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Understanding the value of seasonal climate forecasts for agriculture: a Devon, UK case study

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Centre for Climate Change Economics and Policy

EUPORIAS

SEVENTH FRAMEWORK PROGRAMME

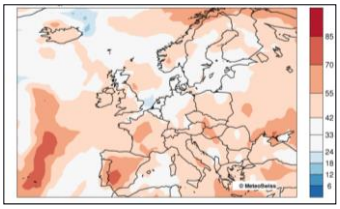
Contents

1. Setting the scene

- Potential benefits of using **SCF in decisions** (Harrison et al., 2008); SCF relatively new in Europe, reliability issues;
- Why try to understand and **assess the "value"** of climate information? Value for money and services, investment in science, better decisions for/in society…
- **Concept of "value"** carries different meanings:
  - Monetary worth; fair return in money, services or goods;
  - Something useful or important;
- Value of SCF dependent of range of factors e.g. the user, the decision-making context, the SCF itself…
- Different **methods** to assess the value of climate information (see e.g. Clements et al., 2013).

2.Background: the EUPORIAS project

- **EUPORIAS**: **EU**ropean **P**rovision **O**f **R**egional **I**mpact **A**ssessment on a **S**easonal-to-decadal timescales led by the UK Met Office; 24 partners; 15 WP; 60 stakeholders.
- Co-production between producers and users;
- Six prototypes of climate services on seasonal to decadal timescales (www.euporias.eu/prototypes).



Seasonal forecast: 3-monthly mean temperature to be above average conditions for temperatures from May to July 2012.

Source: MeteoSwiss

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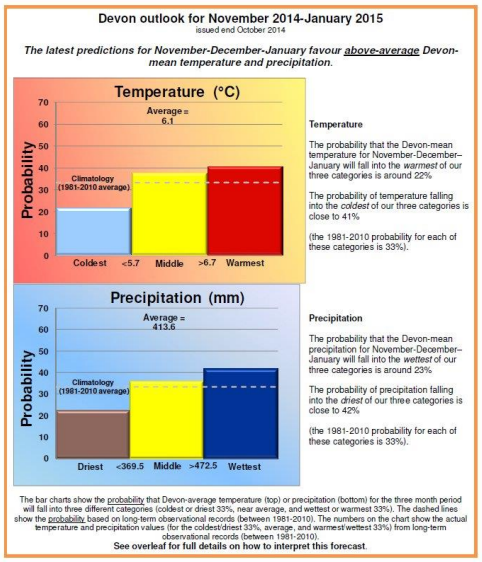
3. The Land Management Tool prototype

- Met Office, Uni Leeds, KNMI, Predictia;
- Focus on **winter conditions** and **cover crops**;
- **1st stage** (2014-early 2015):
  - Clinton Devon Estate (CDE) – major land owned in SW UK;
  - Around 30 farmers; different farming enterprises;
  - Interviews and survey;
  - Seasonal forecasts provided to farmers during winter;
  - Online feedback and mock-ups.

Seasonal climate forecasts

(Winter 2014/15)

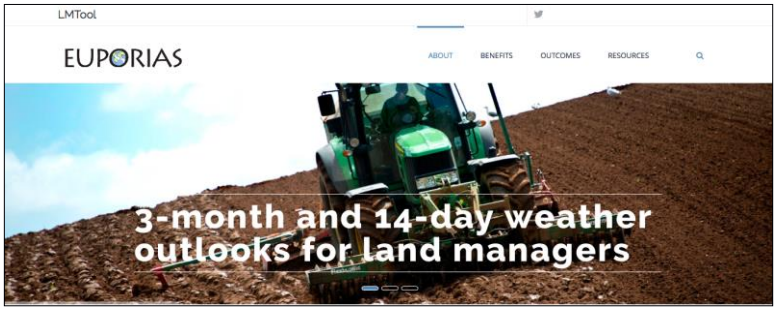


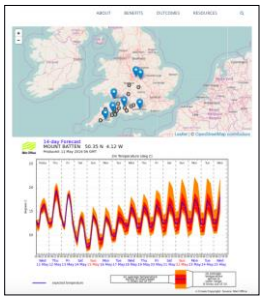
- **Findings from 1st stage:**
  - Usefulness of SCF for decision-making – Spring/Summer;
  - Specific variables (T, P, heavy rain);
  - More local, shorter-term information;
  - Web delivery;
  - Poor understanding of forecasts, if not fully explained.

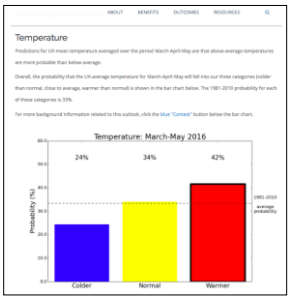
3. The Land Management Tool prototype

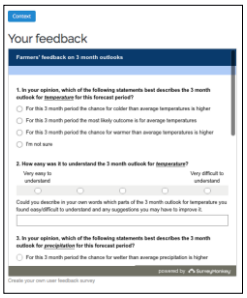
- **2nd stage** (2015-ongoing):
  - Involve NFU – access to other farmers in the region;
  - 20 farmers involved in total (CDE+NFU);
  - Inclusion of 14-days forecasts (T, P, W) + tailored SCF (P, T);
  - Development of microsite + online feedback;
  - Survey on visualisations for both types of forecasts;
  - Workshop: refine content and visualisations of forecasts;
  - Development of the LMT App.

Land Management Tool microsite









Land Management Tool App

Seasonal climate forecasts

14-day forecasts

4. Assessing the value of SCF

- **Approach adopted:**
  - Novelty + reliability of SCF: qualitative approach;
  - Workshop: understand/define main decisions to test usability of SCF (Feb/Mar/Apr);
  - Decision-maps: factors influencing main decisions;
  - Continue providing SCF updated monthly + feedback;
  - Farmers asked to reflect on these decision processes and the SCF provided;
  - Follow up interviews with small group of farmers in April 2016.

4. Assessing the value of SCF

- **Main findings to date:**
  - Decision-maps - difficult to discuss as decisions changed!
  - Complexity of decision-making processes – highly susceptible to change; adjustment to factors (weather, financial..);
  - Difficulty in linking a specific decision with potential value of SCF;
  - Re-adjustment: discussion on decisions pursued and reflections on the usability and value of SCF…

4. Assessing the value of SCF

- Two farmers **used SCF** in their decisions:
  - "Before Christmas we had to do some (…) spraying later, and the prediction [from the SCF] was for a wetter but milder winter. It did focus us that (…) if we got a **window [for spraying] we needed to take it because there would be less dry spells.** (…) **So we did because the probability was that it was probably rain again**."
  - "**I've not done any contracts** or invoicing for anybody to go on any of my fields **because the fields aren't good enough, they're too wet**, and I knew that they would be too wet because it was **going to be so wet in February and March**."
  - Difficulty in attributing an economic value to the use of SCF but **agreement on benefits** (e.g. potential avoided costs).

4. Assessing the value of SCF

- Possibility of using SCF in certain activities e.g. grazing cows but potential conditioned by other conditions;
- Unable to use SCF winter due to weather conditions: too much rainfall – soil saturation - conditioned decisions in Spring/Summer;
- Others not interested in SCF due to their type of activities and needs (e.g. rent the land to others);
- **Building trust in using SCF** – time to develop confidence and allow farmers to translate the SCF information into the specificities of their land.
- "The problem I've got with it [SCF] at the moment is I've not got enough confidence in it because it's not been running long enough to actually overrule my gut feeling."

5. Remarks and reflections

- Getting **farmers involved** - how can we motivate them beyond usual channels? e.g. champions, media dissemination – farmers' weekly, Country File..
- **Complexity** of farming decision-making – what methods can we consider/develop to assess the value of SCF particularly in very complex decision-making contexts?
- Need to **assess value** over a longer period of time e.g. one year cycle but limitations in terms of SCF reliability…
- Farmers interested in **continuing receiving forecasts** but limitations of research context...
- Follow up project?

Thank you

Questions?

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