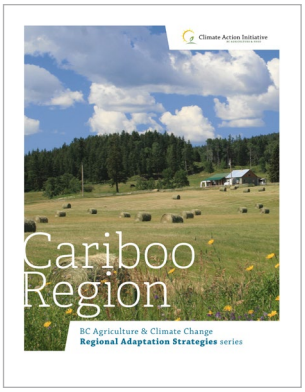
Climate & Agriculture Initiative BC

Cariboo

Regional Adaptation Program | **AGRICULTURAL IMPACTS** | as assessed in 2014



The changes in climate projected for the Cariboo region will have a range of impacts on agricultural production. Potential agricultural impacts are summarized the table below.

This table is extracted from the *Cariboo Adaptation Strategies* full report, published in 2014 by the Climate & Agriculture Initiative BC. To read the full report, visit: *www.ClimateAgricultureBC.ca*

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
↗ Increasing summer temperatures ↘ Decreasing summer precipitation	***Increasing wildfire risk***	– Increase in severity and frequency of damages to agricultural infrastructure and productivity – Costs of preparing for, managing, and responding to wildfire – Psychological impacts – Increase in agriculture/wildlife encounters due to wildlife displacement – Smoke and ash negatively affecting livestock/crop health and productivity – Long-term impacts to soil and hydrology after moderate–high severity burns
↘ Decreasing summer precipitation ↘ Decreasing snowpack (especially in spring)	***Changing hydrological regime:*** ▪ Decreasing summer & fall water supply ▪ Decreasing runoff (especially in summer) ▪ More frequent drought conditions	– Decrease in quality and amount of water supply for livestock and irrigation – Water stress and decreased productivity for crops and rangeland – Increase in need for water storage and irrigation (and associated costs) – Increase in potential for overgrazing – Increase in feed costs in dry years (when lack of forage)

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Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
↗ Increasing winter temperatures ↗ Increasing extreme rainfall events ~ Shifting precipitation patterns	***Changing hydrological regime:*** ▪ More frequent rain on snow events ▪ Increasing flooding and runoff	– Increase in damage to infrastructure and productivity – Increase in soil erosion – Risks to dam integrity – Increase in challenges with input and nutrient management – Challenges with timing for planting and harvesting
↗ Increasing variability of conditions and extremes	***Increasing variability of conditions***	– Interruption or damage during planting, germination and harvesting – Overall increase in management complexity and costs – Acceleration of cumulative impacts – Negative affects to livestock health/immune systems – Increase in hazardous winter conditions for livestock (freeze/thaw cycles etc.) – Uncertainty in length of grazing and/or feeding periods
↗ Increasing temperatures	***Increasing growing degree days/heat units***	– Impacts to agricultural viability in some areas – Decreased suitability of some crops ***Potential opportunities:*** + Increase in suitability for new varieties + Increase in suitability of new crops + Opportunity for season extension and additional cropping
↗ Increasing winter temperature and seasonal temperatures ↗ Increasing spring precipitation and extreme rain events ↗ Drier summer conditions	***Changing pests, diseases, invasive species & pollinators:*** ▪ Increasing winter survival rates ▪ Increasing number of cycles in a year ▪ Introduction of new pests and diseases	– Increase in crop damage and losses – Increase in management costs, complexity, uncertainty – Negative effects on livestock health – Reduction in pollinator populations or shifts in pollination timing
~ Climate change in other growing regions	***Variability of global agricultural production***	– Increase in feed or other input costs – Fluctuation in input prices will cause more challenges to planning ***Potential opportunities:*** + Increase in demand and prices for food production/local food + Potential competitive advantage in changing global markets + Increase in farming diversity in the region (filling gaps in market)
↗ Increasing temperatures ~ Shifting precipitation patterns ↗ Increasing wildfire frequency and severity	***Changes to wildlife & ecological systems***	– Changing patterns of plant succession and species composition due to extremes, fire events etc. – Loss of crops, livestock, forage and stored feed (and associated costs) – Establishment of new invasive plants