



# The International Sustainable Temperate Agriculture Network



# Aims



TempAg is an international research collaboration network established to increase the impact of agricultural research and inform policy making in the world's temperate regions. TempAg's work primarily focuses on providing insights of the current thinking through mapping existing scientific findings and outstanding knowledge gaps to provide critical assessment of current knowledge. This way, the network aspires to become a platform for alignment of national agricultural research programmes that will enable development of more effective agricultural policies and research priorities.

TempAg aims to:

- increase the impact and return on investment of national research programmes
- bring together national competencies and work to meet goals of transnational mutual interest

- enable communication and alignment of existing and new research and technology
- identify areas of research relevant to science and policy which are currently insufficiently addressed at an international level.

Since its official inauguration in Paris on April 2015, TempAg has been leading a series of work streams around:

- boosting resilience of agricultural production systems at multiple scales and levels
- optimising land management for Ecosystem Services (ES) and food production, and
- improving sustainability of food productivity at the farms and enterprise level.

## Network themes



Resilient  
agricultural production  
systems

Multiple spatio-temporal level



Optimal land management  
for food production and  
other ecosystem services

Landscape level



Sustainably improve  
food productivity

Farm/enterprise level

# Network activities

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The network's activities under these themes focus on:



## Enhancing metrics, frameworks and tools for future-proofing agricultural decision making at multiple levels and scales.

This work has delivered a report assessing sustainability frameworks within agriculture and a journal publication<sup>1</sup> weighting criteria for selecting temperate agriculture sustainability indicators. Moving forward it will seek to determine what are the thresholds of external drivers influencing sustainability indicators and whether these can be expressed in a form of a lowest common denominator to normalise sustainability indicators across groups and scales.



## Optimising synergies between agricultural production and ecosystem services via an overview of the research landscape.

This activity aims to identify the research gaps concerning agricultural ecosystem services (ES) –including production – by listing and recording ongoing national and international activities on agricultural ES. The work done so far indicates only a small number of mechanistic studies on ES in agriculture and a lack of linkage between ecology, agronomy, soil and social sciences.



## Addressing yield gaps, resource use efficiencies and environmental impact

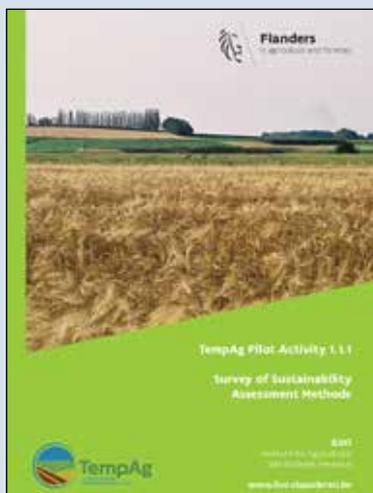
Through quantification of yield and water productivity gaps for major crops in temperate countries (using the Global Yield Gap Atlas) this work has now delivered preliminary data identifying some of the underlying root causes of yield gaps in the temperate region<sup>2</sup>. Moving forward this activity will seek to address whether it is possible to define 'sustainable' crop yield levels which strike an acceptable compromise between production, resource use efficiency & environmental impact. This will be considered by expanding the estimation of resource use efficiencies taking into account factors like nutrients, greenhouse gasses, energy, labour etc and analysing the trade-offs between these factors.

<sup>1</sup> de'Olde et al, 2016

<sup>2</sup> López Porrero, E.J. (2016). Explaining yield gaps of cereals in temperate regions using an expert-based survey. MSc Thesis, Wageningen University

# Activity outputs

## Publications and reports from the network's activity so far



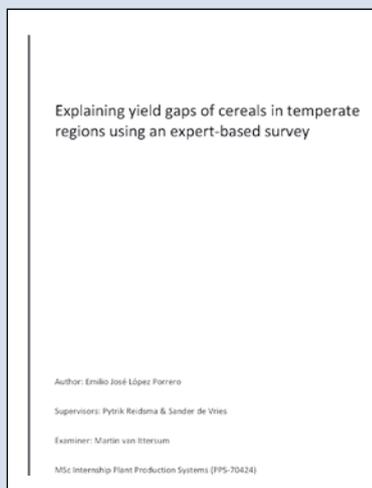
### Wustenberghs et al. (2015)

This report takes a stock of the existing methods and frameworks to assess agricultural sustainability in temperate regions and highlights a great degree of variation in these frameworks, both in terms of indicators used and in the approaches to integrate them.



### de Olde et al. (2016)

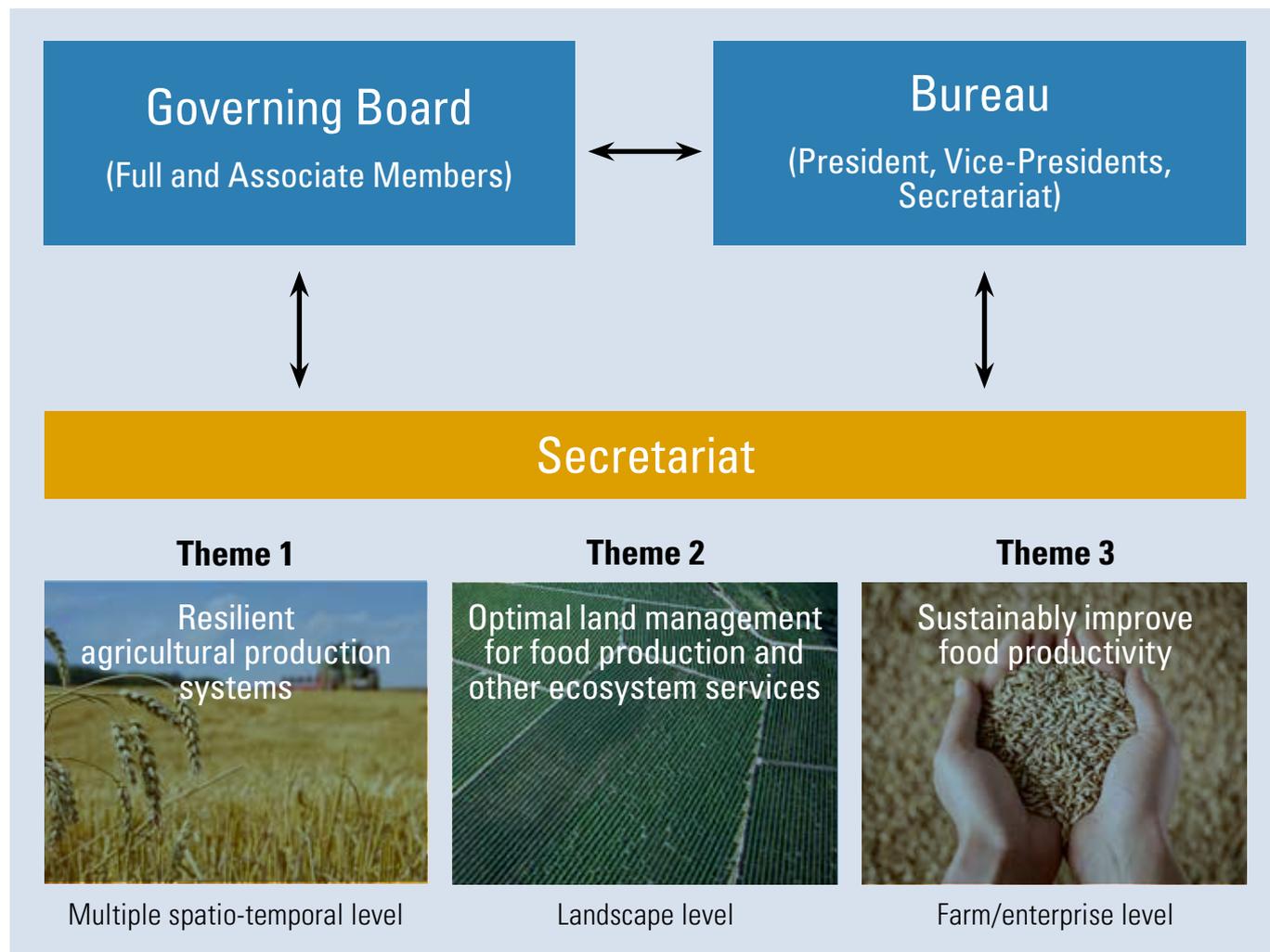
This work assesses what matters most to experts when selecting sustainability indicators and reveals a startling difference of opinions among them. The work highlights the need for more collaboration among experts, complementary approaches and plurality of views when establishing indicators and sustainability frameworks.



### (López Porrero MSc, 2016)

This work assesses the underlying factors affecting yield gaps in three major cereal crops (wheat, barley and maize) growing in temperate regions, indicating that crop management, fertilization and policy regulations play an important role in affecting yield gaps.

# Governance



## The network currently comprises ten member countries:

- Belgium
- Finland
- France
- Germany
- UK
- The Netherlands
- New Zealand
- Norway
- Sweden
- Switzerland

and OECD as an Associate member.

TempAg welcomes any new member countries wishing to join the network and contribute to its forward strategic design and implementation of activities post-pilot phase.

TempAg's membership is based on a Memorandum of Understanding (MoU). To become a full member, signature of the MoU and designation of an academic-based, ministry of agriculture, or other relevant government ministry representative to represent the country on the network's Governing Board, is required.

For more information around the network's ongoing work, or how to get involved visit the TempAg website or contact the TempAg Secretariat:

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# Partners



[www.tempag.net](http://www.tempag.net)