



Workshop - Agrometeorologists for farmers in hotter, drier, wetter future

9th November 2016, Ljubljana, Slovenia

Keith Lambkin, Head of Agricultural Meteorology Unit

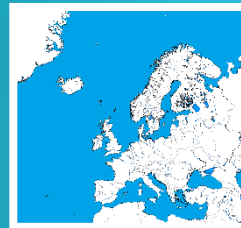
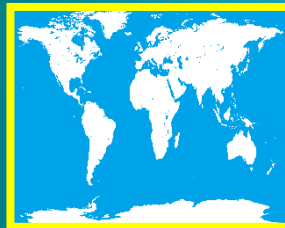
Met Éireann – The Irish Meteorological Service

Keith.Lambkin@met.ie

An overview of Agricultural Meteorology in Ireland



Globally Population trend

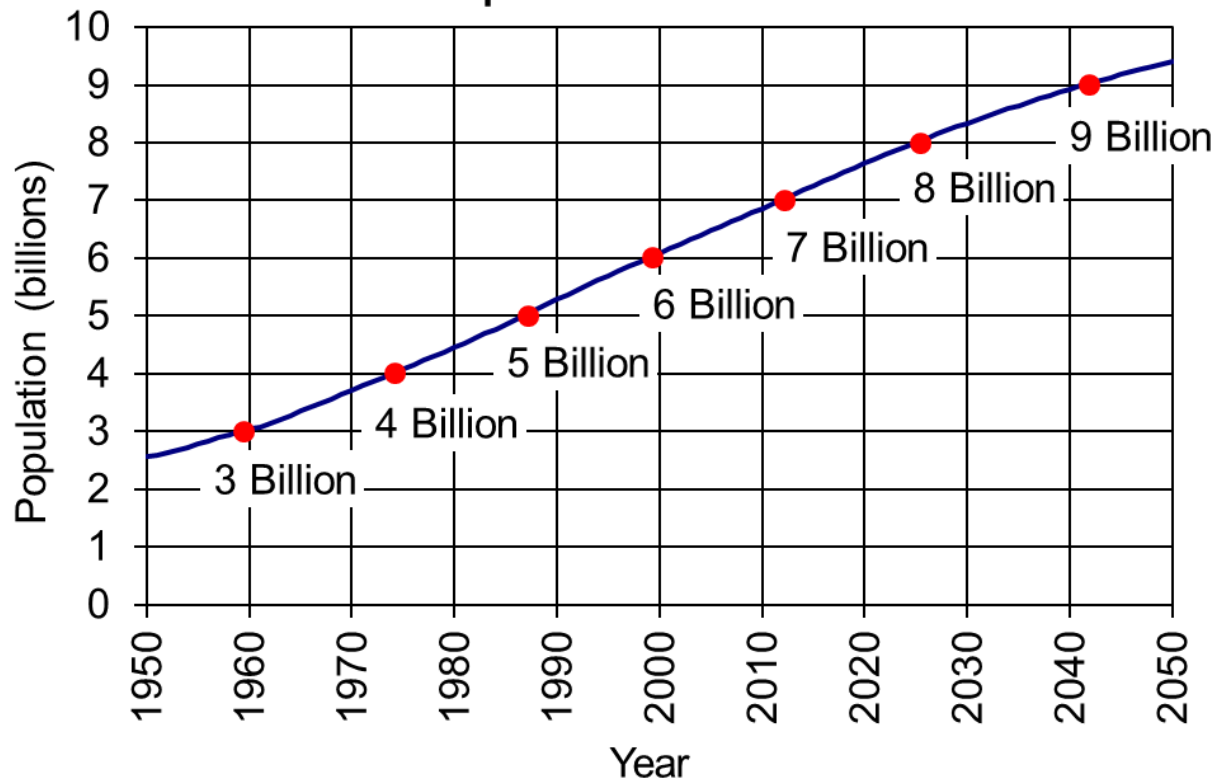


The world population increased from 3 billion in 1959 to 6 billion by 1999, a doubling that occurred over 40 years.

We can increase food supply by:

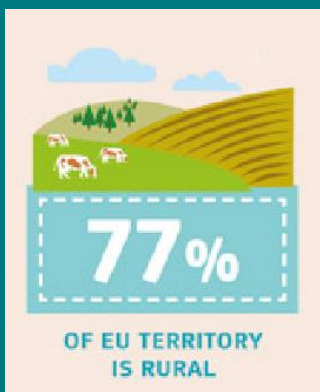
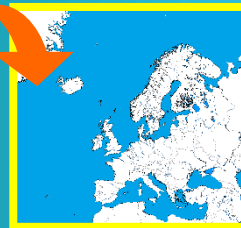
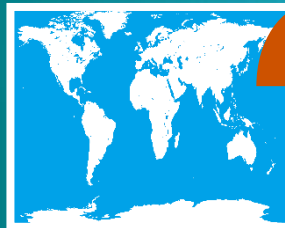
- (a) Farming more land
- (b) Farming the same land more productively

World Population: 1950-2050



Source: U.S. Census Bureau, International Data Base, July 2015 Update.

www.census.gov



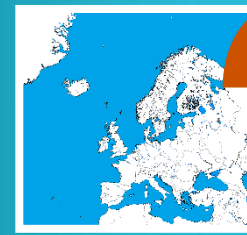
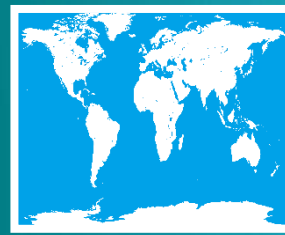
CAP - Common Agricultural Policy



Aims:

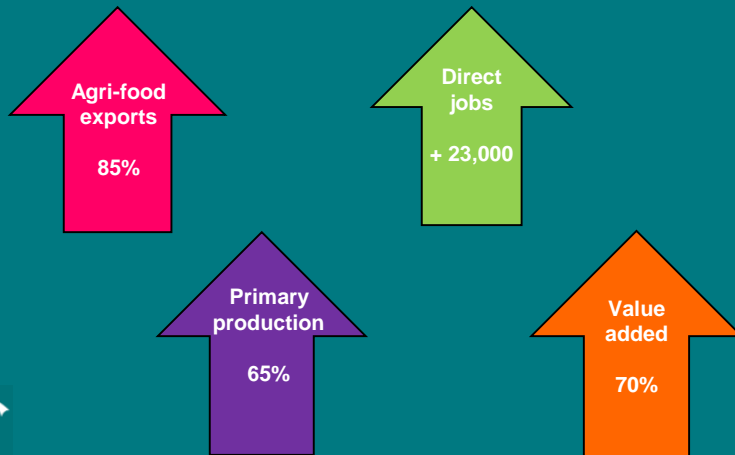
- to improve agricultural **productivity** -> stable, affordable food supply
- to ensure that EU farmers can make a **reasonable living**
- **food security** — at the global level, food production will have to double in order to feed a world population of 9 billion people in 2050
- **climate change** and sustainable management of natural resources
- looking after the countryside across the EU and keeping the **rural economy alive**

Ireland Agricultural Policies

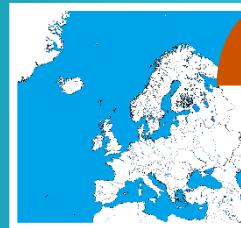
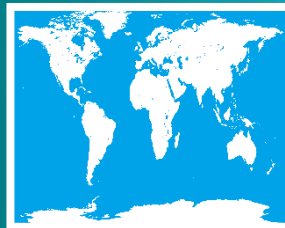


Foodwise 2025

National Food Strategy Document



Primary relevant Irish organisations



Current research projects that Met Éireann's Agricultural Meteorology Unit are involved in:

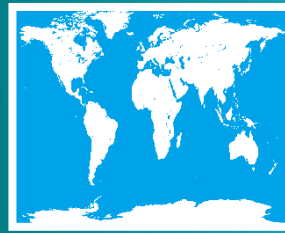
EPIC – Establish a Platform for **Integrated Pest Management** in Irish crops [Project Partners: DAFM, Teagasc, UCD, TCD, Rothamsted, Met Éireann]

Modelling for increased **grazing management** precision on Irish grassland farms [Project Partners: Teagasc, CIT, NUI Maynooth, Met Éireann]

Forecasting milk production and energy consumption on daily farms [Project Partners: CIT, Met Éireann]

Updating national average **evapotranspiration** maps [Project Partners: ICHEC, Met Éireann]

Met Éireann
Agromet customers

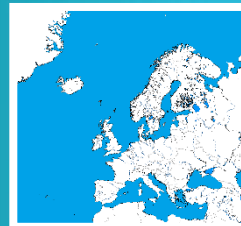
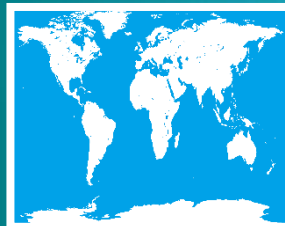


**Forecast
office**

**Ag
advisors**

Farmers

Media



Forecast office

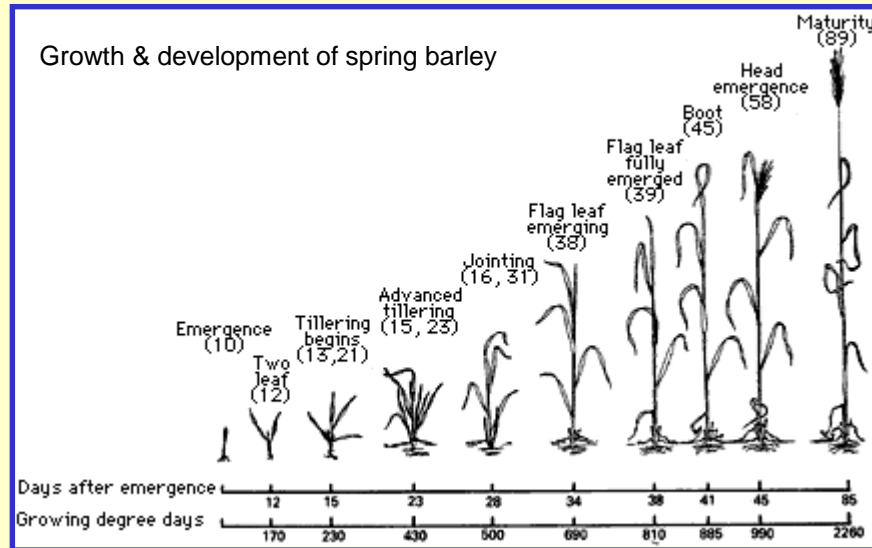
Ag advisors

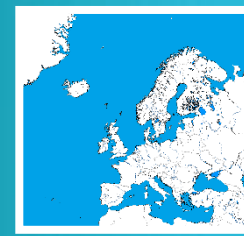
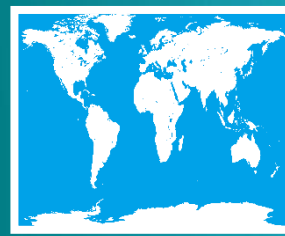
Farmers

Media

- Blight
- Weekly Averages
- Soil Moisture Deficits
- Degree Days →

Growth & development of spring barley





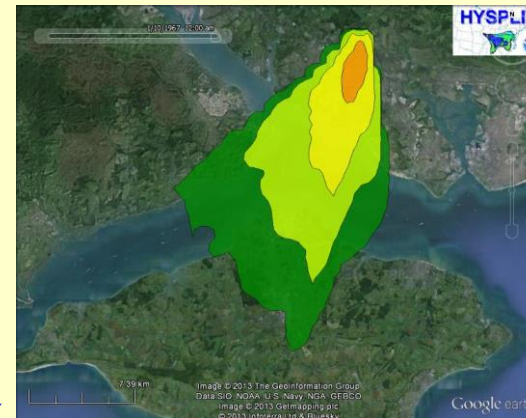
Forecast
office

Ag
advisors

Farmers

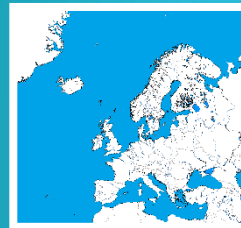
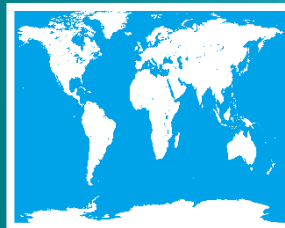
Media

- Fire risk warning
- Liverfluke severity forecast
- Windblown taskforce / Coillte
- Foot & mouth disease virus



Verification of HYSPPLIT Foot and Mouth
dispersion module

Met Éireann Agromet customers



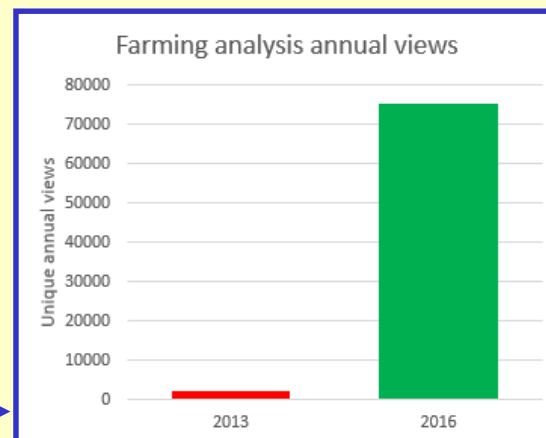
Forecast
office

Ag
advisors

Farmers

Media

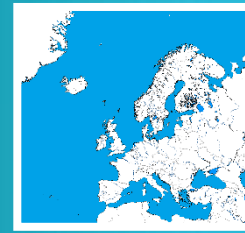
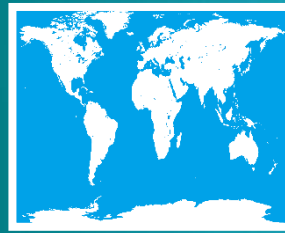
- Weather data last 7 days
- Soil moisture deficits
- Farming weather analysis



Usage of the Farming analysis forecast has exponentially increased from moving from Weatherdial to the web with no additional overhead to our forecast office

* 2016 projected based on average monthly values

Met Éireann
Agromet customers



Forecast
office

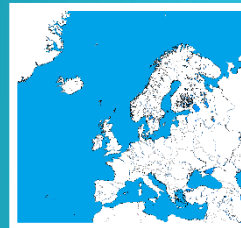
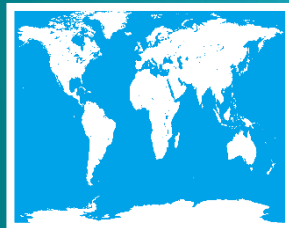
Ag
advisors

Farmers

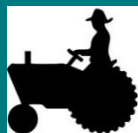
Media



Ireland Validation strategies

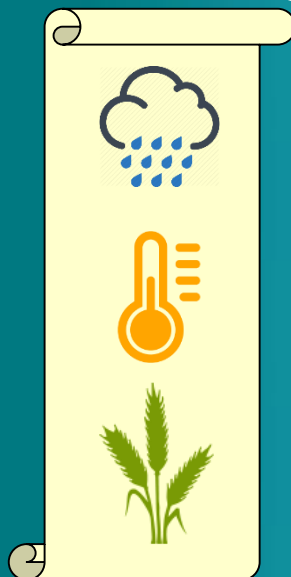


Needs of Community



Workshop

List of priority products



Validate

Limited resources

Max return on investment



Using validation strategies to prioritise workload to achieve maximum benefit from limited resources

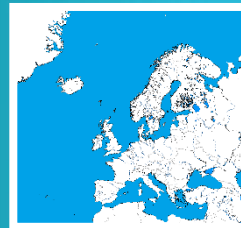
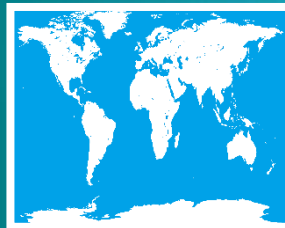
Ireland AGMET Working Group

AGMET

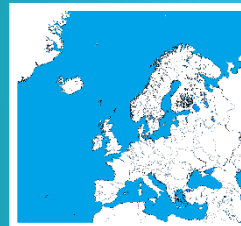
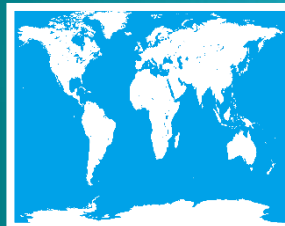
Joint Working Group on Applied Agricultural Meteorology

- Helps identify our agricultural customers
- Provides us with a valuable mailing list
- Platform to promote Met Éireann products
- Draw from community expertise to tackle Met Éireann objectives

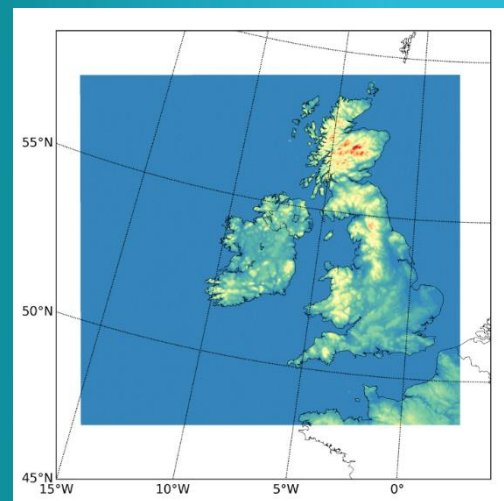
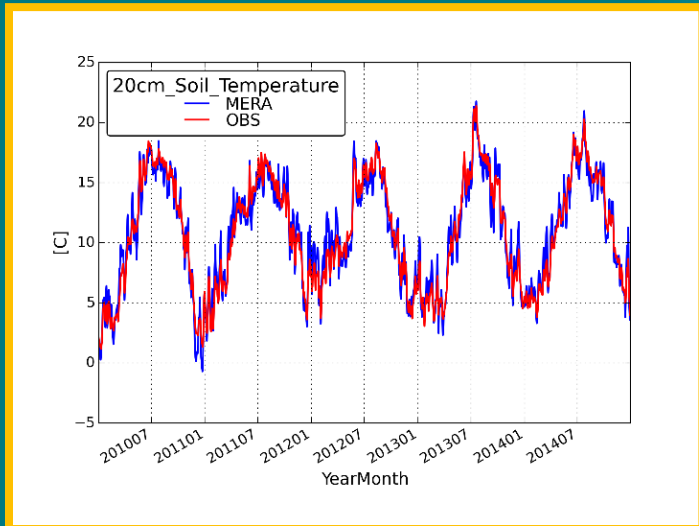
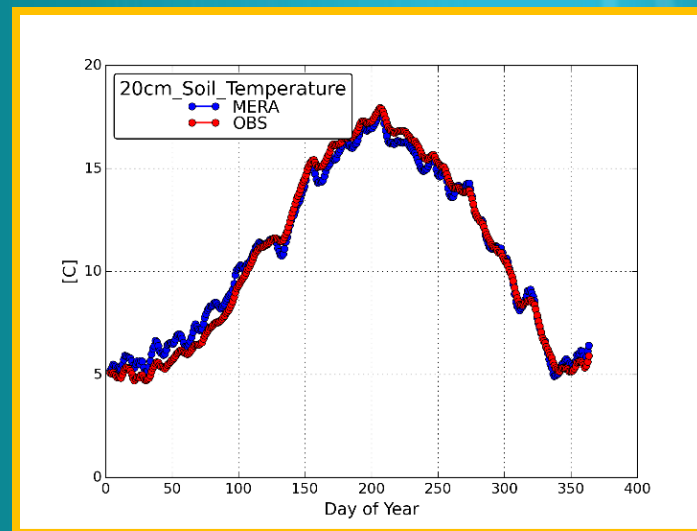
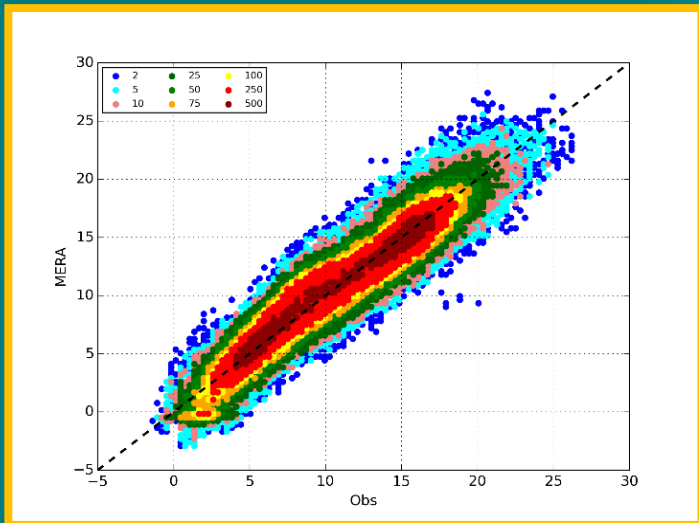
<http://agmet.ie>



The screenshot shows the AGMET website homepage. At the top, there is a banner image of green leafy vegetables with the text "AGMET HELPING TO DEVELOP AGRICULTURAL METEOROLOGY IN IRELAND". Below the banner is a blue bar with the text "Check out today's Farming Weather Commentary from Met Éireann" and a "Check Now" button. The main content area is divided into two columns. The left column is titled "WELCOME TO AGMET.IE" and features a photo of hay bales in a field. The right column is titled "NEWS" and lists three articles: "Forest Fire Risk Warning" (dated 22 Mar), "Teagasc PhD Walsh Fellowship Opportunity" (dated 27 Feb), and "Crop yield forecasting" (dated 26 Feb). At the bottom, there are three circular icons representing "NEW AGMET WEBSITE", "CROP YIELD FORECASTS", and "AGMET ABROAD", each with a brief description and a "READ MORE" button.



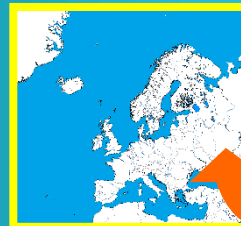
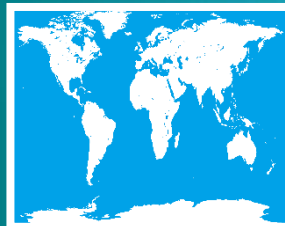
MERA 20cm soil temperatures
Provisional testing 2010 - 2014



30 year reanalysis project will allow for development of agromet products

Emily Gleeson & Eoin Whelan (Met Éireann)

Europe Area National Constraints



- Area Natural Constraints Scheme (ANC) will redefine EU subsidy regions previously defined by the Disadvantages Area Scheme.
- Irish subsidy regions will be defined based on:
 - Slope
 - Soil Drainage
 - Soil Moisture Deficit

Met Éireann / Teagasc hybrid SDM model

$$SMD_t = SMD_{t-1} - \text{Rain} + \text{ET} + \text{Drain}$$

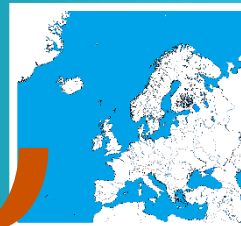
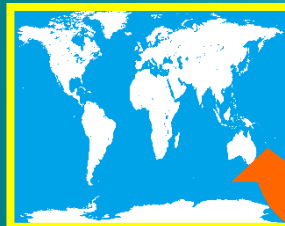
We need Evapotranspiration gridded fields for Ireland

The plan



A3met





International requirement:
Standardised Precipitation Index

As one of the eight technical commissions of WMO, the Commission for Agricultural Meteorology (CAgM) provides guidance in the field of agricultural meteorology by studying and reviewing the available science and technology.

- Ireland via Met Éireann is continuing to build agricultural meteorology experience abroad
- Lead – task team, *Identifying Agmet Publications and Guide to Agricultural Meteorology Practices*
- Member – expert team, *Fire weather, Fire danger rating*

EMS & ECAM 2017
Dublin, Ireland
4th - 8th September 2017

European Meteorological Society (EMS) &
European Conference on Applications of Meteorology (ECAM)

Agricultural Meteorology Session

www.emetsoc.org

Thank you ...