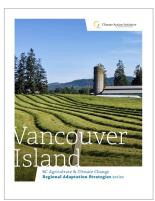


Vancouver Island

Regional Adaptation Program | AGRICULTURAL IMPACTS | as assessed in 2020



THE CHANGES IN CLIMATE projected for the Vancouver Island region will have a range of impacts on agricultural production. Potential agricultural impacts are summarized the table below.

This table is extracted from the *Vancouver Island Adaptation Strategies* full report, published in 2020 by the Climate & Agriculture Initiative BC. To read the full report, visit: www.ClimateAgricultureBC.ca

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
 Increase in average temperatures Increase in summer average and maximum temperatures Increase in number of days above 25°C and 30°C Decrease in summer precipitation 	Warmer & drier summers (changing hydrological regime): Lower summer stream flows More frequent and extended dry periods in summer	 Increase in agricultural water demand Negative impacts to water quality (e.g., algal blooms) Reduction in water supply availability and increase in likelihood of temporarily losing access to water Increase in need for new/improved water storage and irrigation infrastructure Negative impacts to crop yields and quality (particularly non-irrigated crops)
 Increase in annual average and minimum temperatures Increase in seasonal (winter, fall, spring) precipitation Drier summer conditions 	Changes in pests, diseases & invasive plants: Increasing number of cycles in a year Introduction of new pests and diseases Changing range/distribution of pests, diseases and invasive species	 More frequent and increased damage to crops Inability to rely on previous pest management schedules and practices Increase in management costs and complexity

continued on next page →

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
 Increase in variability of conditions (including temperatures, precipitation and extremes) Increase in extreme events (precipitation, heat, wind) 	Increasing variability: Fluctuating and unpredictable seasonal conditions (temperature/moisture) Increased uncertainty over frost timing (spring/fall)	 Loss of perennial crops to winterkill in cold/dry winters Damage to crops from extreme temperature fluctuations in late winter and early spring (e.g., negative impacts to blossom set) Shifting/unpredictable schedule for farm activities (seeding, germination, harvesting, etc.) Increase in costs to adopt new farm practices/install infrastructure to mitigate risk Changes to pollinator behavior and in extreme cases, pollinator die-off Damage to infrastructure and disruption to supply chains from severe winter storms
↗ Increase in average and maximum summer temperatures	Increase in extreme heat events: • Increasing number of days over 25°C and 30°C	 Increase in evapotranspiration and crop water demand Risk of crop damage and loss (e.g., fruit scald and leaf burn) Negative impact to crop productivity and crop quality Impacts to livestock health and productivity Shifting timing of animal husbandry
 Warmer winter and spring temperatures Increase in winter, spring and fall precipitation Increase in frequency and intensity of extreme precipitation events 	Increase in extreme precipitation (changing hydrological regime): Potential for more rain-driven flood events Increase in excess moisture Increase in run off Increasing flows in major rivers in winter and spring (and in some cases autumn)	 Increase in site-specific flooding (and associated crop/infrastructure losses) Increase in risk of soil erosion (particularly on stream or river banks) and landslides Decrease in access to fields and risk of soil compaction Increase in pressure on flood-protection infrastructure and on-farm water storage infrastructure Increase in pressure on farm drainage systems (exacerbated by run off from upland development, forestry)
 ✓ Increase in summer temperatures, reduction in summer rainfall and periods of extreme heat (longer, warmer and drier summers) ✓ Increase in winter and spring temperatures (less snow accumulation, more rapid snowmelt, drier conditions) 	Increasing wildfire risk: • More frequent and intensive wildfire events	 Negative impacts to animal and crop health and productivity/ yield from smoke Disrupted access to local services/supply chains/transportation networks Damage and losses to agricultural assets and infrastructure (including loss of power for irrigation pumps) Increase in costs associated with preparing for, managing and responding to wildfire Lost production during active wildfire and recovery period

continued on next page \rightarrow

Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
 Increase in average temperatures Increase in growing degree days Increase in frost free days Increase in winter minimum temperatures Shift in precipitation patterns 	 Changing crop suitability ranges: Changing seasonal conditions Changing production windows 	 Increase in risk and costs to take advantage of opportunities Inconsistent yield and quality of previously suitable crops Difficulty in identifying suitable crops for changing conditions Potential Opportunities: Increase in suitability for new varieties and new crops Season extension and additional harvest of certain crops
 Increase in annual average temperatures Increase seasonal (winter, fall spring) precipitation and extreme precipitation events Sea-level rise 	 Increasing coastal flood risk: Potential sea level rise of 26-98 cm above mean sea level 	 Increase in salinity of water table and soil Migration of salt wedge upstream Increase in risk of coastal inundation