture	40	< 1%	1%	2	43
	Unmaintained field crops	3	< 1%	< 1%	-	3
FARMED SUBTOTAL		**3,169**	**49%**	**75%**	**84**	**3,253**
Anthropogenic (not farmed)	Managed vegetation	152	2%	4%		
	Residential footprint	50	1%	1%		
	Settlement	22	< 1%	< 1%		
	Transportation	30	< 1%	1%		
	Utilities	26	< 1%	< 1%		
	Non Built or Bare	12	< 1%	< 1%		
	Built up - Other	<1	< 1%	< 1%		
	Waterbodies	<1	< 1%	< 1%		
ANTHROPOGENIC SUBTOTAL		**294**	**5%**	**7%**		
Natural & Semi-natural	Vegetated	651	10%	16%		
	Waterbodies	50	1%	1%		
	Wetlands	28	< 1%	1%		
	Natural bare areas	<1	< 1%	< 1%		
NATURAL & SEMI-NATURAL SUBTOTAL		**730**	**11%**	**18%**		
TOTAL		**4,192**	**65%**	**100%**		
Surveyed	Indian reserves	1,846	28%			
Not surveyed	Outside legal parcels	464	7%			
SUBTOTAL		**2,310**	**35%**			
TOTAL		**6,502**	**100%**			

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

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

Table 1 shows the extent of different land cover types across the ALR in Kent. There are 3,169 ha of "Farmed" land cover. Forty-three of these ha are "inactively farmed" in unused or unmaintained crops.

There was an additional 84 ha of "Farmed" land cover outside the ALR

Refer to Map 1 for more information.

Figure 5. Proportion of ALR land by category

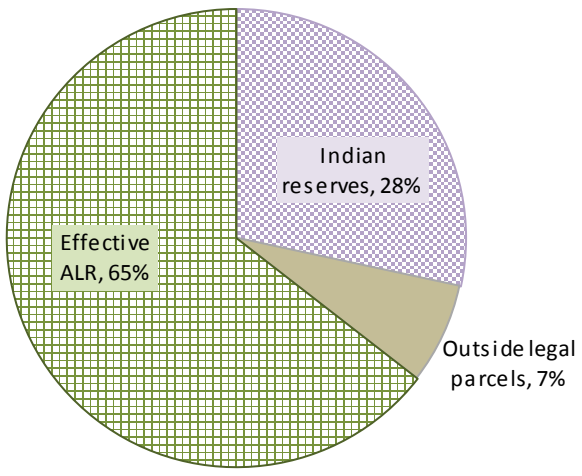


Figure 5 shows the proportion of different categories of ALR land

Of the ALR within Kent, 28% is on Indian reserves and the findings are reported in Appendix A. Seven percent is outside of legally surveyed parcels in rights-of-ways, water and foreshore, and 65% is considered the "effective ALR". and is further categorized in Figure 6.

Figure 6. Land cover and farmed area in the effective ALR

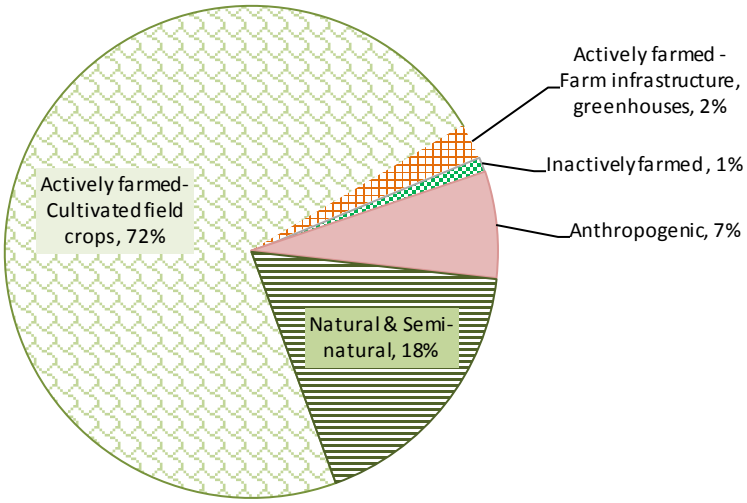


Figure 6 shows the proportion of different land cover types across the effective ALR in Kent. For the purposes of the ALUI report, effective ALR is the total ALR area excluding ALR on Indian reserves and ALR outside of legally surveyed parcels.

Of the effective ALR, 72% is in actively farmed cultivated field crops, 2% is in farm infrastructure, and 1% is "inactively farmed" in unused or unmaintained field crops.

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

4. Land Use and Farm Use

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

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

Parcels where the majority of the parcel area is utilized for farming or parcels which exhibit significant evidence of intensive farming are considered "**Used for farming**". Refer to the glossary for a complete definition of "Used for farming".

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

Table 2. Land use and farming use in the ALR

Parcel land use*		In ALR (ha)	% of effective ALR**	Number of ALR parcels	% of ALR parcels	Average ALR parcel size (ha)
Used only for farming - no other use		803	19 %	103	15 %	8
Used for farming - Mixed use	Residential	2,298	55 %	229	33 %	11
	Research	295	7 %	2	<1 %	389
	Utilities	50	1 %	6	1 %	9
	Recreation & leisure	17	<1 %	2	<1 %	9
	Transportation	1	<1 %	1	<1 %	1
USED FOR FARMING SUBTOTAL		3,464	83 %	343	50 %	12
Not used for farming	Residential	295	7 %	225	33 %	1
	No apparent use	215	5 %	47	7 %	5
	Utilities	41	1 %	4	<1 %	9
	Recreation & leisure - golf	40	1 %	1	<1 %	40
	Transportation	34	1 %	21	3 %	2
	Institutional & community	34	1 %	3	<1 %	19
	Water management	28	<1 %	36	5 %	< 1
	Gravel extraction	22	<1 %	1	<1 %	73
	Forestry	12	<1 %	1	<1 %	15
	Recreation & leisure	3	<1 %	-	-	-
	Commercial & service	3	<1 %	4	<1 %	< 1
	Protected area / park / reserve	2	<1 %	2	<1 %	2
NOT USED FOR FARMING SUBTOTAL		729	17 %	345	50 %	2
TOTAL		**4,192**	**100 %**	**688**	**100 %**	
Surveyed - Indian reserves		1,846				
Not surveyed - outside legal parcels		464				
SUBTOTAL		2,310				
TOTAL		**6,502**				

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

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

Table 2 shows that 3,464 ha or 53% of the total ALR and 83% of the effective ALR is on parcels that are "Used for farming". ~~*Effective ALR is entire ALR area, excluding ALR on Indian reserves and outside of legally surveyed parcels (rights-of-ways, water, foreshore, etc.).*~~

There are 103 ALR parcels, or 19% of the effective ALR area, that are exclusively "Used for farming" with no other use. These parcels have an average parcel size of 8 ha.

Two parcels with the mixed use "Used for farming" and "Research" are associated with the Pacific Agri-food Research Center in Agassiz.

There are two parcels with the mixed use "Used for farming" and "recreation & leisure" that are associated with forage production and an RV campsite.

Although a high proportion of the effective ALR area is "Used for farming", only 50% of the ALR parcels (343 parcels) are "Used for farming".

Refer to Map 2 for more information.

Figure 7. Proportion of ALR parcels by land use on "Used for farming" parcels

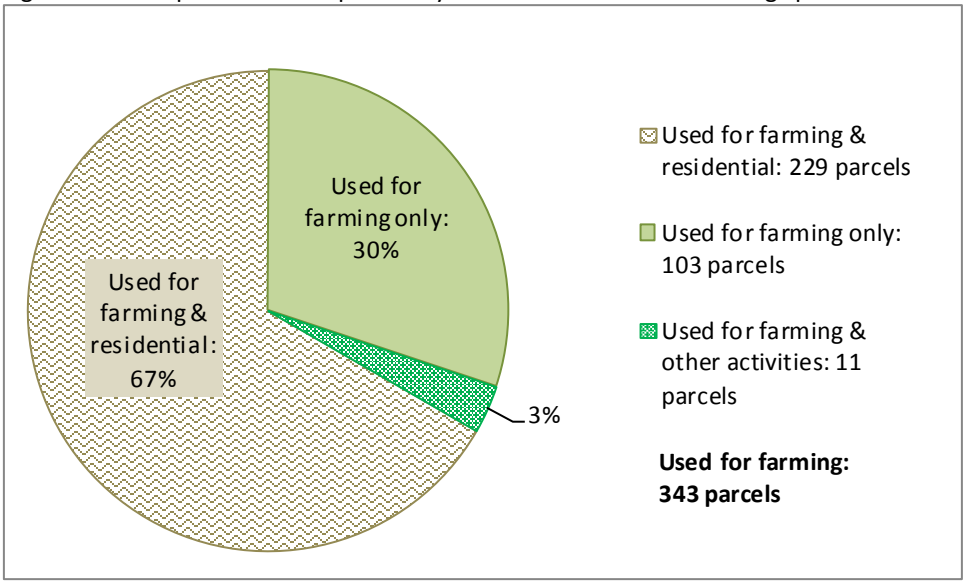


Figure 7 illustrates the proportion of "Used for farming" ALR parcels by their land use.

Two-thirds (67%) of the "Used for farming" parcels are also used for residential purposes.

Another 30% of the "Used for farming" parcels are exclusively used for agriculture, with no other uses.

Figure 8. Proportion of ALR parcels by land use on "Not used for farming" parcels

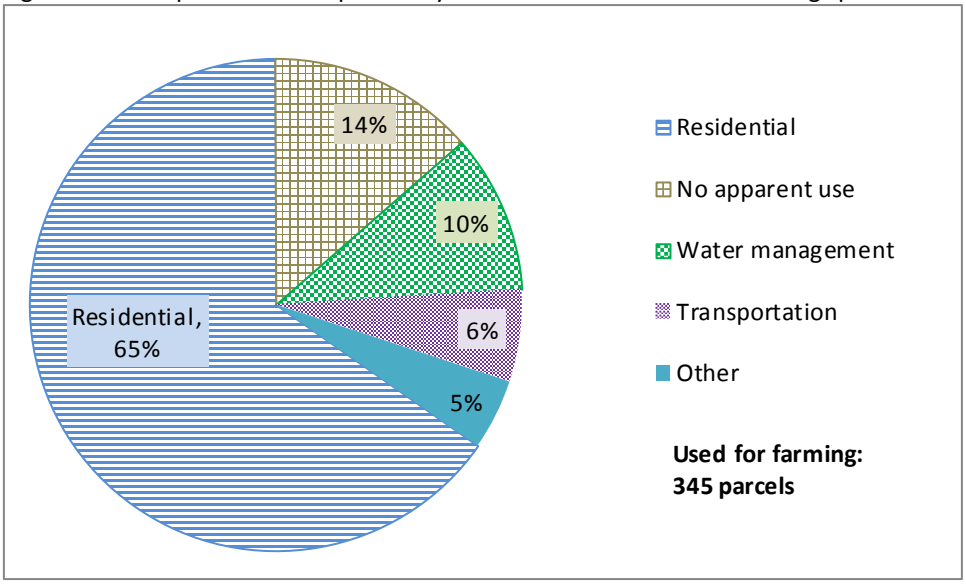


Figure 8 illustrates the proportion of "Not used for farming" ALR parcels by their land use.

The largest proportion of all "Not used for farming" ALR parcels (65%) have a residential use.

Fourteen percent (14%) of the ALR parcels that are "Not used for farming" have no apparent use, and 10% are used for water management.

Parcels with a water management land use are used to actively or inactively manage water. They include reservoirs, managed wetlands, dykes, and land outside the dykes that provide natural flood/erosion protection.

5. Availability of Land for Farming

There is a strong demand for agricultural products produced in the lower mainland. This demand is expected to increase with population growth[8]. Future agricultural land needs will be influenced by the increase in demand for agricultural products, as well as by other market demands and farm management requirements (nutrient management, bio-security, etc.). Growth may have to take place on a fixed land base as lands that are suitable to increase agricultural output may not be available. Agricultural sectors that require large land bases, such as dairy or berry, may find it difficult to access land for farm expansion or for starting new operations. Future agriculture growth may come from new commodity types and intensifying land use rather than finding new land for development.

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

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

In the District of Kent, properties in the ALR and "Used for farming" have an average assessed land and improvement value of $77,266 per ha.

Properties in the ALR that are considered "Unavailable for farming" have an average assessed land and improvement value of $1,197,294 per ha.

(Calculated using 2012 BC Assessment)

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

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 some potential for farming. It is assumed that removing built structures and fill piles, filling in water bodies or remediating slopes/soils to create land with cultivation potential would likely not occur. In addition, areas with operational constraints such as a very small size are considered not to have potential for farming.

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

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

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

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

Land status		ALR		
		In ALR (ha)	% of total ALR Area	% of effective ALR area*
Actively farmed	Cultivated field crops	3,030	47 %	72 %
	Farm infrastructure	92	1 %	2 %
	Greenhouses or Crop barns	3	<1 %	<1 %
ACTIVELY FARMED		3,125	48 %	75 %
Supporting farming	Residential footprint	22	<1 %	<1 %
	Built up - Other	< 1	<1 %	<1 %
	Artificial Waterbodies	< 1	<1 %	<1 %
	Transportation	< 1	<1 %	<1 %
SUPPORTING FARMING		23	<1 %	<1 %
Unavailable for farming due to existing land use	Residential	44	<1 %	1 %
	Recreation & leisure - golf	40	<1 %	1 %
	Institutional & community	34	<1 %	1 %
	Transportation	32	<1 %	1 %
	Water management	25	<1 %	<1 %
	Gravel extraction	21	<1 %	<1 %
	Commercial & service	3	<1 %	<1 %
	Protected area / park / reserve	2	<1 %	<1 %
	Utilities	< 1	<1 %	<1 %
Unavailable for farming due to existing land cover	Waterbodies	48	<1 %	1 %
	Wetlands	28	<1 %	<1 %
	Residential footprint	15	<1 %	<1 %
	Built up - Other	4	<1 %	<1 %
	Utilities	2	<1 %	<1 %
	Transportation	1	<1 %	<1 %
	Natural bare areas	< 1	<1 %	<1 %
UNAVAILABLE FOR FARMING		299	5 %	7 %
Site limitations	Topography &/or soils	224	3 %	5 %
	Flooding	59	<1 %	1 %
	Operational	9	<1 %	<1 %
	Drainage &/or Riparian	2	<1 %	<1 %
LIMITED POTENTIAL FOR FARMING		294	5 %	7 %
Available & with potential for farming	Natural & Semi-natural - Vegetation	333	5 %	8 %
	Anthropogenic - Managed vegetation	72	1 %	2 %
	Unused forage or pasture	40	<1 %	1 %
	Anthropogenic - Non Built or Bare	3	<1 %	<1 %
	Unmaintained field crops	3	<1 %	<1 %
AVAILABLE & WITH POTENTIAL FOR FARMING		451	7 %	11 %
TOTAL		**4,192**	**65 %**	**100 %**
Surveyed	Indian reserves	1,846	28 %	
Not surveyed	Outside legal parcels	464	7 %	
SUBTOTAL		2,310	35 %	
TOTAL		**6,502**	**100 %**	

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

Table 3 details the status of Kent's ALR land base with respect to farming. In total, 75% of the effective ALR (3,125 ha) is actively used for farming. Another 23 ha used to support farming (farm residences, etc.).

Seven percent of the effective ALR is unavailable for farming due to an existing land use or land cover, and another 7% has limited potential for farming due to a physical site limitation (e.g. topography, flooding).

This leaves 451 ha (11% of the effective ALR) that is available and may have potential for farming. Of this area, 333 ha (8% of the effective ALR) is in natural & semi-natural vegetation, and 72 ha (2% of the effective ALR) is in "Anthropogenic managed vegetation". Refer to Maps 3 for more information.

Figure 9. Status of the effective ALR with respect to farming

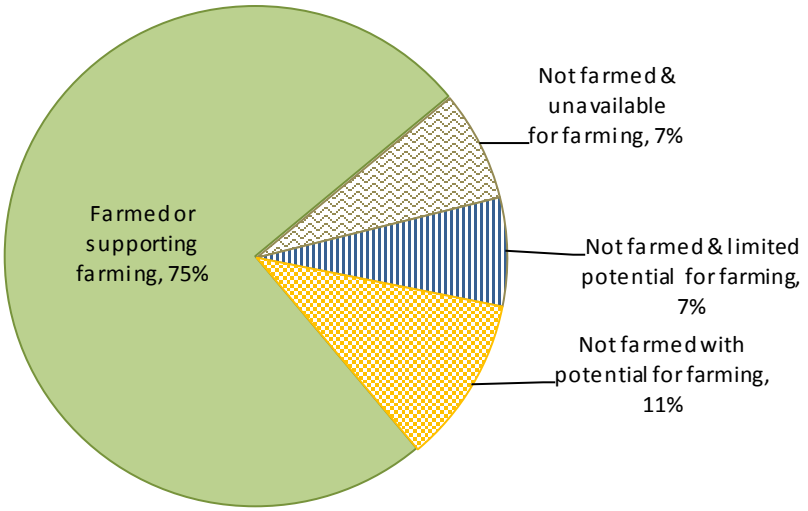


Figure 9 illustrates the status of the effective ALR in relation to farming in Kent.

Effective ALR includes only the ALR areas that are within legally surveyed parcels. ALR on Indian reserves is not included in the effective ALR.

Seventy-five percent (75%) of the effective ALR is farmed or is supporting farming.

Another 11% is available and may have potential for farming as it is not limited by significant physical constraints or built areas.

Seven percent (7%) has limited potential for farming due to physical site limitations such as soils &/or topography.

Figure 10 details the availability of ALR land for farming. Each successive bar describes the amount of ALR available for farming after a category of land has been removed.

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

Figure 10. Availability of ALR lands for farming

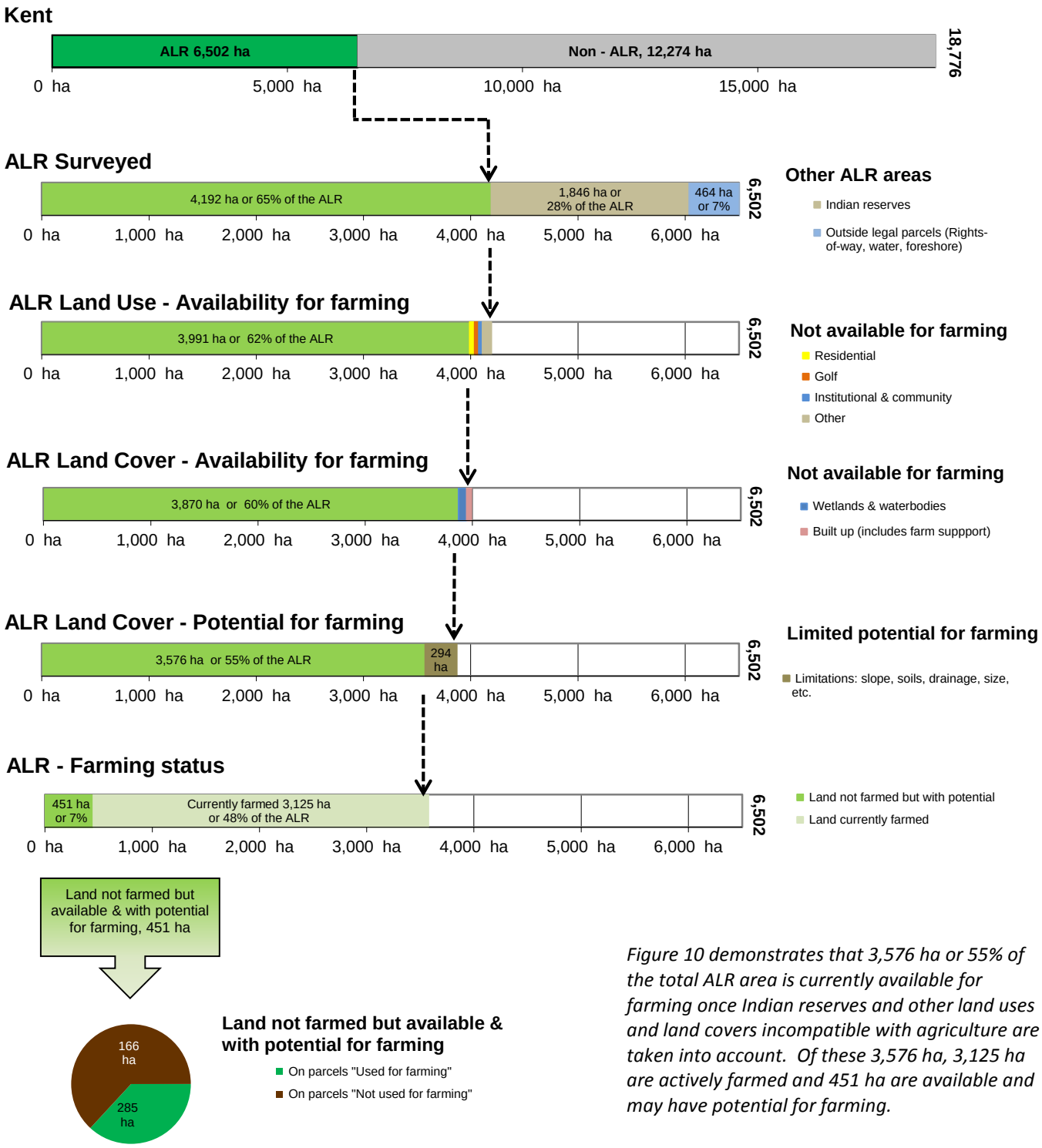


Figure 10 demonstrates that 3,576 ha or 55% of the total ALR area is currently available for farming once Indian reserves and other land uses and land covers incompatible with agriculture are taken into account. Of these 3,576 ha, 3,125 ha are actively farmed and 451 ha are available and may have potential for farming.

CHARACTERISTICS OF NOT FARMED BUT AVAILABLE ALR LANDS

There is pressure in the Kent region for farm business expansion. One way that farm businesses expand is by finding more land to conduct their operations. They may expand by purchasing a parcel, leasing land on a parcel or cultivating more land on a parcel that is currently being used (clearing and/or draining and/or leveling more area).

Although land in naturally vegetated areas may be available for further cultivation, it may important to consider the ecological services and wildlife habitat provided by these areas before altering their natural characteristics.

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

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

On Parcels "Used For Farming"

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

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

Mixed land use on "Used for farming" parcels	Number of parcels	Land not farmed but with potential for cultivation			% potential increase to total ALR farmed area	Average parcel size (ha)
		In ALR (ha)	Outside ALR (ha)	Total area (ha)		
Residential	121	121	43	164	4 %	1
Used for farming only	17	33	< 1	34	1 %	2
Research	1	9	-	9	<1 %	3
Utilities	1	3	< 1	3	<1 %	9
Recreation & leisure	1	< 1	< 1	< 1	<1 %	< 1
TOTAL	**141**	**166**	**44**	**210**	**5 %**	

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

There is little land available for farm expansion on parcels that are already "Used for farming". Parcels that are "Used for farming" and residential offer some available land, however, most of these parcels are small with an average parcel size of 1 ha.

Figure 11. ALR land cover that is available for cultivation on "Used for farming" parcels

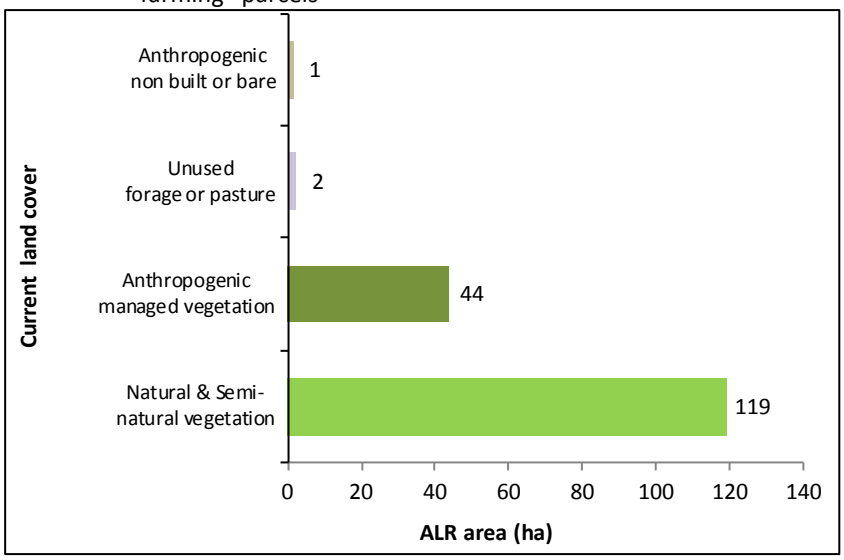


Figure 11 indicates that land currently in "Natural & Semi-natural" vegetation could provide the greatest gains in cultivated land on parcels that are already "Used for farming". These gains in cultivated land would have to be measured against ecological values such as wildlife habitat and societal values such as privacy and viewscapes.

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

Figure 12. Natural & semi-natural vegetation type for available ALR land on "Used for farming" parcels

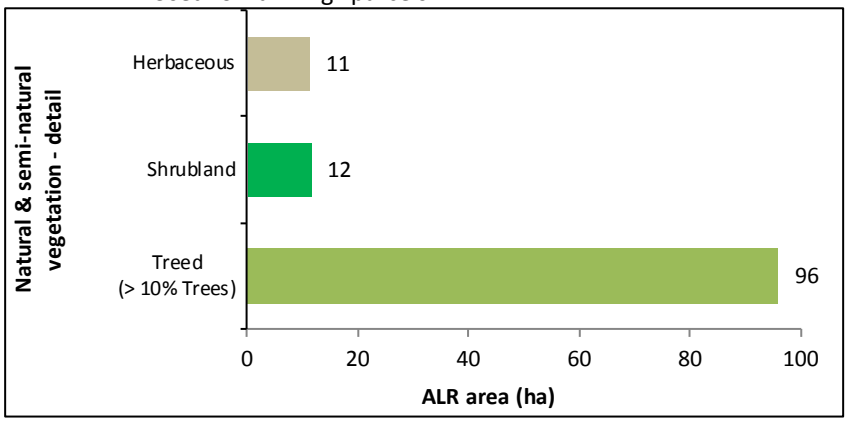


Figure 12 details the types of "Natural & Semi-natural" vegetation shown in Figure 11. This vegetation is in the ALR, is considered available for farming, and is on parcels already "Used for farming".

The majority of the land cover is "treed". This land would need to be cleared before any cultivation could occur.

On Parcels "Not Used For Farming"

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

Parcel Land use		Number of parcels	Land not farmed but with potential for cultivation			% potential increase to total ALR farmed area	Average parcel size (ha)
			In ALR (ha)	Outside ALR (ha)	Total area (ha)		
Not used for farming	Residential	72	169	44	213	5 %	3
	No apparent use	23	92	3	95	3 %	4
	Utilities	3	19	5	24	<1 %	8
	Forestry	1	2	<0.1	2	<1 %	2
	Water management	1	2	<0.1	2	<1 %	2
TOTAL		**100**	**285**	**51**	**336**	**9 %**	

Table 5 illustrates the potential to increase the amount of cultivated land on parcels that are "Not used for farming" but have ALR land available for farming. This increase would come from prioritizing agriculture over other non-farm land uses and the full utilization of the available parcel area for farming. It is assumed that existing non-farm land uses would be maintained.

The greatest potential to increase cultivated land could come from parcels that are currently utilized for residential purposes and parcels with "No apparent use".

Figure 13. ALR land cover that is available for cultivation on "Not used for farming" parcels

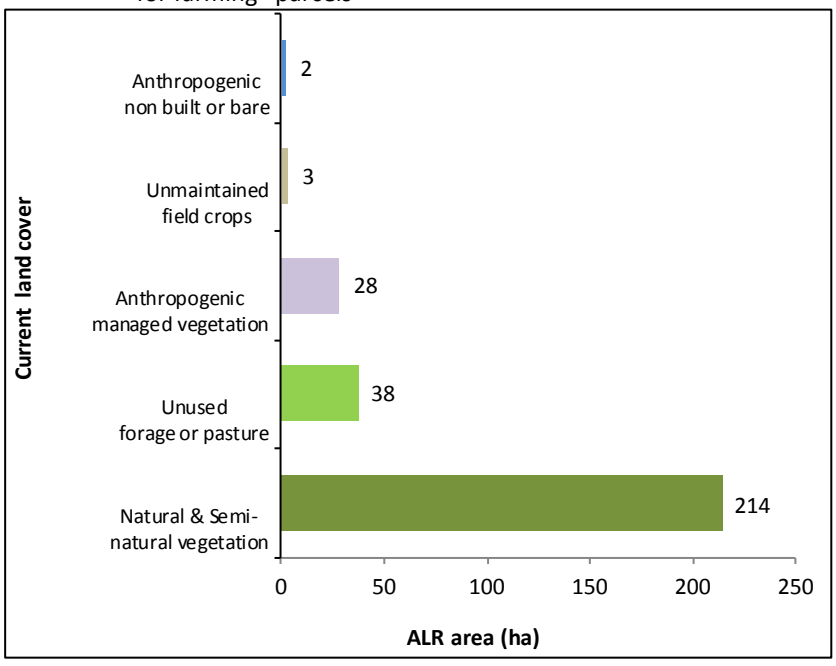


Figure 13 indicates that developing land currently in "Natural & Semi-natural" land cover could provide the greatest gains in cultivation on "Not used for farming" parcels.

These gains in cultivated land would have to be measured against other ecological values such as wildlife habitat and societal values such as privacy and viewscapes.

"Natural & Semi-natural" vegetation type is detailed in Figure 14.

Figure 14. Natural & semi natural vegetation type for available ALR on "Not used for farming" parcels

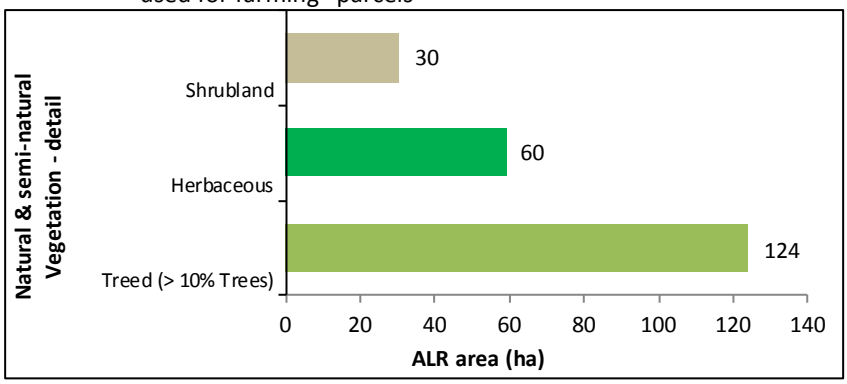


Figure 14 details the types of "Natural & Semi-natural" vegetation shown in Figure 13. This vegetation is in the ALR, is considered available for farming, and is on parcels "Not used for farming".

The majority of the "Natural & semi-natural" land cover is "treed". If this land were to be cultivated, the existing vegetation would need to be cleared.

Figure 15. Size of areas available for farming on "Not used for farming" parcels with available ALR land

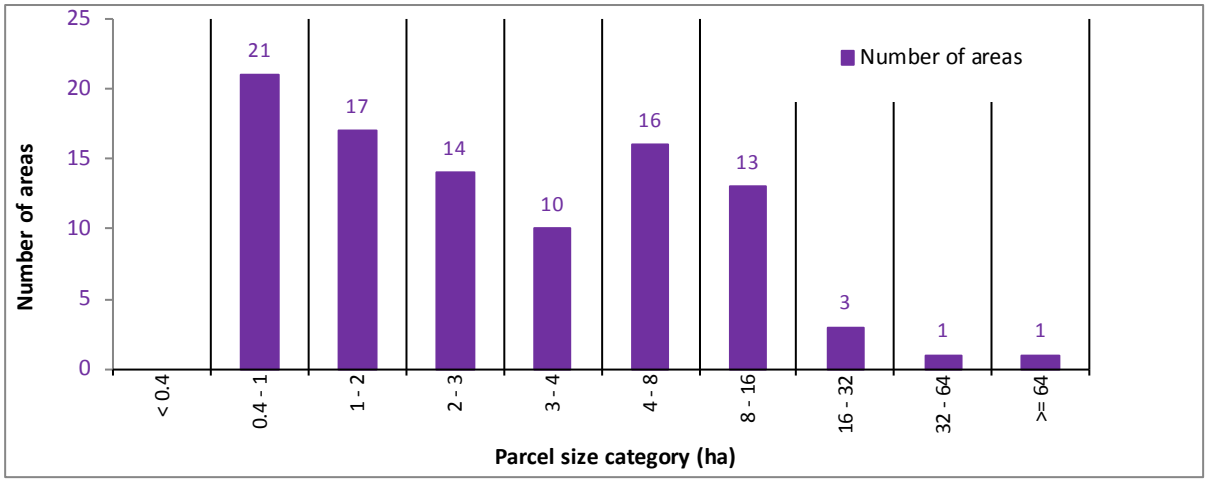


Figure 15 illustrates the number of areas available and with potential for farming in Kent. The area of all adjacent available land covers on a parcel are combined to arrive at the total area that could potentially be farmed. An area is considered available if it is free from built structures, cover limitations, incompatible land uses, cultivated crops, and is greater than 0.4 ha (1 acre). A single 'area' may be comprised of multiple land covers on the same parcel.

Nearly two-thirds of the areas available for farming (62 out of 96 or 65%) are less than 4 ha in size. Fewer options are available to efficiently farm small parcels. Broader ranges of farming option are available on parcels greater than 4 ha.

There are 34 areas greater than 4 ha and available for farming in Kent.

Figure 16. Parcel size distribution of ALR parcels "Not used for farming" but available for farming

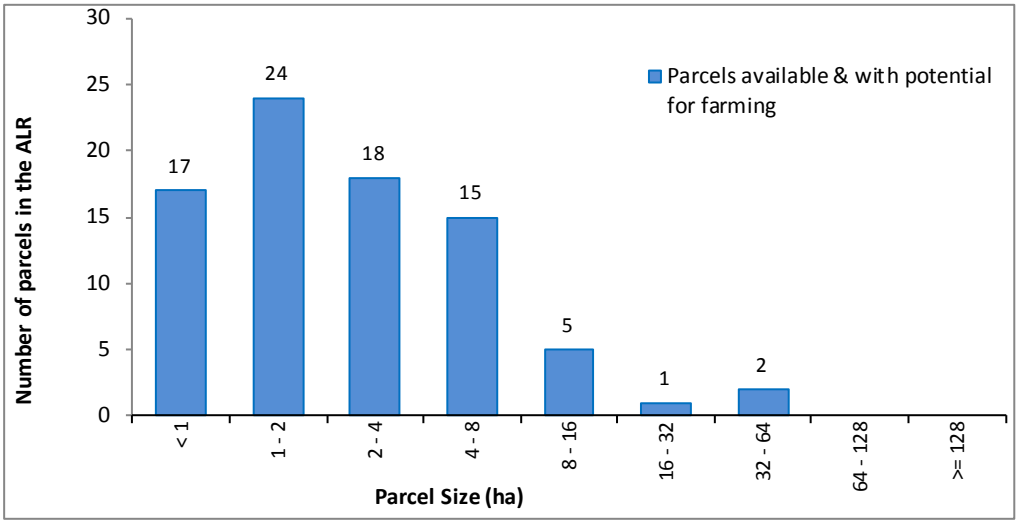


Figure 16 shows the number of ALR parcels that are currently "Not used for farming" but that are available and have potential to be brought into production. These parcels have at least 50% of their parcel area and at least 0.4 ha (1 acre) of land available for farming.

There are 82 parcels in Kent's ALR that are available for farming, but not farmed. Of these parcels,

- *41 parcels (50%) are less than 2 ha*
- *59 parcels (72%) are less than 4 ha*
- *23 parcels (28%) are greater than 4 ha*
- *3 parcels (4%) are greater than 16 ha*

6. Farming Activities

CULTIVATED FIELD CROPS

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

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

Cultivated field crops in Kent are described by eleven crop groupings:

- **Forage**: grass, mixed grass/legume, forage corn. Includes fields exclusively cut for forage and fields utilized for both forage and pasture
- **Pasture**: grass, mixed grass/legume. Includes inactively farmed pasture fields (unused or unmaintained this season)
- **Berries:** blueberries, cranberries, raspberries, strawberries, grapes
- **Nut trees**: hazelnut/filbert
- **Fiber/ pulp / veneer trees**
- **Nursery**: cedar hedging, ornamentals and shrubs
- **Vegetables**: cucurbits, peas, potatoes, sweet corn, mixed vegetables
- **Crop transition**
- **Cereal crops**: barley
- **Vines**: grapes
- **Tree fruits**: apple, mixed

Crop findings on Indian reserves are presented in Appendix A.

Table 6. Main field crop types by area

Type	ALR			Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of ALR	% of effective ALR			
Forage	2,354	36%	56%	30	2,384	76%
Pasture	351	5%	8%	10	362	11%
Berries	152	2%	4%	< 1	152	5%
Nut trees	83	1%	2%	< 1	83	3%
Fibre/pulp/veneer trees	35	< 1%	< 1%	40	75	2%
Nursery	44	< 1%	1%	2	46	1%
Vegetables	40	< 1%	< 1%	< 1	40	1%
Crop transition	6	< 1%	< 1%	-	6	< 1%
Cereals	5	< 1%	< 1%	-	5	< 1%
Vines	2	< 1%	< 1%	-	2	< 1%
Tree fruits	2	< 1%	< 1%	< 1	2	< 1%
TOTAL	**3,073**	**47%**	**73%**	**83**	**3,156**	**100%**

Table 6 shows that "forage" is the main crop type in Kent accounting for 2,384 ha or 76% of all cultivated land.

Pasture was next most abundant crop accounting for 362 ha or 11% of the cultivated land, followed by berries with 152 ha and 5% of the cultivated land.

Refer to Map 4 for more information.

Figure 17. Main field crop types by percentage

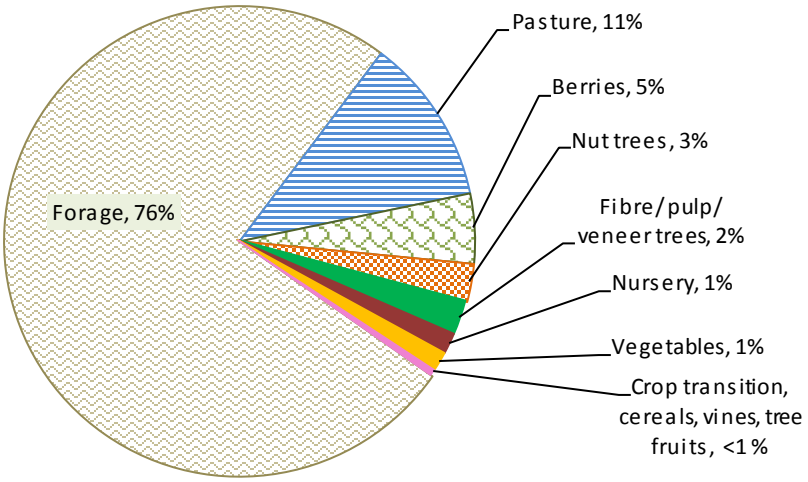


Figure 17 shows the proportion of the main field crop types across Kent's cultivated land.

"Forage", combined with "pasture", combined with "berries" account for 92% of all cultivated land.

Figure 18. All cultivated crop fields by field size

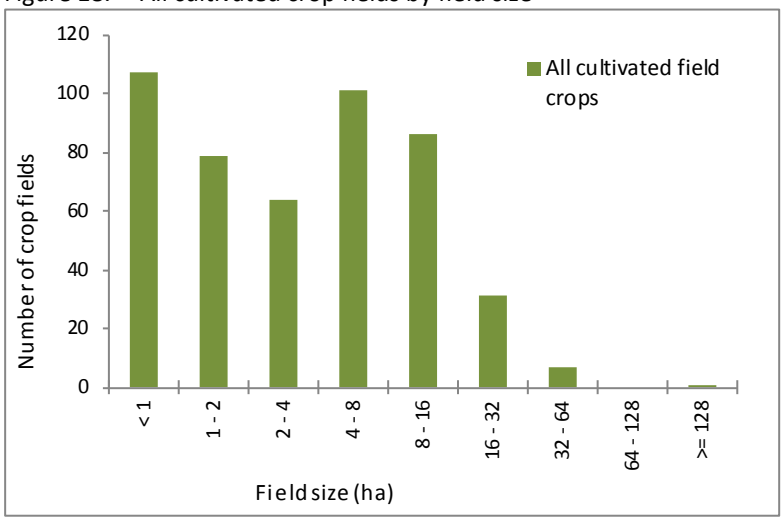


Figure 18 shows the number and size distribution of cultivated field crops.

In Kent, there are 476 individual crop fields with an average crop area of 7 ha and a median crop area of 4 ha.

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

Figure 19. Parcel size distribution of parcels with cultivated field crops

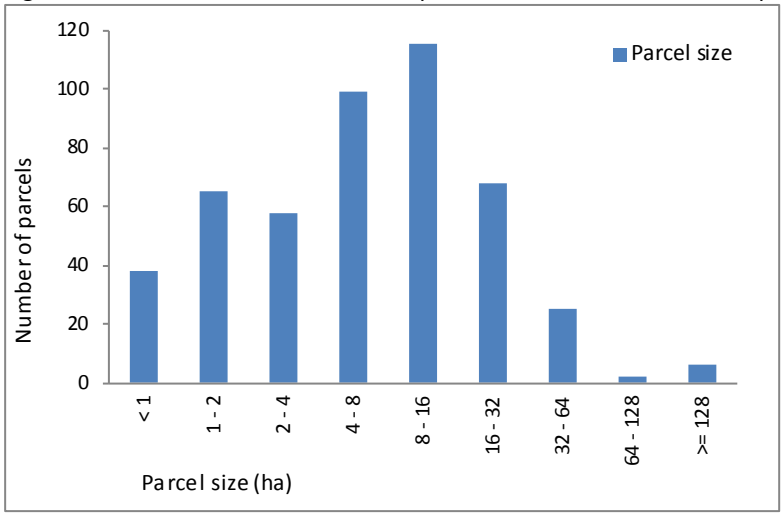


Figure 19 illustrates the size distribution of parcels that have cultivated field crops.

In total, cultivated crops occur on 406 parcels. These parcels have an average parcel size of 11.5 ha and a median parcel size of 7 ha.

Although crops occur on parcels of all sizes, the majority of crops are found on parcels 4 – 16 ha in size.

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. Fewer cuts of crop per year. Crop growth is uneven with weeds. Includes hydrophytic grass and riparian meadows.

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. 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.

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

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

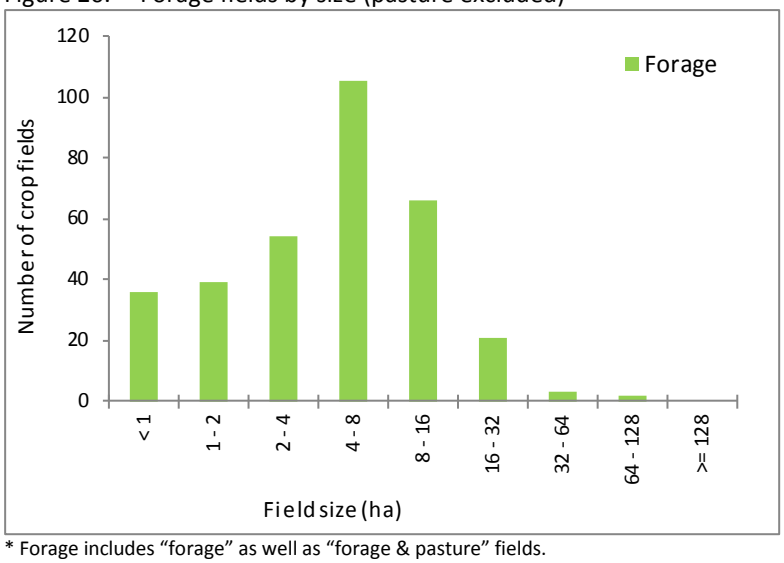
Table 7. Forage & pasture crops by management type and area

Forage & pasture crops			ALR		Outside ALR (ha)	Total area (ha)	% of cultivated land
			In ALR (ha)	% of ALR			
Forage	Intensively managed	Grass	92	1%	< 1	92	3%
		Mixed grass / legume	15	< 1%	-	15	< 1%
	Managed	Grass	350	5%	3	354	11%
		Mixed grass / legume	924	14%	21	945	30%
		Forage corn	937	14%	6	943	30%
	Unmanaged	Grass	1	< 1%	< 1	1	< 1%
		Mixed grass / legume	7	< 1%	< 1	8	< 1%
Forage subtotal			**2,328**	**36%**	**30**	**2,358**	**75%**
Pasture	Managed	Grass	31	< 1%	< 1	31	< 1%
		Mixed grass / legume	241	4%	8	250	8%
	Unmanaged	Grass	13	< 1%	< 1	13	< 1%
		Mixed grass / legume	22	< 1%	< 1	22	< 1%
Pasture subtotal			**308**	**5%**	**8**	**316**	**10%**
Both	Forage & pasture (managed)	Grass	2	< 1%	-	2	< 1%
		Mixed grass / legume	24	< 1%	< 1	24	< 1%
Forage & pasture subtotal			**26**	**< 1%**	**< 1**	**26**	**< 1%**
Unused	Unused	Grass	26	< 1%	< 1	26	< 1%
	Unused	Mixed grass / legume	15	< 1%	2	17	< 1%
	Unmaintained	Grass	3	< 1%	-	3	< 1%
Unused/unmaintained subtotal			**43**	**< 1%**	**2**	**45**	**1%**
TOTAL			**2,705**	**42%**	**41**	**2,746**	**87%**

Table 7 shows there are 2,358 ha in forage crops, 316 ha in pasture crops, and 26 ha in both forage and pasture in Kent. Mixed grass/ legume is the main crop type on forage fields as well as on pasture fields.

Refer to Map 5 for more information.

Figure 20. Forage fields by size (pasture excluded)



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

Figure 20 shows the number and size of fields used for forage crops.

In total, there are 326 forage fields with an average field size of 7 ha and a median crop size of 5.5 ha.

The average parcel size where forage crops occur is 19.6 ha.

If two or more forage fields of the same crop type are present on one parcel, they are grouped as one crop field. A parcel may have more than one type of forage crop (e.g. grass & corn).

Figure 21. Pasture fields by size (forage excluded)

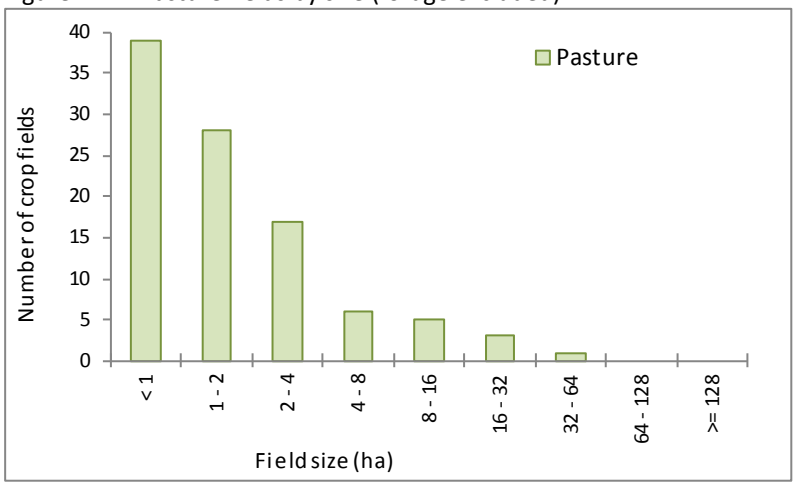


Figure 21 shows the number and size of fields used for pasture in Kent.

In total, there are 99 pasture fields with an average field size of 3 ha and a median field size of 1 ha.

The average parcel size where pasture crops occur is 8 ha.

Figure 22. Forage and pasture fields by size and type

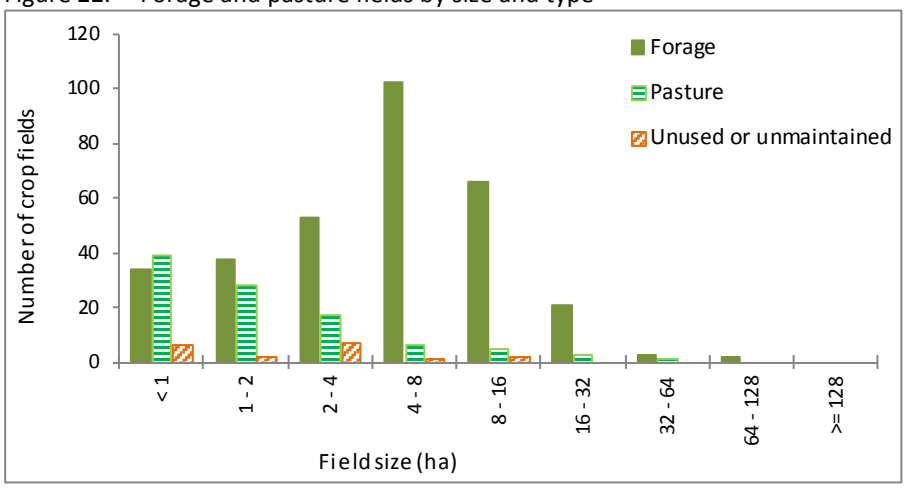


Figure 22 compares the number of forage and pasture fields in Kent.

Forage fields occur far more frequently and comprise a much greater total area than pasture fields in Kent (refer to Table 7).

Pasture fields are most frequently less than 2 ha in size. Forage fields are most frequently 4 – 8 ha in size.

In general, forage fields need to be larger than pasture fields in order to efficiently accommodate farm equipment.

Table 8. 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				
Mixed grass / legume	971	15%	21	992	42%	31%
Forage corn	937	14%	6	943	39%	30%
Grass	446	7%	3	449	19%	14%
TOTAL	**2,354**	**36%**	**30**	**2,384**	**100%**	**76%**

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

Table 8 shows that forage corn comprises 39% of all forage crops, while mixed grass / legume and grass crops comprise the remaining 61%.

All Individual Crops

Table 9. All individual crop types by area

Cultivated field crop	ALR			Outside ALR (ha)	Total area (ha)	% of cultivated land
	In ALR (ha)	% of total ALR	% of effective ALR			
Forage	2,354	36%	56%	30	2,384	76%
Pasture	308	5%	7%	8	316	10%
Blueberries	127	2%	3%	< 1	127	4%
Hazelnut / filbert	83	1%	2%	< 1	83	3%
Fibre/pulp/veneer trees	35	< 1%	1%	40	75	2%
Unused forage/pasture	40	< 1%	1%	2	43	1%
Ornamentals and shrubs	27	< 1%	< 1%	2	29	1%
Cranberries	22	< 1%	< 1%	-	22	1%
Mixed vegetables	20	< 1%	< 1%	< 1	20	< 1%
Sweet corn	18	< 1%	< 1%	< 1	18	< 1%
Cedar hedging	17	< 1%	< 1%	< 1	17	< 1%
Crop transition	6	< 1%	< 1%	-	6	< 1%
Barley	5	< 1%	< 1%	-	5	< 1%
Unmaintained forage/pasture	3	< 1%	< 1%	-	3	< 1%
Grapes	2	< 1%	< 1%	-	2	< 1%
Raspberries	2	< 1%	< 1%	-	2	< 1%
Apples	1	< 1%	< 1%	< 1	2	< 1%
Cucurbits	1	< 1%	< 1%	-	1	< 1%
Peas	< 1	< 1%	< 1%	-	< 1	< 1%
Strawberries	< 1	< 1%	< 1%	-	< 1	< 1%
Potatoes	< 1	< 1%	< 1%	-	< 1	< 1%
Mixed fruits	< 1	< 1%	< 1%	-	< 1	< 1%
TOTAL	**3,073**	**47%**	**73%**	**83**	**3,156**	**100%**

Table 9 details the 22 individual crop types that account for all of cultivated field crops in Kent.

Figure 23. Top 10 crop types by area

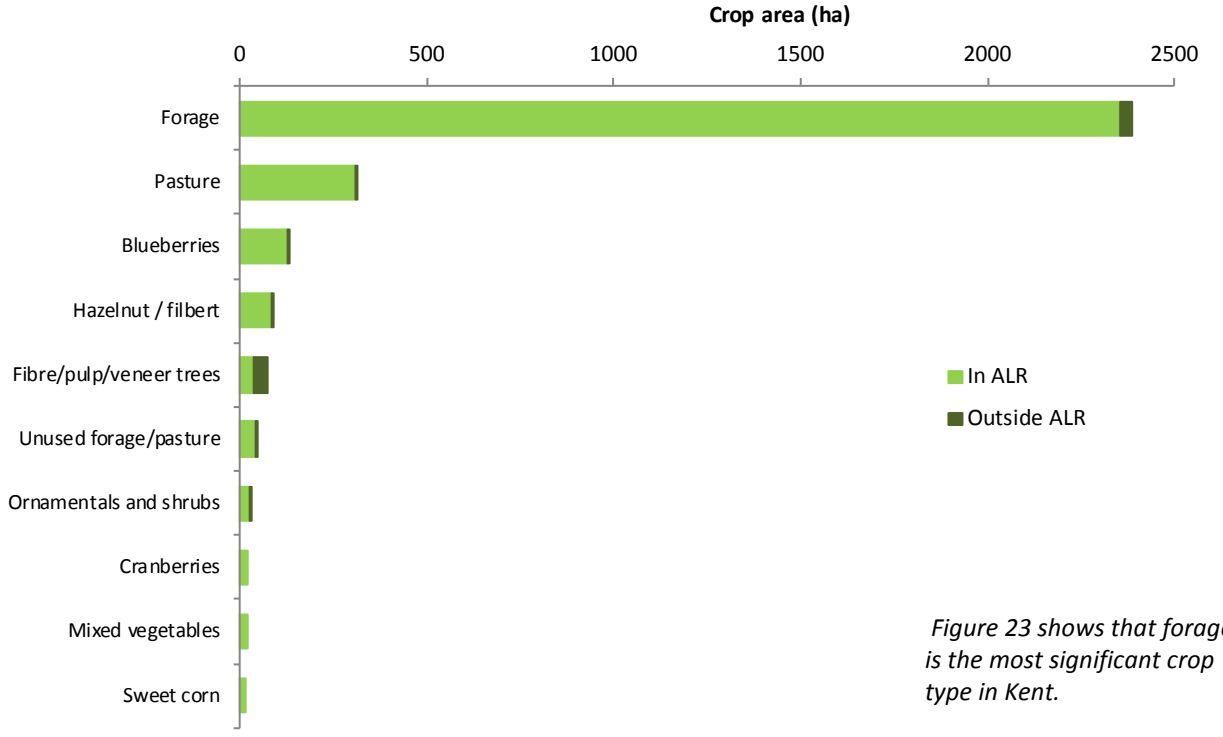


Figure 23 shows that forage is the most significant crop type in Kent.

GREENHOUSES & CROP BARNS

Greenhouses are structures covered with translucent material and of sufficient size for a person to work inside[9]. 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.

Greenhouse and crop barn activities are delineated to the exact greenhouse footprint to enable agricultural water demand calculations. A single greenhouse activity may have more than one greenhouse of the same type (e.g. poly or glass) if the buildings are adjacent to one another.

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

Table 10. Greenhouses and crop barns by area[10]

Greenhouses		ALR		Outside ALR (ha)	Total area (ha)	% of greenhouse area
		In ALR (ha)	% of ALR			
Crop barn	Pea sprouts	0.4	<0.1	-	0.4	16%
	Subtotal	**0.4**	**< 1%**	**-**	**0.4**	**16%**
Glass greenhouse	Vegetables	1.5	<0.1	-	1.5	48%
	Empty	0.1	<0.1	-	0.1	4%
	Nursery	<0.1	<0.1	-	<0.1	2%
	Subtotal	**1.7**	**< 1%**	**-**	**1.7**	**53%**
Poly greenhouse	Vegetables	0.5	<0.1	-	0.5	17%
	Unknown	0.3	<0.1	-	0.3	10%
	Nursery	<0.1	<0.1	<0.1	0.2	5%
	Subtotal	**0.9**	**< 1%**	**<0.1**	**1.0**	**31%**
	TOTAL	**3.0**	**< 1%**	**<0.1**	**3.1**	**100%**

Table 10 details the greenhouse and crop barn areas recorded in Kent.

In total, there are 3.1 ha in greenhouse and crop barn footprints.

Glass greenhouses comprise 1.7 ha while poly greenhouses comprise 1 ha and crop barns comprise 0.4 ha.

Figure 24. Greenhouse and crop barn activities by size and type

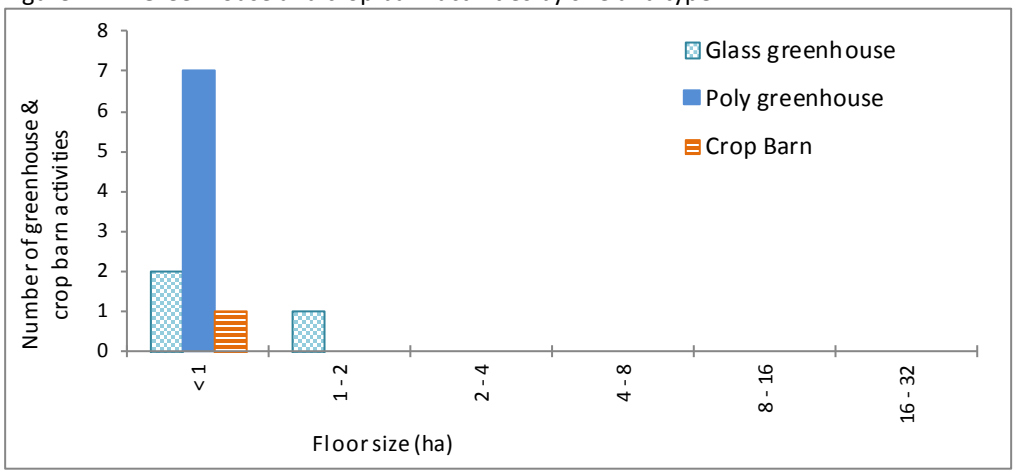


Figure 24 shows the size distribution of greenhouses and crop barn activities in Kent.

Although there are more poly than glass greenhouses, poly greenhouses comprises a smaller total area (refer to Table 10). All recorded poly greenhouses are less than 1 ha.

There are no greenhouses or crop barn larger than 2 ha in Kent.

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

[10] 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.

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 availability of good quality water for irrigation is often a requirement for growing high value crops. Insufficient water sources or water delivery infrastructure can limit 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 temporarily set aside for wildlife or other purposes, and land under preparation for planting. Also included are crops grown in greenhouses and crop barns. In addition, individual cultivated field crops are evaluated for percent of crop area under irrigation.

Table 11. All crop types and irrigation

Cultivated field crop	Irrigation system in use (ha)			Total area irrigated (ha)	% of crop area irrigated
	Sprinkler	Giant gun	Trickle		
Forage	86	423	-	509	21%
Berries	22	-	102	124	82%
Nursery	42	-	-	42	91%
Vegetables	21	-	< 1	21	53%
Pasture	< 1	5	-	5	2%
Vines	-	-	2	2	100%
Tree fruits	< 1	-	1	2	100%
Nut trees	2	-	-	2	2%
Fibre/pulp/veneer trees	-	-	-	-	-
Crop transition	-	-	-	-	-
Cereals	-	-	-	-	-
TOTAL CROP AREA IRRIGATED	**174**	**427**	**106**	**707**	**22%**
Greenhouses & crop barns	Flood and trickle irrigation			3	100%

Table 11 outlines the types of irrigation systems used on cultivated field crops in Kent.

In total, 707 ha (22% of all cultivated crops) are irrigated; giant gun systems are used on 427 ha (60% of all irrigated crops) and are found almost exclusively on forage fields. Sprinkler systems are used to irrigate 174 ha (25% of all irrigated crops), and trickle systems are used to irrigate 106 ha (15%). Sprinkler systems are found a wide variety of crops while trickle systems occur primarily on berry fields.

Refer to Map 4 for more information.

Figure 25. Irrigation systems by percentage of cultivated land

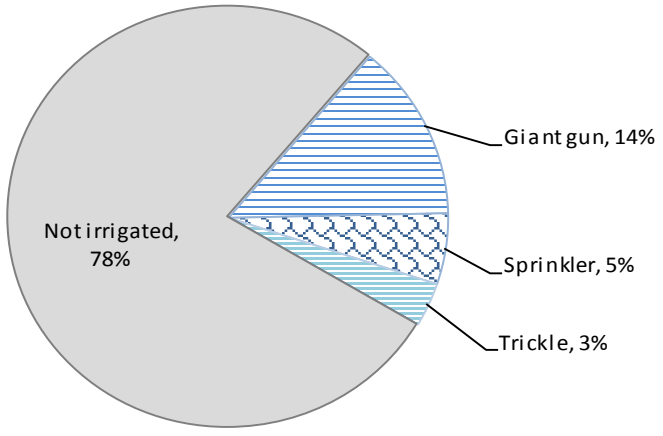


Figure 25 shows that only 22% of the cultivated land in Kent is irrigated.

LIVESTOCK

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

Livestock activities on Indian reserves are reported separately from the inventory totals.

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

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

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

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

"**Homesite**" refers to the location of the main ranch or main barn of a livestock operation or farm unit[11]. Often, other types of farm infrastructure, such as corrals, paddocks, barns, and feeding/watering facilities, as well as the farm residence, are also at this location. This is the primary location of the farm unit where most livestock management occurs.

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

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

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

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

Table 12. Livestock activities

Livestock group	Scale of activity				Total activities	By activity type		By location	
	Very small scale	Small scale	Medium scale	Large scale		*Intensive*	*Non intensive*	*Homesite*	*Non homesite*
Dairy	-	6	19	15	40	*34*	*6*	*38*	*2*
Poultry	10	1	-	4	15	*4*	*11*	*37*	-
Beef	2	10	-	-	12	-	*12*	*15*	-
Sheep / lamb / goat	5	3	1	-	9	*1*	*8*	*11*	*1*
Equine	10	24	3	-	37	-	*37*	*9*	-
TOTAL	**27**	**44**	**23**	**19**	**113**	**39**	**74**	**110**	**3**
Dairy - inactive					10				

Table 12 details the number and scale of livestock activities in Kent. Dairy is the most common type of livestock activity accounting for 40 of the 113 active livestock activities (35%).

Equine is the next most common type of livestock activity accounting for 37 of 113 or 33% of all livestock activities.

Over one third (35%) of all livestock activities are "intensive" and use specialized structures for higher stocking densities. Of the intensive activities, 34 are dairy (87%), 4 are poultry (10%), and 1 is a goat operation (3%).

Also recorded were 10 inactive dairy operations. An inactive operation was identified by the presence of empty and unused dairy infrastructure. These inactive operations may indicate a shift towards fewer, larger diary operations. Inactive operations are not counted in the total number of livestock activities in Kent.

Table 13. Dairy activities

Scale of dairy activity	By parcel		Total number of activities	By activity type		By location	
	Main type	Secondary type		*Intensive*	*Non intensive*	*Homesite*	*Non homesite*
Small scale (2 - 25 cattle)	6	-	6	-	*6*	*4*	*2*
Medium scale (25 - 100 cattle)	19	-	19	*19*	-	*19*	-
Large scale (> 100 cattle)	15	-	15	*15*	-	*15*	-
TOTAL	**40**	**-**	**40**	***34***	***6***	***38***	***2***
Inactive operations	10	-	10				

Table 13 details the 40 active dairy activities recorded in Kent. There are 6 "small" scale activities, 19 "medium" scale activities, and 15 "large" scale activities.

In total, 34 of the 40 dairy activities (85%) are "intensive" and utilize specialized structures designed for confined feeding at higher stocking densities. All operations with greater than > 25 cattle ("medium" or "large" scale) are intensive.

Also recorded were 10 inactive dairy operations. An inactive operation was identified by the presence of empty and unused dairy infrastructure. Inactive operations are not counted in the total number of livestock activities in Kent.

Table 14. Poultry activities

Poultry activity	Scale	By parcel		Total number of activities	*By activity type*	
		Main type	Secondary type		*Intensive*	*Non intensive*
Chicken	Very small scale (< 100 birds)	2	5	7	-	*7*
	Small scale (100 -2,500 birds)	1	-	1	-	*1*
	Large scale (>10,000 birds)	3	-	3	*3*	-
Subtotal		**6**	**5**	**11**	***3***	***8***
Duck	Very small scale (< 50 birds)	1	-	1	-	*1*
Subtotal		**1**	**-**	**1**	**-**	***1***
Goose	Very small scale (< 50 birds)	1	-	1	-	*1*
Subtotal		**1**	**-**	**1**	**-**	***1***
Turkey	Very small scale (< 50 birds)	1	-	1	-	*1*
	Large scale (>5000 birds)	1	-	1	*1*	-
Subtotal		**2**	**-**	**2**	***1***	***1***
TOTAL		**10**	**5**	**15**	***4***	***11***

Table 14 details the 15 poultry activities recorded in Kent. In total 10 are "very small" scale or backyard flocks including 1 duck, 1 goose, 1 turkey, and 7 chicken activities. Five of these chicken activities are "secondary" types of livestock, indicating that they occur on a parcel with another type of livestock.

There are 4 "large" scale, "intensive" activities: 3 are chicken (>10,000 birds) and 1 is turkey (>5,000 birds) .

Table 15. Beef activities

Scale of beef activity	By parcel		Total number of activities	*By activity type*		*By location*	
	Main type	Secondary type		*Intensive*	*Non Intensive*	*Homesite*	*Non homesite*
Very small scale (1 cow)	2	-	2	-	*2*	*2*	-
Small scale (2 -25 cattle)	9	1	10	-	*10*	*9*	*1*
TOTAL	**11**	**1**	**12**	**-**	***12***	***11***	***1***

Table 15 details the 12 beef activities recorded in Kent. Two activities are "very small" scale (1 cow) while 10 activities are "small" scale (2 - 25 cattle).

One "secondary" beef activity occurs on a parcel that also has a "medium" scale dairy activity (25 – 100 cattle). This secondary beef activity is not the primary homesite of the beef cattle.

Table 16. Sheep / lamb / goat activities

Activity	Scale	By parcel		Total number of activities	By activity type		By location	
		Main type	Secondary type		*Intensive*	*Non intensive*	*Homesite*	*Non homesite*
Goat	Very small scale (< 5 goats)	-	1	1	-	*1*	*1*	-
	Small scale (5 - 125 goats)	1	1	2	-	*2*	*2*	-
	Medium scale (125 - 500 goats)	1	-	1	*1*	-	*1*	-
Subtotal		**2**	**2**	**4**	***1***	***3***	***4***	**-**
Sheep / lamb	Very small scale (< 10 sheep)	2	2	4	-	*4*	*4*	-
	Small scale (10 - 250 sheep)	-	1	1	-	*1*	*1*	-
Subtotal		**2**	**3**	**5**	**-**	***5***	***5***	**-**
TOTAL		**4**	**5**	**9**	***1***	***8***	***9***	**-**

Table 16 details the sheep / lamb/ goat activities. In total, there are 4 goat activities and 5 sheep / lamb activities. Most activities (8 out of 9) are "very small" or "small" scale. There is 1 "medium" scale goat activity (125 – 500 goats).

Table 17. Equine activities

Scale of equine activity	By parcel		Total number of activities	By activity type		By location	
	Main Type	Secondary Type		*Intensive*	*Non intensive*	*Homesite*	*Non homesite*
Very small scale (1 horse)	8	2	10	-	*10*	*10*	-
Small scale (2-25 horses)	21	3	24	-	*24*	*24*	-
Medium scale (25-100 horses)	3	-	3	-	*3*	*3*	-
TOTAL	**32**	**5**	**37**	**-**	***37***	***37***	**-**

Table 17 details the 37 equine activities recorded in Kent. Although equine activities are numerous, nearly all are "very small" scale (1 equine) or "small scale" scale (2 -25 equine) with only 3 "medium" scale activities (25 -100 equine).

Of the 3 "medium" scale activities, all are associated with commercial equine activities.

Figure 26. Livestock homesite activities by scale and type

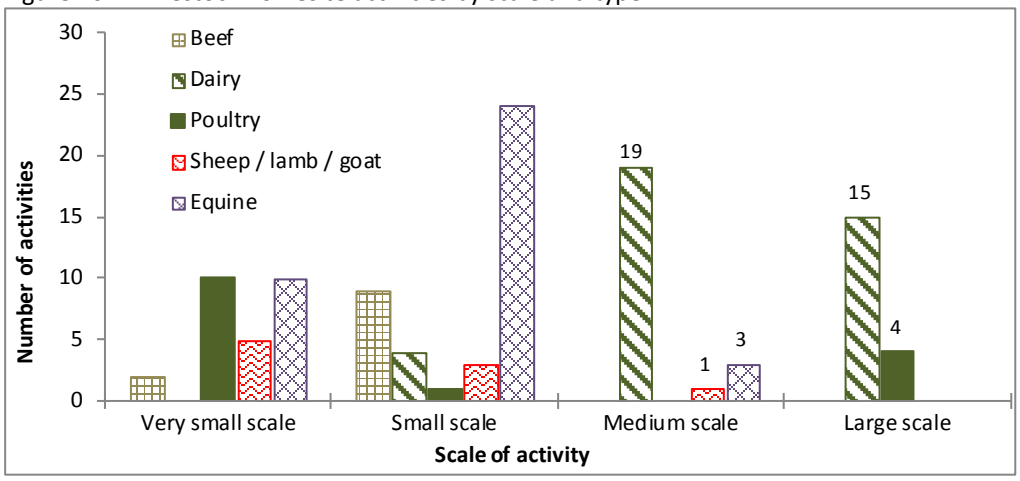


Figure 26 illustrates the scale of livestock activities in Kent.

Dairy is the main livestock type to occur on a "medium" or "large" scale.

There are also "large" scale poultry (4 activities), "medium" scale equine (3 activities), and 1 "medium" scale goat activity.

Figure 27. Equine and other livestock homesite activities by scale

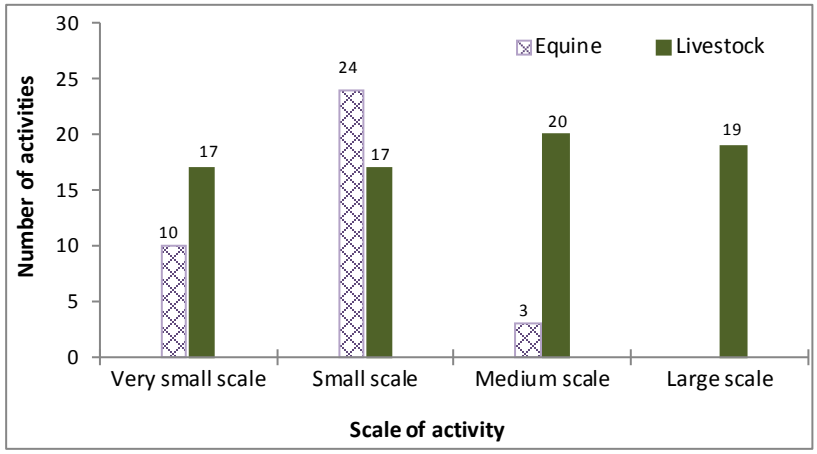


Figure 30 compares the scale of equine activities to other livestock activities.

The majority of all equine activities are "small" or "very small" with only 3 "medium" scale activities.

In comparison, over half (51%) of all other livestock activities occur on a "medium" or "large" scale.

Figure 28. Livestock homesite activities by parcel size and scale

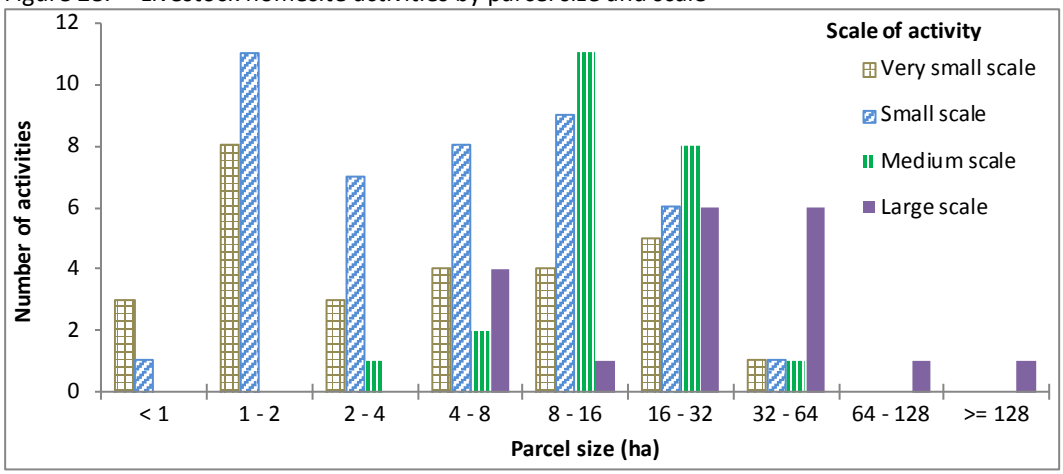


Figure 28 illustrates the distribution of livestock activities by scale across parcel size categories.

All "large" scale activities occur on parcels greater than 8 ha.

Most "medium" scale activities occur on parcels between 8 - 32 ha.

Nearly all activities on parcels less than 4 ha, are "small" or "very small" scale. There is one "medium" scale equine activity on a parcel in the 2 – 4 ha category.

"Very small" and "small" scale livestock activities occur on all parcel size categories less than 32 ha.

Figure 29. Livestock homesite activities by parcel size and type

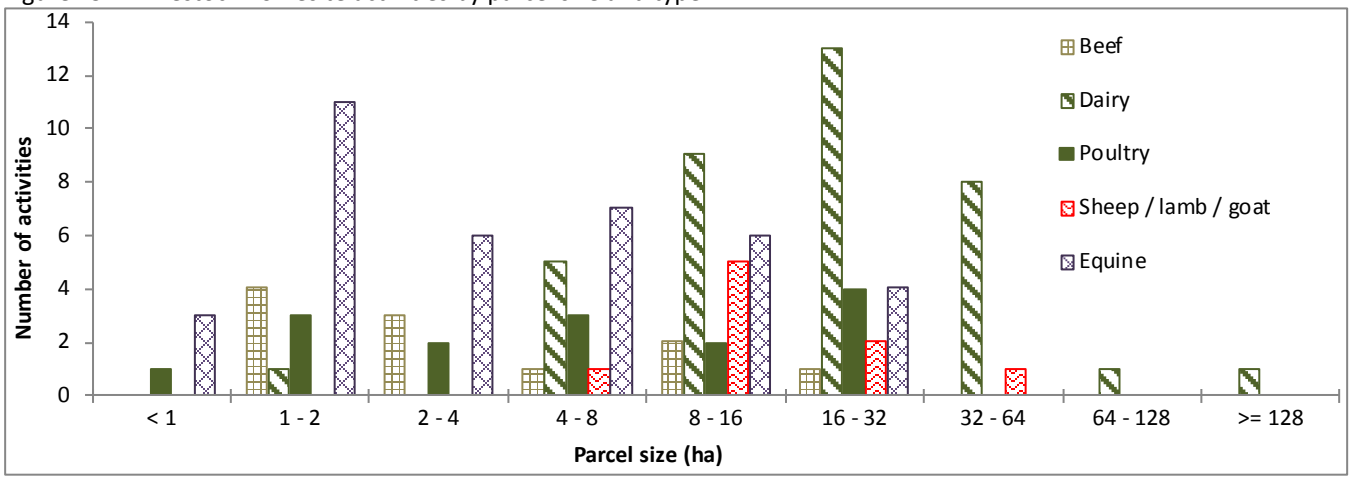


Figure 29 compares the distribution of livestock types across parcel size categories.

Dairy occurs across all parcel sizes greater than 4 ha and is the only livestock type to occur on parcels greater than 64 ha in size.

Equine and poultry activities occurs across all parcels sizes less than 32 ha, including on parcels less than 1 ha.

Figure 30. Equine and other livestock activities by parcel size

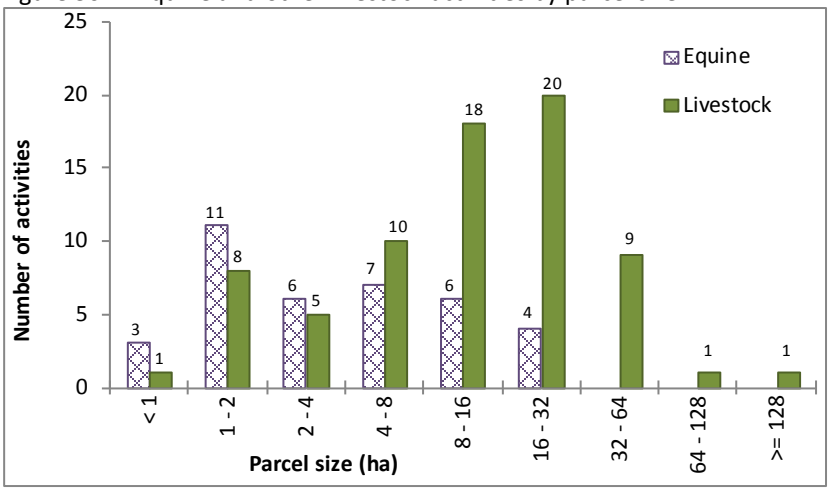


Figure 30 compares the distribution of equine and other livestock activities across parcel size categories.

Equine activities occur more frequently on smaller parcel sizes while other types of livestock activities occur more frequently on larger parcels.

Of the equine activities, 73% occur on parcels less than 8 ha. Of the other livestock activities, two-thirds (67%) occur on parcels greater than 8 ha).

7. Condition of ALR Lands

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

PARCEL INCLUSION IN THE ALR

The inventory area included 4,192 ha of ALR which is 65% of the total ALR area within the District of Kent. The remaining ALR was on Indian reserves (28%) or was excluded from the inventory as it was outside of legally surveyed parcels (7%) in rights-of-ways, water, foreshore or unsurveyed Crown land.

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

ALR boundaries do not always align with parcel boundaries which results in many parcels having only a portion of their area in the ALR. To achieve an accurate picture of the ALR land in Kent 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 (>= 50%) in the ALR, or
- parcels with at least 10 ha (>= 10 ha) of ALR land.

In total, 688 parcels, with 4,116 or 63% of the total ALR land and 98% of the effective ALR met the above criteria and were included in the further analysis of the ALR. This includes 8 parcels that each have less than 50% of their area in the ALR but each has greater than 10 ha of ALR land. These 8 parcels have a combined ALR area of 402 ha.

Figure 31. Parcel inclusion in the ALR

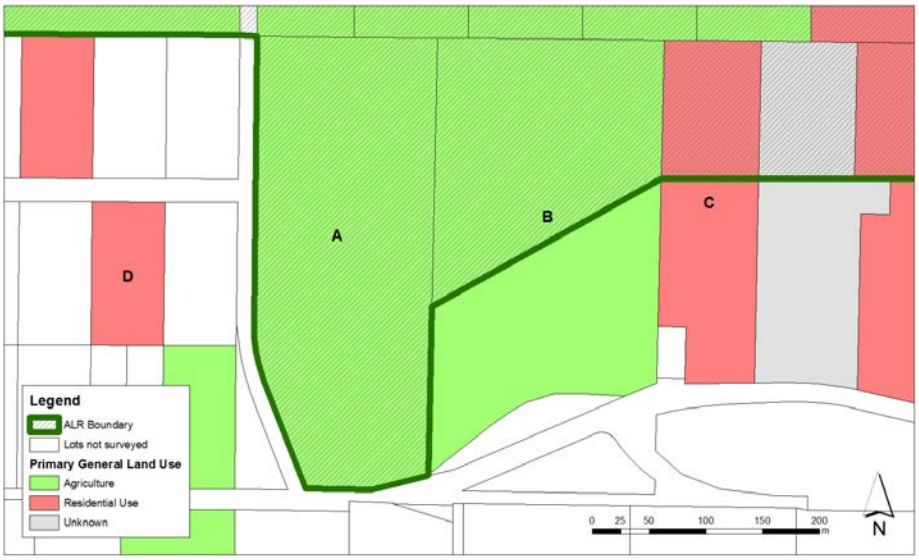


Figure 31 illustrates the distinction between parcels considered to be within or outside the ALR:

Considered to be within the ALR:

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

Considered to be outside the ALR:

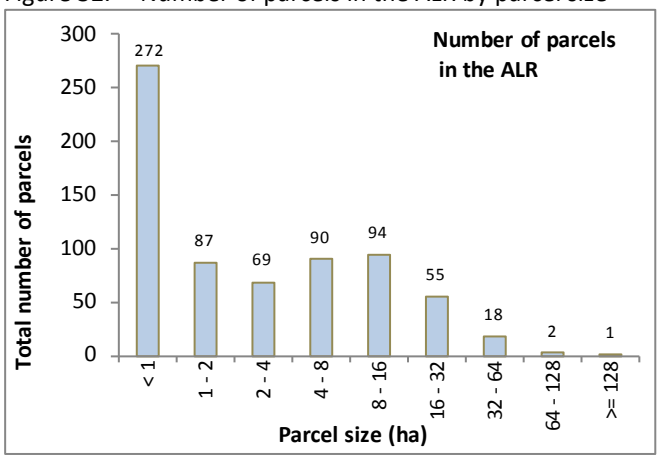
- *lot C has less than 50% of its area and less than 10 ha in the ALR*
- *lot D is completely outside the ALR.*

PARCEL SIZE & FARMING IN THE ALR

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

A farming operation may utilize more than one parcel as a farm unit[12], however, it is generally more cost efficient to acquire fewer larger parcels for a farm than many smaller parcels. Smaller parcels are generally more costly 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. Smaller parcels are also more impacted by bylaws designed to reduce potential land use conflicts, such as setbacks from lot lines and road allowances.

Figure 32. Number of parcels in the ALR by parcel size



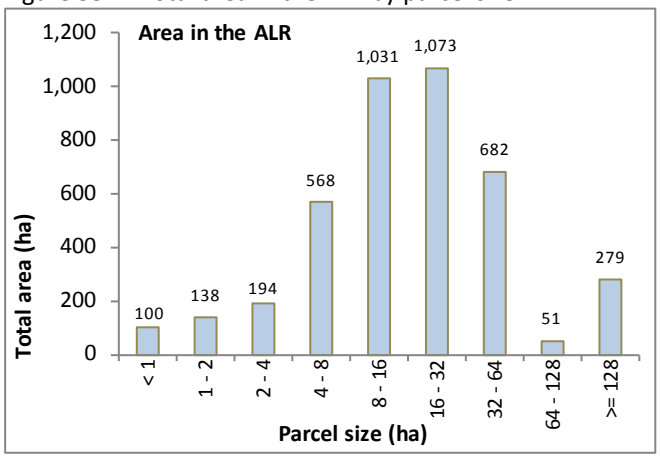
The average ALR parcel size in Kent is 7.2 ha and the median ALR parcel size is 1.9 ha.

Figure 32 illustrates that of the 688 parcels in the ALR:

- *40% (272 parcels) are less than 1 ha*
- *62% (428 parcels) are less than 4 ha.*
- *13% (90 parcels) are between 4 and 8 ha.*
- *14% (94 parcels) are between 8 and 16 ha.*
- *11% (76 parcels) are greater than 16 ha.*

Refer to Map 6 for more information.

Figure 33. Total area in the ALR by parcel size



Although Kent has a large number of small parcels, the majority of its ALR area is in larger parcels.

Figure 33 illustrates that of the 4,116 ha in the ALR:

- *2% (100 ha) is on parcels less than 1 ha.*
- *10% (432 ha) is on parcels less than 4 ha.*
- *14% (568 ha) is on parcels between 4 and 8 ha.*
- *25% (1,031 ha) is on parcels between 8 and 16 ha.*
- *51% (2,085 ha) is on parcels greater than 16 ha.*

[12]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 18. 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	343	50 %
Not used for farming	345	50 %
TOTAL	**688**	**100 %**

Table 18 demonstrates that of the 688 parcels in the ALR, 343 parcels or 50% are "Used for farming".

Figure 34. Number of farmed and not farmed parcels in the ALR by parcel size

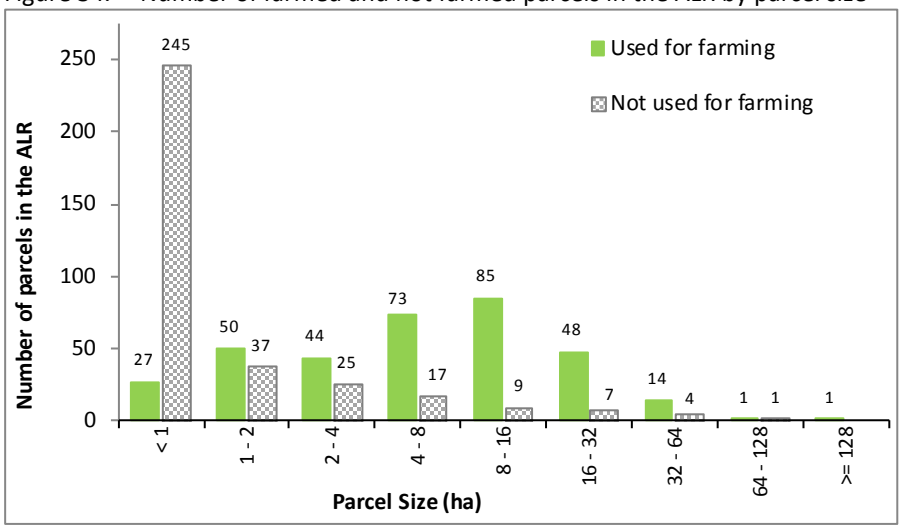


Figure 34 compares the distribution of "Used for farming" parcels with other parcels in the ALR.

The largest proportion of "Not used for farming" parcels occurs on parcels less than 1 ha; of the parcels less than 1 ha, 90% are "Not used for farming". Small parcels are less likely to be utilized for farming.

There are 5 parcels greater than 32 ha and "Not used for farming". They are associated with gravel & sand extraction, a golf course, Kent institution, and one residential property.

Figure 35. Number of farmed and not farmed parcels in the ALR by parcel size (line chart)

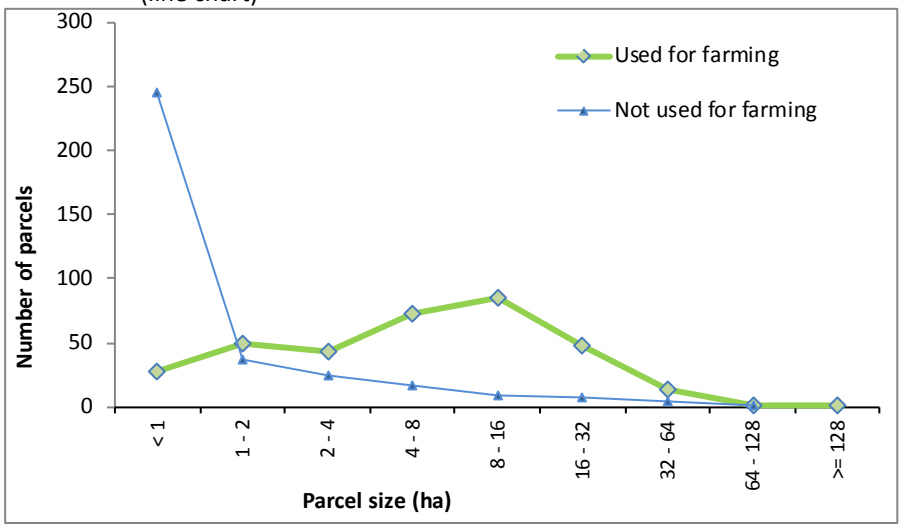


Figure 35 illustrates that although parcels of all sizes are "Used for farming", small parcels (less than 2 ha) have a much greater likelihood of not being "Used for farming".

Figure 36. Proportion of parcels farmed and not farmed by parcel size in the ALR

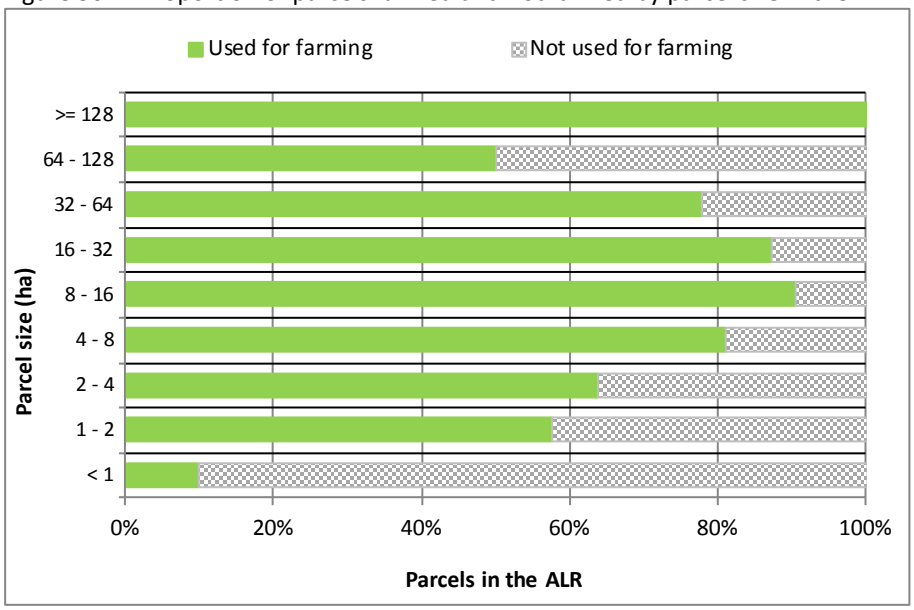


Figure 36 shows the proportion of parcels that are "Used for farming" and "Not used for farming".

There is a large proportion of parcels that are "Used for farming" across all parcel sizes greater than 1 ha.

There is 1 parcel of 753 ha that is associated with the Pacific Agri-Food Research Center and the UBC dairy farm that is "Used for farming".

Of the 2 ALR parcels 64 - 128 ha in size, one is "Used for farming" and is associated with a large scale dairy, and the other is "Not used for farming" and is associated with gravel extraction.

Only 10% of parcels less than 1 ha are "Used for farming".

Figure 37. Proportion of land cover by parcel size in the ALR

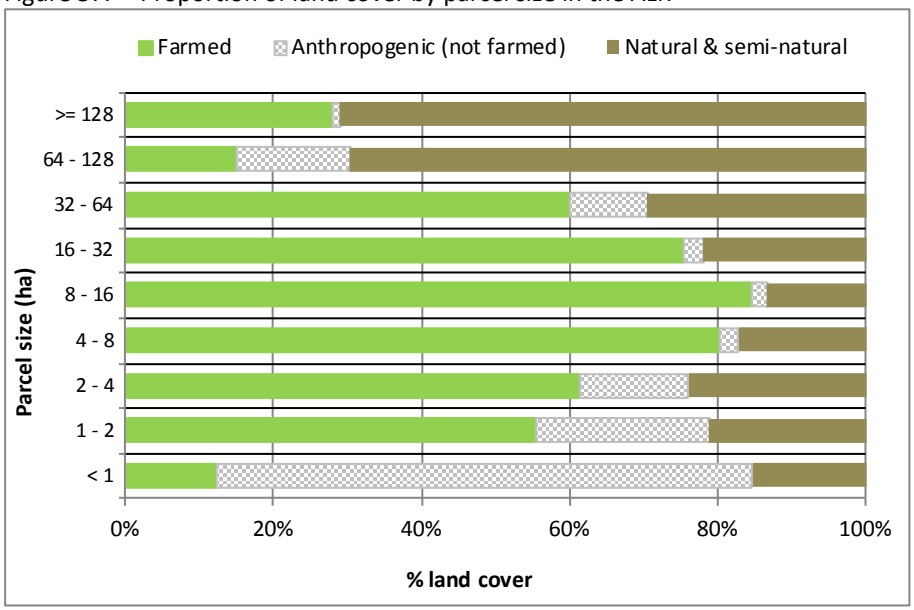


Figure 37 shows that there is a large proportion of "Farmed" land cover across most parcel sizes greater than 1 ha.

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

RESIDENTIAL USE IN THE ALR

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

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

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

- *estate single family house $ 460,650*
- *large single family house $ 541,863*
- *medium single family house $281,800*
- *small single family house $146,588*
- *single mobile home $65,942*

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

The District of Kent has many desirable, and unbuilt areas that could potentially be converted to residential use. This conversion could negatively impact the suitability of some parcels to be utilized for farming. To remedy this, the District of Kent has enacted a Residential Use bylaw that restricts the size and placement of homes within the ALR.

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

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

Figure 38. Residential land use on parcels in the ALR by farming status

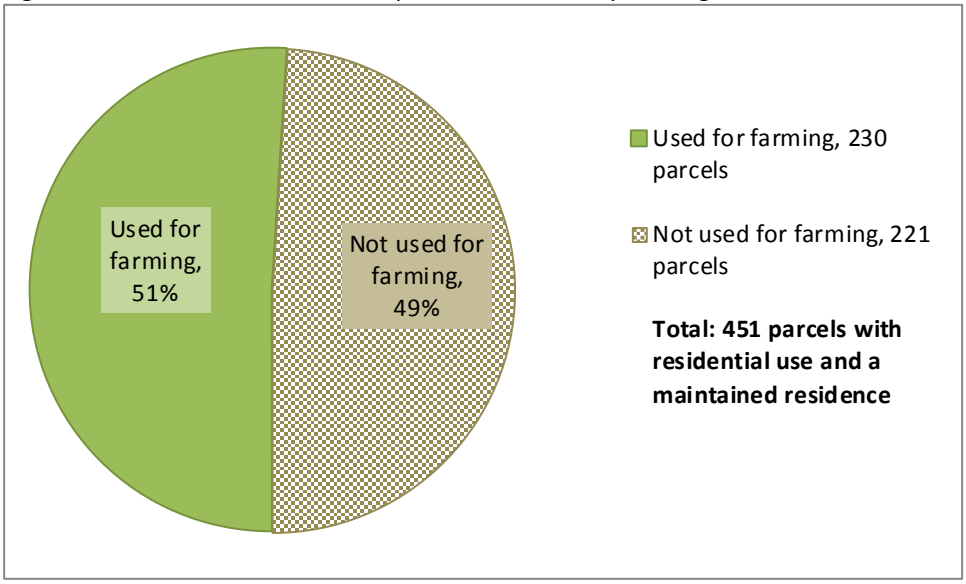


Figure 38 illustrates the proportion of ALR parcels with a maintained residence by farming status.

In total, 51% of all parcels with a residence are "Used for farming". This reflects Kent's strong agricultural presence.

Forty-nine percent of the ALR parcels with a residence are "Not used for farming". If the assumption is made that most farmers do not leave agricultural land idle, this could indicate that there is a significant proportion of non-farming land owners living in the ALR.

Figure 39. Size of residence on ALR parcels by farming status

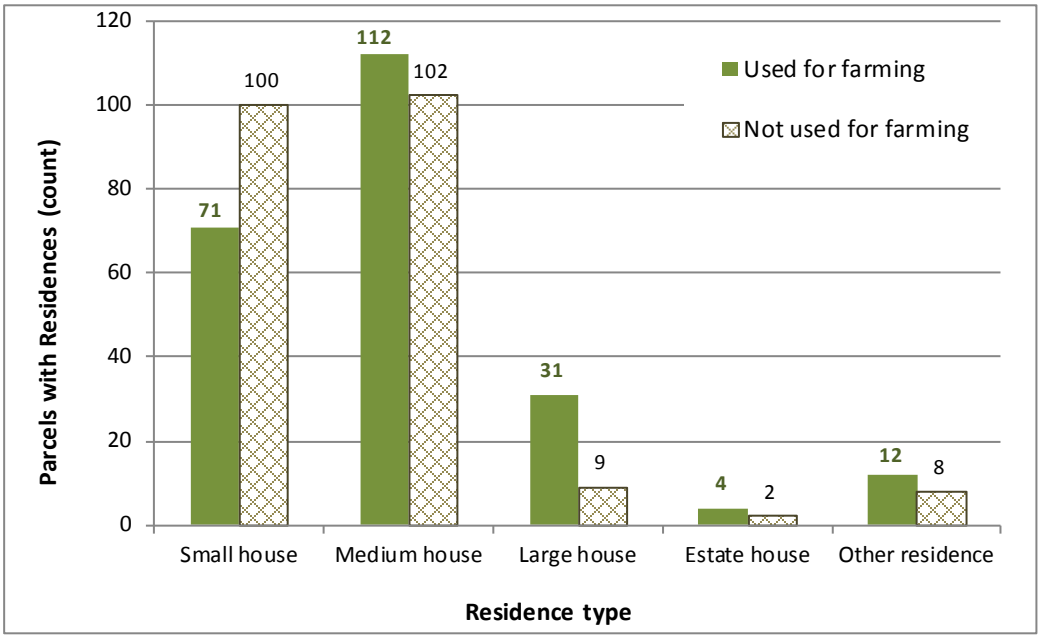


Figure 39 illustrates the number of and size of residences that are used and not used for farming

Small and medium houses are the most common house sizes in the ALR.

Appendix A – Indian reserves

Table A1. Inventoried area on Indian reserves within District of Kent

Band name	Reserve name	Inventoried area		
		In ALR (ha)	Outside ALR	Total area
Seabird Island First Nation	Seabird Island	1,566	4	1,570
Cheam First Nation	Tseatah 2	90	3	93
Scowlitz First Nation	Scowlitz 1	81	4	85
Yale First Nation	Lukseetsissum 9	55	<1	56
Shxw"ow"hamel Fisrt Nation	Wahleach Island 2	53	<1	53
TOTAL		**1,846**	**12**	**1,858**

Table A1 shows the total area inventoried on Indian reserves by band and reserve name.

Table A2. Land cover and farmed area on Indian reserves

Land cover*		ALR		Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of total ALR area		
Actively farmed	Cultivated field crops	780	12%	<1	781
	Farm infrastructure	<1	< 1%	<1	<1
FARMED SUBTOTAL		**781**	**12%**	**<1**	**782**
Anthropogenic (not farmed)	Managed vegetation	37	< 1%	<1	37
	Residential footprint	15	< 1%	<1	15
	Settlement	9	< 1%	<1	9
	Transportation	76	1%	<1	76
	Non Built or Bare	21	< 1%	<1	21
	Built up - Other	<1	< 1%	-	<1
SUBTOTAL		**158**	**2%**	**<1**	**159**
Natural and Semi-natural	Vegetated	895	14%	8	904
	Waterbodies	2	< 1%	3	5
	Wetlands	3	< 1%	<1	3
	Natural bare areas	6	< 1%	<1	6
SUBTOTAL		**906**	**14%**	**11**	**918**
TOTAL		**1,846**	**28%**	**12**	**1,858**

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

Table A2 shows the extent of different land cover types across the Indian reserves associated with Kent.

Table A3. Land cover and farmed area on Indian reserves by reserve name

First Nation	Land Cover Category			Total surveyed area (ha)
	Farmed (ha)	Anthropogenic (not farmed) (ha)	Natural & Semi-natural (ha)	
Cheam First Nation	64	4	25	93
Scowlitz First Nation	-	10	75	85
Seabird Island First Nation	718	140	713	1,570
Shxw"ow"hamel Fisrt Nation	-	3	51	53
Yale First Nation	-	2	54	56
TOTAL	**782**	**159**	**918**	**1,858**

Table A3 shows that all of the "Farmed" land cover on Indian reserves occurs on land associated with the Cheam and Seabird Island First Nations.

"Farmed" land cover includes cultivated crops and farm infrastructure.

Cultivated crops on Indian reserves

Table A4. Main field crop types by area on Indian reserves

Band name	Crop type	ALR		Outside ALR (ha)	Total area (ha)
		In ALR (ha)	% of total ALR area		
Cheam	Forage	41	< 1%	< 1	42
	Vegetables	22	< 1%	-	22
	Crop transition	< 1	< 1%	-	< 1
SUBTOTAL		**64**	**< 1%**	**<1**	**64**
Seabird Island	Forage	497	8%	< 1	497
	Nursery	126	2%	< 1	126
	Nut trees	48	< 1%	-	48
	Crop transition	46	< 1%	< 1	46
SUBTOTAL		**717**	**11%**	**<1**	**717**
TOTAL		**780**	**12%**	**< 1**	**781**

Table A4 shows that 781 ha of cultivated crops were recorded on Indian reserves; 64 were associated with the Cheam First Nation and 717 ha were associated with the Seabird Island First Nation.

Refer to Map 4 and Map 5 for more information.

Table A5. Forage & pasture crops on Indian reserves

Band name	Forage crop type		ALR		Outside ALR (ha)	Total area (ha)
			In ALR (ha)	% of total ALR area		
Cheam	Forage (managed)	Forage corn	39	< 1%	< 1	39
		Grass	3	< 1%	-	3
Subtotal			**41**	**< 1%**	**< 1**	**42**
Seabird Island	Forage (managed)	Forage corn	359	6%	< 1	359
		Mixed grass / legume	127	2%	< 1	127
		Grass	11	< 1%	< 1	11
Subtotal			**497**	**8%**	**< 1**	**497**
TOTAL			**538**	**8%**	**< 1**	**539**

Table A5 details the forage & pasture crops on Cheam and Seabird Island First Nations.

Table A6. Irrigation systems by crop type on Indian reserves

Band name	Cultivated field crop	Irrigation system (ha)		Total area irrigated (ha)
		Giant gun	Sprinkler	
Cheam	Vegetables	22	-	22
SUBTOTAL		**22**	**-**	**22**
Seabird Island	Forage	203	-	203
	Nursery	88	39	126
SUBTOTAL		**88**	**39**	**330**
TOTAL FIELD CROP AREA IRRIGATED		**109**	**39**	**351**

Table A6 shows that of the 781 ha of cultivated crops on Indian reserves (See Table A4), 351 ha are irrigated.

Of the irrigated crops, 330 ha are associated with Seabird Island First Nation and 22 ha are associated with Cheam First Nation.

Refer to Map 4 and Map 5 for more information.

Appendix B – Maps

Fraser Valley Regional District, District of Kent, 2013 ALUI Maps

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

Maps are 18 x 31 inches

http://www2.gov.bc.ca/gov/content/industry/agriculture-seafood
Agricultural Land and Environment → Strengthening Farming → Planning for Agriculture → Agricultural Land Use Inventories → South Coast

Appendix C – Glossary

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Cadastre – 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 Cadastre Fabric maintained by the Parcel Fabric Section of the BC Government.

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

Effective ALR – The **Agricultural Land Reserve** area that is in legally surveyed parcels and under the jurisdiction of interest. The effective ALR is the total ALR 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Used for farming – See final page of glossary.

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

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

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