

# Towards deep changes for a more resilient farming system: Examining roles farmers, science and citizens can play in transition

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# Content

- Some agricultural issues in the Greater Region
- Introduction to different research models
- Example: PhD research on plant health
- Research postures
- Participatory approaches to other societal issues
- Conclusions

# Some agricultural issues in the Greater Region

## Organic agriculture

- Action plan for organic agriculture established since 2009
- 2013: 5.6 % of Luxembourgish farms organic (ASTA, 2013)
- Luxembourgish production far from sufficient to meet demand



# Some agricultural issues in the Greater Region

## **Organic agriculture**

Study on organic farmers in Wallonia shows diversity among this group:

- Schools of thought and practices at the origins of organic farming
  - Networks and types of institutions
  - Personal trajectories and entry points
- 
- Holistic research approach
  - Basis for common action and social learning processes in research

## Some agricultural issues in the Greater Region



Project began in 2003 and established a beef production system and brand by 2007

Project set out to:

- Develop a beef production radically different from the locked-in *Blanc Bleu Belge*
- Build on co-constructed knowledge to form a new type of organization

# Le boeuf belge. A votre santé...

C'est le thème que l'ORPAH (Office Régional de Promotion de l'Agriculture et de l'Horticulture) a choisi pour mener une vaste campagne d'information sur le monde bovin belge.

Les contrôles les plus sévères exercés tout au long de la filière bovine sont pour nous tous une garantie absolue de sérieux sanitaire.

En effet, dès sa naissance, chaque bovin est identifié par deux marques auriculaires qui correspondent à une carte d'identité qui porte le nom officiel de "document d'identification".

La Belgique se pose en véritable "modèle européen" et son système sanitaire mis en place depuis 1987 lui a permis d'être le meilleur élève de l'Europe.



... Les contrôles sanitaires les plus sévères. Demandez la brochure d'info/consommateurs à votre boucher lors de votre prochaine visite.



ORPAH - rue Bachmann 7 - 1100 Jette

## Some agricultural issues in the Greater Region



Participatory research approach:

- Establish **think tanks** of farmers, consumers and environmentalists
- Discuss and reflect on problem, **define issues** to be treated
- Define **territory** for project: *Gaume*
- Define **production system** (oxen)
- Construct **specification sheet**
- Establish **brand** and marketing

# Some agricultural issues in the Greater Region

## The protein issue: Feed

66 M t of animal feed needed worldwide per annum

Animal feed in average: 60% cereals, 40% protein

78% of protein fodder imported into EU, mostly GM soybean from Brazil, Argentina and Paraguay (20 M ha)



Legume crops for Europe:

New varieties

Revive know-how



# Some agricultural issues in the Greater Region

## The protein issue: Food

Meat consumption: Industrialised countries 79 kg per capita  
Developping countries 33 kg pc

Energy conversion:



- Meat consumption entails industrial production methods which are uncoupled from locally available land surface

# What do these issues have in common?

Locked-in situations call for...

- Change in ways of thinking and in practice

Innovation: An idea (knowledge), product or process, after undergoing research and development (formal or informal), is incorporated into production or practice (Uddin 2006).

- Action and social learning with stakeholders
- Participatory and engaged approaches to research - Mere facts do not change practices

# Bawden's quadrant

## Action-research model

Knowledge is produced within (inter-)action  
Knowledge situated and embedded in a context

## Field-type research model

Abstract explanation of how the world functions (modelling)  
Results considered universal

## Laboratory-type research model

Analysis of a simplified part of the world under controlled conditions  
Results considered universal

Ego-centricity



## PhD research:

Plant adaptation and plant health in a context of on-farm breeding of common bean (*Phaseolus vulgaris*) in European organic farms

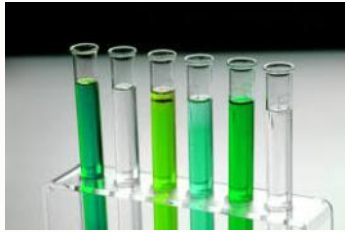
Context: Initial question, emerged from a *hot debate*\*



Artisan seed producers:

How can we show that the phytosanitary regulation classifying *Xanthomonas axonopodis* pv. *phaseoli* as quarantine pest on bean seed is not coherent with production practices and experiences?

# Hypothesis: Two points of view on plant health

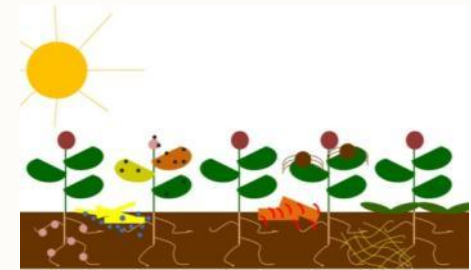


View on crops and pathogens, often studied under controlled conditions

*„We must eliminate plant pathogens and pests to limit crop losses and maximize yields.“*

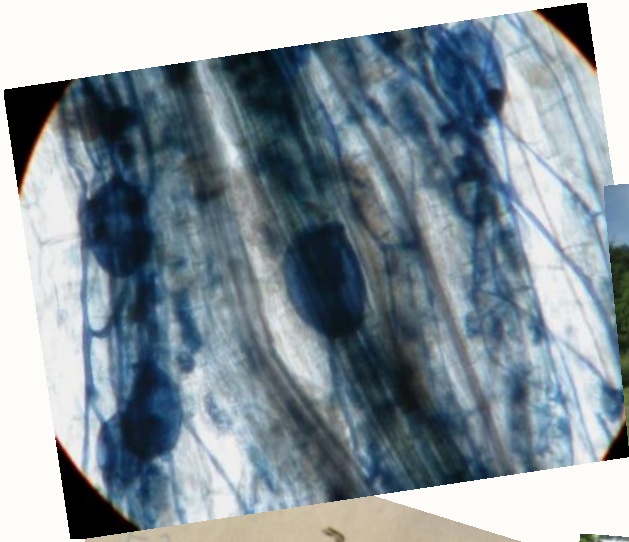
View on the entire system in the aim of resilience and adaptive processes, based on practical experience

*„How can I manage my crops to allow for a stable production via natural methods?“*

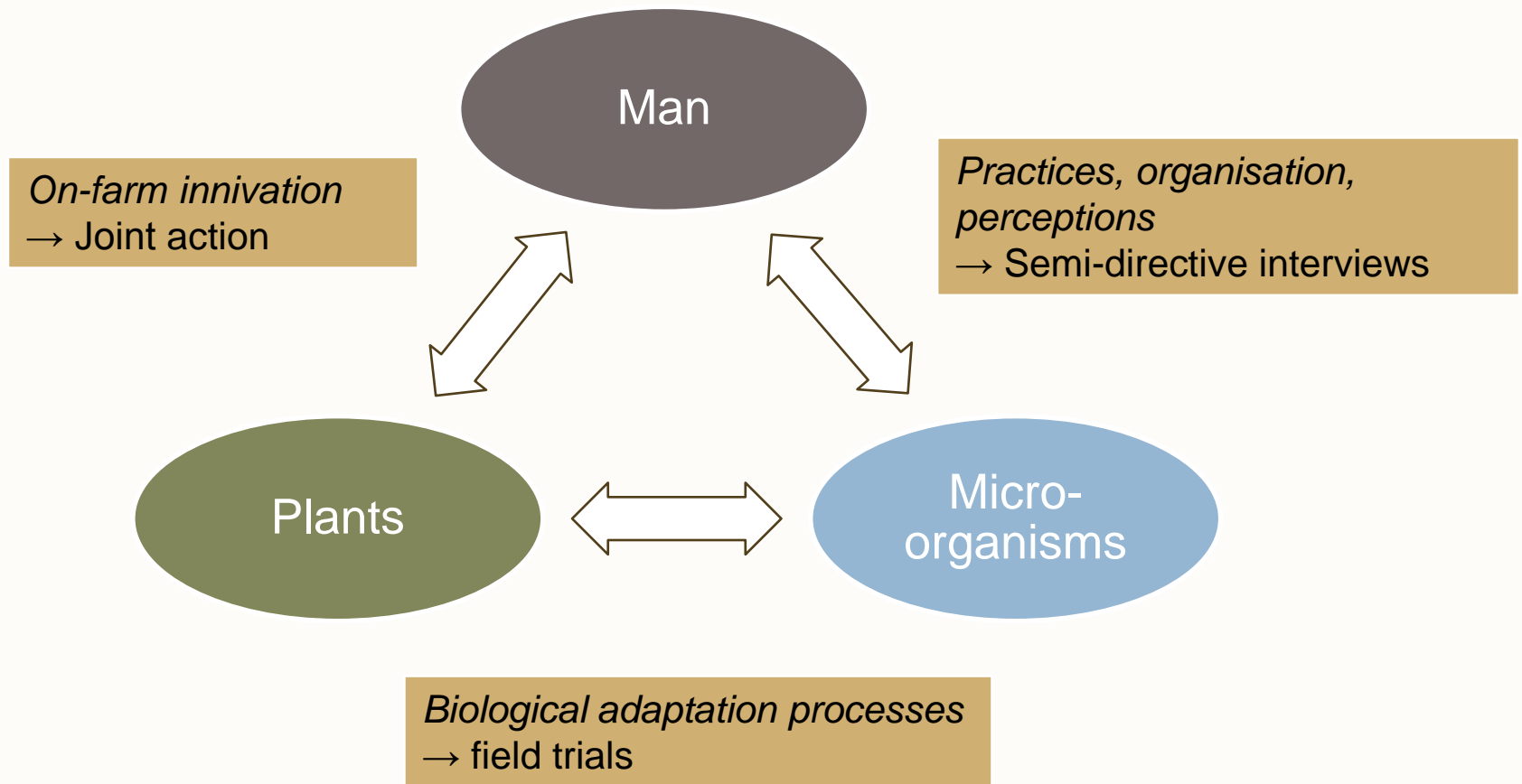


- ⇒ **Develop an approach to bean health in partnership with concerned farmers from *their point of view***
- ⇒ **Develop notions of adaptation, resilience and a procedural approach to plant health**

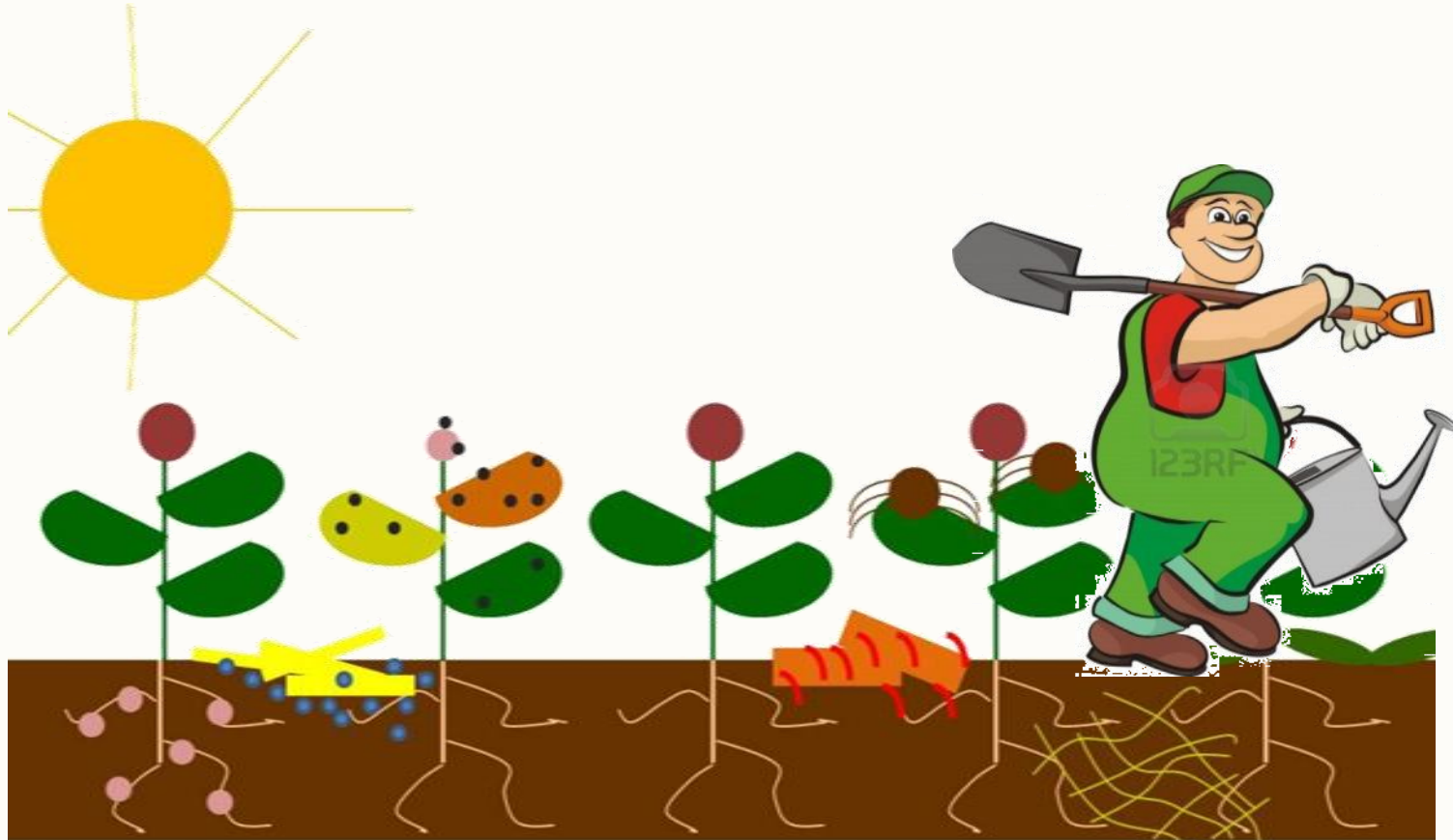
# The project from a farmer's point of view: Frank Adams



# Approach and methods



## Approach and methods (II)

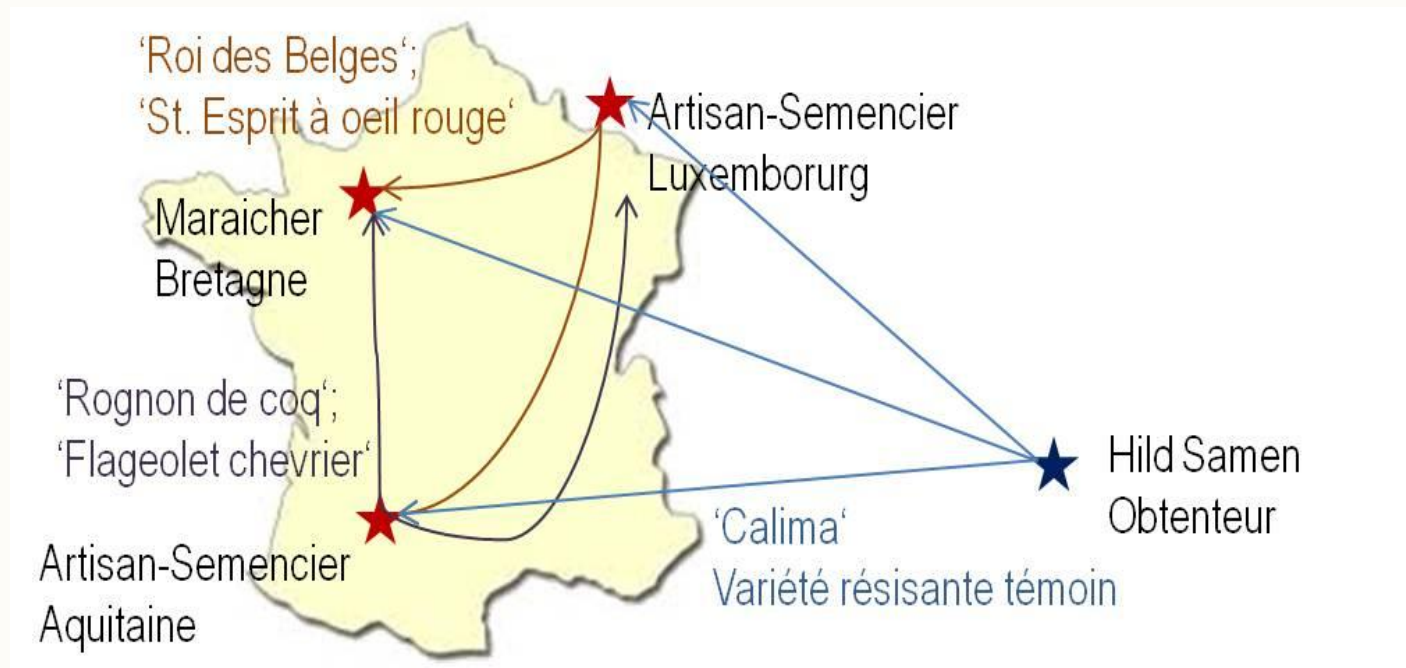




# Field trials:

## Local adaptation and interactions with microorganisms

2012:



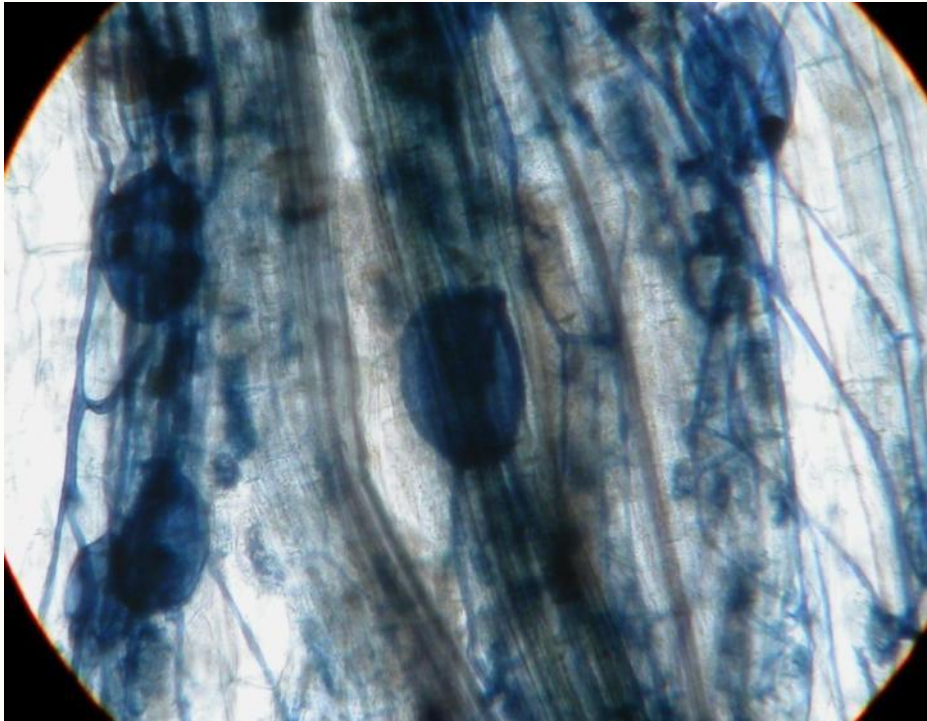
## Adaptation: Germination rates, yields,...



# Plant Health: Symptoms and seed contamination



# Interactions with symbiotic microorganisms: Mycorrhiza, Rhizobia



# Qualitative study: Semi-directive interviews

How do producers, researchers and other stakeholders deal with plant health?

- Artisan and industrial producers, researchers, institutions
- **Values, practices, organisation**



# Common action

## Objective:

To interact with producers who have an interest in traditional varieties and artisan seed production learn about their practices in crop diversity and plant health management

To approach the management system as a whole

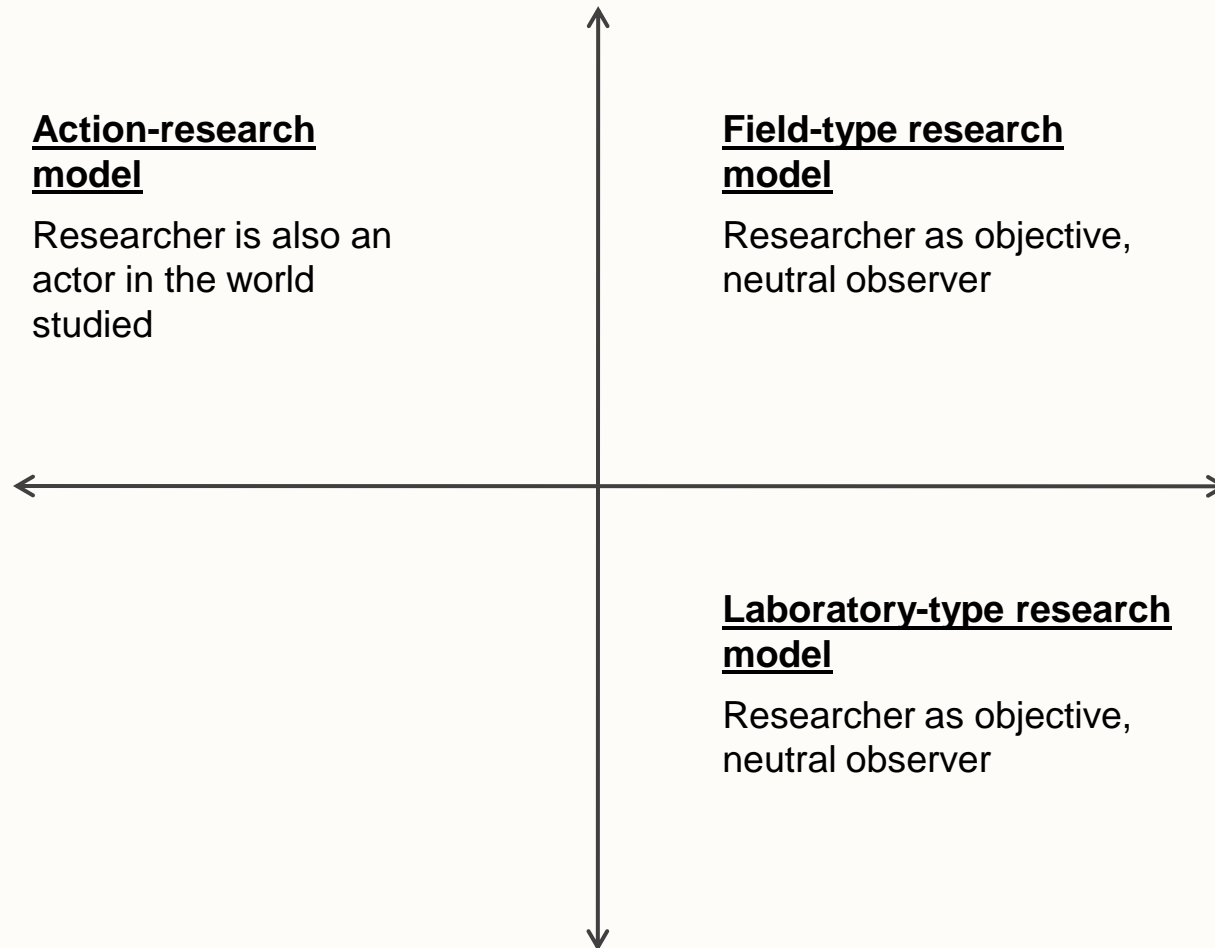


## Examples:

Beggen (LU): First takes on seed production, sensory tests by clients

Ansembourg (LU), Aquitaine and Brittany (FR): Selection of bean plants

# Challenges to action research: On research postures



## Challenges to action research: On research postures

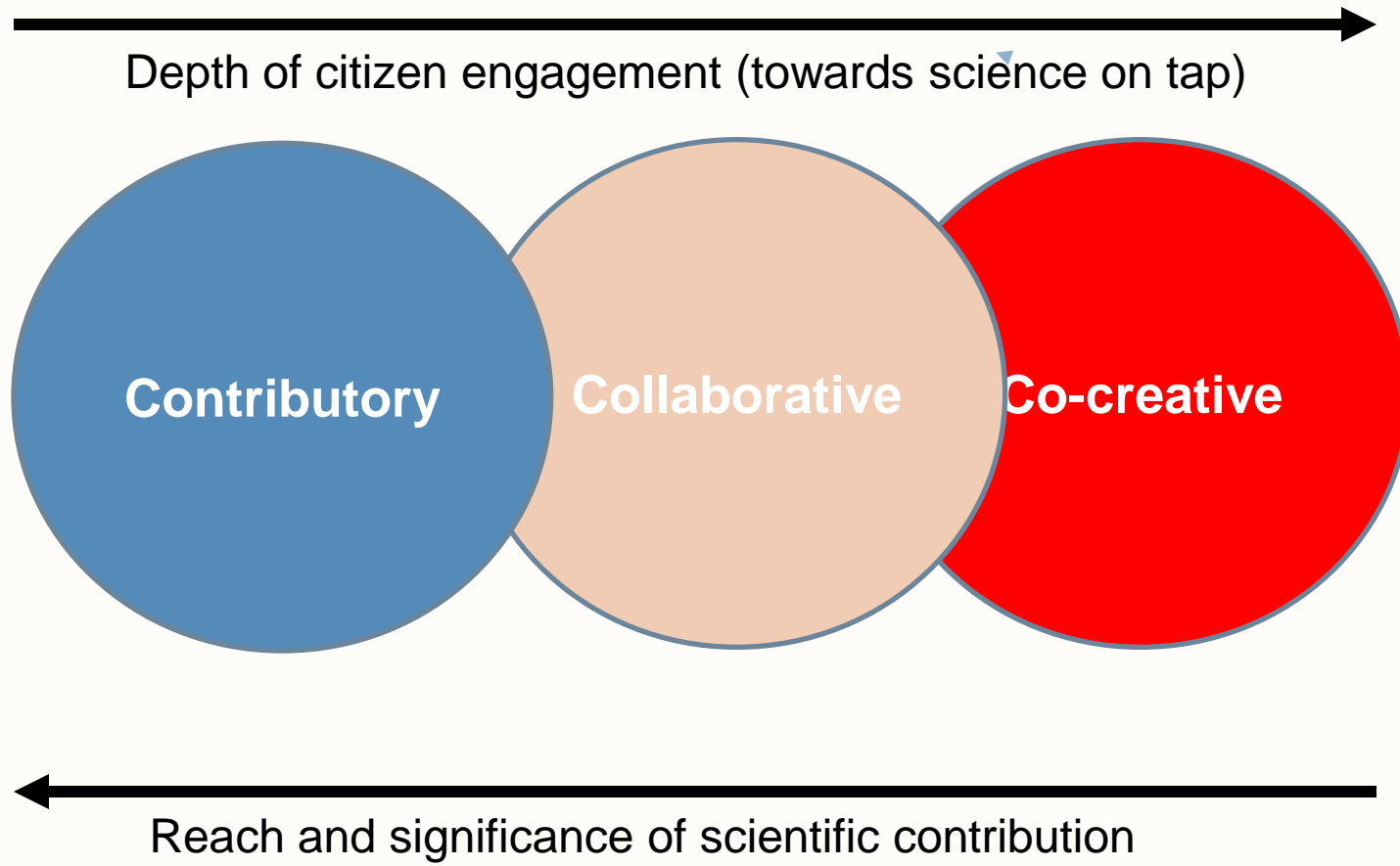
Three approaches possible in participatory research (Hubert 2013):

- Build alliances between research and civil society to **transform inventions into innovation**
- Involve local non-scientists in research to entrust them with **certain tasks** according to their expertise, competence and practice
- Create conditions for **social learning** between researchers and research partners (action-research)



This rings a bell...

Diverse forms citizen science has taken



# Challenges to action research: On research postures

Involved research - *Recherche impliquée* (Mougenot 2011):

- The researcher gets fully involved with a project, an action, a social movement and accepts risks and uncertainties related to an evolving context.
- Through its contextualization in a hot debate, the research has the potential to involve a multitude of actors who may relate to each other as allies or opponents.
- This also means involving their modes of action. Beyond scientific results, such research has the potential of producing tensions, debates on acquired knowledge and social learning processes.

## Participatory approaches: Community-based auditing

Community Based Auditing (CBA) is a tool for empowering citizens to undertake disciplined inquiry into issues relating to natural resource planning and management (Tattersall, 2003).

Example: Tasmanian Community Resource Auditors Inc. (Australia)

Two steps:

- i. Auditing process: Data collection, 'hard science'
  - ii. 'Soft science': Views, perceptions and emotion enter the process
- Answer to the concerns of increasing numbers of citizens seeking direct input into resource planning and management
  - Citizens are 'experts in their own locale' (extended peer review)
  - Acknowledge and deal with uncertainty

# Action research cycle



*Adapted from P. Reason (1994) and Tattersall (2003)*

## Participatory approaches: Participatory guarantee systems

Locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange (IFOAM 2014).

### Example: Nature & Progrès (France)

- Groups of consumers and producers visit farms for quality assurance
- Alternative and complementary tool to third-party certification (EU regulation)
- Form of social coordination: Based on social learning as opposed to market

## What do these approaches have in common?

- Citizens are brought into decision-making processes and are no longer regarded as clients
- Ongoing process: cycle, constant challenge to accepted norms
- Aiming at societal change
- Social learning and personal development as important results

# Conclusions

- A number of agricultural issues call for changes in how we learn, what we know and how we act
- Participatory and action-based forms of research and organization need to be acknowledged
- Appropriate concepts, methods and research postures need to be adopted





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# Some agricultural issues in the Greater Region

## The protein issue: Food

