



# Cowichan

## 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 *Cowichan Adaptation Strategies* planning process brought together agricultural producers and specialists, along with local and provincial government representatives in the Cowichan Valley. Approximately 45 participants took part over the course of two workshops. 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 24 actions for agriculture to adapt to three priority impact areas: (1) increasing precipitation in fall, winter & spring; (2) changing hydrology, warmer & drier summer conditions; and (3) increasing variability & extremes, locally & globally.

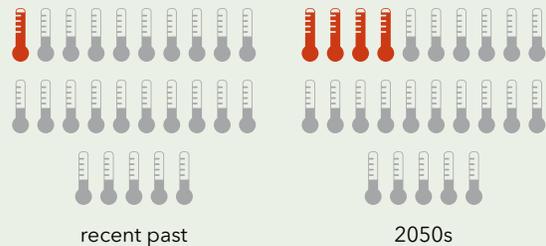
### *Agriculture in the Cowichan Valley*

- The region is 3,473 square km, with agricultural land concentrated in the east.
- Roughly 33,200 hectares of the region's land base is capable of agricultural production, of which 10,837 hectares are in production across 685 farms (2010/2011).
- Water scarcity is the primary limiting factor, with only about 2,465 irrigated hectares (2010).
- 40% of Cowichan farms are less than 4 hectares, and another 46% are between 4 and 28 hectares.
- Agricultural land use is very diverse, including forage (most common), dairy, poultry, wine grapes, berries, vegetables and many mixed farms.

# Regional Climate Projections



- Annual average *temperature increase of 1°C by 2020s, and increase of 1.6°C by 2050s*
- *10 more frost-free days and 232 more growing degree-days annually by 2020s*
- *Annual precipitation increase of 3% by 2020s, and 6% by 2050s*
- *Summer precipitation decrease by 8% by 2020s, and decrease by 18% by 2050s*
- *Winter precipitation increase of 2% by 2020s, and 24% decrease in amount falling as snow*



- *4 times as many extremely hot days by the 2050s (days so hot they used to occur only once every 25 years)*
- *Increased frequency, intensity and magnitude of extreme rainfall*
- *Sea level rise of a minimum of 0.8 metres above mean sea level by 2100*

# Agricultural Impacts



The changes in the climate projected for the Cowichan 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"> <li>↗ Increase in seasonal precipitation (fall, winter, spring)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increase in excessive moisture on fields</li> <li>▪ Increase in site-specific flood risk</li> <li>▪ Increase in potential volume of water</li> </ul>	<ul style="list-style-type: none"> <li>▪ Disrupted planting, fertilization, harvesting</li> <li>▪ Reduced productivity &amp; quality</li> <li>▪ Pressure on drainage infrastructure &amp; water management</li> </ul>
<ul style="list-style-type: none"> <li>↗ Increase in annual seasonal temperature</li> <li>↘ Decrease in summer precipitation</li> <li>↗ Increase in summer warm &amp; extreme hot days</li> </ul>	<p><b>Changing hydrology</b></p> <ul style="list-style-type: none"> <li>▪ Warmer &amp; drier summer conditions</li> </ul> <p><b>Shifting streamflow patterns</b></p> <ul style="list-style-type: none"> <li>▪ Earlier peak flows, lower flows in summer</li> </ul>	<ul style="list-style-type: none"> <li>▪ Decrease in summer/fall water supply</li> <li>▪ Increase in need for water storage, irrigation</li> <li>▪ Decrease in forage &amp; hay production (increased feed costs, decreased herd sizes)</li> </ul>
<ul style="list-style-type: none"> <li>↗ Increase in extreme weather events</li> </ul>	<p><b>Increase in intensity &amp; frequency of extreme conditions</b></p>	<ul style="list-style-type: none"> <li>▪ Infrastructure damage – farm &amp; regional</li> <li>▪ Power supply interruptions</li> <li>▪ Interruptions in input supplies &amp; increased feed costs</li> </ul>
<ul style="list-style-type: none"> <li>~ Climate change in other growing regions</li> </ul>	<p><b>Variability of global agricultural production</b></p>	<ul style="list-style-type: none"> <li>▪ Increase in feed or other input costs</li> <li>▪ Increase in demand &amp; prices for food production / local food</li> <li>▪ Competitive advantage in changing global markets</li> </ul>

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# Next Steps: Strategies + Priority Actions

*12 strategies and 24 actions* were identified to support the Cowichan region agriculture sector with adapting to climate change. Of the total 24 actions, *9 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**

### *Increasing precipitation in fall, winter & spring*

STRATEGY 1.1 Develop collaborative stormwater and drainage management for agricultural land

***ACTION 1.1A Develop approach and priorities for collaborative stormwater management planning***

STRATEGY 1.2 Increase demonstration, technical information & incentives for managing stormwater

STRATEGY 1.3 Pilot an integrated "Farm Water Plan" process

***ACTION 1.3A Develop and deliver "Farm Water Plan" pilot project***

## **IMPACT AREA 2**

### *Changing hydrology; warmer & drier summer conditions*

STRATEGY 2.1 Identify and fill information gaps regarding Cowichan region water resources

***ACTION 2.1A Conduct analysis of aquifers, prioritizing those vulnerable to climate change impacts and of highest importance for agricultural use***

STRATEGY 2.2 Increase awareness of water management and agricultural water priorities

STRATEGY 2.3 Strengthen linkages between agriculture, climate change impacts, and water planning and management

***ACTION 2.3A Integrate climate change impacts, water and agriculture into regional planning***

STRATEGY 2.4 Expand capacity for water storage and irrigation in the Cowichan region

***ACTION 2.4A Evaluate feasibility of agricultural water storage and irrigation infrastructure options***

STRATEGY 2.5 Maximize agricultural water use conservation and efficiency

continued on next page →

## IMPACT AREA 3

### *Increasing variability & extreme events*

STRATEGY 3.1 Increase availability of regional agricultural extension services

**ACTION 3.1A** *Conduct a scan and evaluation of options for funding agricultural extension*

STRATEGY 3.2 Conduct adaptation-focused agricultural research and demonstration

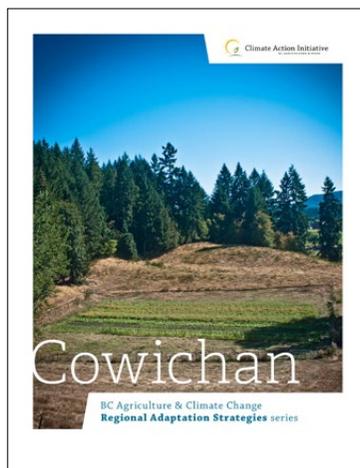
**ACTION 3.2A** *Identify research priorities and develop plan for conducting research, pilots and demonstration*

STRATEGY 3.3 Support planning and preparedness to reduce vulnerability to extreme events (e.g., fire, flood, wind, extreme heat)

**ACTION 3.3B** *Develop support tools for sector and farm emergency preparedness*

STRATEGY 3.4 Increase flexibility and diversity of agricultural processing, storage & markets

**ACTION 3.4A** *Identify barriers and opportunities for increasing local processing and storage of Cowichan agricultural products*



*download the full report at*

[www.BCAGClimateAction.ca](http://www.BCAGClimateAction.ca)



## Climate Action Initiative

BC AGRICULTURE & FOOD

*This summary is published March 2015 by the British Columbia Agriculture & Food Climate Action Initiative, featuring photos by Evan Leeson & Gerry Thomasen. ✉ The project contact is Emily MacNair, [Emily@BCAGClimateAction.ca](mailto:Emily@BCAGClimateAction.ca).*

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*The Regional Adaptation Enhancement Program is part of the BC Ministry of Agriculture's ongoing commitment to climate change adaptation in the agriculture sector while enhancing sustainability, growth, and competitiveness. Funding for the BC Agriculture & Food Climate Action Initiative is provided by the governments of Canada and British Columbia through Growing Forward 2, a federal-provincial-territorial initiative. Opinions expressed in this publication are not necessarily those of Agriculture and Agri-Food Canada, the BC Ministry of Agriculture or the BC Agriculture Council.*

