



# Product uniformity and farm diversity conflicting objectives?

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# Personal introduction

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# Conflicts

ecology



economy

diversity



homogeneity

## Challenge:

- farming methods designed to overcome these conflicts
- social and political solutions



## Market demands

- Product uniformity
  - Shape, size, taste, color, quality, price
- High cosmetic quality
- Large volumes
- Supply certainty
- Certified
  
- Low price



## Consequences pressure on costprice

- Mechanisation (crop uniformity)
- Specialisation
- Large Scale
- Capital intensive
- Intensive land use
- Recipy farming



# Consequences product demands

- Genetic uniformity
- Phenotype uniformity
- Field and farm uniformity

Which leads to a

- high vulnerability to pests and diseases
- Low tolerance for spots and deformations causing high dependancy of pesticide input
- Non marketable qualities



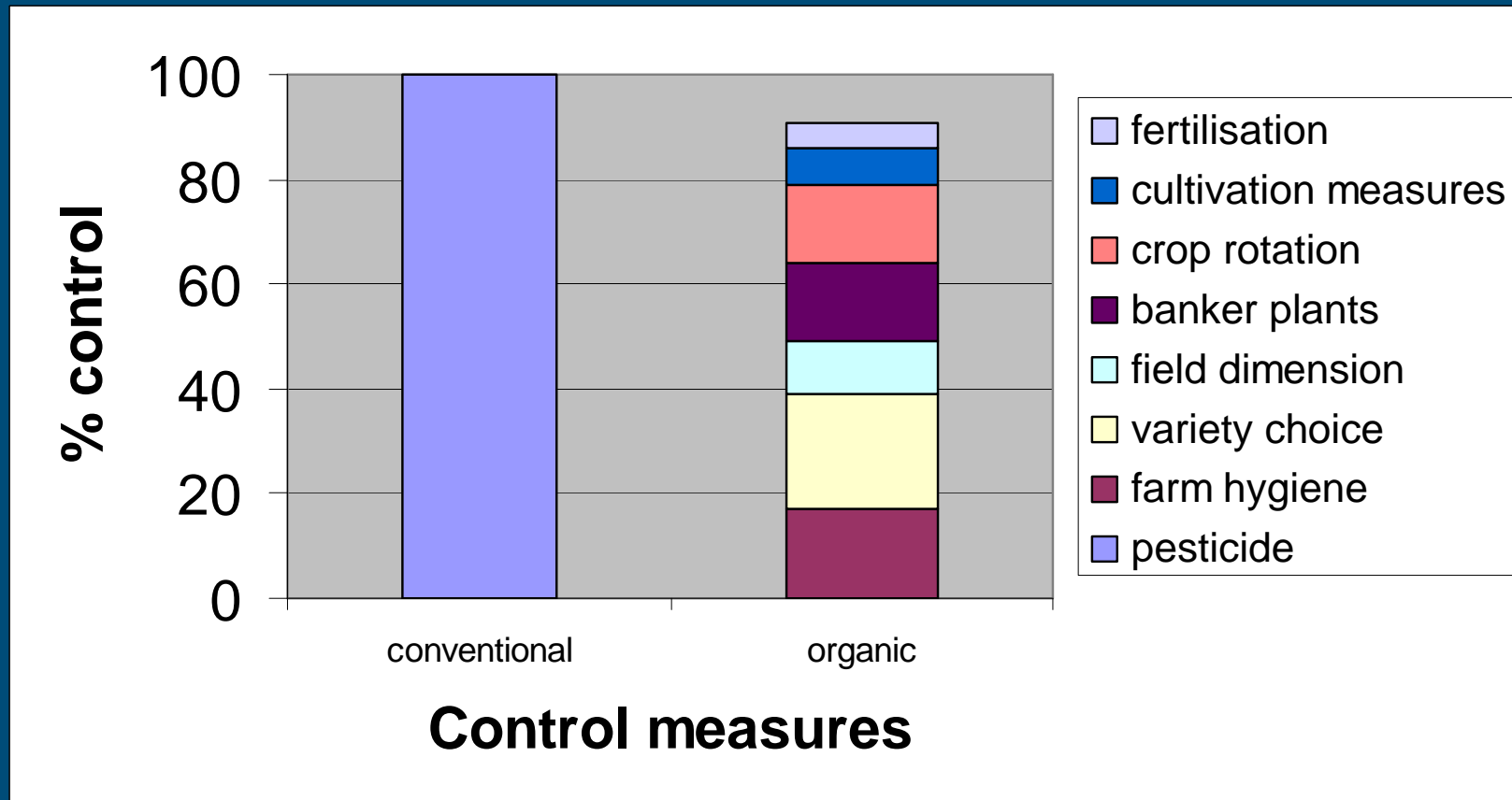
# Agricultural treadmill

- Market demands and low costprice
- Uniformity and high production
- Scale enlargement
- More vulnerability
- Higher protection (sterile conditions)

*(free interpretation Cochrane)*



# Complex and multi-objective methods



Control pest x (+ landscape + biodiversity + ...)





# Agronomic consequences uniformity

## Examples

- (inter)National: T plasm maize
- Regional: pest and diseases leek
- Farm or Field level: soil born pests and diseases
- Within plant: vertical resistance



## Agronomic demands (organic)

- (Bio)Diversity → stability, prevention
  - Time
  - Space (plant, field, farm, region)
  
- Crop rotation
- Farm lay out
  - Dimensions
  - Ecological infrastructure
- Mixed cropping, mixed varieties



# Coping with the conflict

- Social
- Organisational
- Political
- Technical

Escape the 'Agricultural Treadmill'

How to make use of diversity instead of excluding it?



# Technical surch directions

- Plantbreeding (change in breeding goals)
- Insight in mechanisms
- Mechanisation, automisation
- Post harvest treatments