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CONTEXT

- European agriculture has to reconcile food production and profitability while reducing its impacts on the environment
- Agroecology is a pertinent option to reorient European agriculture to fulfill these goals
- Higher education is not yet fully adapted to train students to agroecology: lack of multidisciplinary, systems approach and innovative teaching methods
- Need for interactive and digital learning tools : **Project of serious game on agroecology**

PROJECT DESCRIPTION

- Erasmus+ project, co-financed by the Chair of Agroecology (3 agricultural cooperatives and 3 higher education schools, West of France)
- Start in September 2017 for 36 months
- 6 partner universities: Agrocampus Ouest (Rennes, France), ESA (Angers, France), Oniris (Nantes, France), University of Liège (Gembloux, Belgium), University of Bologna (Bologna, Italy), University of Agriculture in Krakow (Krakow, Poland)

GAME STRUCTURE

Crop module

- Crop acreage, rotation, performances
- *Influenced by crop management (diversity, inputs), climate, soil fertility, ecosystem regulations*

Ecosystem module

- Functional biodiversity populations
- *Influenced by crop management (diversity, inputs, landscape features)*

Soil module

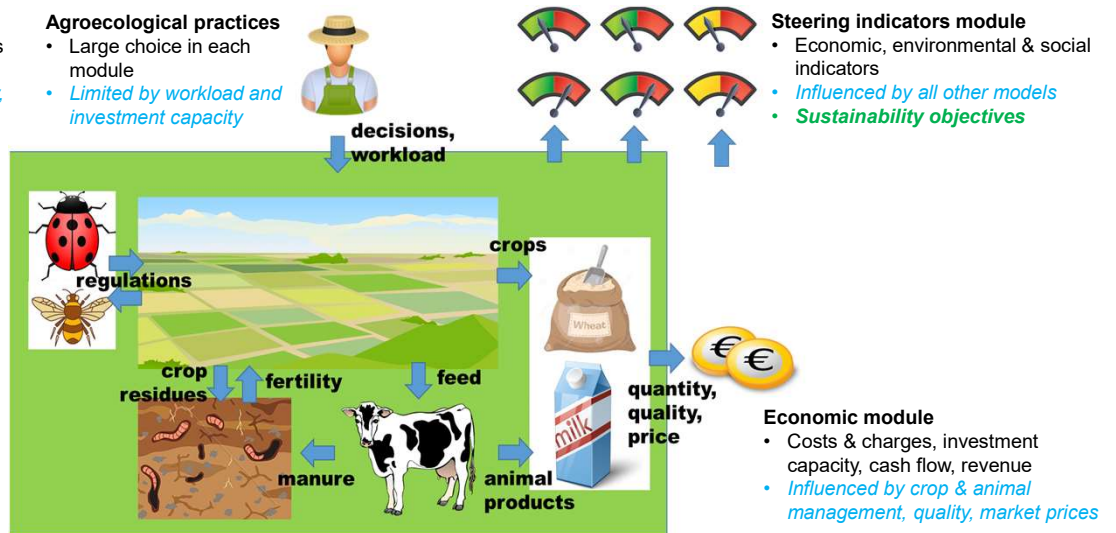
- Physical, chemical, biological quality
- *Influenced by crop (tillage, inputs, uptake) and animal management (grazing, manure)*

Animal module

- Animal characteristics, herd size, performances
- *Influenced by herd management, feed, ecosystem (health)*

Agroecological practices

- Large choice in each module
- *Limited by workload and investment capacity*



PROJECT IMPLEMENTATION

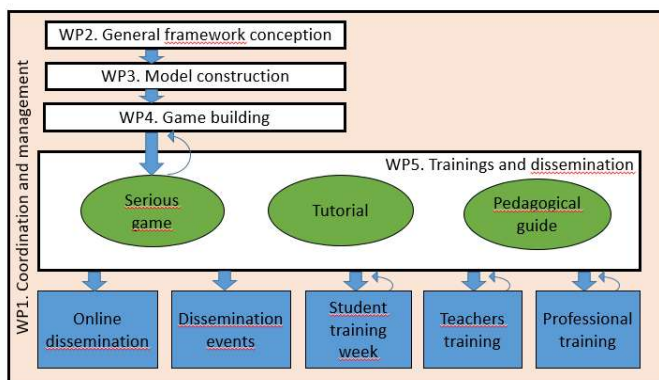


Fig.1 : project work packages and outputs

EXPECTED RESULTS

- Create a serious game to facilitate a systemic and multidisciplinary understanding of agroecology:
 - Free online farm simulation game: the player will pilot a virtual farm and implement agroecological practices in order to improve farm sustainability
 - Crop and dairy farm in 4 contexts (one per partner country)
 - 3 game modes: agroecological practices (learn about different practices and test their effects on the farm); systemic thinking (reach defined sustainability level by combining adequate practices); teacher mode (custom starting point and objectives)
- Provide online pedagogical resources to help players and trainers use the game
- Public : Masters and Bachelor students, agricultural high school students, agricultural professionals
- Available in 5 languages: partners languages + English