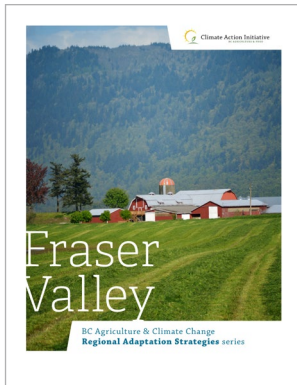


Fraser Valley

Regional Adaptation Program | **AGRICULTURAL IMPACTS** | as assessed in 2015



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

This table is extracted from the *Fraser Valley Adaptation Strategies* full report, published in 2015 by the Climate & Agriculture Initiative BC. To read the full report, visit: www.ClimateAgricultureBC.ca

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>Drier & hotter summers:</p> <ul style="list-style-type: none"> ▪ More frequent and extended dry periods in summer ▪ Lower river flows in summer (earlier peak flows) 	<ul style="list-style-type: none"> – Reduction in water supply availability – Increase in irrigation demand – Impacts to crop yields and quality – potential for multi-year impacts to perennial crops – Impacts to livestock health/productivity – Increase in complexity and costs associated with water (e.g., access to water, water storage, irrigation management) <p>Potential opportunities:</p> <ul style="list-style-type: none"> + Better harvesting conditions
<ul style="list-style-type: none"> ↗ Increase in average precipitation in winter ↗ Increase in intensity/frequency of extreme rainfall events 	<p>Increasing precipitation & extreme precipitation events (wetter winters):</p> <ul style="list-style-type: none"> ▪ Potential for more rain-driven flood events ▪ Increase in runoff ▪ Increase in excess moisture 	<ul style="list-style-type: none"> – Increase in excessive moisture and site-specific flood risk – Erosion associated with runoff – Increase in pressure on drainage infrastructure – Impacts to plant and animal health and productivity – Reduced windows for seasonal tasks – Interruptions to pollination – Increase in nutrient and input leaching – Increase in manure storage requirements

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Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
<ul style="list-style-type: none"> ↗ Warmer average temperatures ↗ Increase in winter precipitation ↗ Increase in extreme rainfall events 	<p>Changing freshet flood risk:</p> <ul style="list-style-type: none"> ▪ Increasing river flows in winter and spring ▪ Shift to more rain-driven stream-flow (less predictable) ▪ Increasing rain on snow events ▪ Rising sea level 	<ul style="list-style-type: none"> – Damage to farm buildings and equipment – Losses associated with annual and perennial crops – Need for relocation and/or losses of livestock – Erosion associated with runoff (and loss of arable land) – Interruptions to supply lines and transportation (e.g., flooded roads) – Impacts to stored hazardous materials and manure storage
<ul style="list-style-type: none"> ↗ Increase in average temperatures ↗ Increase in growing degree days ↗ Increase in frost free days ~ Shift in precipitation patterns 	<p>Changing crop suitability ranges:</p> <ul style="list-style-type: none"> ▪ Changing seasonal conditions ▪ Changing production windows 	<ul style="list-style-type: none"> – Inconsistent yield and quality of previously suitable crops – Shortened and/or less predictable production windows for some crops – Increase in management complexity (e.g., with season extension) – Potential opportunities: – Increase in suitability for new varieties and new crops – Opportunity for season extension and additional cropping
<ul style="list-style-type: none"> ↗ Increase in annual temperatures ↗ Increase in spring precipitation and extreme rain events ↗ Drier summer conditions 	<p>Changes in pests, diseases & invasive plants:</p> <ul style="list-style-type: none"> ▪ Increasing winter survival rates ▪ Increasing number of cycles in a year ▪ Introduction of new pests and diseases 	<ul style="list-style-type: none"> – More frequent and increased damage to crops – Impacts to livestock health due to pests/diseases – Increasing challenges with management of invasive species on agricultural lands – Increase in costs for management of pests, diseases, invasive species
<ul style="list-style-type: none"> ↗ Increase in extreme weather events 	<p>Increase in warm & extremely hot days:</p> <ul style="list-style-type: none"> ▪ Sudden temperature increases ▪ Increasing number of consecutive warm and hot days 	<ul style="list-style-type: none"> – Decrease in productivity and quality of horticultural crops – Decrease in germination and transplant success – Impacts to livestock health and productivity (extreme heat) – Increase in cooling and ventilation costs – Increase in irrigation demand – Reduction of windows for key agricultural activities
<ul style="list-style-type: none"> ~ Climate change in other growing regions 	<p>Variability of global agricultural production</p>	<ul style="list-style-type: none"> – Increase in costs of imported feed and agricultural inputs – Increase in demand and prices for food production/local food – Potential for increased competition from new or changing agricultural areas <p>Potential opportunities:</p> <ul style="list-style-type: none"> + Increase in demand and prices for food production/local food + Potential competitive advantage in changing global markets + Increase in farming diversity in the region

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Projected Climate Changes	Projected Effects	Potential Agricultural Impacts
↗ Increase in variability of conditions	Increasing variability: <ul style="list-style-type: none">▪ Fluctuating and unpredictable seasonal conditions	<ul style="list-style-type: none">– Winter damage to perennials due to repeated thaw and freeze cycles– Variable/reduced windows for pollination– Increase in diseases that are linked to damp conditions– Increase in complexity of timing and management of nutrient/ input applications– Interruption or damage during planting, germination and harvesting