Pathways to chemical pesticide-free agriculture in Europe in 2050

Webinar: Crop Protection and Scenarios for the Future of Agriculture - 31th August 2020

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Context and aims

This foresight study is part of the French national priority research programme (PPR), **Growing and protecting crops differently**, lead by INRAE, launched at the request of the French Government (Ministries of Research, Agriculture, Environment)

A foresight study to develop **scenarios of chemical pesticide-free agriculture in Europe in 2050**, answering two questions:

- What could be the different forms of a **chemical pesticide-free agriculture** in 2050?
- What could be the different **pathways towards such chemical pesticide-free agricultures**?

The aims of the foresight study is to support the research programme by showing how specific knowledge produced in research projects could be articulated to support transition pathways.

… a study which is also linked to the European research initiative "Towards Chemical Pesticide-free Agriculture“.

Framework of the foresight study

Topic: chemical pesticide-free agriculture in Europe

Horizon: 2050

Scale: European Union

Funding: French national priority research program “Cultiver et Protéger Autrement” (Growing and protecting crops differently)

Project duration: 24 months (2020-2022)

Method: scenario approach, quantitative simulation, transition pathways

Based on multiple committees: Project Team, Expert committee, Monitoring committee, Thematic groups, Quantification groups, Transition group, Focus groups with scientists from PPR

Objectives of the foresight study

- To build several scenarios describing what could be a European agriculture without chemical pesticides, and comparing them to a business-as-usual scenario in 2050.

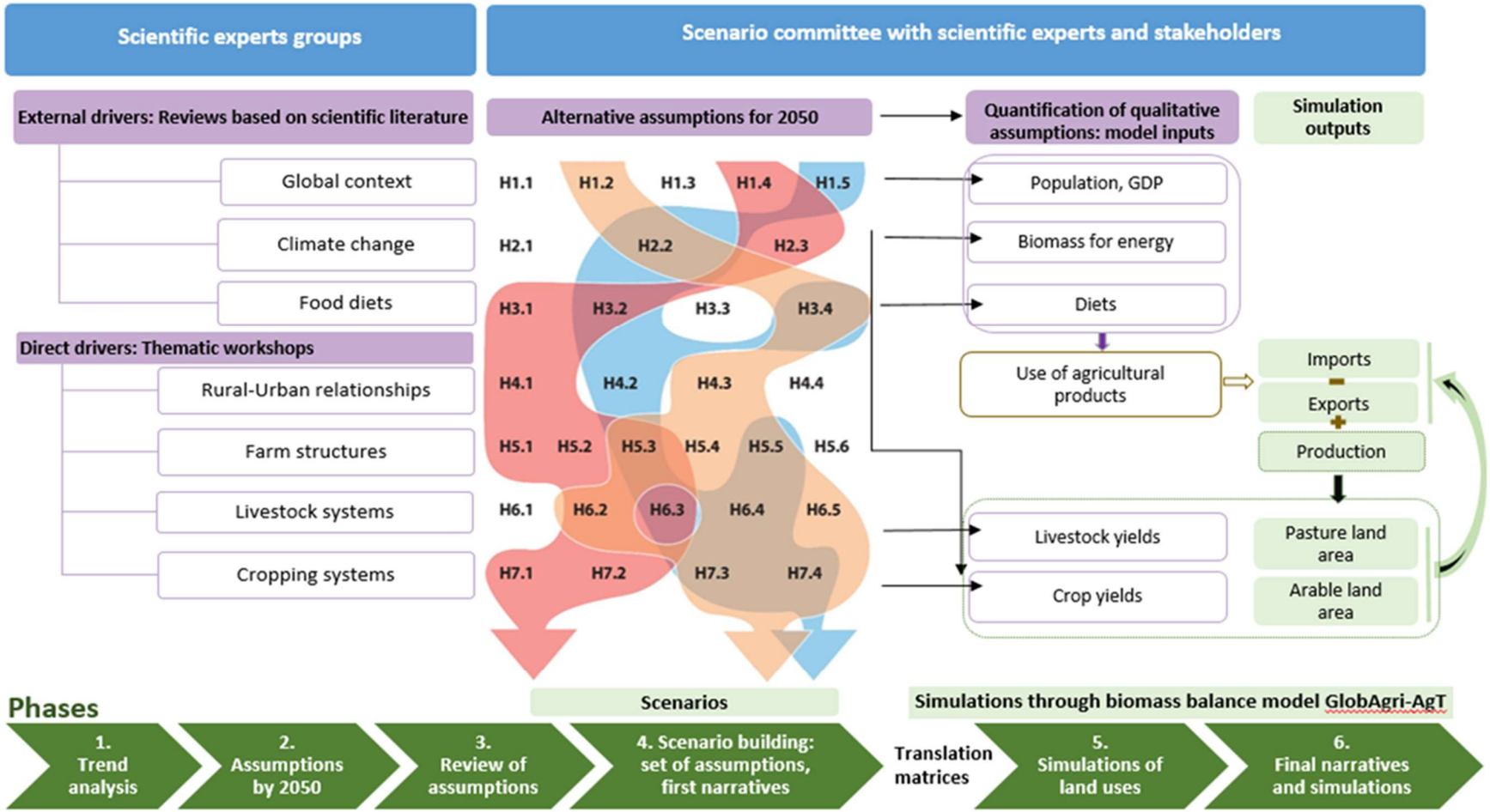
- To identify transition pathways for each scenarios: technical and organizational innovations, reconfiguration of food value chains, public policies.

- To assess through modeling and simulations the different scenarios (impacts on production, land use, trade, GHG, biodiversity).

Method (1)

This foresight study will mobilize:

- A systemic foresight approach based on **morphological analysis** and trend analysis coupled with **scenarios simulation**. Example from previous project:



Source: Mora O, Le Mouël C, de Lattre-Gasquet M, Donnars C, Dumas P, Réchauchère O, et al. (2020) Exploring the future of land use and food security: A new set of global scenarios. PLoS ONE 15(7): e0235597. https://doi.org/10.1371/journal.pone.0235597

Method (2)

This foresight study will mobilize:

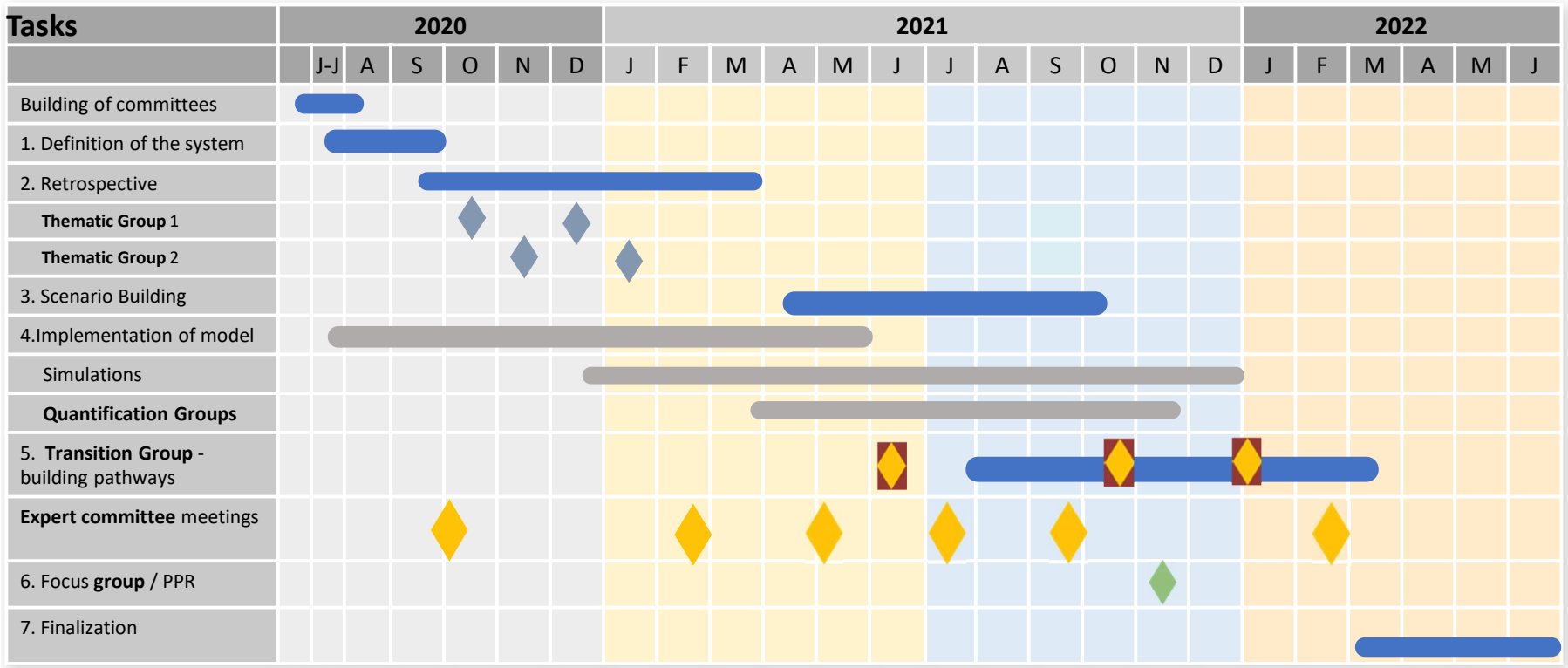
- A systemic foresight approach based on **morphological analysis** and trend analysis coupled with **scenarios simulation**.

- Various expert groups:
  international expert committee in charge of building scenarios (scientists and stakeholders),
  thematic groups,
  quantification groups, **focus** groups
- Including a **transition** group in charge of exploring the transition pathways: bifurcations, levers of action, stakeholders' role…
- Models (GlobAgri, biomass-balance model; possibly Matsim-Luca, market and trade model) in order to quantify the scenarios

Seven steps of the foresight project

1. Definition of the **system** for this foresight study « chemical pesticide-free agriculture in Europe »
2. **Retrospective** analysis of changes for the various dimensions of the **system** and analysis of the players
3. **Scenarios building** in 2050, presenting several forms of pesticide-free agriculture at European level, within a global context
4. Scenario **simulation** – First assessment of the impacts of scenarios on production, land use, trade, GHG, biodiversity
5. Building of **transition pathways** toward chemical pesticide-free agriculture in Europe
6. **Debate** on scenarios and pathways within the PPR (focus groups), and identification of research orientations consistent with each scenario (and research gaps)
7. Public presentations, deliverables, dissemination of results

Agenda of the project 2020-2022



Some conclusive remarks

- A need to explore, in an **open and plural** way, what could be chemical pesticide-free agricultures;
- how agricultural systems could work ***without*** chemical pesticides;
- how they might be **implemented**, with what **consequences** on production, land use, trade, biodiversity.

- Not only a study on agricultural systems, but a study that includes food processing, retailing, diets, territory, biodiversity, climate change and public policies.

- A foresight which aims to contribute to the orientations of research (specifically PPR), and to support knowledge mobilization (from PPR) for building transition pathways towards chemical pesticide-free agriculture in Europe.