Climate Change in Ireland and the Impact on Soft Fruit Production

Dr. Sarah O’Reilly

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OVERVIEW

• What is Climate?

• How has Ireland’s climate changed
  → Impact on soft fruit

• How do we predict future climate?

• What will the future bring?
  → Possible impacts on soft fruit
What is Climate?

Weather - the fluctuating state of the atmosphere around us

Climate - the average, variations and extremes of weather in a region over long periods of time (statistics)
Increase in mean

Previous climate
Less cold weather
New climate

Increase in variance

Previous climate
More cold weather
More record hot weather
New climate

Increase in mean and variance

Previous climate
Less change for cold weather
New climate

Much more hot weather
More record hot weather
Met Éireann’s network of weather observing stations
1900-2009 Air Temperature Difference from 1961-1990 Normal Values

- Irish Temperature
- 30 year moving average

Year

Difference from 1961-1990 Normal Temperatures

-1.0
-0.5
0.0
0.5
1.0
1.5

-0.5
0.0
0.5
1.0
1.5


Irish Temperature
30 year moving average
1900-2009 Air Temperature Difference from 1961-1990 Normal Values

- Irish Temperature
- 5 year moving average

Year

Difference from 1961 - 1990 Normal Temperatures
Changes in variance

Kilkenny Winter

Kilkenny Spring

Kilkenny Summer

Kilkenny Autumn
Cold Units

Mullingar

Casement

The Irish Meteorological Service
Growing Season Length

Number of Days

Casement


Number of Days

200 225 250 275 300 325 350

National Average Rainfall 1941-2009
30 Year moving Averages, Difference from 1961-1990 Normal

30 year Average Rainfall Difference (mm)

Year

Future Changes?

• Assess factors forcing climate

• Model the impact of these factors on climate
AR4

Chemistry

Interactive Vegetation
The diagram illustrates the estimated global greenhouse gas (GHG) emissions from 2000 to 2100, with different scenarios represented by lines of different colors. The scenarios include B1, A1T, B2, A1B, A2, and A1FI. The shaded area represents the post-SRES range (80%) and the dashed lines indicate the post-SRES (max) and (min) estimates. The y-axis represents the Global GHG emissions in Gt CO2-eq/yr, and the x-axis shows the years from 2000 to 2100.
Temperature rise relative to pre-industrial levels (°C)

4.4°C global average temperature rise
Increasing emissions (A1B)

2.1°C global average temperature rise
Decreasing emissions (E1)

2099
Projections for Ireland

- Focusing on local detail - C4I
- Assessing uncertainty - Ensembles
- Reducing uncertainty - EC-Earth
Temperature Projections 2021-2050

Winter

Spring

Summer

Autumn

°C difference 1961-1990
Temperature Projections
2071-2100

Winter

Spring

Summer

Autumn

°C difference 1961-1990
1900-2009 Air Temperature Difference from 1961-1990 Normal Values

- Irish Temperature
- 5 year moving average

Difference from 1961-1990 Normal Values

-1.0 -0.5 0.0 0.5 1.0 1.5

Year

Irish Temperature

2003-2007

1961-1990
Rainfall Projections 2021-2050

Winter

Summer

Spring

Autumn

% difference to 1961-1990
Rainfall Projections 2071-2100

Winter

Summer

Spring

Autumn

% difference to 1961-1990
Difference to date ~ 5% (or less)
Summary

- Ireland’s climate has become milder
- Weather variability continues to be a feature of our climate
- Climate projections
  - further warming (high certainty)
  - changes in rainfall (lower certainty)
  - continued variability