



CLIMATE CHANGE ADAPTATION PROGRAM

Regional Strategies: Fraser Valley

Summary

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Fraser Valley

SUMMARY

BC Agriculture & Climate Change
Regional Adaptation Strategies series

While agricultural producers are accustomed to adapting to a range of conditions, climate change is anticipated to bring a new and more challenging scope and scale of change.

Adaptive approaches, decisions and practices will enhance the agriculture sector's resilience and capacity to manage through climate change impacts.

The *Fraser Valley Adaptation Strategies* planning process brought together agricultural producers and specialists, along with local and provincial government representatives in the Fraser Valley. 80 individuals took part in two planning workshops and a local advisory committee provided guidance and input throughout the process.

The resulting document is intended to outline clear actions, suited to the specifics of the local context, both with respect to anticipated changes in climate and local capacity and resources. The plan includes 12 strategies and 28 actions for agriculture to adapt to five priority impact areas: (1) warmer and drier summer conditions; (2) increasing precipitation and extreme precipitation events; (3) changing freshet flood risk; (4) changes to pests and pollinators; and (5) greater frequency and intensity of extreme heat events.

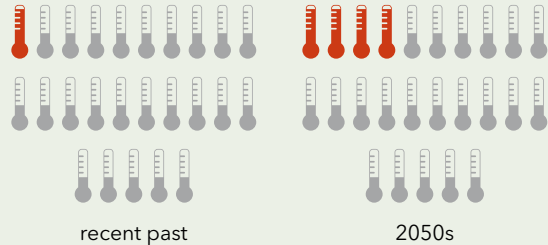
Agriculture in the Fraser Valley

- The Fraser Valley has one of the longest frost-free periods and some of the most fertile soils in Canada.
- 71,780 hectares of the Fraser Valley Regional District (FVRD) are included in the Agricultural Land Reserve (ALR) (2012).
- There are 2,700 farms in the FVRD with an average farm size of 23 hectares (2012).
- The FVRD is home to 60% of the province's dairy herd and 86% of its poultry hatcheries (2012).
- Other common production types include blueberries, field vegetables, field crops for feed and greenhouse and nursery operations.

Regional Climate Projections



- Annual average *temperature increase of 1°C by 2020s, and increase of 1.8°C by 2050s*
- *15 more frost-free days and 184 more growing degree-days annually by 2020s*
- *2.6 times the number of summer warm days by 2050s (days in June, July and August that are warmer than the 90th percentile historic baseline temperature for that day)*



- *3.8 times as many extremely hot days by the 2050s (days so hot they used to occur only once every 25 years)*
- *Annual precipitation increase of 4% by 2020s, and 7% by 2050s; 12% decrease in winter snowfall by 2020s*
- *1.6 times the number of extremely wet days by 2050s (days so wet that in the past they would only occur once every 10 years)*
- *Increased frequency, intensity and magnitude of extreme rainfall*

Agricultural Impacts



The changes in the climate projected for the Fraser Valley will have a range of impacts on the agriculture sector.

A sample of these impacts is provided here.
(A more extensive and detailed list is provided in the full report.)

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
<ul style="list-style-type: none"> ↗ Increase in average temperatures ↘ Decrease in summer precipitation ↗ Increase in number of warm and extremely hot days 	<p>Drier & hotter summers</p> <ul style="list-style-type: none"> ▪ Lower river flows in summer (earlier peak flows) 	<ul style="list-style-type: none"> ▪ Reduction in water supply availability combined with increase in irrigation demand ▪ Impacts to crop/livestock production ▪ Potential for better harvesting conditions
<ul style="list-style-type: none"> ↗ Increase in average precipitation in winter ↗ Increase in intensity/frequency of extreme rainfall events 	<p>Increasing precipitation and extreme precipitation events (wetter winters)</p> <ul style="list-style-type: none"> ▪ Potential for more rain-driven flood events ▪ Increase in excess moisture 	<ul style="list-style-type: none"> ▪ Increase in site-specific flood risk ▪ Erosion associated with runoff ▪ Increase in pressure on drainage infrastructure ▪ Increase in nutrient & input leaching
<ul style="list-style-type: none"> ↗ Warmer average temperatures ↗ Increase in winter precipitation ↗ Increase in extreme rainfall events 	<p>Changing freshet flood risk</p> <ul style="list-style-type: none"> ▪ Increasing river flows in winter & spring ▪ Shift to more rain-driven stream-flow ▪ Rising sea level 	<ul style="list-style-type: none"> ▪ Crop loss & infrastructure damage ▪ Relocation or loss of livestock ▪ Interruptions to supply lines ▪ Erosion & loss of arable land
<ul style="list-style-type: none"> ↗ Increase in annual temperatures (including winter temperatures) ↗ Increase in spring precipitation and extreme rain events 	<p>Changes in pests, diseases, invasive plants</p> <ul style="list-style-type: none"> ▪ Increasing winter survival rates ▪ Increasing number of cycles in a year ▪ Introduction of new pests & diseases 	<ul style="list-style-type: none"> ▪ Increase in management costs, complexity & uncertainty ▪ Crop damage & losses ▪ Negative effects on livestock health
<ul style="list-style-type: none"> ↗ Increase in extreme weather events 	<p>Increase in warm and extremely hot days:</p> <ul style="list-style-type: none"> ▪ Sudden temperature increases ▪ Increasing number of consecutive warm and hot days 	<ul style="list-style-type: none"> ▪ Decrease in productivity & quality of crops ▪ Impacts to livestock health & productivity ▪ Increase in irrigation demand ▪ Reduction of windows for key agricultural activities

Next Steps: Strategies + Priority Actions

12 strategies and 28 actions were identified to support the Fraser Valley agriculture sector with adapting to climate change. Of the total 28 actions, *13 were seen to be priority actions* for immediate implementation, and are shown here. (*The complete list is provided in the full report.*)

IMPACT AREA 1

Warmer & drier summer conditions

STRATEGY 1.1 Address critical information gaps to assist producers with water management decisions

ACTION 1.1A *Bring producers and key partners together for informational exchange regarding the Water Sustainability Act*

STRATEGY 1.2 Strengthen knowledge transfer of water management tools, technologies & resources

ACTION 1.2A *Promote the use of (BC-specific) water management tools & resources*

ACTION 1.2C *Demonstrate/evaluate potential of agricultural water management innovations not commonly used in the Fraser Valley*

IMPACT AREA 2

Increasing precipitation & extreme precipitation events

STRATEGY 2.1 Develop a coordinated cross-agency approach to agricultural ditch and drainage management

ACTION 2.1A *Assess the current state of agricultural ditches & drainage across the FVRD*

ACTION 2.1B *Develop options to improve coordination of ditch & drainage management*

STRATEGY 2.2 Identify, pilot & evaluate mechanisms to reduce runoff onto & off agricultural lands

STRATEGY 2.3 Develop adaptive & coordinated nutrient management strategies for the region

IMPACT AREA 3

Changing freshet flood risk

STRATEGY 3.1 Increase awareness of flood risk & potential impacts to agriculture

ACTION 3.1A *Evaluate the potential impacts & costs to agriculture associated with freshet flooding*

STRATEGY 3.2 Coordinate sector, commodity & individual producer flood risk responses & planning

ACTION 3.2B *Pilot commodity-level flooding preparedness, mitigation & recovery planning*

ACTION 3.2C *Refine & deliver planning for individual producer flooding preparedness/mitigation & recovery*

IMPACT AREA 4

Changes to pests* & pollinators

**Pests refers to insects, weeds, diseases and invasive species with potential to negatively impact agricultural production*

STRATEGY 4.1 Pilot a cooperative pest surveillance program for priority risks

ACTION 4.1A Conduct an assessment of immediate & near-term pest threats to the sector

ACTION 4.1B Develop partnerships and mechanisms for coordinated, regional & cross-commodity monitoring

STRATEGY 4.2 Increase research & information transfer regarding pest lifecycles, identification & management

ACTION 4.2B Provide effective informational materials for producers for pest identification, management & control options (particularly for emerging pests)

STRATEGY 4.3 Evaluate the impacts of weather conditions & management practices on pollinators & pollinator/crop interactions

IMPACT AREA 5

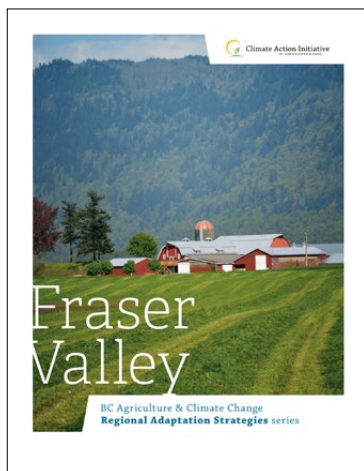
Greater frequency & intensity of extreme heat events

STRATEGY 5.1 Identify suitable approaches for minimizing impacts of extreme heat to product quality/health

ACTION 5.1A Identify suitable approaches for minimizing impacts of extreme heat to product quality/health

ACTION 5.1B Develop commodity-specific informational materials to support adoption of new technologies & practices

STRATEGY 5.2 Evaluate opportunities for addressing labour supply during periods of peak demand



download the full report at

www.BCAGClimateAction.ca



Climate Action Initiative
BC AGRICULTURE & FOOD

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