



## **ECO-SERVE:**

**Sustainable provisioning of multiple ecosystem services in agricultural landscapes**

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**+ SE, FR, CH, ES, PT**



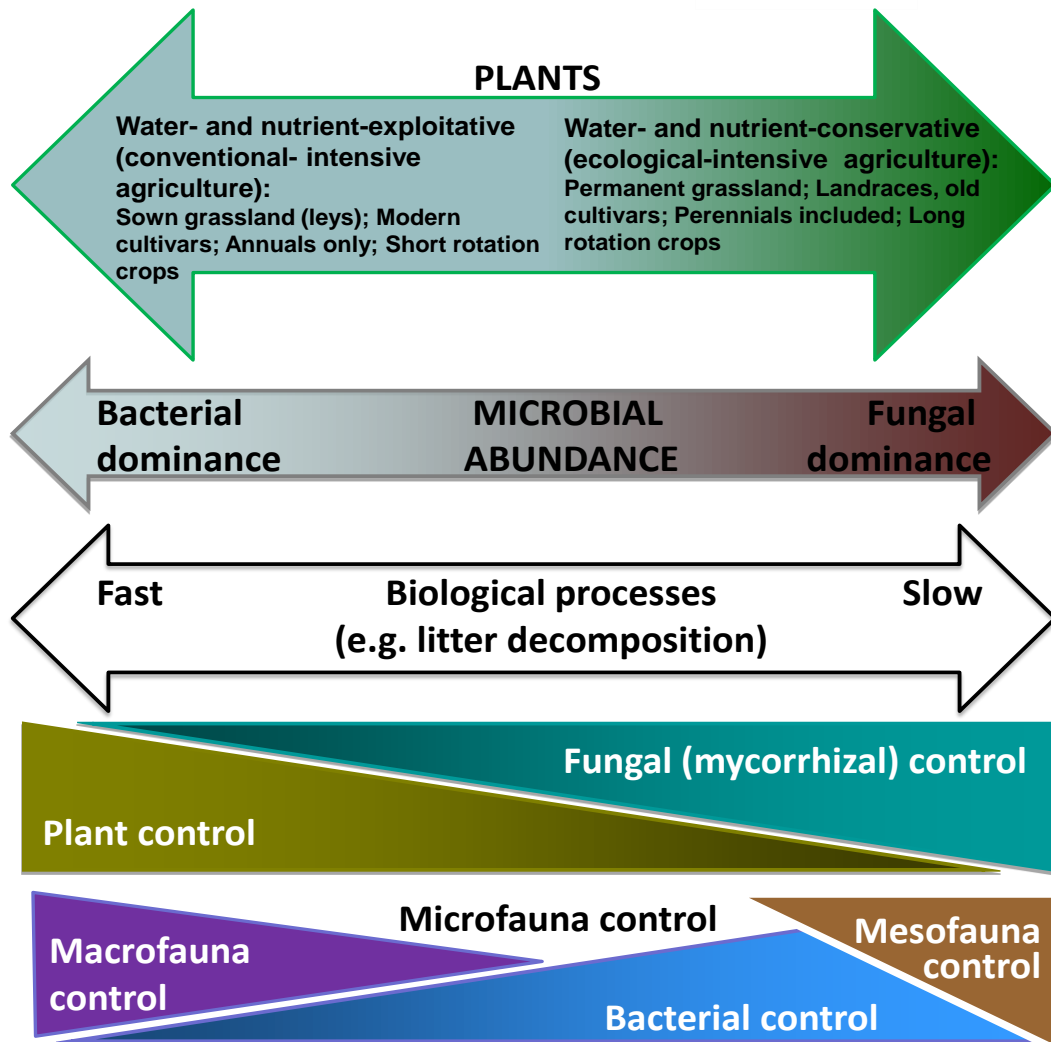
Eco-serve general hypothesis:

Trait-based **understanding of the influence of the vegetation and the soil biota on soil organic matter** quantity and quality will

**allow farmers to manage ecosystem services for**

**adaptation to climate-induced changes in drought and rainfall frequencies and intensities**

Litter and soil organic matter traits



Litter and soil organic matter traits



Central stage to

- **Crop choice and crop and residue management.**
- **Combination of experimentations and on-farm field observations**

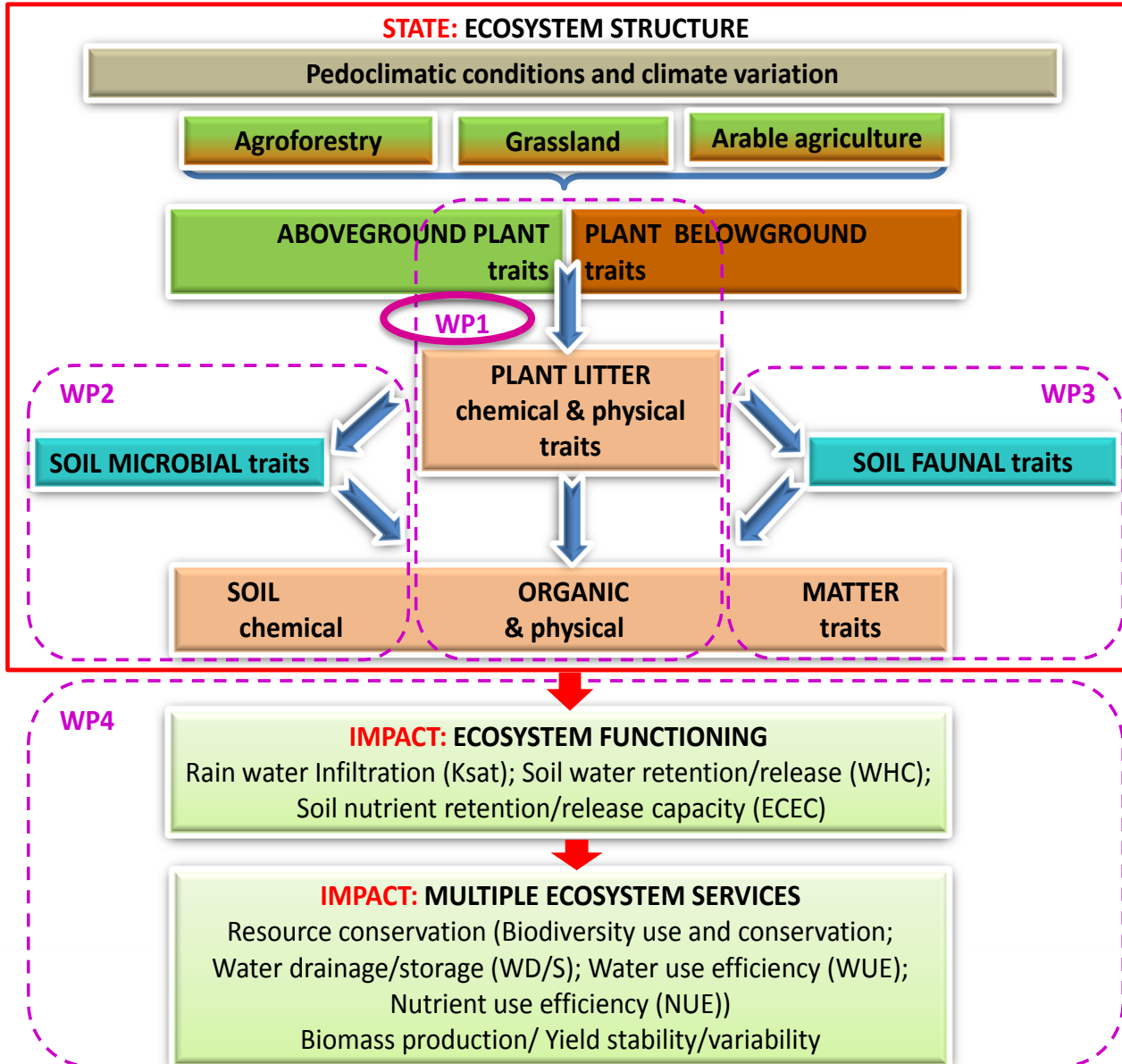
(1) Select key **traits of crops, plant litter (biota), rhizosphere biota and soil fauna**

(2) Discriminate between **soils** that are **similar** in terms of texture and mineralogy and hydrological position in the landscape, but **different in soil carbon status due to historic land management**

(3) Identify **farmers who already practice ecological-intensive adaptation strategies**

(4) **Interface with stakeholders** to identify possible synergies and trade-offs with other ecosystem services, hence: **which and to what extent are adaptation strategies under climate change feasible?**

**DRIVER: CLIMATE CHANGE**  
**PRESSURE: RAINFALL VARIABILITY**



Brussaard coordinator and chair of steering committee:  
 Milla (WP1)  
 De Deyn (WP2)  
 Sousa (WP3)  
 Gattinger (WP4)  
 D’Hertefeldt (WP5)  
 Clément

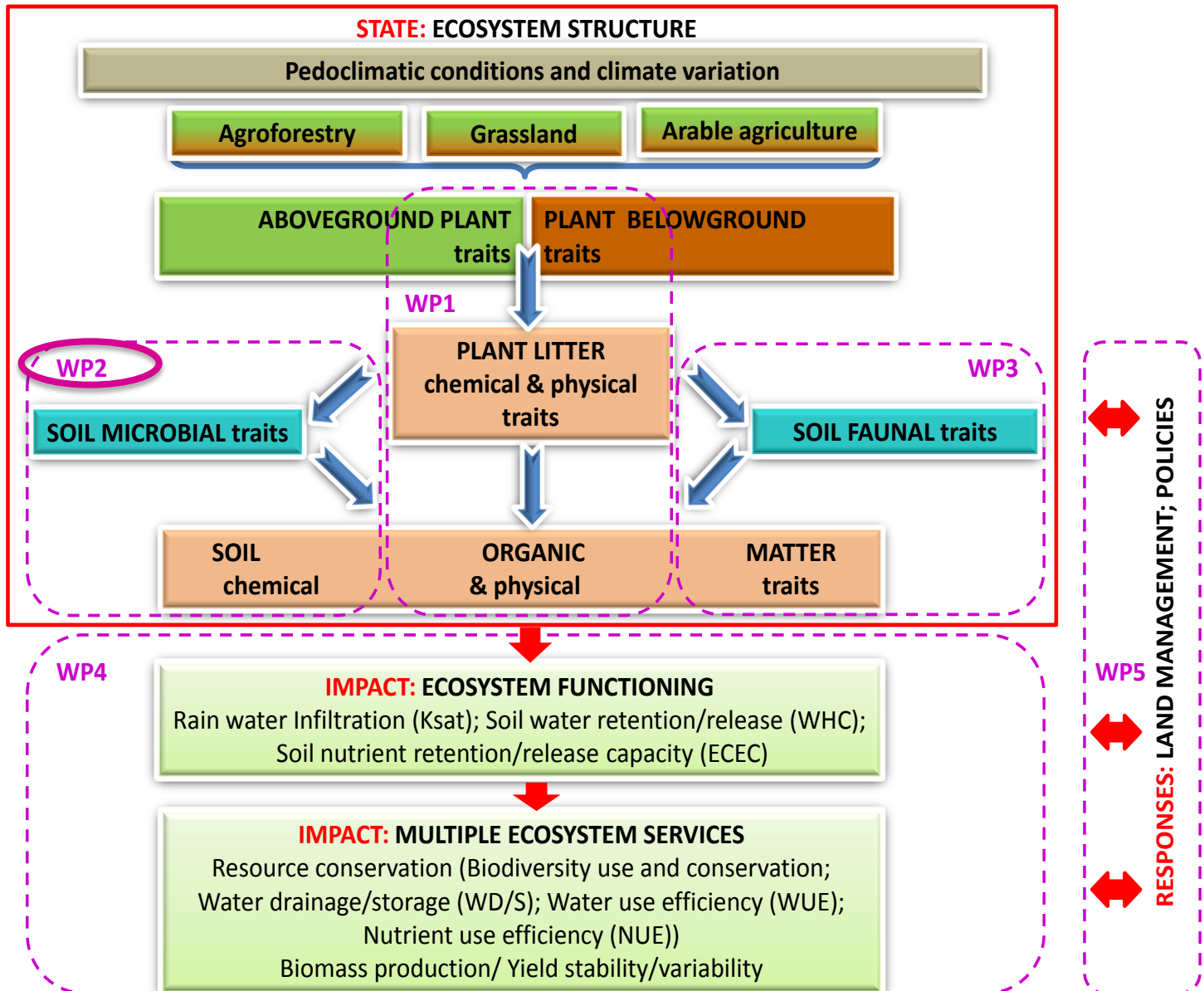


## Work packages

### **WP1:**

Objective: Investigate how different management options and choices of plant species and genotypes impact on plant and litter traits, and how variation in those traits cascades down to affect the accumulation and quality of soil organic matter (SOM).

**DRIVER: CLIMATE CHANGE**  
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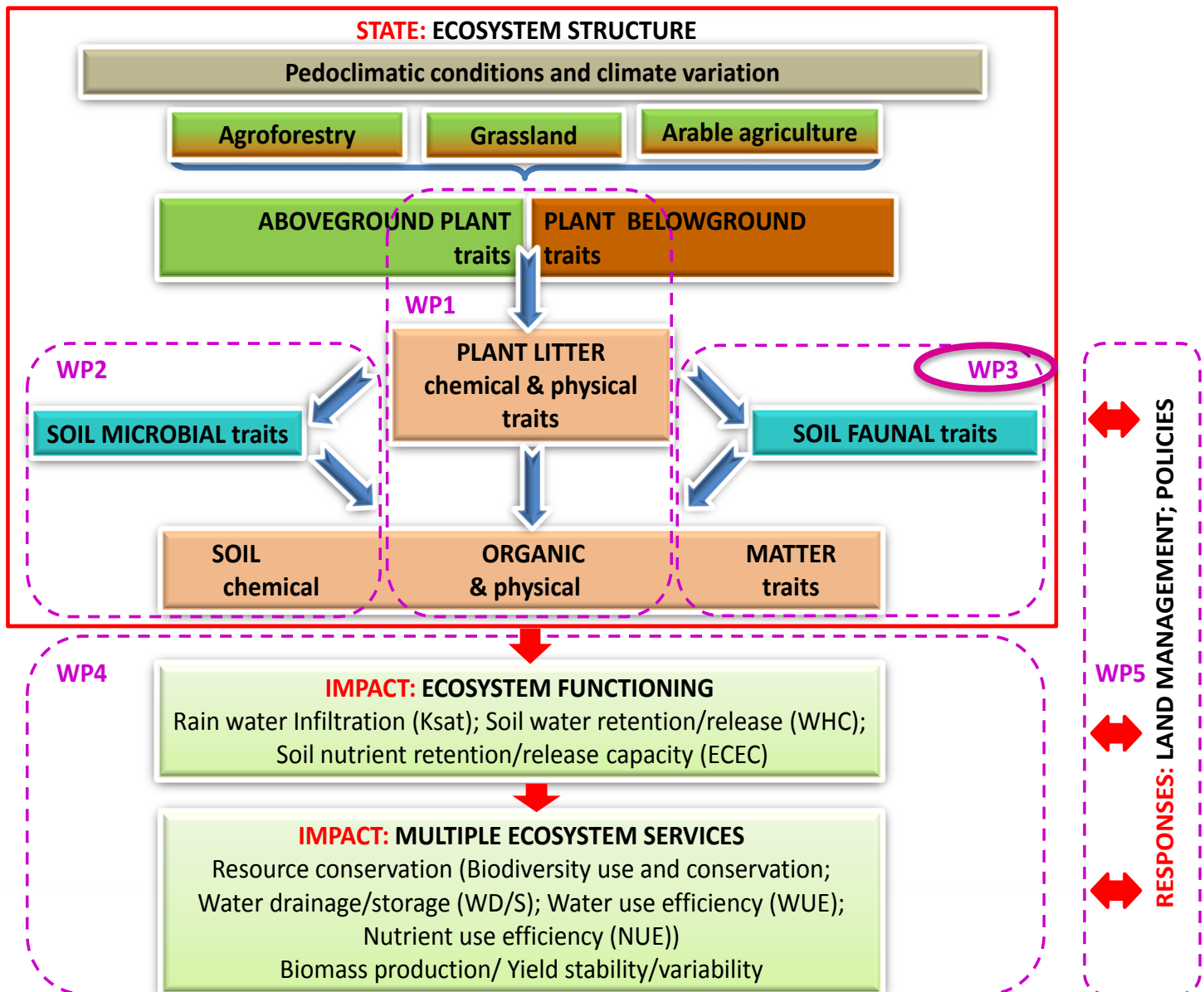


## WP2:

Objective: Investigate how litter traits and water availability impact on soil microbial community traits in conventional-intensive and ecological-intensive managed soils across Europe and its implications for ecosystem responses to rainfall variability under climate change.



**DRIVER: CLIMATE CHANGE**  
**PRESSURE: RAINFALL VARIABILITY**

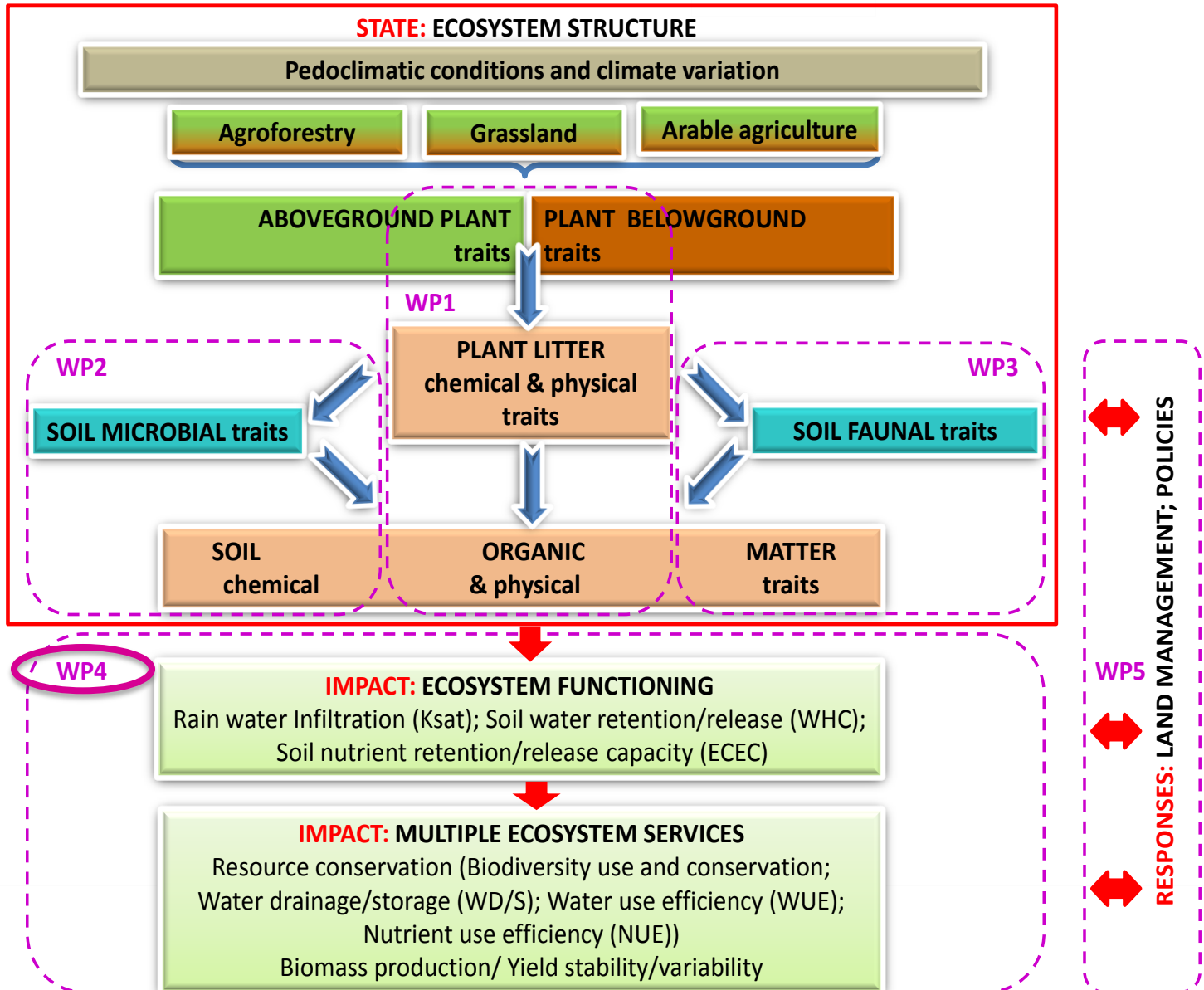


## WP3:

### Objectives:

- 1) Investigate how different plant litter traits (physical and chemical) affect soil faunal functional diversity (FD) and the consequent decomposition rate, under different land management;
- 2) test the effect of extreme rainfall/drought on the ‘litter-soil fauna’ interactions and how it influences the decomposition process and the SOM status in soil under different land management.

**DRIVER: CLIMATE CHANGE**  
**PRESSURE: RAINFALL VARIABILITY**



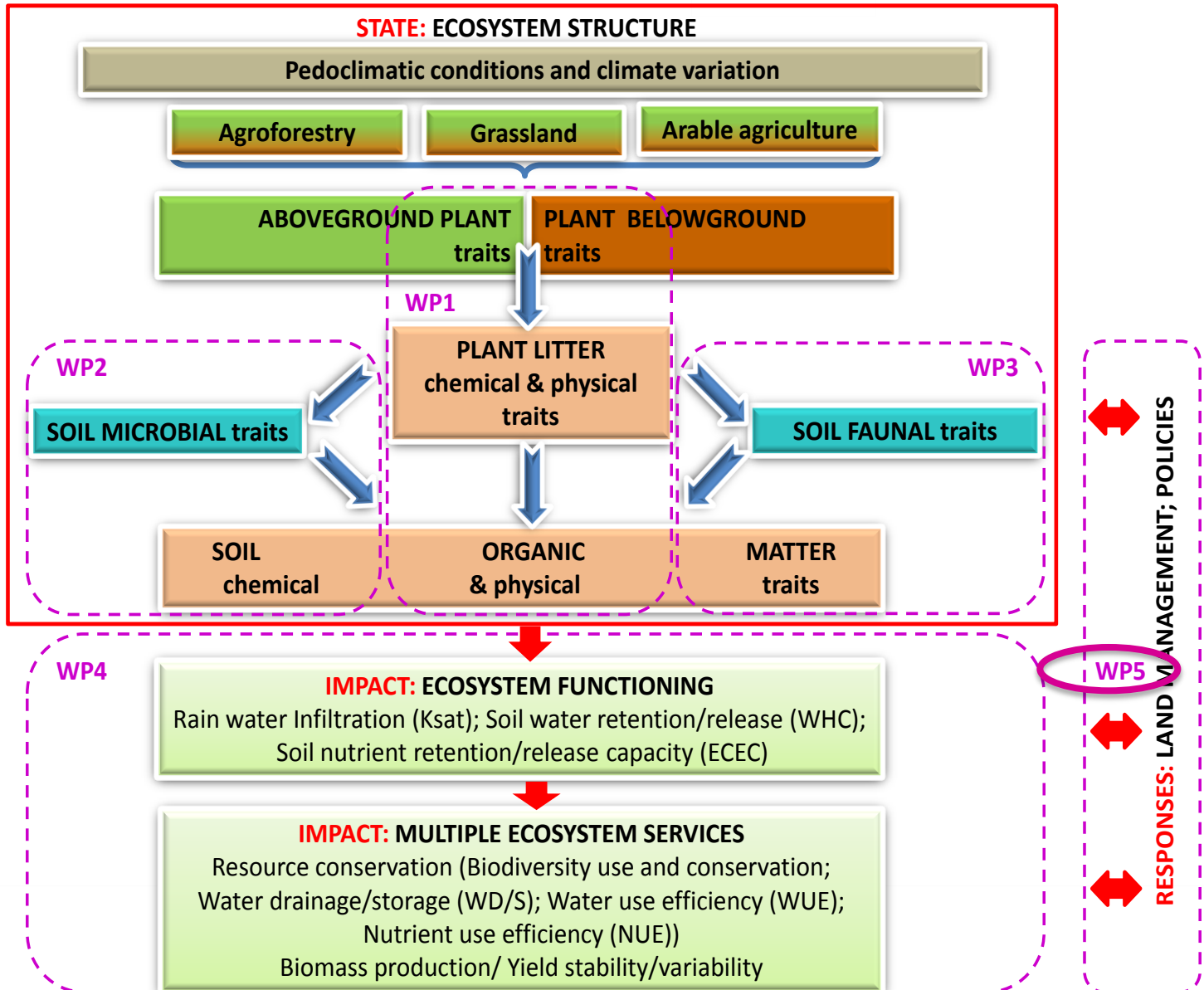


## WP4:

### Objectives:

- 1) Investigate the response of soil water dynamics, tree/crop/grassland growth and plant WUE to rainfall variability;
- 2) investigate the response of soil nitrogen dynamics, tree/crop/grassland growth and plant NUE to rainfall variability;
- 3) investigate trade-offs and synergies between ecosystem services: WD/S, WUE and NUE.

**DRIVER: CLIMATE CHANGE**  
**PRESSURE: RAINFALL VARIABILITY**





## WP 5

Objective: The WP will serve as a communication platform between stakeholders and the research in the project, resulting in

- i) improved understanding of the ecosystem services provided by plant and soil biodiversity, and
- ii) the uptake of the new results by stakeholders towards more ecologically-intensive farming systems.



Task 5.1: Regional stakeholder initiatives

Task 5.2: Farmer interviews and field day demonstration of the ongoing research, embedded in existing national networks

Task 5.3: Data provision for policy decision on sustainable agricultural management

Task 5.4 Feedback to seed providers

Task 5.5 Economic aspects of sustainable farming

Task 5.6. Interactive communication activities with stakeholders

Task 5.7 Evaluation of feasible sustainable management options with stakeholders