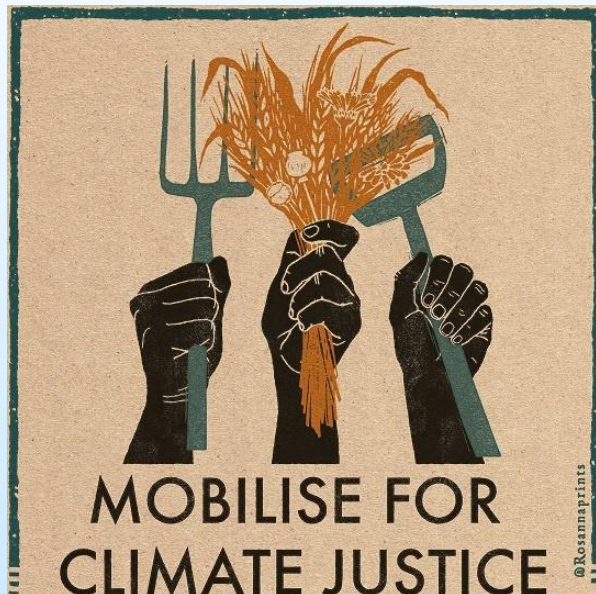


Predictive Farming: AI-Driven Agriculture Optimization

Yasmine Gouin, Chi Nguyen, Nolan Isaac-Smith and Fitzpatrick Laddaran



Why should we care about farming?



(from La Via Campesina)

THE PROBLEM



In Canada, **1 in 4 people** experienced **food insecurity** last year.

The number is growing.



[READ MORE](#) →

community food centres CANADA good food is just the beginning visit cfccanada.ca for more information

(from Community Food Centres)

THE WESTERN PRODUCER

Tariffs News Opinions Markets Machinery

WATCH NOW | WELCOME TO THE FARM SHOW

Tariffs Day 2 | Canadian agriculture remains in crosshairs

Despite respite for the auto sector, agriculture remains on high alert

By Gord Gilmour

Reading Time: 6 minutes

Published: 4 hours ago
News, Tariffs

[X](#) [in](#) [envelope](#)

President Trump Addresses Joint Session of Congress, March 4, 2025

(from The Western Producer)

How Our Practices Address EDIJ

Inclusive Team

- Diverse ethnicities
- Diverse genders
- Diverse experience levels

Bias-Aware Collaboration

- Rotating leadership model
- Open discussions and feedback loops

Equitable Data Science

- Use of public datasets
- Open-source code (GitHub) and findings (Medium)

Project Overview



ETL

- Data ingestion from Canadian Government
- Feature engineering



EDA

How do environmental variables impact crop yields?

- Statistics
- Feature Correlation



ML

What do Canada's future crop yields and prices look like?

- Time Series Models (LSTM, ARIMA, Prophet)



Visual Tools

How can Canadian farmers increase their crop yields?

- Interactive Power BI dashboards
- Public Medium article

Interactive Dashboard



Canadian Agriculture Forecasts

Year

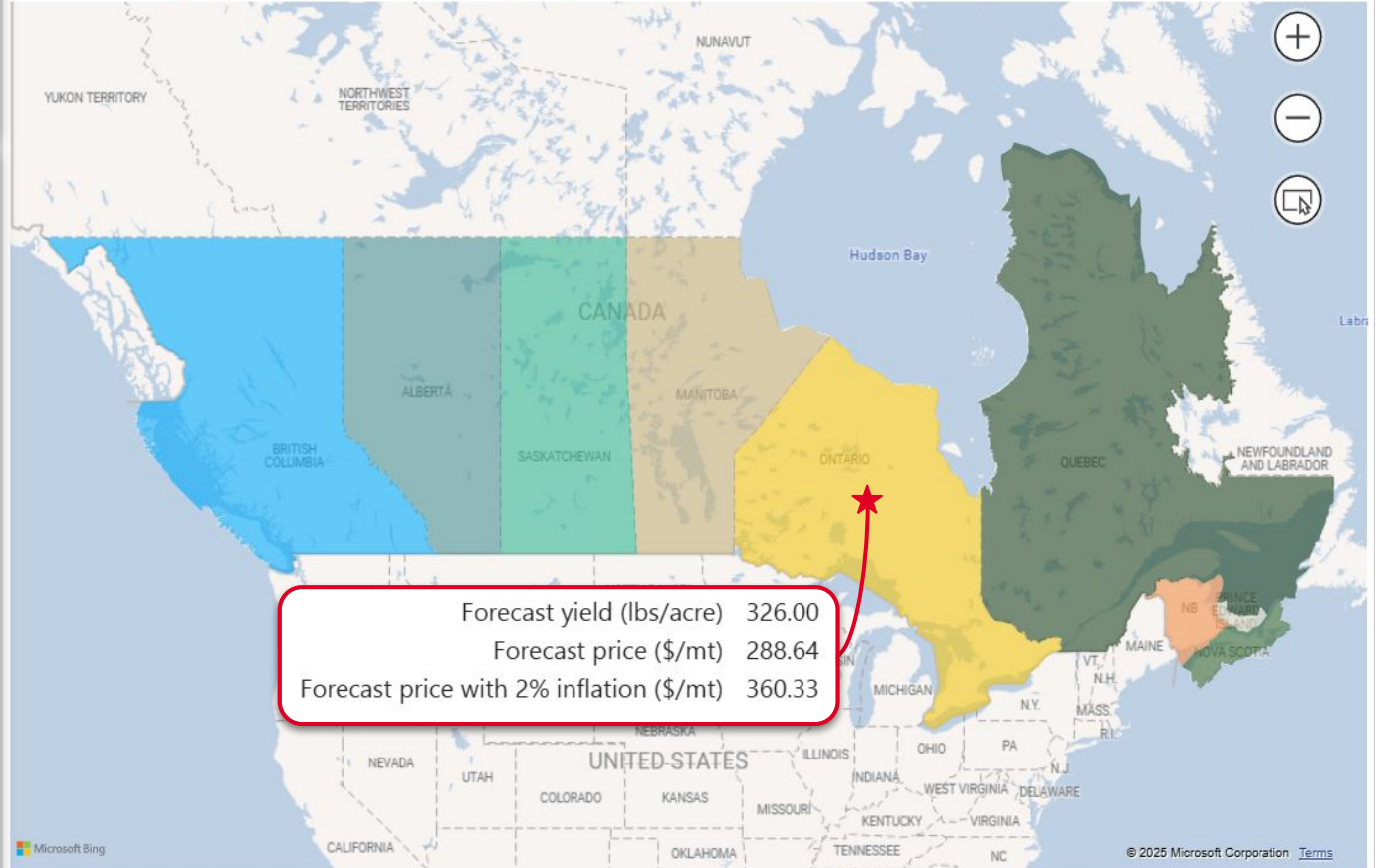
2023

2031

Crop

barley	mustard
canola	oats
corn	peas
durum wheat	soybeans
fall rye	spring wheat
flaxseed	winter wheat
lentils	

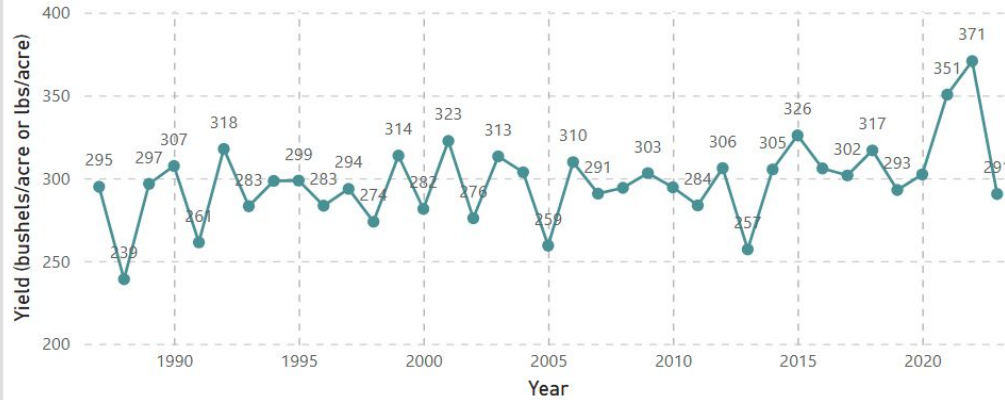
Province ● AB ● BC ● MB ● NB ● NS ● ON ● PEI ● QC ● SK



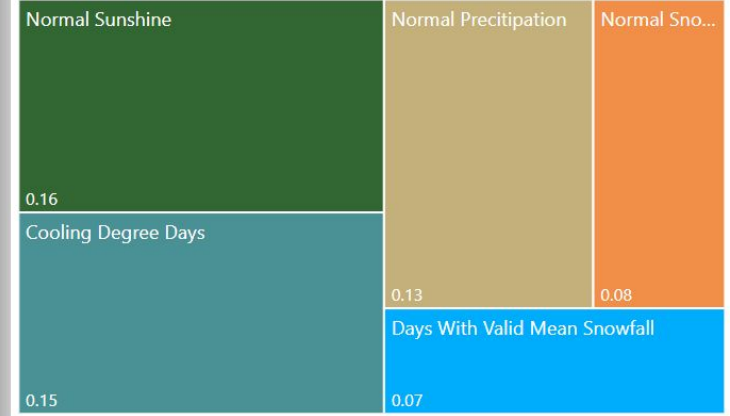
Historical Canadian Agriculture Trends

Province: ON - Crop: barley

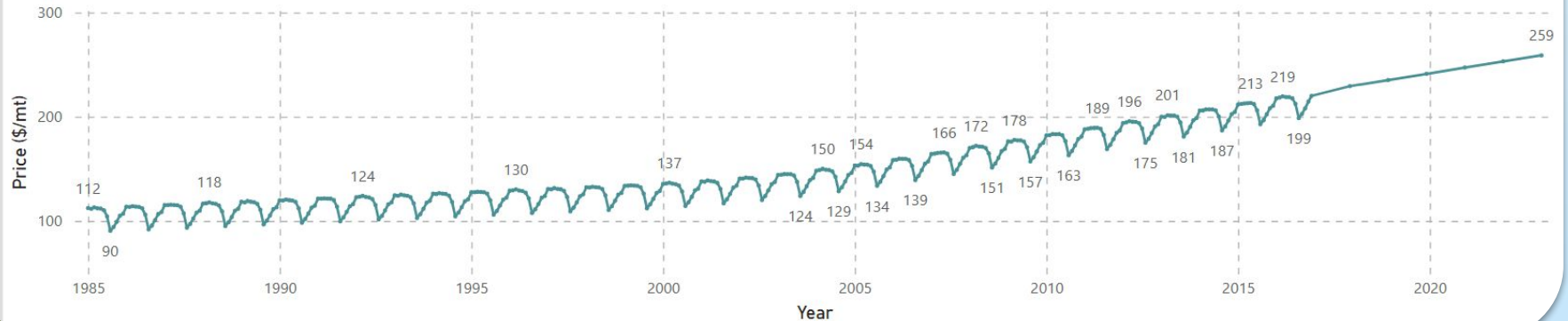
Historical Crop Yield



Top Influential Climate Factors For Crop Yield



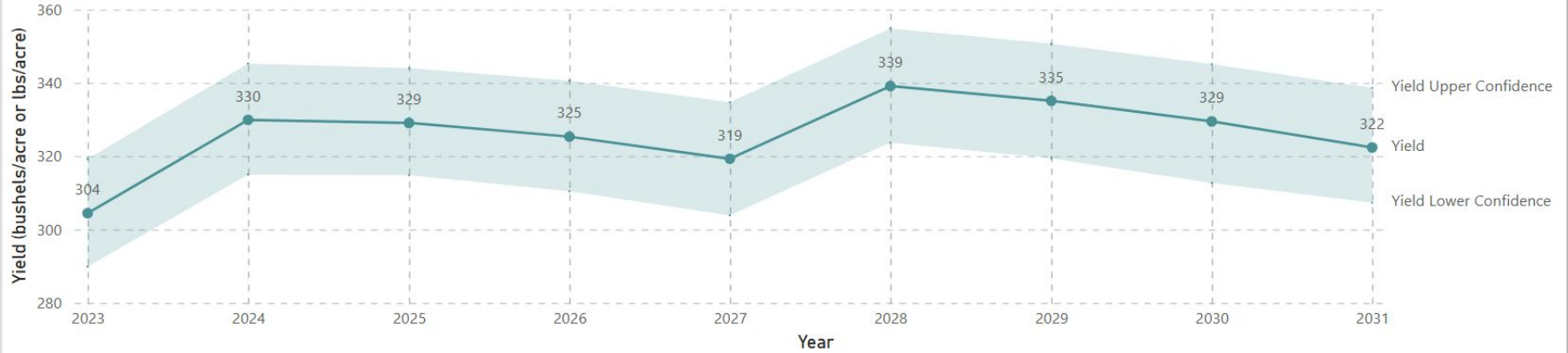
Historical Crop Price



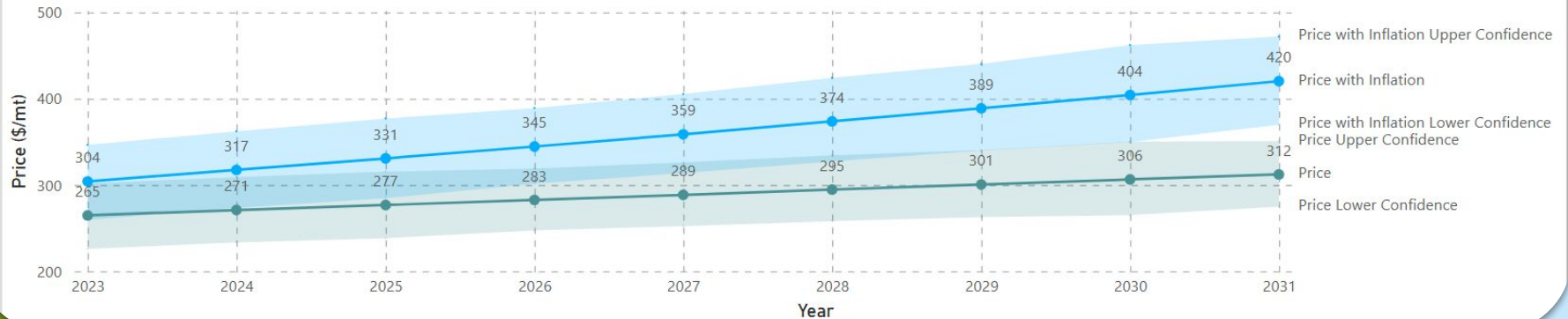
Canadian Agriculture Forecast Detail

Province: ON - Crop: barley

Forecast Crop Yield



Forecast Crop Price





SUPPORT CANADIANS



**Questions?
Insights?
Suggestions?**



SFU GitHub Codebase

