



CLIMATE CHANGE ADAPTATION PROGRAM

Regional Adaptation Strategies Summary: Peace

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Peace Region 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 *Peace Adaptation Strategies* planning process brought together agricultural producers and specialists, along with local and provincial government representatives in the Peace. Approximately 53 participants took part over the course of four 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 four priority impact areas: (1) increasing dry and drought conditions; (2) increasing precipitation and changing precipitation patterns; (3) increasing variability and extremes; and (4) increasing temperatures, Growing Degree Days and growing season length.

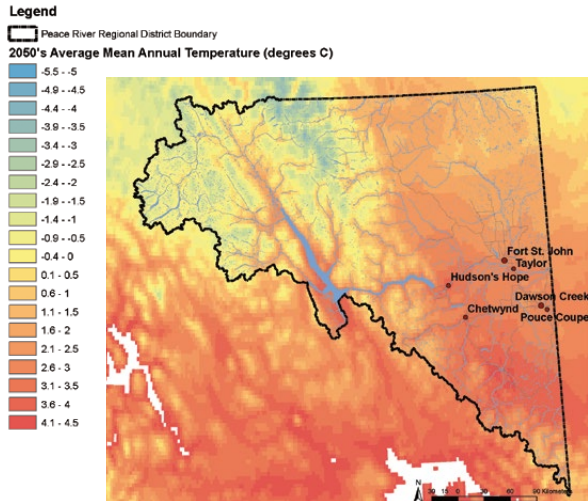
Agriculture in the Peace Region

- The district is the largest in BC (119,000 square km), with diverse topography featuring mountains in the south and west, and most agricultural land in the relatively flat northeast area.
- 831,000 hectares (approximately 7% of the region) are actively farmed (2012).
- There are 1,560 farms in the region (2010), making up approximately 32% of the farmland in BC.
- The primary agricultural commodities in the region are grains, oilseeds, forage seed, cattle and forage — producing up to 90% of BC's grain and 95% of its canola.

Regional Climate Projections



- Annual average *temperature increase of 1°C by 2020s, and increase of 1.8°C by 2050s*
- *9 more frost-free days and 134 more growing degree-days annually by 2020s*
- *Annual precipitation increase of 5% by 2020s, and increase of 8% by the 2050s*
- *Spring snowfall decrease of 5% by 2020s, and decrease of 55% by the 2050s*
- *Increase in extremely hot days and longer dry periods in the summer*
- *Increased intensity and magnitude of extreme rainfall events*



Agricultural Impacts



The changes in the climate projected for the Peace region 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 precipitation falling as snow 	<p>Changing hydrology</p> <ul style="list-style-type: none"> ▪ Earlier river/stream peak flows (lower summer flows) ▪ Increase in frequency & severity of dry periods 	<ul style="list-style-type: none"> ▪ Increase in plant stress, pests ▪ Decrease in productivity ▪ Crop losses & lower pasture carrying capacity ▪ Increased need for water storage & irrigation
<ul style="list-style-type: none"> ↗ Increase in annual precipitation ↗ Increase in precipitation falling as rain (winter, spring, fall) ↗ Increase in extreme precipitation events 	<p>Changing hydrology</p> <ul style="list-style-type: none"> ▪ Increase in runoff ▪ Increase in site specific flood risk (flash flood) 	<ul style="list-style-type: none"> ▪ Waterlogged soils, soil erosion, localized flooding ▪ Delayed planting and/or harvesting ▪ Crop damage/quality impacts ▪ Improved germination/emergence
<ul style="list-style-type: none"> ↗ Overall increase in extreme weather events ↗ Increase in precipitation in fall & spring ↗ Increase in frequency/severity of drought 	<p>Increase in variability & extremes</p>	<ul style="list-style-type: none"> ▪ Increase in management complexity ▪ Acceleration of cumulative impacts ▪ Requirement for more rapid adaptations (challenge to current production systems)
<ul style="list-style-type: none"> ↗ Increase in annual temperature ↗ Increase in growing degree-days/heat units ↗ Increase in frost-free period 	<p>Increase in growing season length</p>	<ul style="list-style-type: none"> ▪ Increase in uncertainty (shoulder season variability/extremes) ▪ Increase in suitability for new crops and/or new varieties ▪ Increase in yields & quality
<ul style="list-style-type: none"> ↗ Increase in annual temperature, including winter temperatures 	<p>Changes to pests & diseases</p> <ul style="list-style-type: none"> ▪ Increase in winter survival rates ▪ Increase in 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

Next Steps: Strategies + Priority Actions

12 strategies and 24 actions were identified to support the Peace region agriculture sector with adapting to climate change. Of the total 24 actions, *10 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 dry & drought conditions

STRATEGY 1.1 Establish a Regional Water Collaborative

ACTION 1.1A *Develop and establish a Peace Regional Water Collaborative*

STRATEGY 1.2 Evaluate, map & monitor water resources

ACTION 1.2A *Undertake agricultural water demand modeling*

ACTION 1.2B *Evaluate priority areas for water storage and/or irrigation infrastructure development*

STRATEGY 1.3 Enhance development of on-farm/ranch water storage

ACTION 1.3B *Enhance partnerships and funding to support agricultural water storage development*

STRATEGY 1.4 Evaluate potential for additional water supply infrastructure for agriculture

STRATEGY 1.5 Undertake drought resilience planning

ACTION 1.5A *Coordinate cross-commodity drought resilience planning and resource development*

IMPACT AREA 2

Increasing precipitation & changing precipitation patterns

STRATEGY 2.1 Develop collaborative approaches for runoff management across the land base

ACTION 2.1A *Strengthen collaboration for runoff management between government agencies, industry and agricultural producers*

STRATEGY 2.2 Improve available resources for on-farm runoff management

ACTION 2.2A *Pilot, evaluate and demonstrate practices for runoff, drainage and erosion management*

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IMPACT AREA 3

Increased variability & extremes

STRATEGY 3.1 Increase climate & weather data monitoring & analysis

ACTION 3.1A *Evaluate options for improving weather data collection and analysis (costs, timelines, long-term sustainability etc.)*

STRATEGY 3.2 Conduct adaptation-focused agricultural research and demonstration

IMPACT AREA 4

Increasing temperatures, growing degree days & growing season length

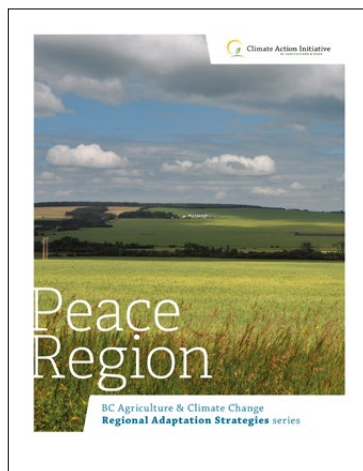
STRATEGY 4.1 Strengthen collaboration to facilitate pest, disease, weed & invasive species monitoring and research in the BC Peace

ACTION 4.1A *Convene key partners to determine the best approach for sustainable monitoring of pests, diseases, weeds and invasive species*

STRATEGY 4.2 Implement regional data collection for pests, diseases and weeds

ACTION 4.2A *Implement monitoring to collect critical data regarding pests, diseases, weeds and invasive species*

STRATEGY 4.3 Conduct trials for future climate-suitable crops & varieties



download the full report at

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 Mariska Richters & Flickr's tuchodi. ✉ The project contact is Emily MacNair, Emily@BCAgClimateAction.ca.

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