

Which orchards towards more sustainable fruit production?

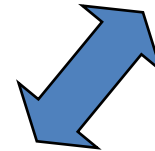
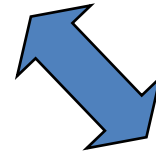
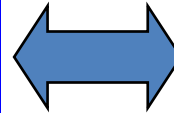


Integrated production

- Biology of pests and epidemiology of diseases to develop Integrated Pest Management
scab, brown rot, rosy apple aphid, fruit tree phytoplasms
- Cultural practices to manage pests and diseases, and improve fruit quality

Cultivar evaluation

- Cultivar susceptibility to a complex of pests and diseases
- Design of ideotypes for low-input orchards



Design, test and multi-criteria assessment of fruit production systems

- System experiment
- Development of evaluation tools (LCA, DEXiPM[®]...)



Organic farming

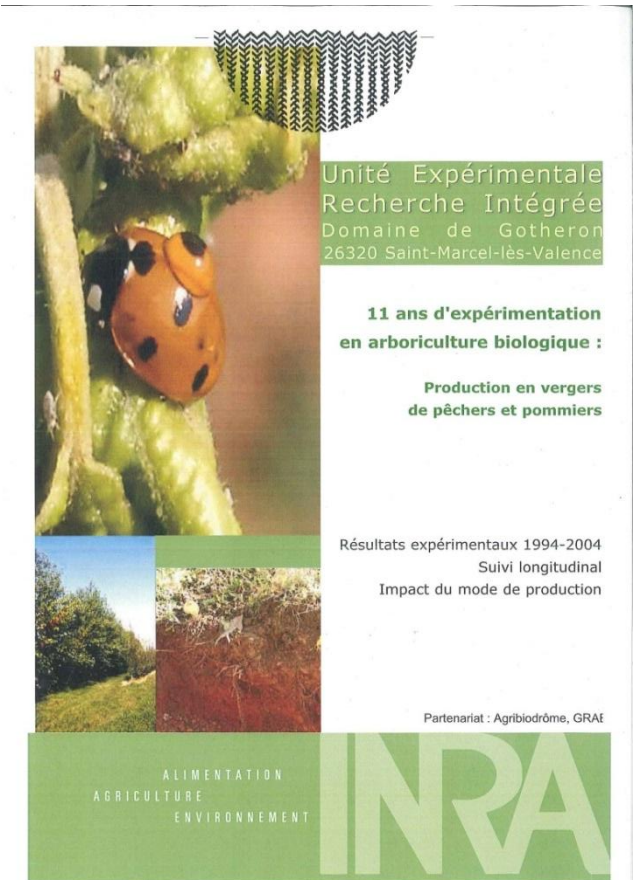
>Experimental programs in organic fruit production since 1994
Partnership: GRAB, Agribiodrôme

>References, analysis of bottlenecks, longitudinal survey of experimental organic orchards, environmental impact of some organic practices...

=> system approach

http://orgprints.org/8953/1/AB_INRA_Gotheron_2006.pdf

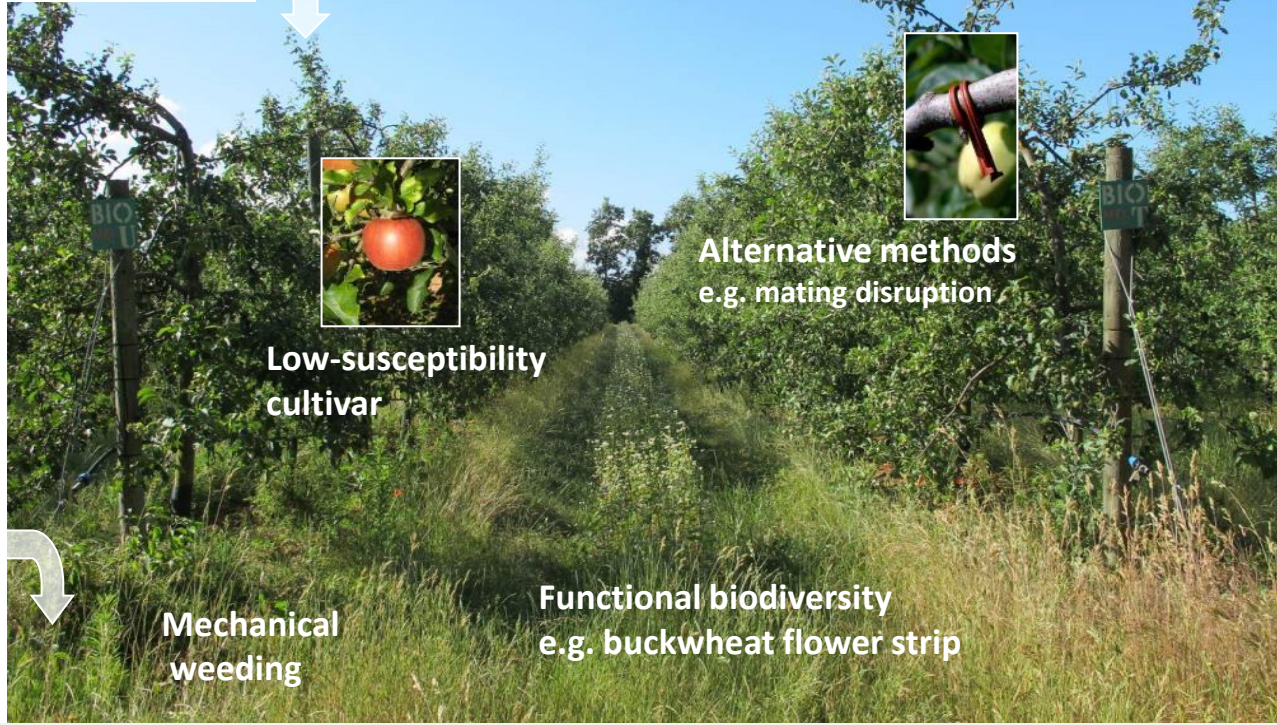
http://orgprints.org/7699/01/Abstract_INRA_Gotheron_2006.pdf



Planting distances

System approach: BioREco experimental design

Tree training



Low-susceptibility cultivar



Alternative methods e.g. mating disruption

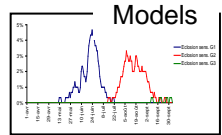
Supervised fertilisation, irrigation...

Mechanical weeding

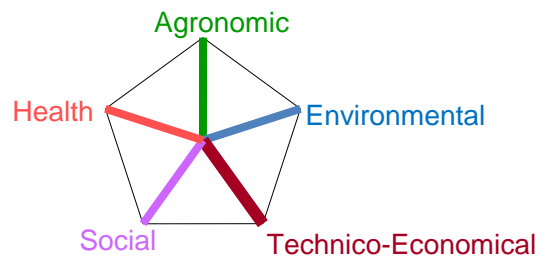
Functional biodiversity e.g. buckwheat flower strip

Selective pesticides that minimize environmental impacts

Accute evaluation of the risk of fruit damage



Multicriteria evaluation of experimented orchard systems

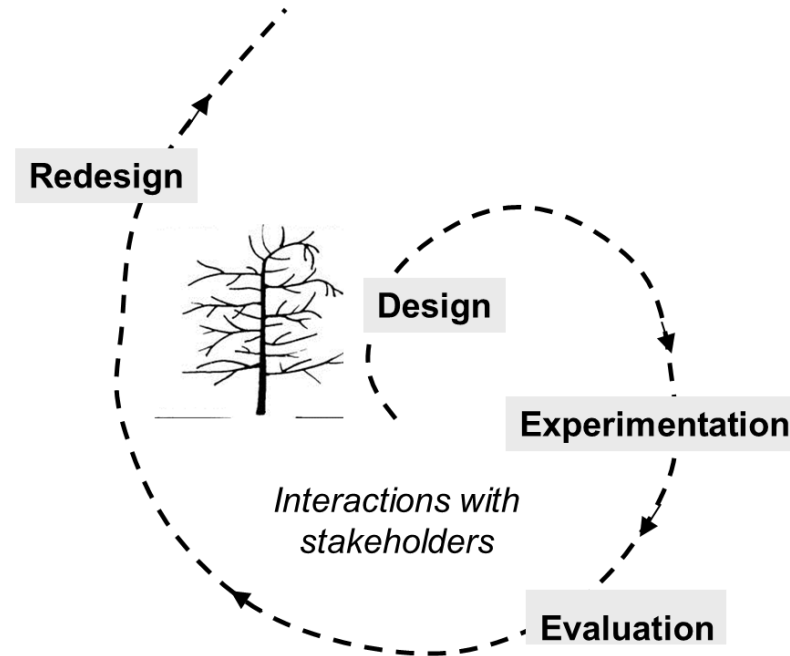


- Favourable
- Intermediate
- Unfavourable

| | Standard Golden | Low-input Melrose/Ariane | Organic Melrose/Ariane |
|--------------------------------|--------------------------------------|---------------------------------------|---------------------------------------|
| Pesticide use | ● | ● | ● |
| Yield | ● | ● | ● |
| Environmental impact (Indigo®) | ● | ● | ● |
| Production costs | ● | ● | ● |
| Feasibility | ● | ● | ● |

Developing analytical and system approaches towards...

- >More integrated orchards
- >Re-designed orchards
- >More and more interactions among stakeholders in the foodchain...



Thank you for your attention!



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