



**HAL**  
open science

## Appraisal of adaptation strategies to reduce vulnerability to climate change of maize farming systems: farmers' viewpoint

Marine Albert, Jacques-Eric Bergez, Stéphane Couture, Magali Willaume

### ► To cite this version:

Marine Albert, Jacques-Eric Bergez, Stéphane Couture, Magali Willaume. Appraisal of adaptation strategies to reduce vulnerability to climate change of maize farming systems: farmers' viewpoint. 14th European Farming Systems Conference: Farming systems facing climate change and resource challenges (IFSA 2022), IFSA – European Group, Apr 2022, Evora, Portugal. hal-03772341

**HAL Id: hal-03772341**

**<https://hal.science/hal-03772341>**

Submitted on 8 Sep 2022

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

VACCARM !



# Appraisal of adaptation strategies to reduce vulnerability to climate change of maize farming systems : farmers' viewpoint

**Marine Albert, PhD student at INRAE UMR AGIR**

**Jacques-Eric Bergez, Stéphane Couture, Magali Willaume**



# Maize farms in Southwestern France



High regional anchorage  
(DRAAF Occitanie, 2017)



Dependency on irrigation  
(DRAAF Occitanie, 2017)

Impacts from climate change



Water scarcity

(Senthilkumar et al., 2015; Caubel et al., 2018)

Need adaptation strategies  
(Howden et al., 2007)

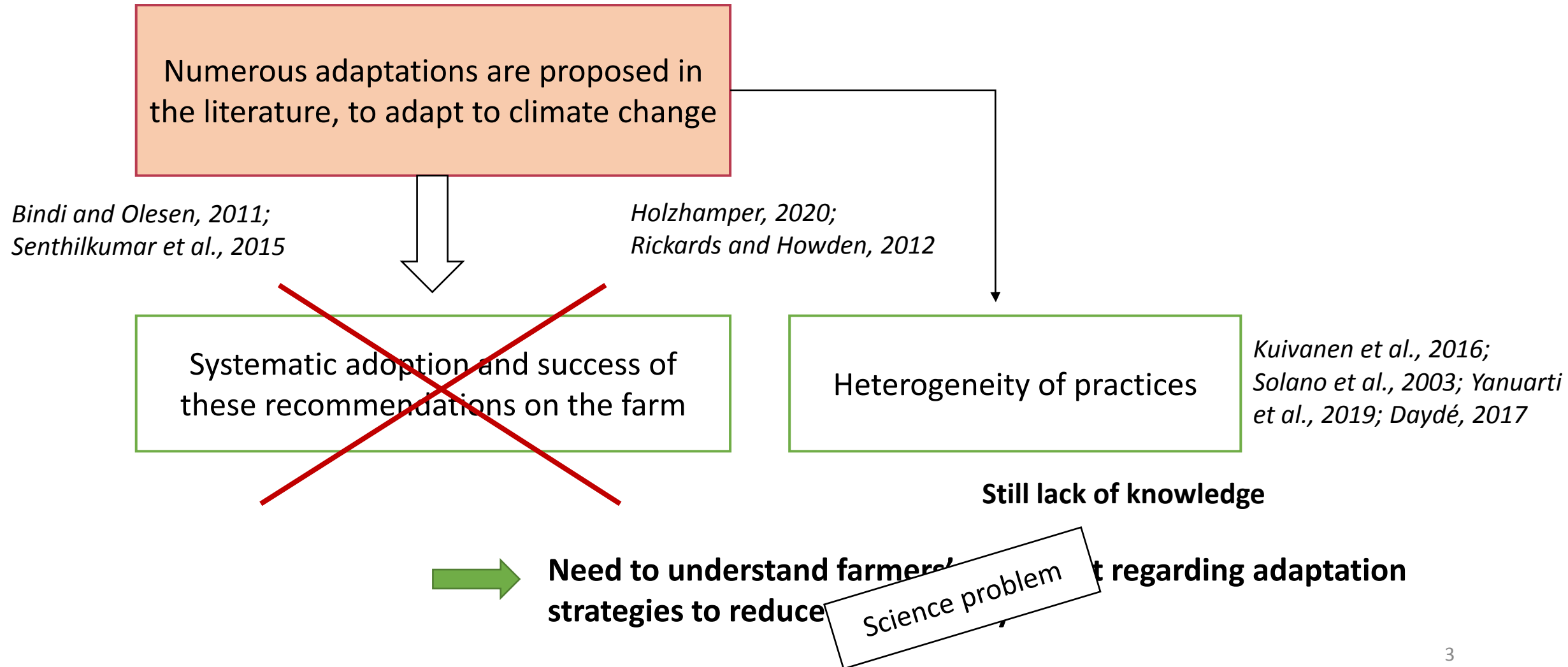


Without increasing dependency on irrigation

Need to enhance agricultural practices

Society problem

# State of the art on adoption of practices



# A two stages methodology

→ Surveys in irrigated maize farming systems in SW France

## 1. Qualitative stage

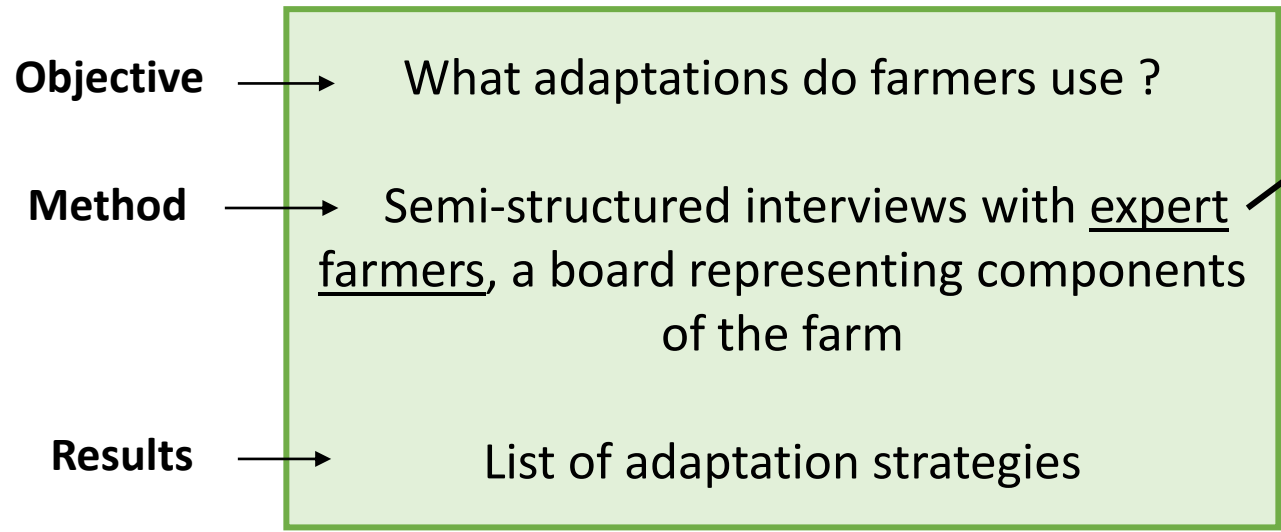
- Expert farmers
- Elicitation of adaptation strategies



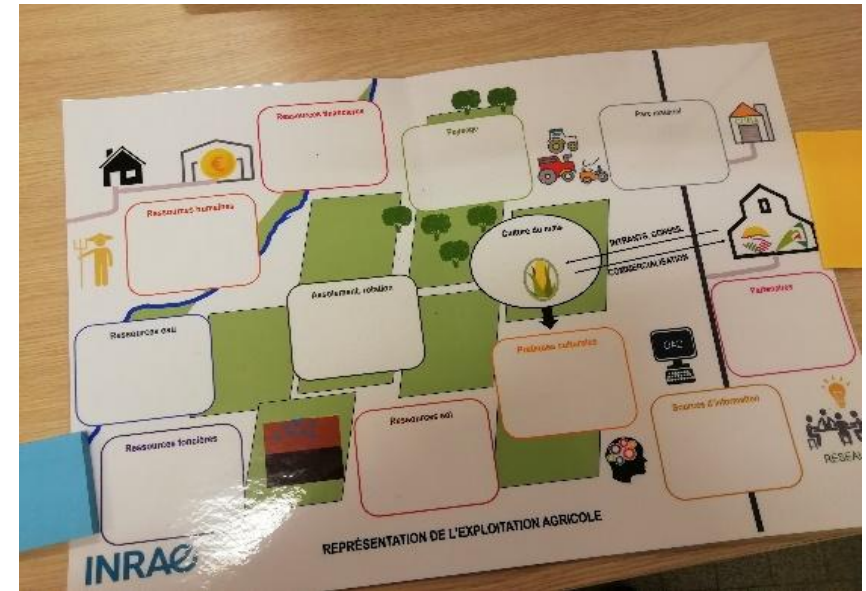
## 2. Quantitative stage

- Non-expert farmers
- Factors influencing choice of adaptation strategies

# 1. Qualitative approach



Farmers with awareness about climate change and agroecological practices





## 2. Quantitative approach

### Objective

Farmers' appraisal of adaptation strategies

Factors influencing farmers' appraisal of adaptation strategies

Resistance to change; Interest for agroecology; Perception of climate change risks; Risk-aversion; Attachement to production system; Assistance; Reactivity



### Statistical analysis

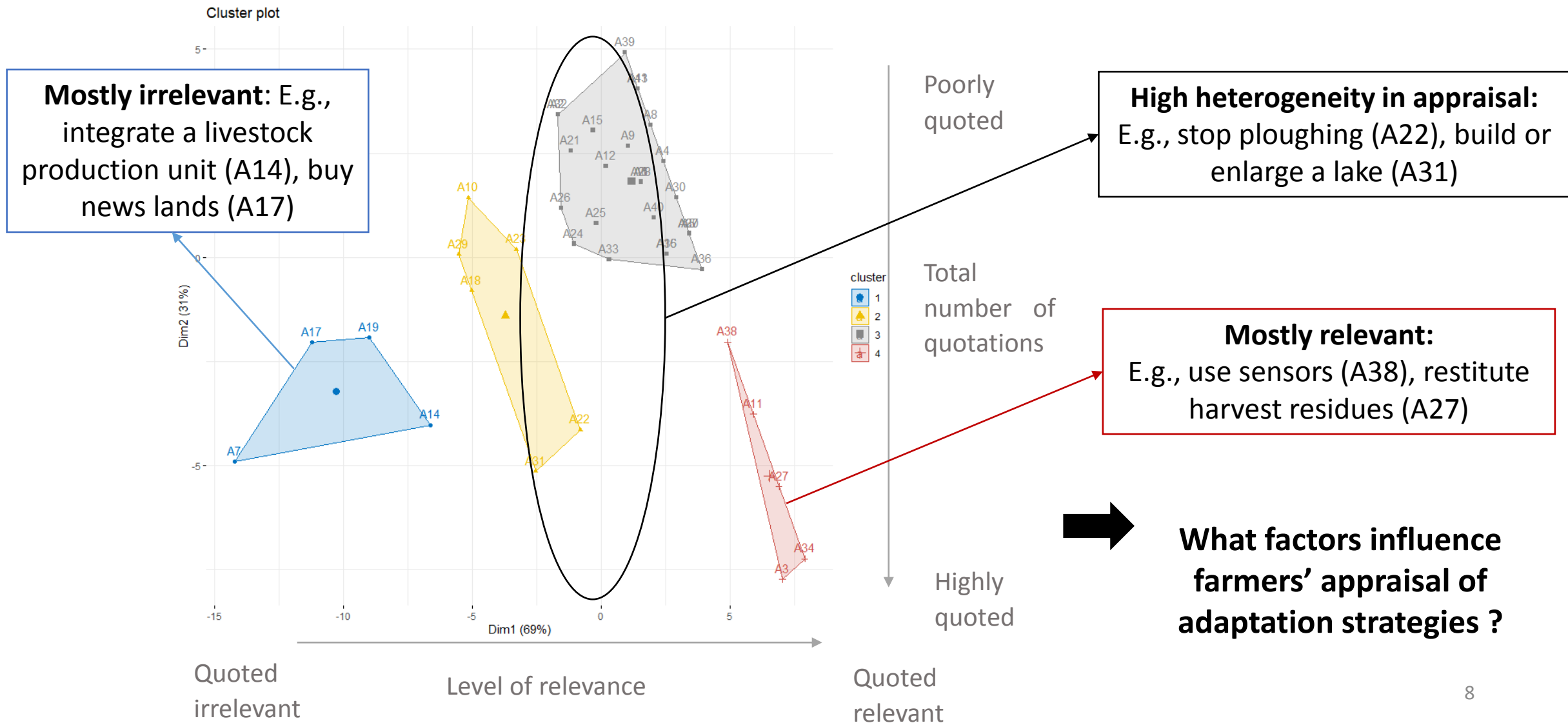
Factor analysis and hierarchical clustering

Regression trees and logistic regressions

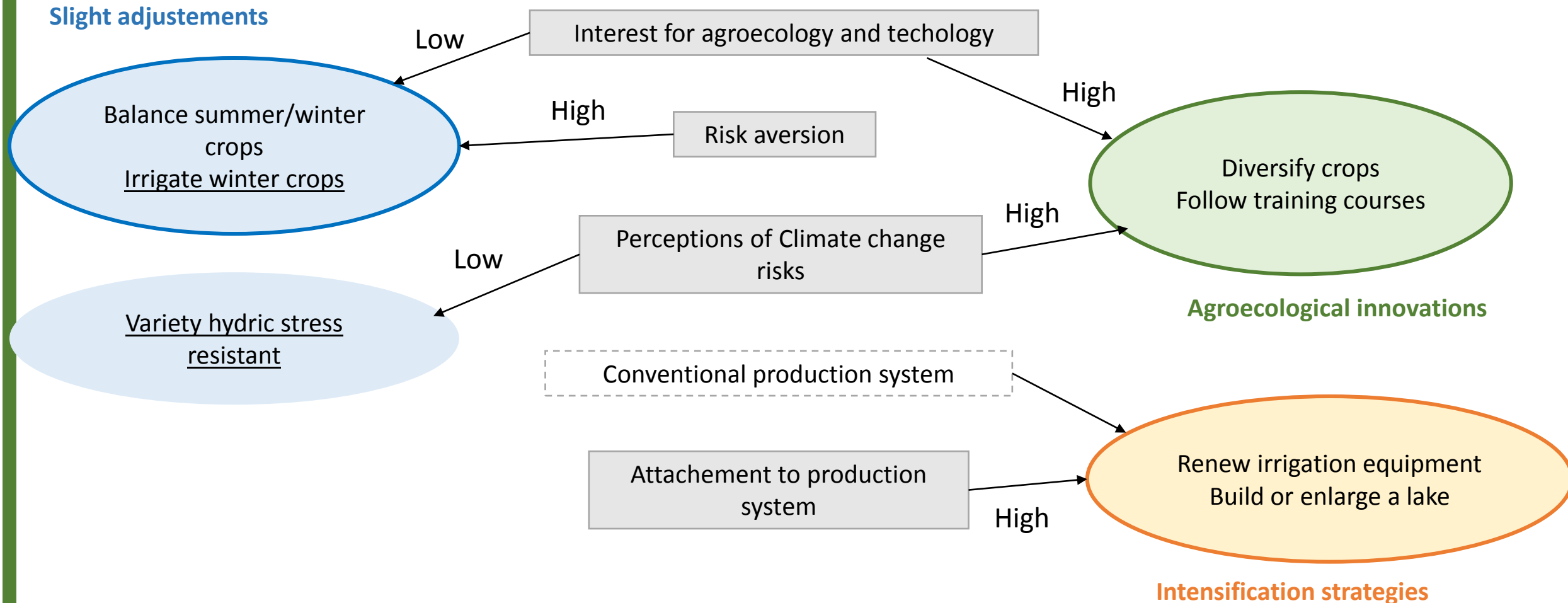
Classification of farmers according their appraisal of adaptation criteria



# Farmers' viewpoint differs regarding adaptations



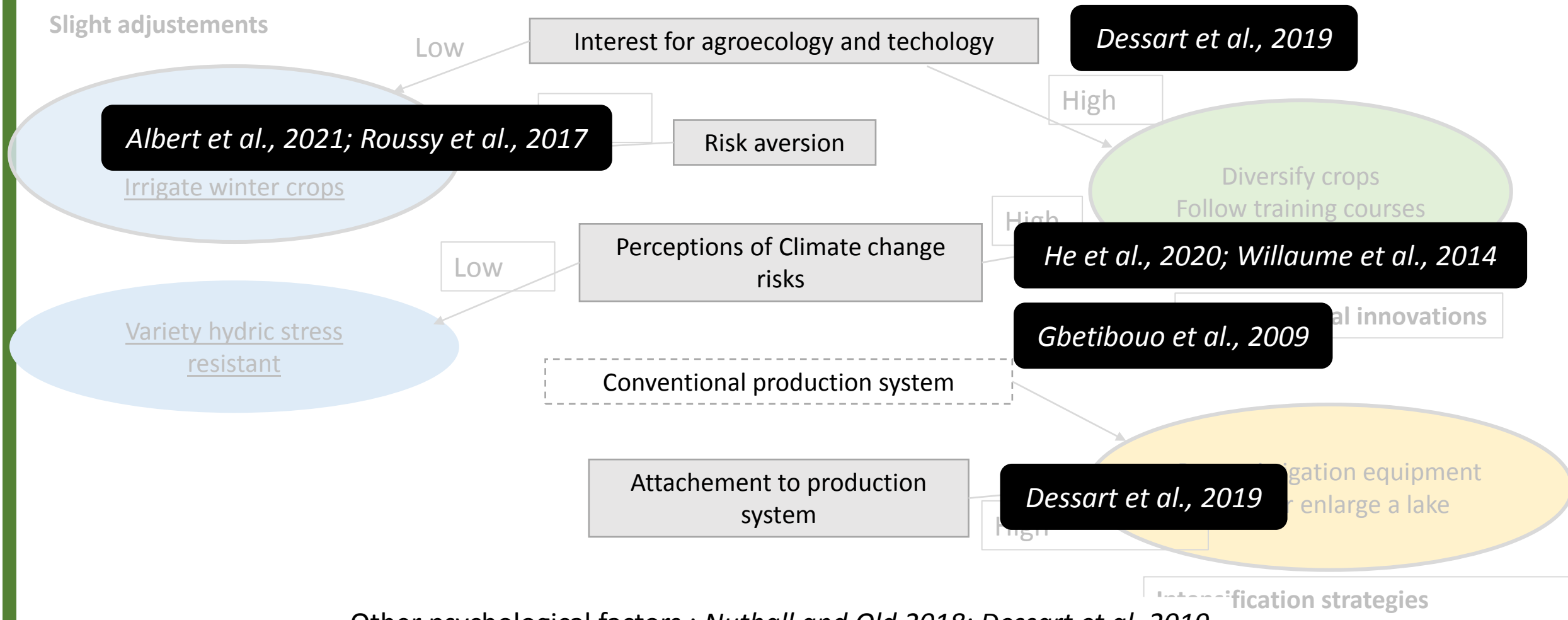
# Psychological factors explain farmers' appraisal



— Results from regressions

○ Results from clustering

# Psychological factors influence adaptation



Other psychological factors : *Nuthall and Old 2018; Dessart et al. 2019*

# Implication for science and society

**Choice of adaptation strategies is driven by farmer's psychological profile**

Farmers' viewpoint differs regarding relevance of adaptations because of their psychological factors



The need to rethink advising and support strategies for farmers → more individual advising

Adoption of agroecological practices is influenced by interest for agroecology and perceptions of climate change risks



Public policies and agricultural advising could enhance agroecology through specific awareness and training campaigns



Thank you for your attention

Thanks to Pierre Busson who participated actively in this study as a trainee

# Psychological factors influence adaptation

