

The 'Z project' towards agroecological fruit production

Aims

To design and experiment a pesticide-free low-input fruit production agroecosystem by reinforcing ecosystem services

To evaluate through multicriteria assessment the performances of the system, including operational dimensions for management, and analyze regulation ecological processes

Approach

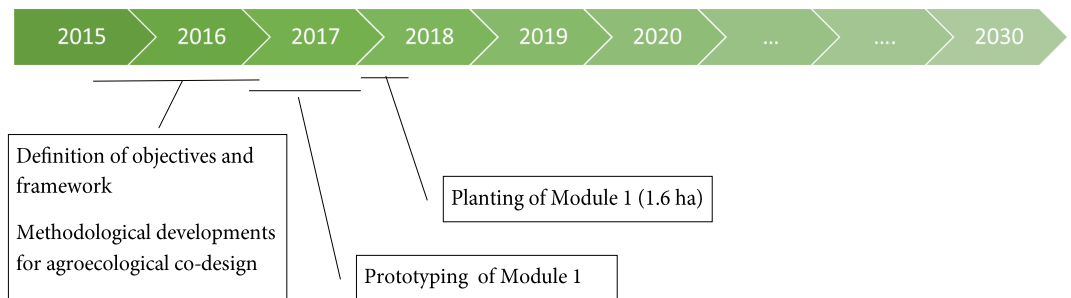
Redesign of the fruit production area

The redesign of the orchard, i.e. the choice of cultivated and companion plant species and their arrangement within time and space, in a 'pest suppressive' fruit production area was at the core of the approach. Main targeted processes are barrier-dilution effects, push-pull (i.e., repulsive and trap plants), as well as plant-mediated (bottom-up) and natural enemy-mediated (top-down) processes. Both plot and supra-plot scales are considered in the design.

Evaluate sustainability

Evaluate ecosystem services

Productions of the experimented fruit agroecosystem will be assessed through time, and environmental, social (including labour organization) and economic performances will be evaluated. Pest suppression and production supporting ecosystem services including the underlying ecological processes as affected by practices will also be assessed. This survey will help manage the agroecosystem 'on the way'.

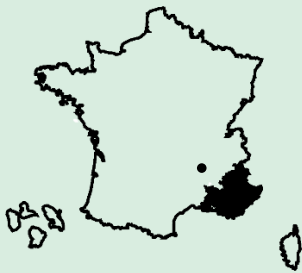


Design process and knowledge production

The project was developed in a dynamic perspective that fostered interactions among various stakeholders (farmers, advisors, teachers, technicians, researchers etc.) about the approach, the scientific questioning and the experimental design at local, national and international levels. This in turn permitted to share and co-produce knowledge about agroecological co-design. After the initial step with Module 1, other modules are to be designed, experimented and evaluated within the same framework, but with possible changes in the prioritisation of ecosystem services to re-inforce.

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The SAFIR programme 'Systems for Agroécological Fruit production: Innovation and Re-conception' funded by the INRA Ecoserv and SMaCH metaprogrammes permitted to develop the approach and to design the first prototype (module 1).



'Z project' experimental area: 10 ha managed to promote functional biodiversity

Module 1: first experimental prototype planted in February 2018 (see below)

Domain of Gotheron—86 ha



Module 1: A 'pest suppressive' fruit production area

