



Okanagan

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 *Okanagan Adaptation Strategies* planning process brought together agricultural producers and specialists, along with local and provincial government representatives in the Okanagan. Approximately 117 participants took part in 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 14 strategies and 27 actions for agriculture to adapt to four priority impact areas: (1) warmer and drier summer conditions; (2) changes to pest populations (insects, diseases, weeds and invasive species); (3) increase in extreme precipitation events; and (4) increasing wildfire risk.

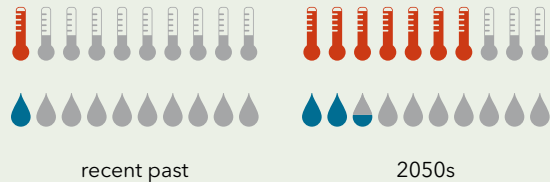
Agriculture in the Okanagan region

- The Okanagan region has a semi-arid climate, with the lowest average annual precipitation in southern Canada, a warm growing season, and relatively mild winters and springs.
- There are 3,693 farms in the region, and 176,692 hectares of land included in the Agricultural Land Reserve (2014).
- 90% of BC's apples, 89% of BC's grapes and 85% of BC's cherries are grown in the south-central Okanagan.
- The north Okanagan has a well-established dairy industry, and a growing poultry sector. Field crops, particularly alfalfa, barley and fodder crops, are predominant in the north Okanagan.
- 39% of the province's certified organic farms are located across the three regional districts.

Regional Climate Projections



- Annual average *temperature increase of 1.4°C* by 2020s, and increase of 2.4°C by 2050s
- *21 more frost-free days* and *249 more growing degree-days* annually by 2020s
- Annual precipitation increase of 1.2% and summer precipitation decrease of 8% by 2020s
- Winter precipitation increase of 6% by 2020s, and 9% decrease in the amount falling as snow



- *6.8 times as many extremely hot days* by the 2050s (days so hot that in the past they would only occur once every 10 years)
- *2.4 times as many extremely wet days* by the 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 Okanagan 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>Warmer & drier summers</p> <ul style="list-style-type: none"> ▪ More frequent and extended dry periods in summer ▪ Lower summer stream flow levels 	<ul style="list-style-type: none"> ▪ Reduction in water supply availability ▪ Impacts to crop/livestock production ▪ Increase in irrigation demand and costs associated with water
<ul style="list-style-type: none"> ↗ Increase in precipitation in winter ↗ Increase in frequency, intensity and magnitude of extreme rainfall 	<p>Extreme precipitation events</p> <ul style="list-style-type: none"> ▪ Increase in runoff ▪ Potential for more rain-driven flood events ▪ Increase in excess moisture 	<ul style="list-style-type: none"> ▪ Increase in risk of soil erosion and landslides ▪ Increase in site-specific flood risk and drainage issues ▪ Damage to riparian areas and to infrastructure ▪ Negative impact on crop productivity and quality
<ul style="list-style-type: none"> ↗ Increase in annual (and winter minimum) temperatures ~ Shifting precipitation patterns ↗ Drier summer conditions 	<p>Changes in pests, diseases, invasive species</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 average seasonal temperatures ↗ Increase in extreme weather events 	<p>Increase in extreme heat events</p> <ul style="list-style-type: none"> ▪ Increasing number (and frequency) of consecutive warm and hot days 	<ul style="list-style-type: none"> ▪ Decrease in productivity & quality of some crops ▪ Increase in irrigation demand ▪ Impacts to livestock health & productivity
<ul style="list-style-type: none"> ↗ Increase in average temperatures and extreme heat events ↘ Decrease in summer precipitation 	<p>Increase in wildfire risk</p> <ul style="list-style-type: none"> ▪ More frequent and intensive wildfire events 	<ul style="list-style-type: none"> ▪ Damage to assets and agricultural infrastructure ▪ Decrease in crop quality (e.g., due to smoke) ▪ Impacts on livestock health ▪ Costs of preparing for, managing and responding to wildfire

Next Steps: Strategies + Priority Actions

14 strategies and 27 actions were identified to support the Okanagan agriculture sector with adapting to climate change. Of the total 27 actions, *11 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 Support the agriculture sector's participation in drought planning

ACTION 1.1A *Consult with the agricultural sector to determine cross-sector objectives for drought planning*

ACTION 1.1B *Develop a framework for (consistent and structured) engagement of agricultural water users in local drought planning processes*

STRATEGY 1.2 Develop and implement agriculture-specific drought outreach

ACTION 1.2A *Create a consistent (and data driven) system for disseminating source-specific water supply information*

STRATEGY 1.3 Provide knowledge & technology transfer for agricultural water management

ACTION 1.3B *Support a range of knowledge transfer resources to provide information about existing water management best practices*

IMPACT AREA 2

Changes in pest populations

STRATEGY 2.2 Improve linkages between climate change projections and weather and pest monitoring data

ACTION 2.2A *Develop resources to link weather and pest/disease data with decision support tools (e.g., pest phenology predictions, disease pressure tools)*

STRATEGY 2.3 Strengthen partnerships and knowledge transfer for management of invasive species

ACTION 2.3A *Enhance knowledge transfer for monitoring and management of agriculturally significant invasive species*

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IMPACT AREA 3

Increase in extreme precipitation events

STRATEGY 3.1 Improve processes and supports for individual producers to implement runoff and erosion management and riparian rehabilitation activities AND

STRATEGY 3.2 Strengthen **cooperative** runoff/erosion management and riparian restoration on individual watercourses

ACTION 3.1A & 3.2B Assess existing and alternative processes (policy, programmatic and financial tools) to support implementation of runoff/erosion management and riparian rehabilitation AND

Facilitate dialogue between producer groups and key agencies to determine preferred options to improve processes/supports

IMPACT AREA 4

Increasing wildfire risk

STRATEGY 4.1 Support cooperative approaches to fuel management activities

ACTION 4.1B Support implementation of priority (selected) fuel management activities

STRATEGY 4.2 Support individual operations with planning for wildfire preparedness and mitigation

ACTION 4.2A Pilot wildfire preparedness and mitigation planning tools for individual operations

ACTION 4.2B Undertake knowledge transfer and training to support individual operation preparedness/mitigation



download the full report at

www.BCAGClimateAction.ca



Climate Action Initiative

BC AGRICULTURE & FOOD

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