

Trait-based approaches applied to agroecosystems



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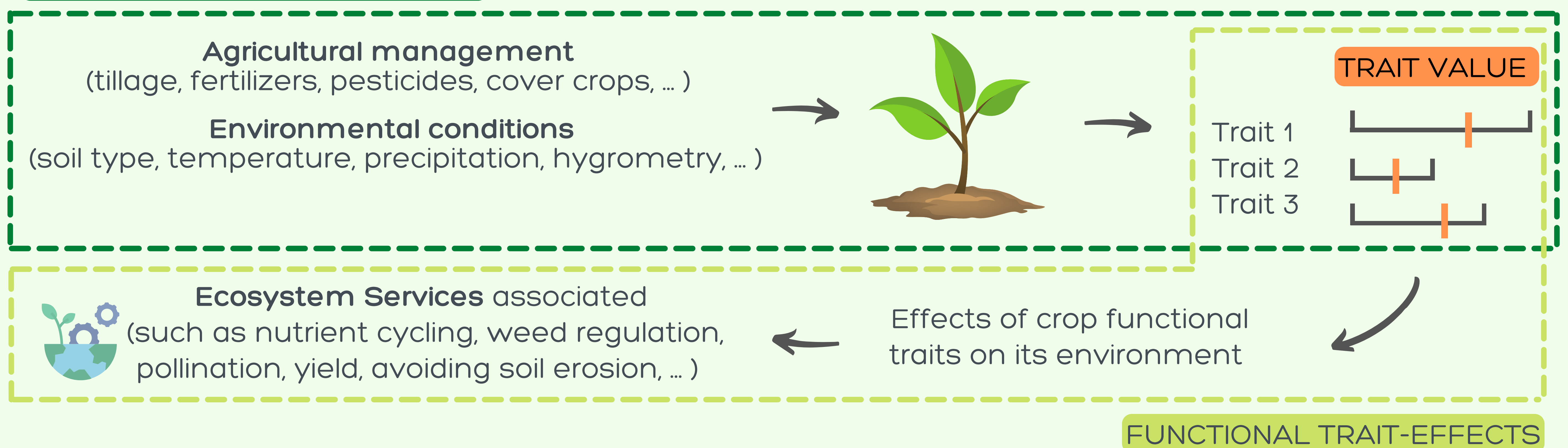
How functional trait-based approaches could help us to understand and to predict agroecosystem services in order to install more complex and resilient systems facing climate change and facing our dependence on inputs?

Functional traits are morphological, biochemical, physiological, structural, phenological or behavioural characteristics of **organisms** that influence how they respond to the environment and/or their effects on ecosystem properties. A trait is a feature measurable at the level of the individual, which does not require additional information from the environment or at any other organization level. These traits have varied scales of study: it goes from genetic and an individual perspective to habitats and global scales of integration.

Functional diversity represents the value, range, and relative abundance of the functional traits of the organisms in communities that respond to the environment and influence ecosystem functioning

Crop 'trait response and effect' framework

FUNCTIONAL TRAIT-RESPONSES



Potential of **generalisation and prediction** of agroecosystem services

- ✓ Identifying ecosystem service **trade-offs** occurring for each crop
 - ✓ Identifying **trait syndromes** and **trait differences** among crops and weeds to limit competition
 - ✓ Understanding crop and its associated biodiversity **ITV (Intraspecific Trait Variation)** among environmental and agricultural management gradients
- Crop **associations** that promote **multiple ecosystem services**

The potential of a global crop trait database

