

CHANGING CLIMATE, CHANGING WEATHER

MAJOR TRENDS AND IMPACTS ON AGRICULTURE IN

GREY, BRUCE AND HURON COUNTIES



Climate in the region has changed in a number of ways in the past decades.



Future projections indicate the continuation and amplification of existing trends.

1981-2010

(relative to 1961-1990 baseline)

Mean temperature has increased by **0.6°C**, with greatest increases in fall and winter

Annual number of **very hot days (>30°C)** has **increased by 3 days**

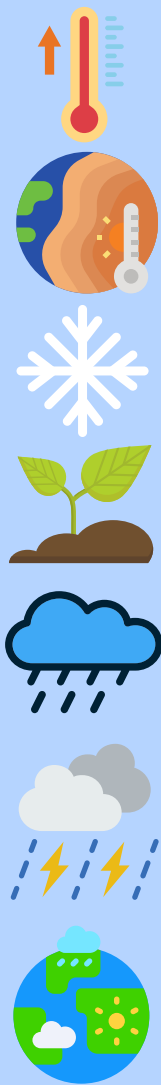
Annual number of **frost days** has **decreased by 7**

Growing season length has **increased by over 5 days**

Total precipitation has **increased by over 5%**

Heavy precipitation events have become **more frequent**, especially in spring and summer

Greater variability in precipitation patterns, lake levels and winter temperatures has been observed



2050s

(relative to 1981-2010 baseline)

Further **increases** are expected, reaching **3.5°C** by mid-century

The number is projected to **increase by up to 20 days** by 2050

A further **decline of 70 days** is projected

Different emissions scenarios project a further **increase of 4 to 9 weeks**

Increases of 7% are expected to occur by mid-century

Projections indicate they will **become twice as frequent** by 2050

More frequent heavy rainfall events, prolonged dry spells in summer and **increased** variability of winter temperatures are projected



Climate change could bring new opportunities to agriculture in the region such as longer growing and grazing seasons, increased yields and potential to grow new crop species.



It could also put pressure on agricultural ecosystems, damaging crops and infrastructure, resulting in increased production costs, soil and water quality degradation.

Field crops

- ✓ Increased diversity of crop species and varieties grown
- ✓ Increased productivity
- ✓ Longer growing season
- ⚠ Delay in plant development
- ⚠ Plant damage
- ⚠ Reduced pollen viability
- ⚠ Increased susceptibility to diseases
- ⚠ Reduced yield
- ⚠ Compromised fall hardening, increased sensitivity to cold temperatures



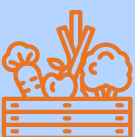
Livestock

- ✓ Reduced heating demands in winter
- ✓ Longer grazing season
- ✓ Lower feeding requirements
- ⚠ Heat stress
- ⚠ Decreased feed intake and weight gain
- ⚠ Decreased milk production
- ⚠ Lower fertility rates
- ⚠ Increased mortality



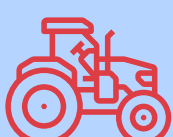
Fruit and vegetables

- ✓ Increased diversity of crop species grown
- ✓ Increased productivity
- ✓ Longer growing season
- ⚠ Increased susceptibility to cold damage
- ⚠ Winter tree injury
- ⚠ Reduced yield



Farm operations

- ✓ Bigger time window for farming operations
- ⚠ Delay of planting and harvesting due to heavy precipitation and flooding
- ⚠ Increases in pesticides applications and higher production costs



Soil

- ✓ Potential increases in soil moisture
- ✓ Enhanced carbon sequestration
- ⚠ Soil erosion
- ⚠ Reduced soil moisture and organic matter
- ⚠ Poor nutrient uptake by crops, lower yields and product quality
- ⚠ Increased runoff and non-point source pollution
- ⚠ Nutrient depletion



Water

- ✓ Increased knowledge and uptake of best management practices
- ⚠ Increased runoff and water contamination
- ⚠ Low water levels and reduction in groundwater recharge due to drought
- ⚠ Increased irrigation demands and higher production costs

