# Striving for Agricultural Development and Food Security in the Columbia Valley

Windermere District Farmers' Institute
Compiled by:
Hedi Trescher
2020


Agriculture in the Columbia Valley has come full circle.

The first agricultural enterprise was cattle. In 1854 the Kootenay (the Akisqnuk First Nation) traded some cows from James Sinclair on his second trip bringing settlers from the Red River colony to the Columbia River valley in Oregon. By 1879 the number had increased to over 500 head of cattle.

The European settlers, which began arriving in 1883, started mixed farming and for a time the area was nearly self-sufficient in food.

Towards the end of the 20th century, mainly due to government regulations, shortage of labor and economy of scale that favoured imported food, it was found that the only agricultural product the area could produce competitively was cattle. This brought us to the point that the 2011 Land Use Inventory Report of the Columbia Valley showed over 99% of the crop area dedicated to the production of livestock feed.

Lately concepts like the 10 Mile Diet, Food Security, Transportation Footprint and Sustainable Agriculture have made their way into the public consciousness. Many people now want to know where their food comes from. Community Gardens and Farmers' Markets have become popular. The new trend is Local Food.

The Columbia Valley has many acreages that could be productive. We can grow a lot more of our own food and become more food secure.

This report is intended to show what this valley has produced in the past, give some basic climate and soil data, and information on production and marketing.

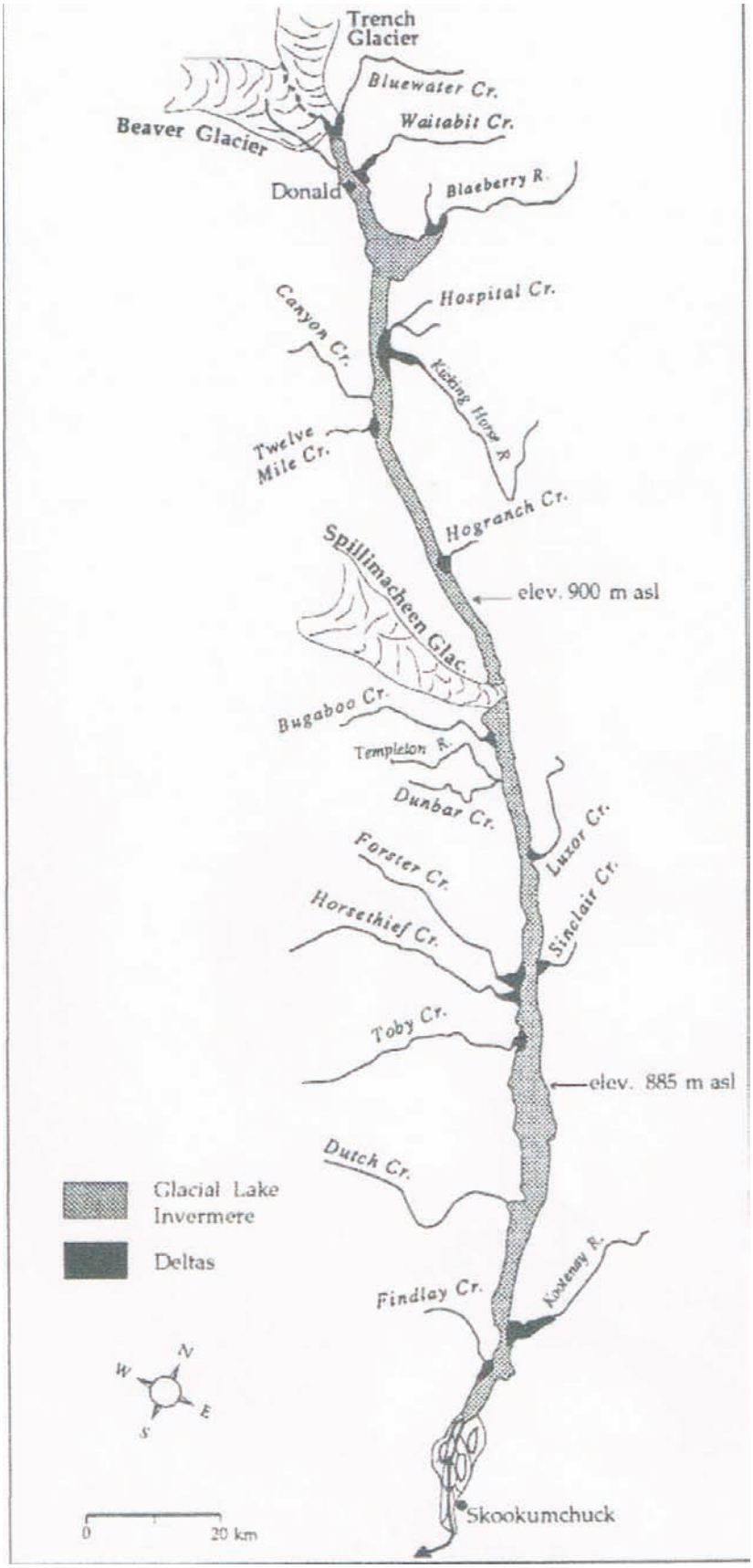
# Geology

The upper Columbia Valley forms part of the Rocky Mountain Trench and is 3 to 10 km wide with the valley floor ranging from 760 m (Golden) to 900 m (Canal Flats) above sea level. Terraces of thick lacustrine silt and deltaic gravel flank parts of the valley floor between Skookumchuck and Donald. The highest point on the valley floor and the present drainage divide between the Columbia and Kootenay rivers is located at Canal Flats. The valley is bordered by the steep slopes of the Rocky Mountains to the east and the Purcell Mountains to the west.

The Purcell Mountains were formed in the Proterozoic eon (in the Precambrian period), which spans from 2,500 million years ago to about 540 million years ago.

The Rocky Mountains formed 80 million to 55 million years ago during the Laramide orogeny, in which a number of plates began sliding underneath the North American plate.

During the Late Wisconsian glaciation (the last ice age), the Rocky Mountain Trench served as a southern outlet for Cordilleran ice which deposited an undulating basal till on the trench floor. During deglaciation, ice retreated northward, confined by adjacent mountains. Ice melted from mountainous uplands and some tributary valleys prior to deglaciation of the trunk valleys.



When the receding ice front in the Rocky Mountain Trench reached the northwestward-sloping upper Columbia River valley, meltwater began to pond between it and the (hypothesized) Kootenay glacier, eventually creating a long, narrow proglacial lake, termed Glacial Lake Invermere. Glacial Lake Invermere first formed as two water bodies, at elevation 885 and 900 m, separated by glacier ice. These two water bodies later joined to form a continuous lake at 835 m asl – about 45 m higher than present day Lake Windermere. The water at Canal Flats may have been 90 m deep, increasing northward to 110 m at Donald.

At its maximum, Glacial Lake Invermere had an area of 530 km2 and occupied 210 km of the Rocky Mountain Trench floor from Bluewater Creek to Skookumchuck.

After breaching of the valley fill at its south end, the lake terminated with the final melting of Rocky Mountain Trench ice. At that time the southerly flow of water reversed to a northerly direction (about 8,000 BC)

# Climate

The climatic capability for Agriculture are defined by two limitation – thermal limitations and moisture limitation.

Thermal limitations are:

1. Occurrence of extreme minimum temperatures during the winter season which injure or kill dormant or near dormant perennial plants. This is generally expressed as Hardiness Zone
2. Occurrence of minimum temperatures near freezing adversely affecting plant growth during the growing season. This is given expression by number of Frost Free Days.
3. Insufficient heat units during the growing season.

Moisture limitations are:

1. Drought or aridity occurring between May 1st and September 30th resulting in moisture deficits which limit plant growth. The climatic moisture deficit (CMD) criterion is used for determining this climatic limitation. The CMD is precipitation (P) minus potential evapotranspiration (PE).
2. Excess precipitation between May 1st and September 30th may cause flooding, poor trafficability and generally poor yield and harvest conditions.

Recent historical data is hard to find. At present there is no official weather station between Kimberley and Golden. If you goggle recent weather data for Invermere it listed Invermere with Banff as the reporting station.

**Historical Weather Averages - Kootenay NP West Gate 1981-2010**

| | **Temperature** | | | | | **Precipitation** |
|---|---|---|---|---|---|---|
| Month | Warmest | Coldest | Daytime | Night | Daily Ave. | mm |
| January | 11 | -31 | -3.9 | -9.7 | -6.8 | 33.2 |
| February | 12 | -45 | 0.0 | -8.3 | -4.6 | 19.4 |
| March | 21 | -27 | 6.9 | -3.5 | 1.7 | 19.9 |
| April | 26 | -13 | 13.3 | 0.7 | 7.0 | 31.2 |
| May | 31 | -12 | 18.4 | 8.9 | 11.8 | 47.0 |
| June | 35 | - 7 | 22.0 | 11.2 | 15.5 | 69.0 |
| July | 37 | 1 | 25.6 | 11.2 | 18.4 | 43.6 |
| August | 39 | 1 | 25.2 | 10.2 | 17.8 | 40.7 |
| September | 36 | - 9 | 18.5 | 5.4 | 12.0 | 35.0 |
| October | 26 | -16 | 9.9 | 0.3 | 5.1 | 26.2 |
| November | 17 | -26 | 0.9 | -4.7 | 1.9 | 35.9 |
| December | 11 | -34 | -4.7 | -9.7 | -7.3 | 30.1 |
| Total | | | | | | 431.2 |

## Information from Meteorological Stations in the Upper Columbia River

| **Precipitation** in Inches | | Wilmer | Invermere | Brisco |
|---|---|---|---|---|
| Annual | High | 14.34 | 15.94 | 22.48 |
| | Low | 9.96 | 6.47 | 11.09 |
| | Average | 12.53 | 11.59 | 15.77 |
| May-Sept. | High | 8.82 | 10.35 | 10.91 |
| | Low | 3.12 | 3.03 | 4.64 |
| | Average | 5.89 | 6.46 | 7.25 |
| Years of Records | | 1916-1925 | 1916-1948 | 1924-1955 |

**Frost-Free Periods**

| Last Spring Frost | Wilmer | Invermere | Windermere |
|---|---|---|---|
| Average | 27-May | 28-May | 27-May |
| Earliest | 04-May | 11-May | 14-May |
| Latest | 10-Jul | 23-Jun | 13-Jun |
| First Fall Frost | | | |
| Average | 18-Sep | 12-Sep | 14-Sep |
| Earliest | 02-Sep | 20-Jul | 29-Aug |
| Latest | 07-Oct | 07-Oct | 07-Oct |
| Ave. Frost Free period - Days | 114 | 107 | 110 |
| Years of Records | 1909-1925 | 1924-1950 | 1914-1936 |

**Note:** Frost Free Days are the number of days between the last frost in the spring and the first frost in the Fall. It is mainly used to determine which annual plants will survive to harvest.

The Old Farmers' Almanac gives the
**Average Frost Free days for Invermere** from
May 15 to Sept 16 = 123 days using the
1981 – 2010 data from the Kootenay West Gate.

## Evapotranspiration

Evapotranspiration is the sum of evaporation and plant transpiration. This is the amount of precipitation needed for plant growth. If there is less precipitation the deficit will have to be made up by irrigation.

The BC Ministry of Agriculture lists the following Evapotranspiration Rates:

| **Evapotranspiration Rates** | Inches |
|---|---|
| Canal Flats | 19 |
| Invermere | 22 |
| Radium | 16 |
| Spillimacheen | 18 |
| Golden | 15 |

## Growing Degree Days

Crops also differ in the amount of heat they need to mature. Tomatoes need more heat than Spinach. Peaches need more heat than apples.
Growing degree days (GDD), also called growing degree units (GDUs), are a measure of heat accumulation. GDDs are typically measured from the winter low (Tbase)

**Example of GDD calculation**
A day with a high of 23 °C and a low of 12 °C (and a base of 10 °C) would contribute 7.5 GDDs.

The following are examples of the GDD requirement of some crops.

| | |
|---|---|
| Corn (maize) | 800 to 2700 GDD to crop maturity |
| Dry beans | 1100-1300 GDD to maturity depending on cultivar and soil conditions |
| Sugar beet | 130 GDD to emergence and 1400-1500 GDD to maturity |
| Barley | 125-162 GDD to emergence and 1290-1540 GDD to maturity |
| Wheat (hard red | 143-178 GDD to emergence and 1550-1680 GDD to maturity |
| Oats | 1500-1750 GDD to maturity |

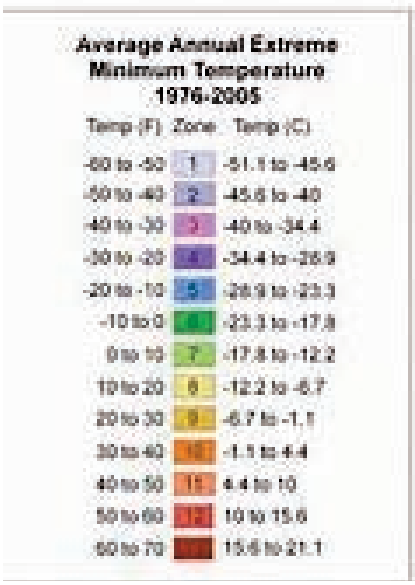
The Regional Adaptation Strategies series lists Invermere at 1547 GDD

## Hardiness Zones

A hardiness zone is a geographic area defined to encompass a certain range of climatic conditions relevant to plant growth and survival. The original and most widely-used system defines 13 zones by annual extreme minimum temperature.
Hardiness zones are important for perennials such as berries and fruit trees.

**Canadian Hardiness Zone**

| | 1961-1990 | 1981-2010 |
|---|---|---|
| Canal Flats | 5a | 5b |
| Windermere | 4b | 5b |
| Invermere | 5a | 5b |
| Wilmer | | 5a |
| Radium | 4b | 5a |
| Brisco | 4a | 5a |
| Spillimacheen | 4b | 5a |
| Golden | 4b | 5a |



## Climate Change

Observed Average Precipitation Change in the Rocky Mountain Trench Area
1900 - 2103  +21%

The Regional Adaptation Strategies series:  Kootenay & Boundary has more figures on Climate Projections to 2050.
I found the data rather confusing, especially their interpretation of Frost Free Days, which would be helpful in making planting decisions .

You can download the report from:
https://www.bcagclimateaction.ca/wp/wp-content/media/RegionalStrategies-Kootenay-Boundary.pdf#:~:text=Regional%20Adaptation%20Strategies%20series%20%3A%20Kootenay%20%26%20Boundary,Monashee%20Mountains.%20There%20are%20also%20numerous%20watersheds%20in

Additional date on climate change in BC can be found at:
https://pacificclimate.org/analysis-tools/pcic-climate-explorer
.

It wouldn’t necessarily be all bad!

# Soils

Soils form from geological materials as a result of interaction the agencies, commonly referred to as soil-forming factors. These include climate, vegetation, nature of the parent material, relief & drainage, biological activity and length of time these factors have been in operation.

Soils in the Columbia Valley are mainly of the classification: Orthic Eutric Brunisol (Mayook, Wycliffe, Kayook, Keeney, Firshertown) and Orithic Gray Luvisol (Kinbasket, Golden Sandy Loam), Cumulic Regosen (Fireweed, Fort Steele). The slough land is predominantly Rego Gleyso (Nowitka). Unlike in the prairie, where large areas are the same soil, you can easily find three or four soil types on one farm in a mountainous area such as ours.

The Canada Land Inventory (CLI) Agricultural Capability classification system provides guidelines for the consistent assessment of agricultural land for production of a range of crops. Of the **RDEK** lands within the ALR:

24% are in CLI Agricultural Capability Classes 2 through 4 and considered capable of sustained production of common cultivates field crops

43% are Class 5 lands, capable of use only for producing perennial forage crops or specially adapted crops

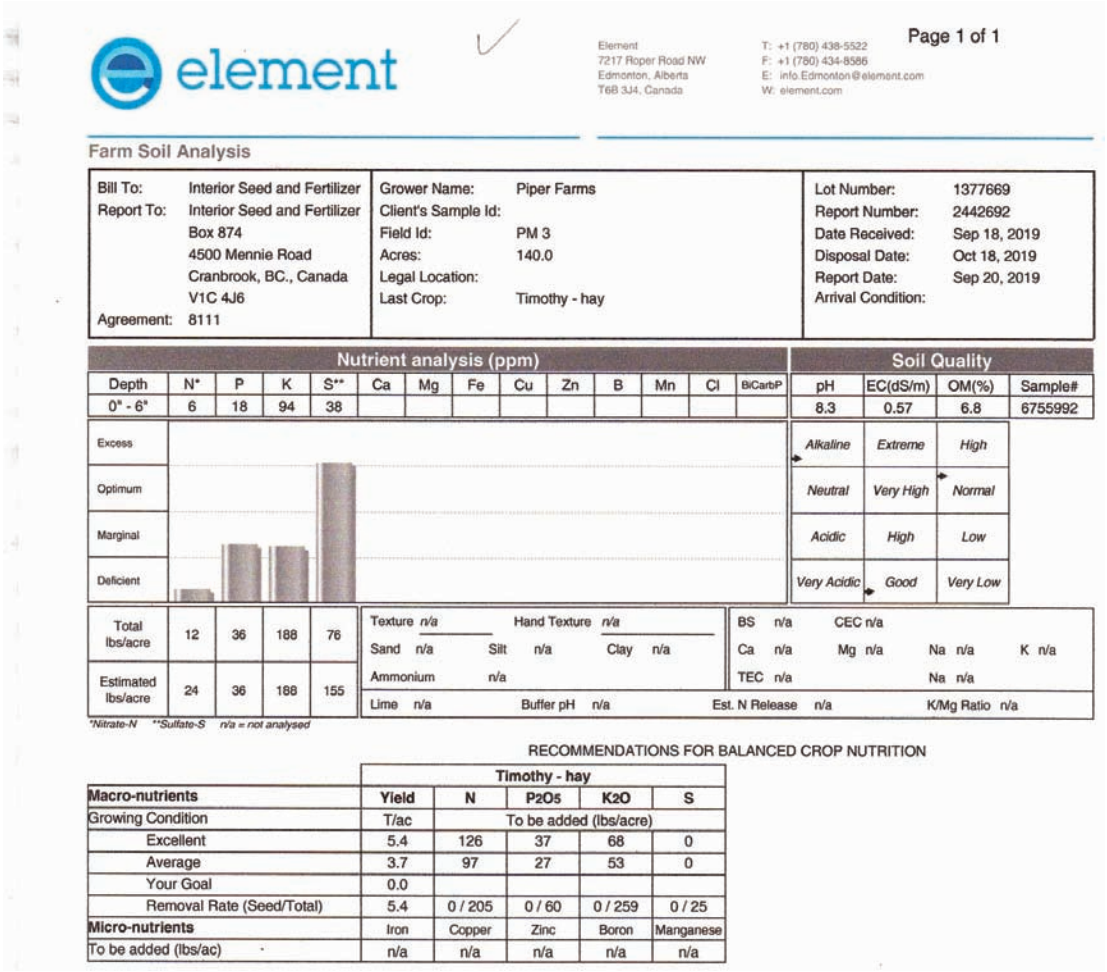
26% are Class 6 lands, capable of providing only sustained natural grazing for domestic livestock

7% are Class 7 lands, incapable of use for either arable culture or grazing

**To learn more about the soil in a specific location** in the Columbia Valley:
Go to the BC Government website – Search for - Soil Mapping and Classification
Click on Soil Information Finder Tool
Click on the tab – Soil Survey
Select “Layer List” from the icons on the top right
On Layer List click - Soil Mapping Project Boundaries and
BC Soil Survey Polygons
Click on the “My Location” icon on left side of the screen to quickly find your place on the map.

**To learn more about the meaning of all the terms and symbols**
Go to the BC Government website – Search for - Soil Mapping and Classification
Click on Soil Science - The Canadian System of Soil Classification.

**The agricultural capability of a soil can be improved** by the addition of manure, compost or fertilizer. The first step should be a soil analysis.



element

Element
7217 Roper Road NW
Edmonton, Alberta
T6B 3J4, Canada

T: +1 (780) 438-5522
F: +1 (780) 434-8586
E: info.Edmonton@element.com
W: element.com



Farm Soil Analysis

| | | | | | |
|---|---|---|---|---|---|
| Bill To: | Interior Seed and Fertilizer | Grower Name: | Piper Farms | Lot Number: | 1377669 |
| Report To: | Interior Seed and Fertilizer | Client's Sample Id: | | Report Number: | 2442692 |
| | Box 874 | Field Id: | PM 3 | Date Received: | Sep 18, 2019 |
| | 4500 Mennie Road | Acres: | 140.0 | Disposal Date: | Oct 18, 2019 |
| | Cranbrook, BC., Canada | Legal Location: | | Report Date: | Sep 20, 2019 |
| | V1C 4J6 | Last Crop: | Timothy - hay | Arrival Condition: | |
| Agreement: | 8111 | | | | |

Nutrient analysis (ppm)

| Depth | N* | P | K | S** | Ca | Mg | Fe | Cu | Zn | B | Mn | Cl | BiCarbP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0" - 6" | 6 | 18 | 94 | 38 | | | | | | | | | |

Soil Quality

| pH | EC(dS/m) | OM(%) | Sample# |
|---|---|---|---|
| 8.3 | 0.57 | 6.8 | 6755992 |

Excess / Optimum / Marginal / Deficient

| | | |
|---|---|---|
| Alkaline | Extreme | High |
| Neutral | Very High | Normal |
| Acidic | High | Low |
| Very Acidic | Good | Very Low |

| | | | | |
|---|---|---|---|---|
| Total lbs/acre | 12 | 36 | 188 | 76 |
| Estimated lbs/acre | 24 | 36 | 188 | 155 |

*Nitrate-N **Sulfate-S n/a = not analysed

Texture n/a Hand Texture n/a
Sand n/a Silt n/a Clay n/a
Ammonium n/a
Lime n/a Buffer pH n/a

BS n/a CEC n/a
Ca n/a Mg n/a Na n/a K n/a
TEC n/a Na n/a
Est. N Release n/a K/Mg Ratio n/a

RECOMMENDATIONS FOR BALANCED CROP NUTRITION

| | Timothy - hay | | | | |
|---|---|---|---|---|---|
| **Macro-nutrients** | **Yield** | **N** | **P2O5** | **K2O** | **S** |
| Growing Condition | T/ac | To be added (lbs/acre) | | | |
| Excellent | 5.4 | 126 | 37 | 68 | 0 |
| Average | 3.7 | 97 | 27 | 53 | 0 |
| Your Goal | 0.0 | | | | |
| Removal Rate (Seed/Total) | 5.4 | 0 / 205 | 0 / 60 | 0 / 259 | 0 / 25 |
| **Micro-nutrients** | Iron | Copper | Zinc | Boron | Manganese |
| To be added (lbs/ac) | n/a | n/a | n/a | n/a | n/a |

## Soil sampling instructions

Collect samples from where the crop will be planted (hay crops sample throughout the field avoiding unusual areas, berry crops sample within the row)
Avoid collecting samples from areas with unusual conditions that will skew the fertilization recommendation (avoid areas of poorest crop growth)
Take 15 – 20 sub samples within the area to be treated and ensure to collect samples from throughout the entire field
Use clean sampling tools and do not include mulch or vegetation in the sample (use a regular shovel or an auger/probe)
Carefully mix the soil sample and mix thoroughly
Prepare and submit the sample according to the instructions provided by the lab to which the sample will be sent
Samples should be about 1 pound/2 cups in size

Soil sampling instructions from the **BC Agriculture Soil Nutrient Testing** website https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/soil-nutrients/nutrient-management/what-to-apply/soil-nutrient-testing/soil-sampling-methods-tools?keyword=soil&keyword=sampling

Soil sampling instructions from Alberta Ag:
https://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/epw11920/$file/3-3.pdf

# ırrigation & Water Rights

The capacity of a soil to store water is mainly dependent upon soil texture and soil structure. AWSC (Available Water Storage Capacity) is a measure of this capacity. The total AWSC is obtained by adding the AWSC of the different textural layers present in the upper 50 cm of soil, with adjustment for coarse fragment content. In cases where laboratory results are not available, an estimate of AWSC based on texture can be used.

Drought or aridity occurring between May 1st and September 30th will result in moisture deficits which limit plant growth. The climatic moisture deficit (CMD) criterion is used for determining this climatic limitation. The CMD is precipitation (P) minus potential evapotranspiration (PE). The amount of ET depends on temperature, solar radiation, relative humidity and wind speed. The hotter and windier it is, the higher the ET rate will be. See the chapter on Climate for information on Precipitation and Evapotranspiration.

To make up for the Climatic moisture deficit and the often low AWSC in the Columbia Valley, crops have to be irrigated. The water for irrigation can come from wells, but mostly it is surface water such as springs, creeks or lakes. In order to be allowed to use water for irrigation, you need to have a **water right** on the water source you intend to use. Water rights are issued in order of application. When all the available water has been allocated, no further water rights are issued. For information on water rights go to: https://www2.gov.bc.ca/gov/content/environment/air-land-water/water/water-licensing-rights

Irrigation water is a precious resource. Irrigation systems need to be designed to use water efficiently. Information regarding Irrigation System Designs can be found at: https://www2.gov.bc.ca/.../water/irrigation/sprinkler-irrigation-manual

**AWSC of Differnt Soils**

| Textural Class | AWSC (mm/cm) |
|---|---|
| Sand (medium) | 0.8 |
| Loamy Sand | 1.0 |
| Sandy Loam | 1.2 |
| Fine Sandy Loam | 1.4 |
| Loamy Sand | 1.7 |
| Loamy Sand | 2.1 |
| Clay Loam | 2.0 |
| Organic Soils (muck) | 2.5 |

**Earliest Water Rights**
on Columbia Valley Streams (before 1900)

| | |
|---|---|
| Windermere Creek | 1883-03-19 |
| Brady Creek (West Side Road) | 1886-09-07 |
| Fraling Creek (Spillimacheen) | 1891-02-28 |
| Shuswap Creek | 1892-02-06 |
| McMurdo Creek (Brisco) | 1892-10-19 |
| Stoddard Creek | 1896-09-23 |
| Madias Creek | 1896-09-23 |
| Goldie/Abel Creek | 1899-03-30 |
| Bornais Creek | 1899-11-22 |
| Sunlight Creek | 1899-11-22 |

## Determining your Water Requirement

Soil and crop characteristics determine how much irrigation water is needed. The crop's rooting depth and water requirements are very important to the design and management of irrigation systems. A crop with a deeper rooting depth has a greater volume of soil water to draw from between irrigation than a shallow rooted crop. Crops also require different amounts of water at different times of the year. When the crop is at its development stage, it requires less water than a mature crop. Water requirement also depends on the type of crop. Some crops transpire and use more water than other crops at the same development stage.

The type of soil determines the application rate and irrigation interval of an irrigation system. Therefore, the soil type should be considered when designing an irrigation system.

The amount of soil water available to the crop depends on the type of soil and crop, the presence of boundary layers in the soil, and the effective rooting depth of the crop. The total available water should not be depleted before irrigation water is applied.

The crop's rooting depth determines the depth of the soil profile from which the crop can extract soil water. Water that moves beyond this depth is unavailable to the crop. About 70% of the water uptake is within the top 50% of the root zone.

**Effective Rooting Depth of Mature Crops**

| Shallow | Medium Shallow | Medium Deep | Deep |
|---|---|---|---|
| *0.45m (1.5 ft)* | *0.6 m (2 ft)* | *0.9 m (3 ft)* | *1.2 m (4 ft.)* |
| Cabbages | Beans | Brussels Sprouts | Alfalfa |
| Cauliflowers | Beets | Cereal | Asparagus |
| Cucumbers | Blueberries | Clover (red) | Blackberries |
| Lettuce | Broccoli | Corn (sweet) | Corn (field) |
| Onions | Carrots | Eggplant | Grapes |
| Radishes | Celery | Kiwifruit | Loganberries |
| Turnips | Peas | Peppers | Raspberries |
| | Potatoes | Squash | Sugar beets |
| | Spinach | Saskatoons | Tree Fruits (12'-18') |
| | Strawberries | Tree Fruits (6'-12') | |
| | Tomatoes | | |
| | Tree Fruits (3'-10') | | |

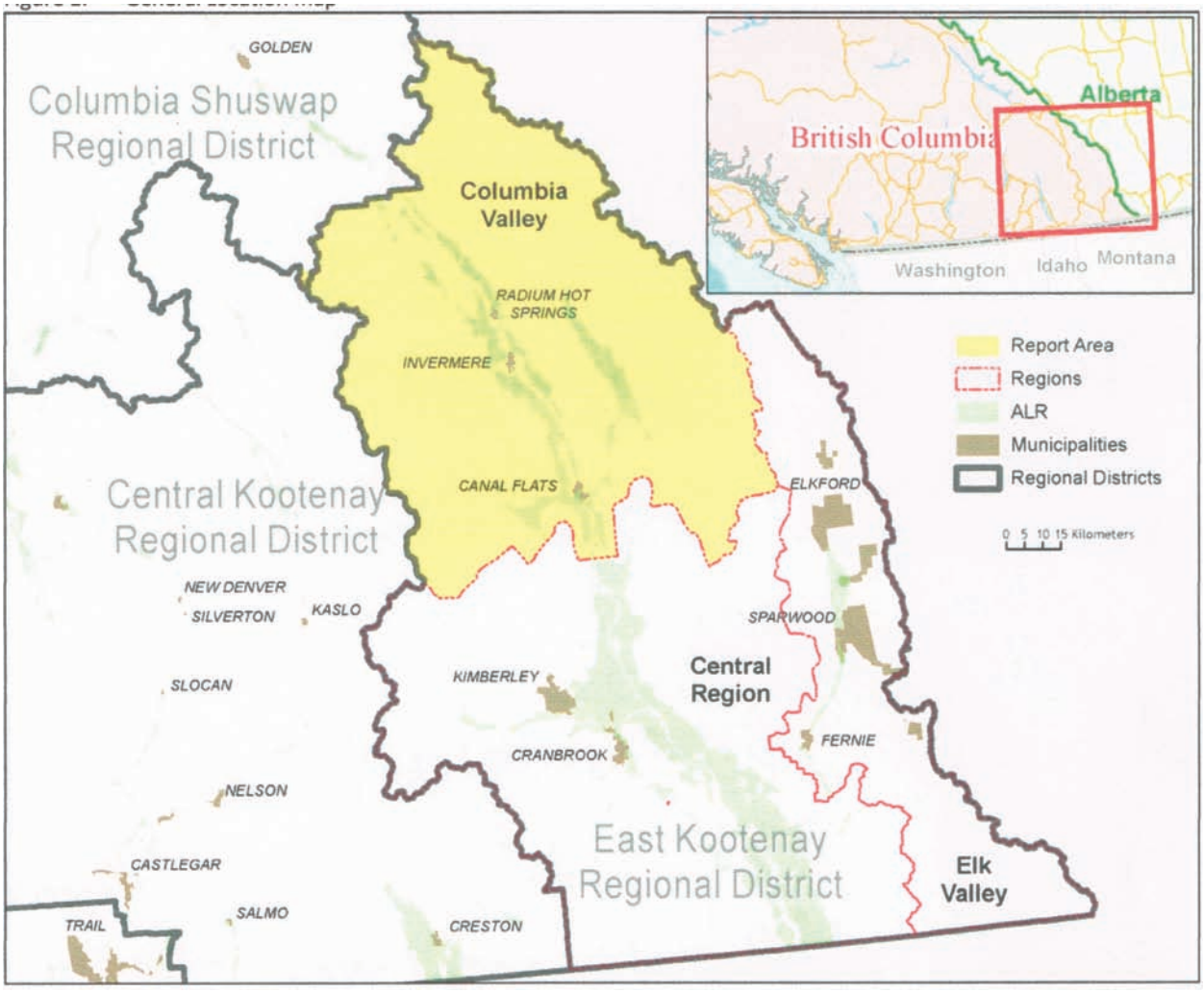
To learn more about effective irregation, download the
B.C. IRRIGATION MANAGEMENT GUIDE at
https://www2.gov.bc.ca/gov/content/industry/agriculture-seafood/agricultural-land-and-environment/water/irrigation/irrigation-management-guide

# Land Use and the Agricultural Land Reserve

Nestled between the Rocky Mountains to the east and the Purcell range to the west, the Columbia Valley lies in the south east corner of British Columbia. The Columbia and Kootenay Rivers flow through the valley in opposite directions.

The Columbia Valley is located in the Regional District of East Kootenay and contains electoral areas F & G as well as the municipalities of Invermere, Radium Hot Springs and Canal Flats

The valley has a total area of 1,091,639 hectares (10,916.39 square miles). There are 59,007 hectares of surveyed land (5.4%). The rest is parks, mountains and other unsurveyed crown land. 2322 ha are actively farmed - that is 0.21% of the total area.



## The Agricultural Land Reserve

The Agricultural Land Reserve (ALR) is a provincial land use zone that was designated in 1973 in which agriculture is recognizes as the priority use.

Within the ALR, farming is encouraged and non-agricultural uses are controlled.

Some of the areas included in the ALR have not been surveyed yet. The total area of the Columbia Valley is 1,091,639 hectares. The total ALR area, that is land deemed to be suitable for agricultural purposes, is 73,083 hectares (7%).

| | | | |
|---|---|---|---|
| Area in ALR | 73,083 ha | | |
| Parcelled area in ALR | 42,688 | 58% | |
| Indian reserves | 3,753 | 5% | |
| Water & foreshore & rights-of-way | 1,326 | 2% | |
| Unsurveyed land | 25,316 | 35% | |
| Total Parcelled area ouside ALR | | | 11,893 ha |

For more information - https://www2.gov.bc.ca/.../agricultural-land-use-inventories
and click on Columbia Valley

## Classification of Farm Land for Property Tax Purposes

The Classification of Land as a Farm Regulation, B.C. Reg. 411/95, made under the Assessment Act, provides that, upon application, land used for a qualifying agricultural use may qualify for farm class.

You must sell qualifying agricultural products in each reporting period (i.e., every year). Crops grown for home consumption will not be considered part of your farm income.

Minimum income requirements are calculated as follows:

$10,000 on land less than .8 hectares (1.98 acres);

$2,500 on land between .8 hectares (1.98 acres) and 4 hectares (10 acres);

On land larger than 4 hectares (10 acres), you must earn $2,500 plus five per cent of the actual value of any farm land in excess of 4 hectares;

Being in the ALR is not enough to qualify.

This is a condensed version of the regulation. For more information go to:
https://info.bcassessment.ca/services-and-prooducts/Pages/Understanding%20Farm%20Classification.aspx

# Farming History

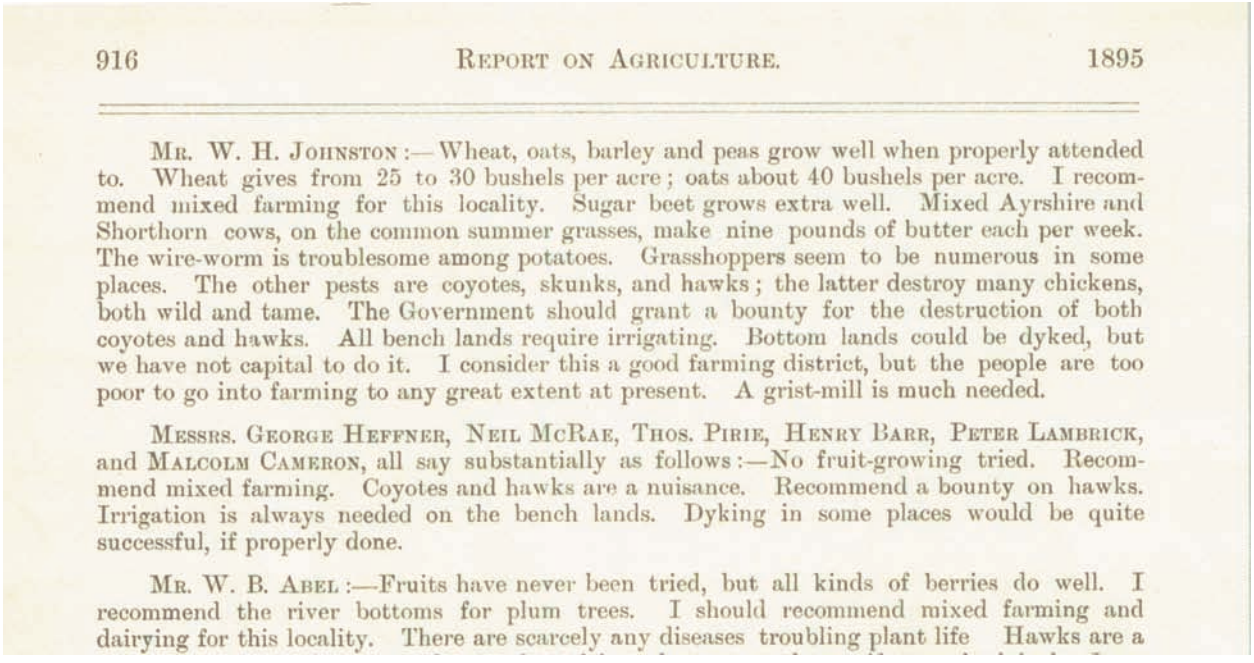
(Note: 2.5 acres = 1 hectare)

When David Thompson arrived in the Columbia Valley in 1807 he found it inhabited by members of the Akisqnuk First Nation (called Akisqnukniks in Ktunaxa) which he called the Kootenai. They are people of the Ktunaxa Nation, who for 10,000 years have spoken a unique language that cannot be linked to any other native language in North America.

In **1854** they traded horses for some “footsore and less agile cattle” from James Sinclair on his second trip bringing settlers from the Red River colony to the Columbia River valley in Oregon. Other cattle were no doubt traded and by 1879 the number had increased to over 500 head.

In the **late 1800s** land was marketed to European settlers as agricultural property under the Pre-emption Act (1884) and they undertook subsistence farming activities.

The **1895** Report on Agriculture to the B.C. Government reported the following for the Windermere District:
Land owned by 24 settlers – 8,585 acers of which 597 are cultivated, 3381 are woodland or forest and 4,607 are prairie or pasture.
Acres under crop: Wheat – 3, Oats - 353, Potatoes – 19, Turnips – 2, Hay – 50.
Livestock: Horses – 248, Cattle – 513, Sheep – 500, Pigs – 84, Poultry – 395.
Grain: Wheat 2 ton, Oats 212 ton
Roots and vegetables: Potatoes – 87 ton, Turnips – 20 ton
Hay: cultivated – 60 ton, wild – 35 ton
Yield per acre: Spring Wheat – 800 to 900 lbs., Oats – 800 to 1,000 lbs, Hay – 1 ton, Potatoes – 9,000 to 10,000 lbs.



916 REPORT ON AGRICULTURE. 1895

MR. W. H. JOHNSTON:—Wheat, oats, barley and peas grow well when properly attended to. Wheat gives from 25 to 30 bushels per acre; oats about 40 bushels per acre. I recommend mixed farming for this locality. Sugar beet grows extra well. Mixed Ayrshire and Shorthorn cows, on the common summer grasses, make nine pounds of butter each per week. The wire-worm is troublesome among potatoes. Grasshoppers seem to be numerous in some places. The other pests are coyotes, skunks, and hawks; the latter destroy many chickens, both wild and tame. The Government should grant a bounty for the destruction of both coyotes and hawks. All bench lands require irrigating. Bottom lands could be dyked, but we have not capital to do it. I consider this a good farming district, but the people are too poor to go into farming to any great extent at present. A grist-mill is much needed.

MESSRS. GEORGE HEFFNER, NEIL MCRAE, THOS. PIRIE, HENRY BARR, PETER LAMBRICK, and MALCOLM CAMERON, all say substantially as follows:—No fruit-growing tried. Recommend mixed farming. Coyotes and hawks are a nuisance. Recommend a bounty on hawks. Irrigation is always needed on the bench lands. Dyking in some places would be quite successful, if properly done.

MR. W. B. ABEL:—Fruits have never been tried, but all kinds of berries do well. I recommend the river bottoms for plum trees. I should recommend mixed farming and dairying for this locality. There are scarcely any diseases troubling plant life Hawks are a

**Over time**, cultivated agriculture expanded to include mixed production and utilization of Crown range land to meet local needs for agricultural goods. During most of the 20th century the region supported predominantly small scale farm operations producing a diversity of agricultural products including tree and bush fruits, vegetables, potatoes, poultry, eggs, milk and other dairy products, cereal grains, hay and Christmas trees, as well as beef cattle and sheep.

The Dominion Government Experimental Farm in Invermere (located where the hospital is now) was built in **1911**. Superintendent, Mr. Parham recorded that in the growing season of 1913 marrows, cabbages, beans, and peas were the most lucrative crops.

**1914** - Windermere District Farmers' Institute officially incorporated..

In **1920** the Lake Windermere Creamery was operating

**1923** - The dinner menu at the banquet to celebrate the completion of the Banff-Windermere highway featured "Cold Meats of the Windermere Steer, Celery from Brisco and Potatoes, boiled and French fried, from Invermere."

In **1927** Hugh Fuller was awarded a plaque by the Pacific National Exhibition for his third consecutive win in potatoes.

**In the 1930's** beef, eggs, dairy products, vegetables and fruit were sold to the construction camps at the Big Bend Highway

**1950's to about 1970** Edgewater Dairy delivered milk to valley homes.

**1950's to 1975** Elite Netted Gem seed potatoes were grown on 4 different farms and were marketed to Alberta and Washington, some were even sold to Pemberton

**1950's – 1980**'s a local poultry farm sold most of the eggs consumed in the valley

From **1958 to 1985** there was a greenhouse in Brisco that produced bedding plants and flowers.

**1960** Cheviot sheep competed at the Calgary Stampede

Through the **1960's and 70's** breeds of Continental European origin were allowed to be imported. This created a lot of interest in the valley and besides breeders of registered Hereford and Angus cattle, there were also breeders of Charolais, Simmental, Limousin, and Chianina.

In its heyday, the valley's Christmas tree industry saw nearly half a million trees cut a year.

## Current Production

Over the past 50 years, beef cattle ranching and forage production have become the dominant agricultural enterprise in the region.

**The 2011 Land Use Inventory Report** of the Columbia Valley reported a crop acreage of 2584 ha.

| | | |
|---|---|---|
| 2568 ha | (99.38%) | were devoted to produce livestock feed in the form of hay and pasture. |
| 7 ha | ( .27%) | canola seed |
| 3 ha | ( .12%) | vegetables |
| 3 ha | ( .12%) | berries |
| <1 ha | ( . 04%) | potatoes |
| <1 ha | ( .04%) | ornamental shrubs |
| <1 ha | ( .03%) | tree (plantation) |

45% of crop land was irrigated.

There was 1 greenhouse listed

There were 103 livestock activities listed.

| | | | |
|---|---|---|---|
| 20 beef | producers | raising | 1,611 cow/calf units |
| 3 poultry | | | |
| 4 sheep / lamb / goat | | | |
| 1 llama | | | |
| 73 Equine | | | 238 horses |

The only Value-Added activity was two direct sales seasonal stores.

**Since 2011** there has been increased interest in local food.

The Government inspected abattoir that started operation in **2017** has shown results in the increase of local meat production in pork and lamb as well as local slaughter of beef.

There are at present 4 market garden operations in the district.

There are 3 greenhouses - 2 of them devoted almost entirely to nursery plants, while one greenhouse also produces tomatoes and cucumbers.

There are 3 apiaries that sell honey.

Recently a farm has been growing distillery wheat and distillery rye as well as lentils.

A new establishment is experimenting with hops and hazelnut.

# Economics

We live in one of the most beautiful areas in the world.  However, for agricultural production we have to consider other criteria.

Our climate is ideally suited for cattle production, specifically cow/calf operations.  The main input is forage – pasture in the summer and hay in the winter, all produced locally. In this respect we are competitive with other areas of BC and indeed North America. However, to become “prime” beef (AAA) calves get sold to the locale where the finishing ration (grain) is grown and therefore all the value added activities take place there.
If livestock (cattle, swine and poultry) need feed that is not produced in the Columbia Valley, the product can be competitive if it is consumed locally, but not necessarily on the open market.

We can grow fruits and vegetables of exceptional quality.  However, we have to consider that our growing season is considerably shorter than other areas in BC (the Lower Mainland, the Okanagan and even Creston) which we would be competing against if we want to “export” fresh products.

The message therefore is **local, local, local.**  Sell direct – eliminate the middle man!
We have a long way to go to supply the potential market right at our doorstep.
One market garden provides a home or business delivery service to Invermere and Golden. They send you the weekly list of available produce and you reply with your order before the night of the delivery date. This is so successful, they have a waiting list. Other market gardens sell a similar product.

**Best Sellers** at the Farmers’ Market - Local free range eggs and berries.

Products that are **promising for marketing beyond our district** are:
Seed production – potatoes, grain and vegetable - our relative isolation is a definite advantage.
Purebred livestock – the selling price is not determined by the physical production cost.
Value added – such as jams, preserves, dried fruit, trail mix, frozen meals, breakfast cereal. to name a few.

# Marketing

There are different ways of getting your product to the consumer.

**Direct Marketing** - Selling the product by the producer directly to the consumer.
Examples: Farm gate sales, Farmers Market, On-line sales
Advantages: best returns, no middleman,
builds relationship between producer and consumer
Concerns: Different skill set than production, takes time away from production

**Selling through Auction Markets**
Examples: Calgary Stockyard, Video Auctions
Advantages: Price setting, no middle man, predetermined selling cost (commission)
Concerns: lack of control over selling price

**Selling to Retailer:**
Example: Selling to a store
Advantages: Selling larger quantities than sales directly to consumer.
Concerns: one middle man involved before product reaches consumer

**Selling to Wholesaler:**
Example: Selling to Sysco
Advantage: Selling large quantities
Concerns: Often two middle men involved before product reaches consumer.

**Aggregation** - Products from several producers are pooled for sale
Example: Food Hubs, BC Fruit Growers Association
Advantages: Large and small amounts of products can be sold.
Concerns: Relatively high handling cost, quality control,
one or more middle men involved

# Food Security

Quoted here are excerpts from the 2007 Dissertation on FOOD INSECURITY IN THE LAND OF PLENTY: THE WINDERMERE VALLEY PARADOX – by Alison Bell

*The Vancouver Food Policy Council, in their Vancouver Food Assessment Report, states: the key approach to increasing food security is to reduce our bioregion's reliance on importing food and instead, encourage bioregional food production, processing and consumption.*

*"Eat local" has become the clarion call of those concerned with the state of the food supply; more specifically, the global food supply. Indeed the "eat local" movement has arisen out of a widespread dissatisfaction with the negative aspects of the global food system, which include the loss of diversification in farming, the distance our food travels, the safety of our food supply, as well as, the corporate domination of the food supply and its emphasis on economies of scale.*

*While the negative aspects of the corporate control of the global food supply have provided much fodder for critics, there has also been a large body of research into the positive impact of returning to a more locally-based food system.*

*Factors that affect food security in the Windermere Valley include new provincial health regulations surrounding the slaughtering of meat, the high cost of farm inputs and the low cost of food, and the labour shortage that is currently plaguing this area. According to all three market garden farmers, it is the labour problems that will jeopardize their operations and if things don't change, all agree that they may not be able to continue farming. Sadly, the end of farming will not be because the farmers' products are not valued or in high demand.*

## How food (in)secure are we?

One wakeup call was when in January 2007 the three highways that provide access to the valley were closed for three days because of a severe blizzard. Within two days, the shelves of the produce and meat sections of both grocery stores were virtually emptied. The 2020 Covid-19 flue pandemic illustrated just how dependent we are on the Mexico/California supply chain for fruits and vegetable. There are half a dozen or so local farm families that could survive on what they produce. There are presently 4 market gardens that produce vegetables and some fruit during the summer month. This spring many people suddenly realized the insecurity of our food supply, and there was a run on garden seed and bedding plants.

It is clear that if we want to increase our food security, we need to produce more of our own food. The production of local food should be taking place on two levels.

**Commercial** – Encourage local farmers to produce food for local consumption.

**Personal** – Encourage each family to grow some of their own food. In 2011 the "dacha" gardens of Russia produced 40% of the nation's food. We can do just as well!

# Conclusion:

# What are you waiting for?

# Let’s get going!