Biodiversity surveys, multi-stakeholders analysis, sustainable landscape design

**Context**

- **Sustainability** of current orchards is questioned.
- **Strongly reducing pesticide use** in current orchards induces **risk of fruit damage** (BioRÉco, ÉcoPêche and CAP-ReD projects).
- **Is plant diversification** a way to reduce pesticide use?

**Aims**

- To rethink the agroecosystem to produce fruit in very low pesticide or pesticide-free systems & to build **concrete proposals** for tomorrow.
- To evaluate the effect of plant diversification in the agroecosystem on the orchard sustainability and ecosystem services.
- To share the approach and knowledge with stakeholders.

**An agroecological approach**

**Step by step redesign in a highly diversified environment**

- Alternated fruit tree rows: apple (planting year 2019), olive, apricot, kiwi fruit, persimmon, plum, fig and citrus...
- Habitats and infrastructures to foster biodiversity: hedgerows, ponds, shelters, nest-boxes...
- Organic farming excluding pesticides but biocontrol solutions and low dose copper applications.

**Resource sharing through time and space**

- CTIFL Balandran (30)
- INRAE Restinclières (34)
- INRAE Gotheron (26)

**Redesign**

- Agroecosystem & pest-suppressive design
- Supra-plot design with production areas & production supporting areas

**Orchard redesign from ground**

- Fruit species and cultivars alternated within and between rows: apple (planting year 2018), plum, peach, apricot, fig, pomegranate, nut, soft fruits...
- Companion plants and habitats to foster biodiversity
- Organic farming excluding all pesticides (even biocides).

**Expected results**

- Co-design methodology to design more or less breaking systems
- Knowledge about biological processes: Pest suppression, fruit tree behavior in multi-crop systems
- Prototypes of very low-input orchards
- Multi-criteria evaluation of multi-production complex systems
- New types of interactions

**An ongoing project...**

- Planting
- Co-design activities
- Biodiversity surveys, multi-criteria assessments

**2018**

- INRAE Gotheron
  - Module 1
- CTIFL Balandran
  - Module 1
- INRAE Restinclières
  - Module 1

**2019**

**2020**

[module new]

**2023**

[module new]

**For further information**

- https://www6.paca.inrae.fr/ueri/Contrats
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