



Are farmers interested in involving landscape complexity in their pest regulation strategies?

Nicolas Salliou, Cécile Barnaud, Claude Monteil, Aude Vialatte, Jean Philippe Choisis

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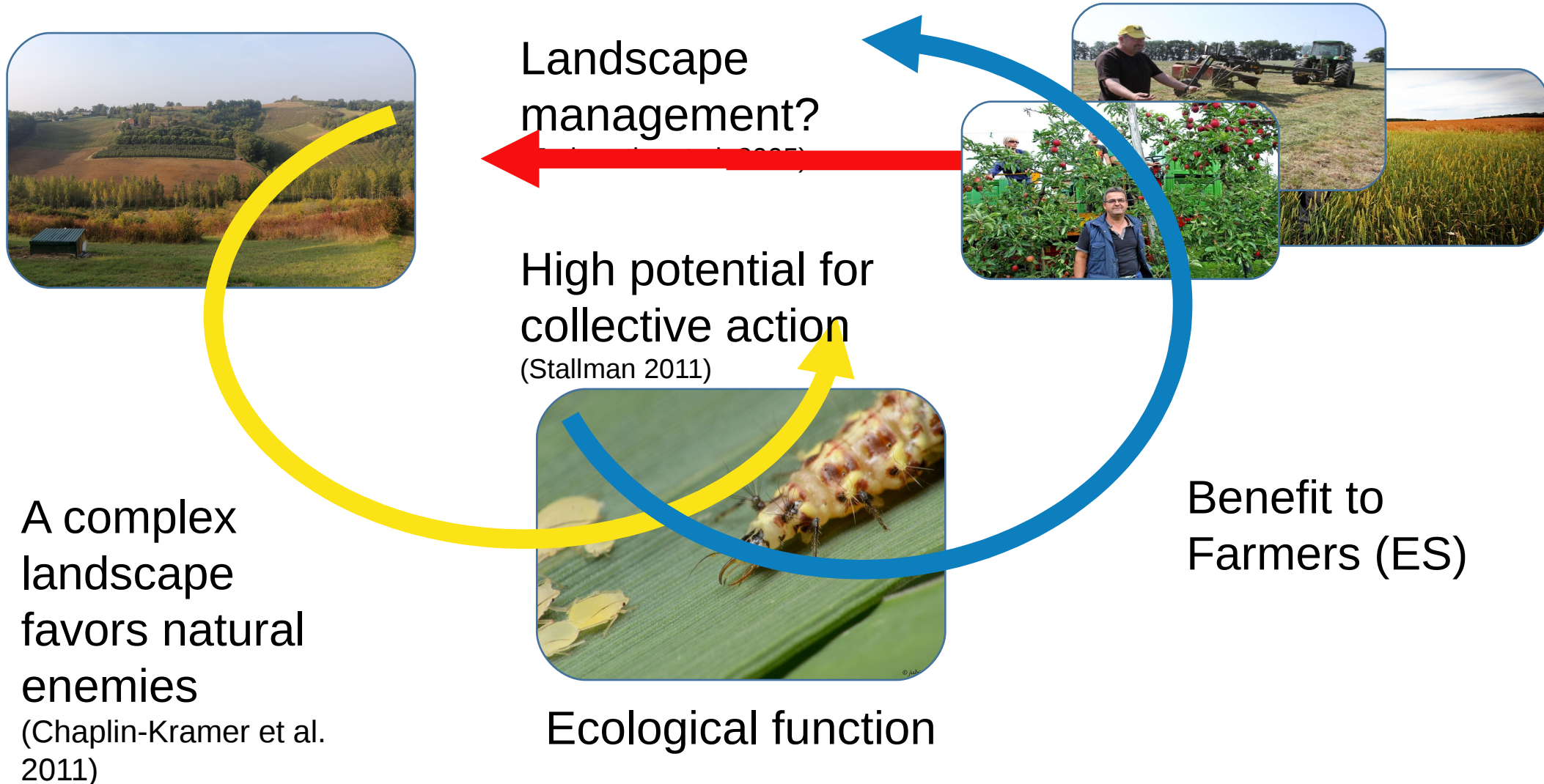
Are farmers interested in involving landscape complexity in their pest regulation strategy?

Salliou Nicolas, Cécile Barnaud, Claude Monteil, Aude Vialatte, Jean-Philippe Choisis



Engineering complex landscapes ?

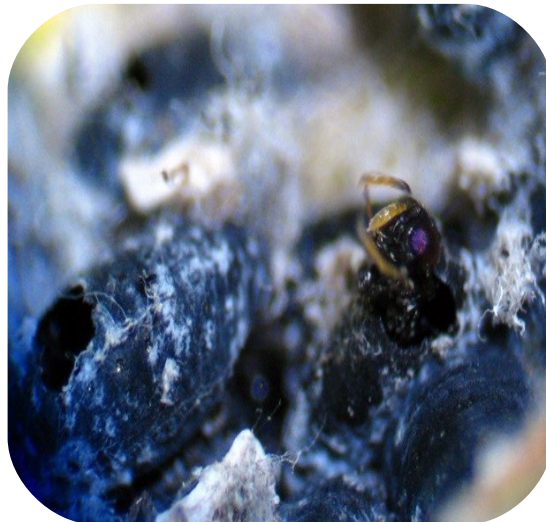
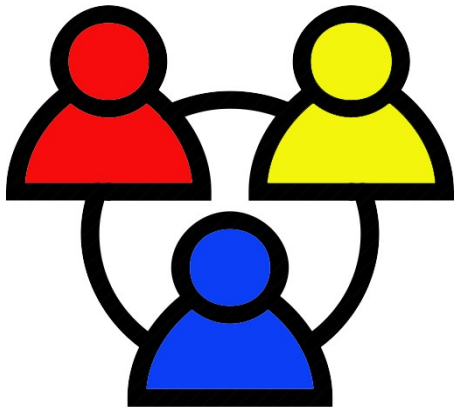
Problema



Innovation in agro-ecosystem design

Problematic

« Innovating in agro-ecosystem design often means that **groups and resources are to be built up** with stakeholders themselves » (Berthet 2013)



Modelling with stakeholders

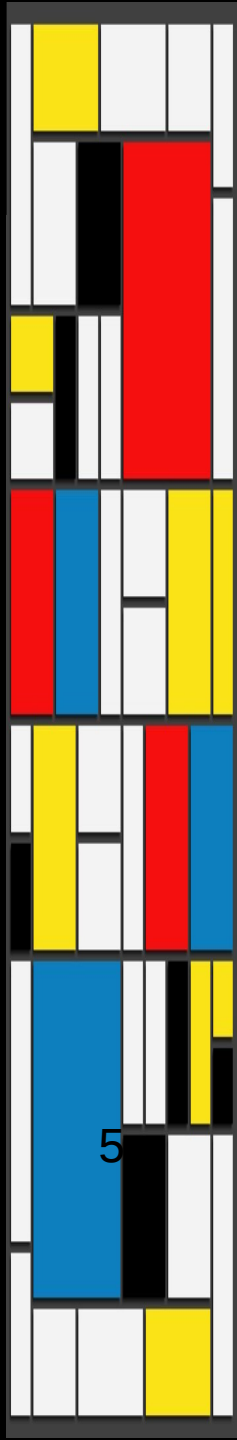
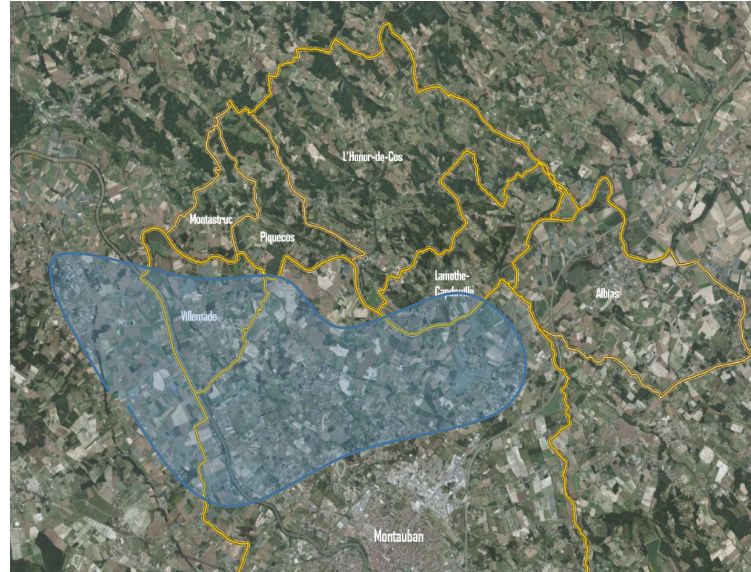
Methodology

- **A modelling attitude** (posture) which actively seeks to get involved with stakeholders and their social needs
- A modelling approach which is **iterative**, **adaptative** and **exploratory**



A intensive tree fruit production area

Study
site

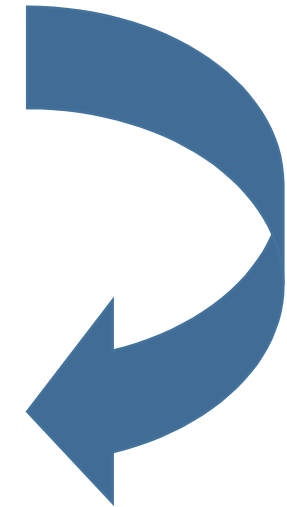


Ecosystemic dependances?

Modelling
#1

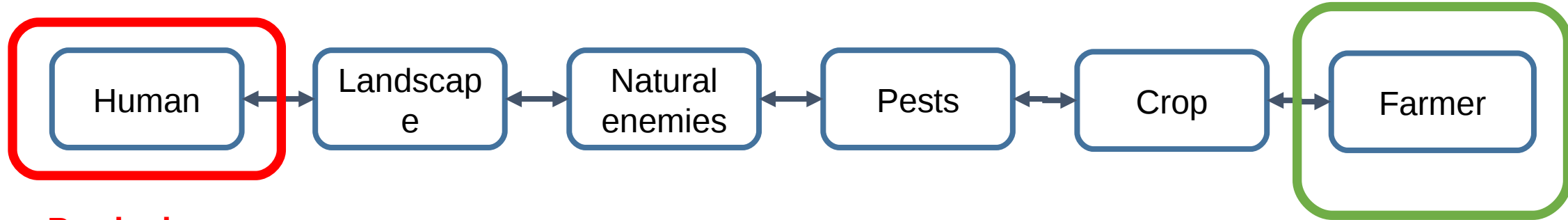
Question : Is there ecosystemic dependances regarding biological control by conservation ?

Modelling : Individual interviews and mental models of local stakeholders



Ecosystemic dependances?

Modelling
#1



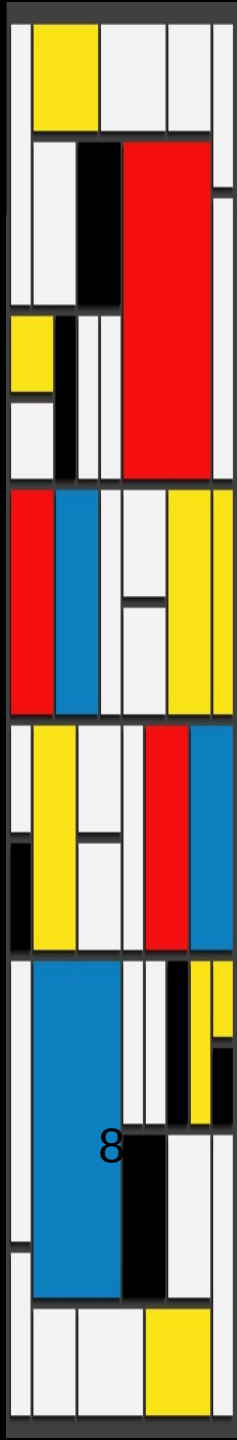
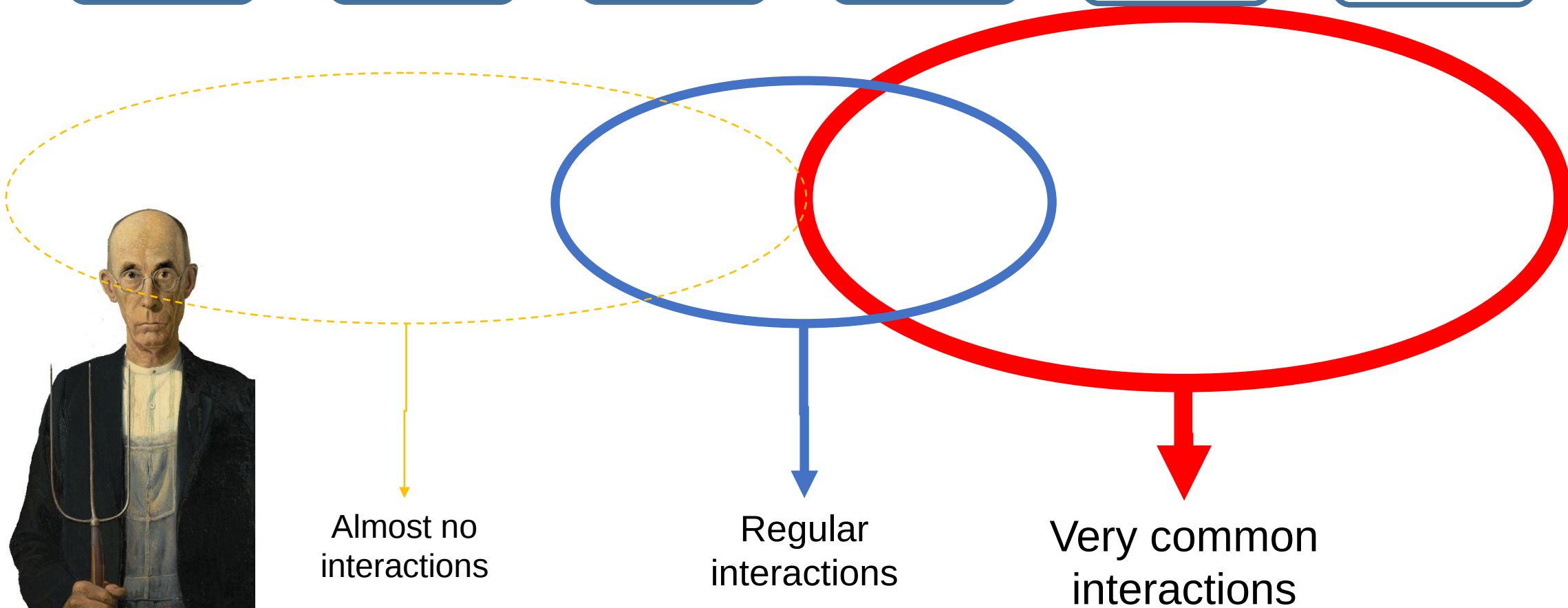
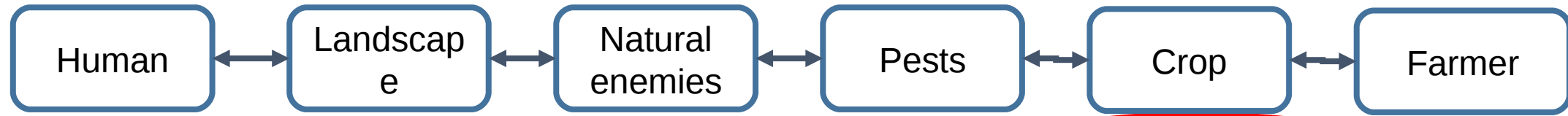
Producing an
ecosystem
service

Benefiting
from the
ecosystem
service



Ecosystemic dependances?

Modelling
#1



Ecosystemic dependances?

Modelling
#1

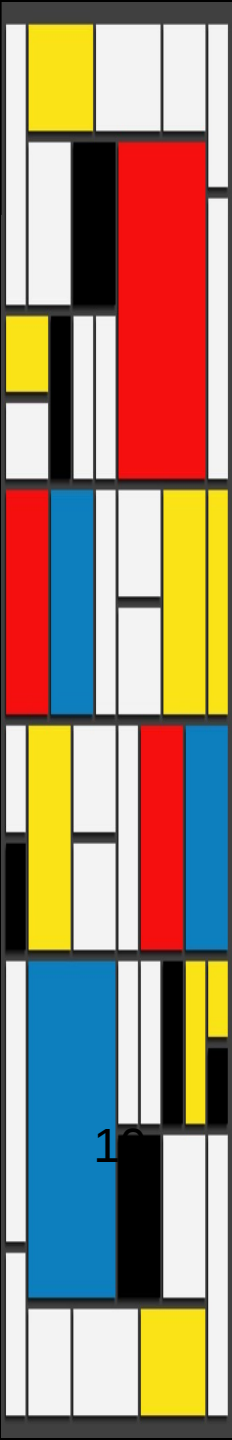
For interviewees
the landscape is
not source of
natural enemies
but potential
damages

New question :

Why such a knowledge gap between local stakeholders and landscape ecology findings?

Are there ecosystemic dependances regarding biological control by conservation ?

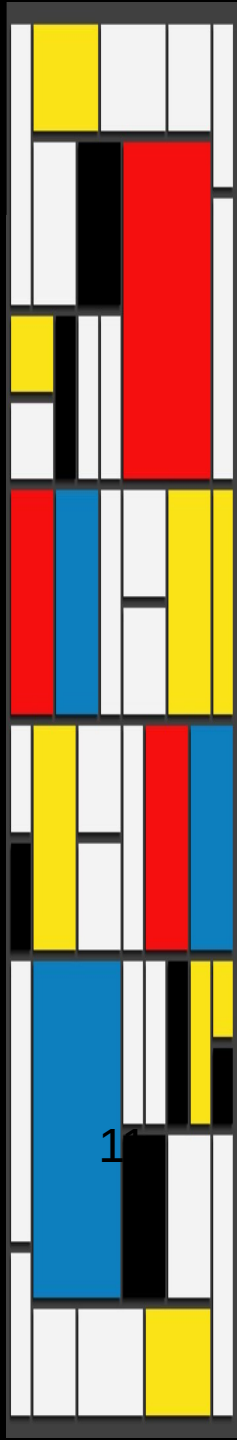
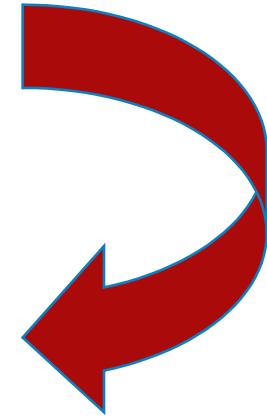
Individual interviews and mental models of local stakeholders



Representation-based uncertainty? Modelling #2

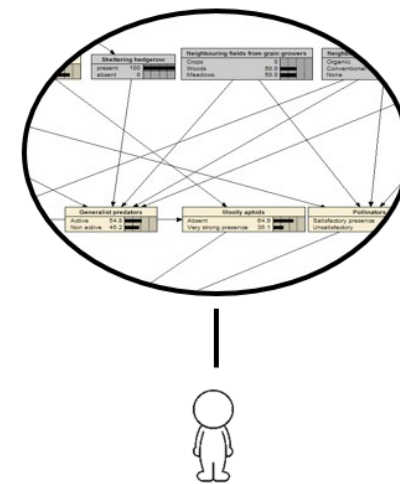
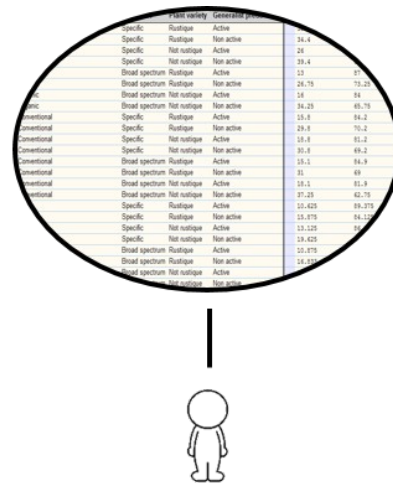
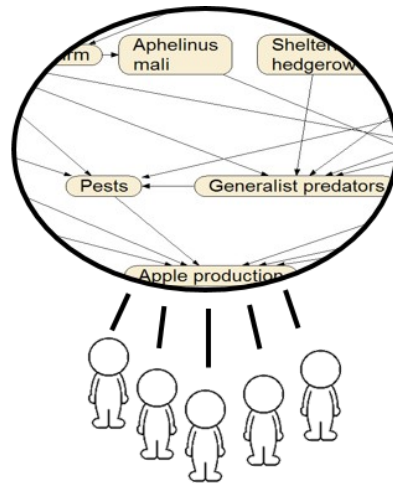
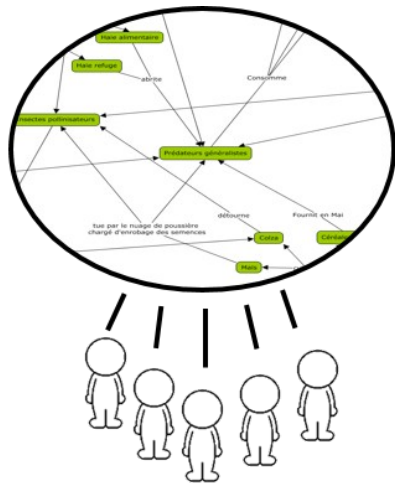
Question : Why such a knowledge gap between local stakeholders and landscape ecology findings?

Modelling: Participatory Bayesian modelling about individual stakeholder representations (Scientific vs. Locals)



towards individual Bayesian models

Modelling
#2

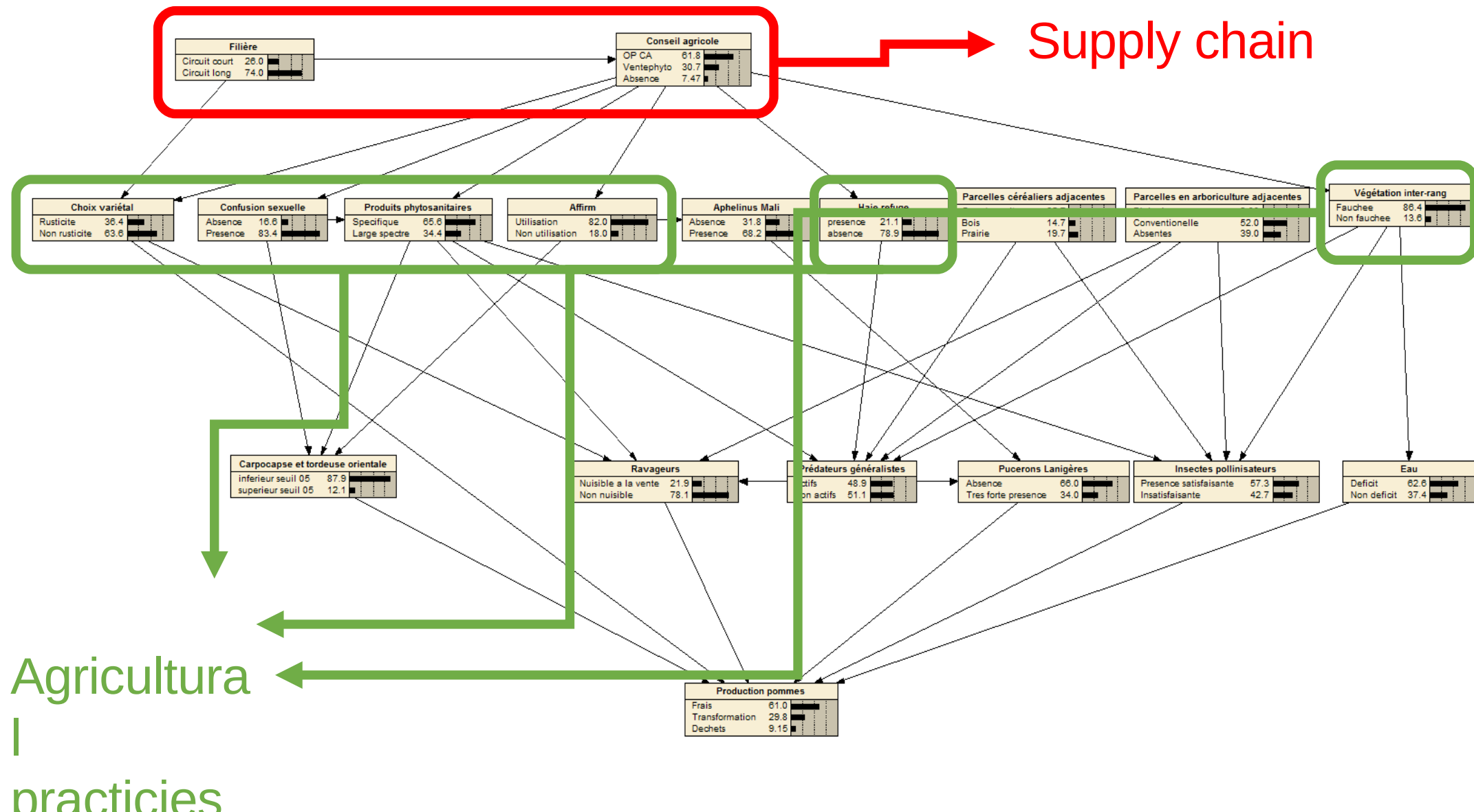


Collective construction
of a shared socio-
ecological conceptual
model

Individual
parameterization and
scenario exploration

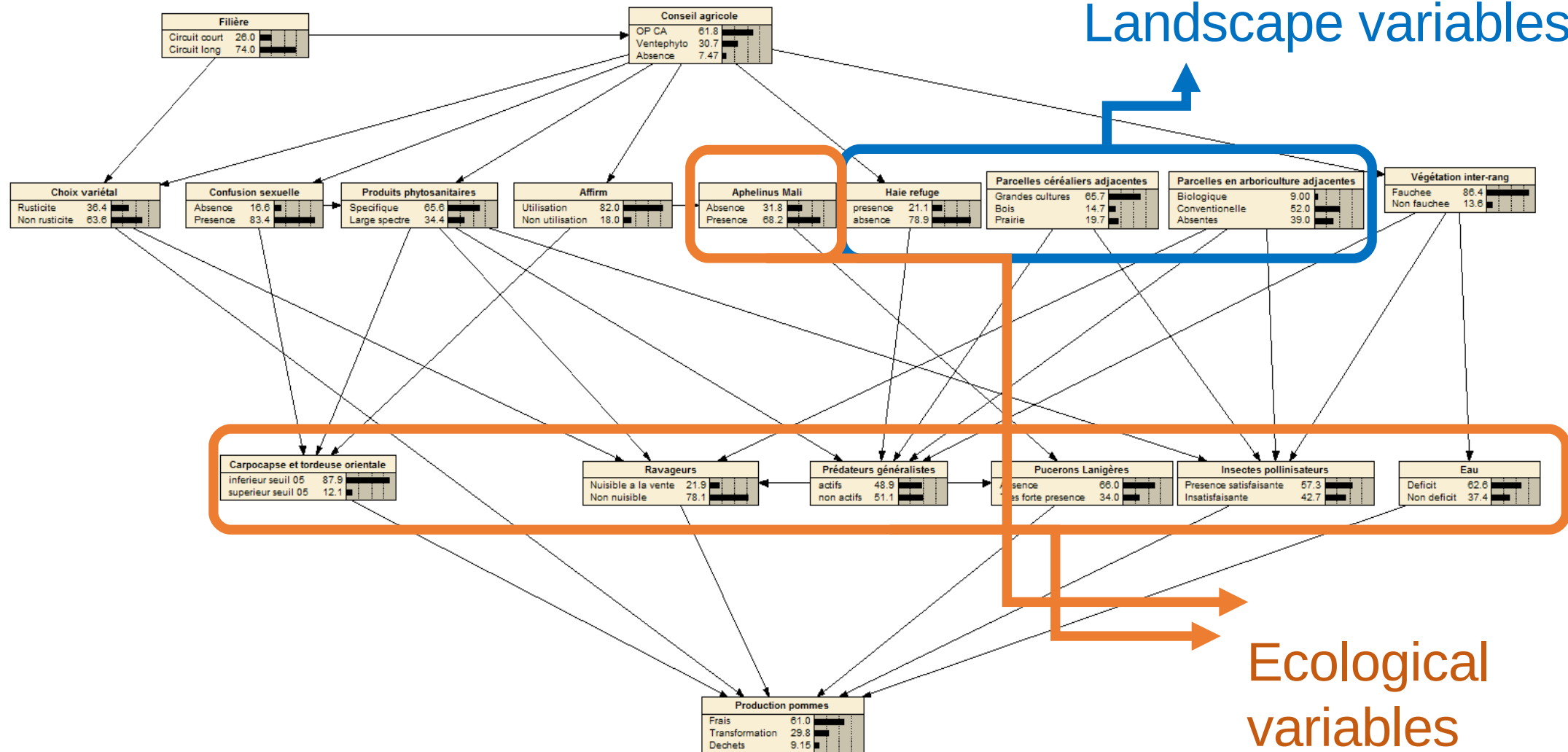
Bayesian Network

Modelling
#2



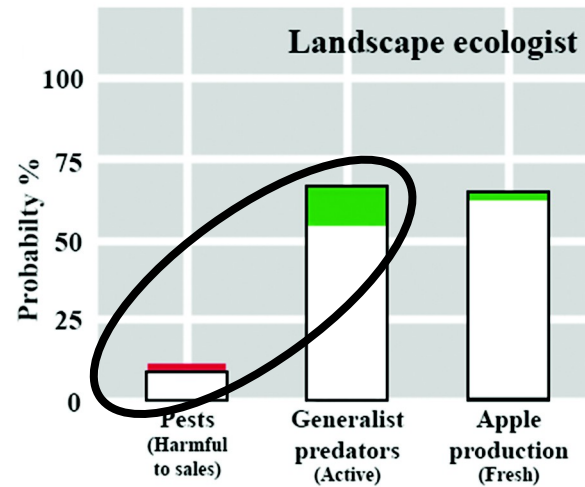
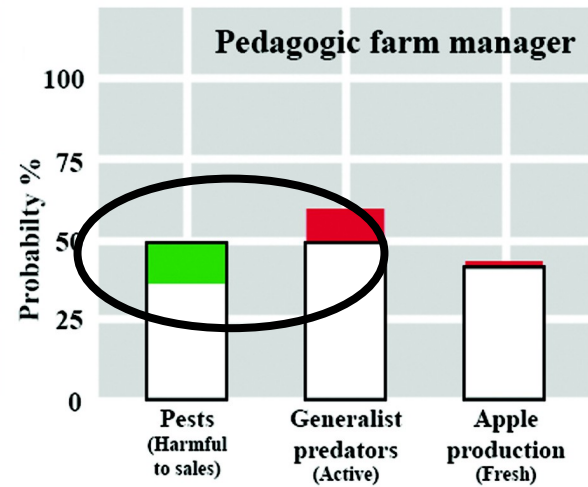
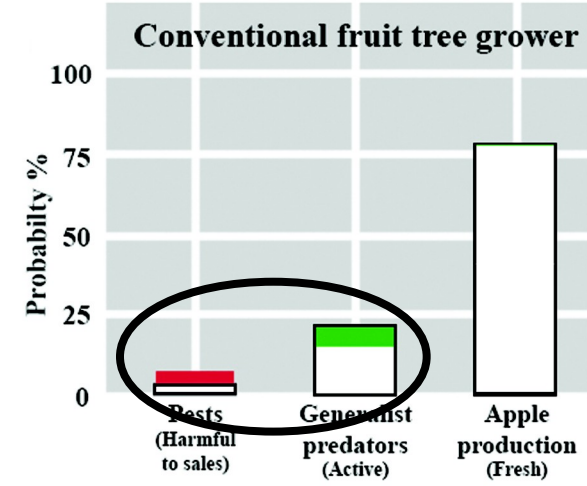
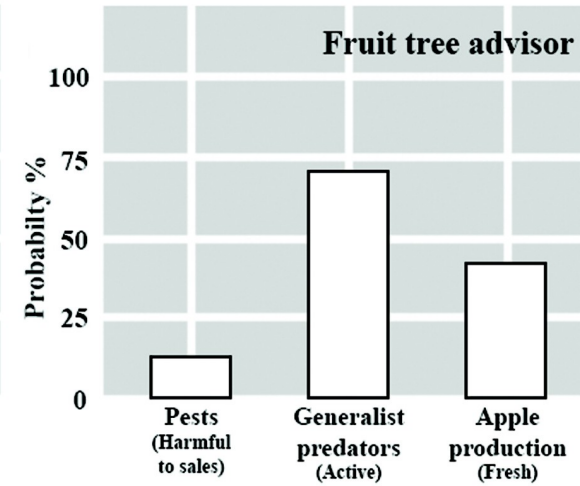
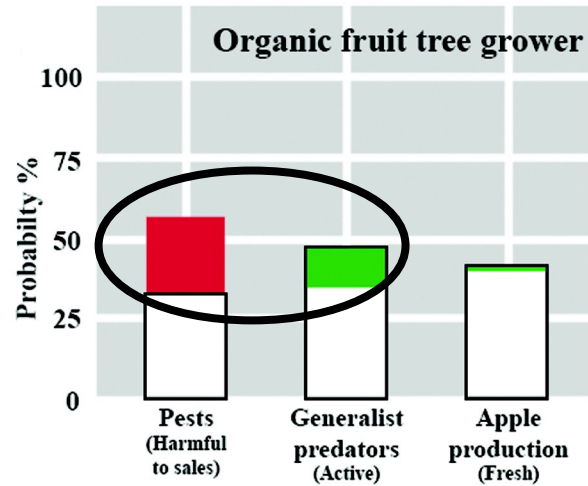
Bayesian Network

Modelling
#2

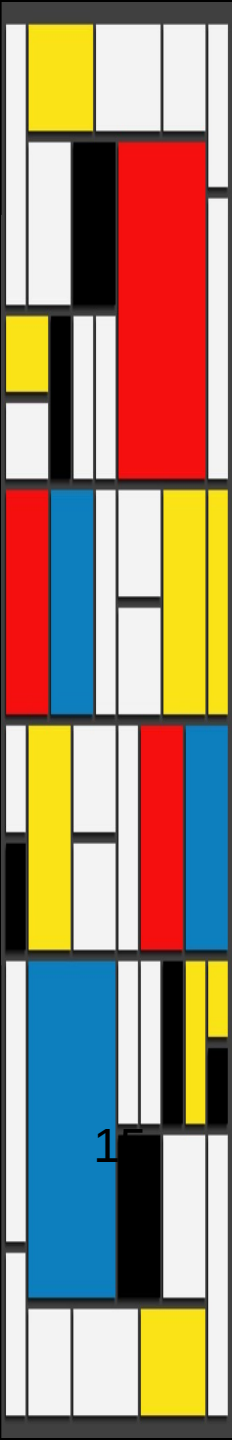


Scenario : complex landscape

Modelling
#2

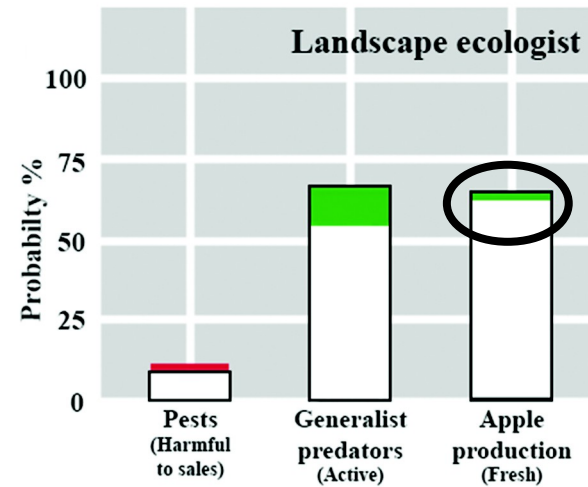
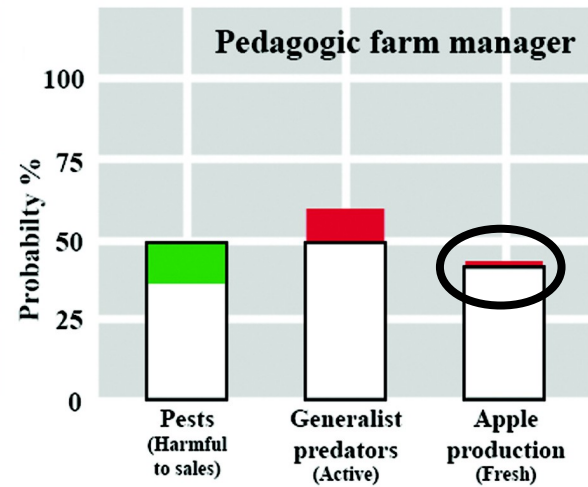
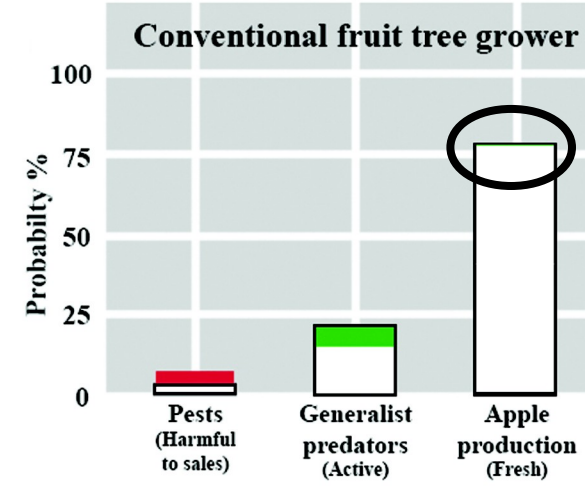
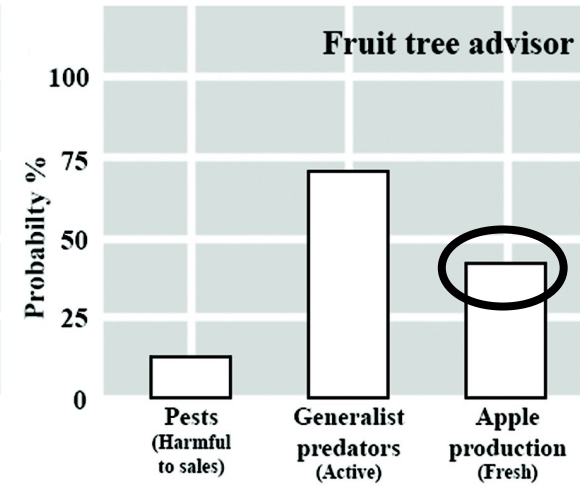
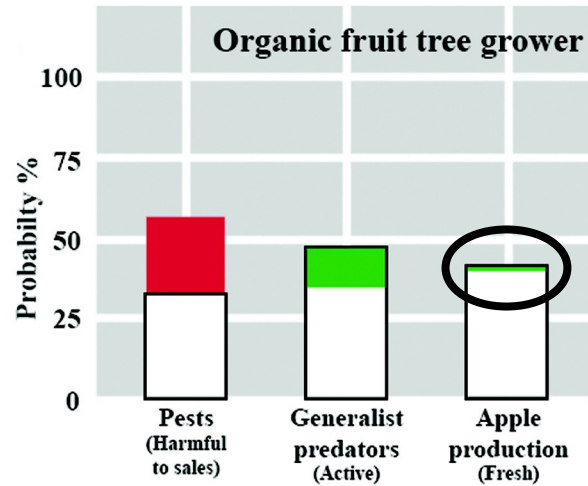


Most stakeholders have representation of a complex landscape having an effect on natural enemies variable and pests



Scenario : complex landscape

Modelling
#2

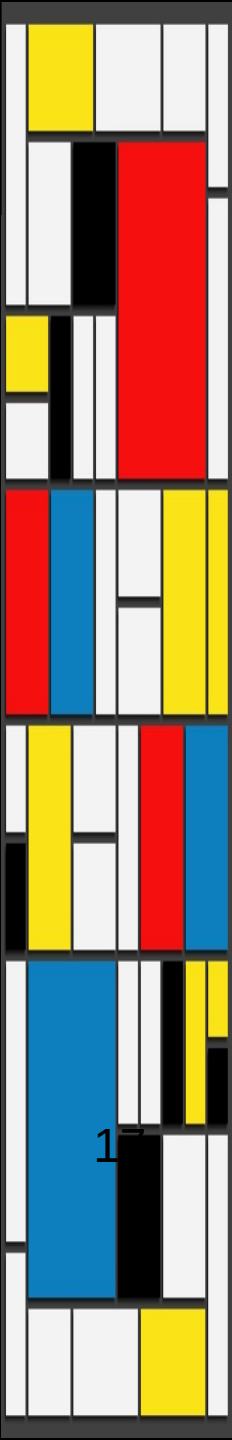
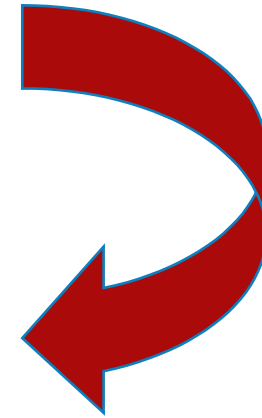
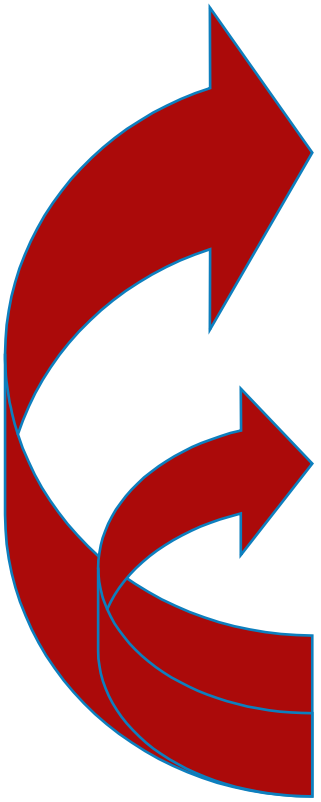


All stakeholders do not
associate a complex
landscape with significant
benefits regarding the
production variable

Difference of what is « significant »
between scientists and local stakeholders

Why such a knowledge gap between local
stakeholders and landscape ecology
findings?

Participatory Bayesian modelling about
individual stakeholder representations
(Scientific vs. Locals)



Conclusion

- Landscape complexity does not appear here to be in the interest of local stakeholders
- Need for more studies linking more explicitly potential ecological function with social demands
- Questionning the regular approximation that ecological function = ecosystem services.

Thank you for your attention

More information?
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