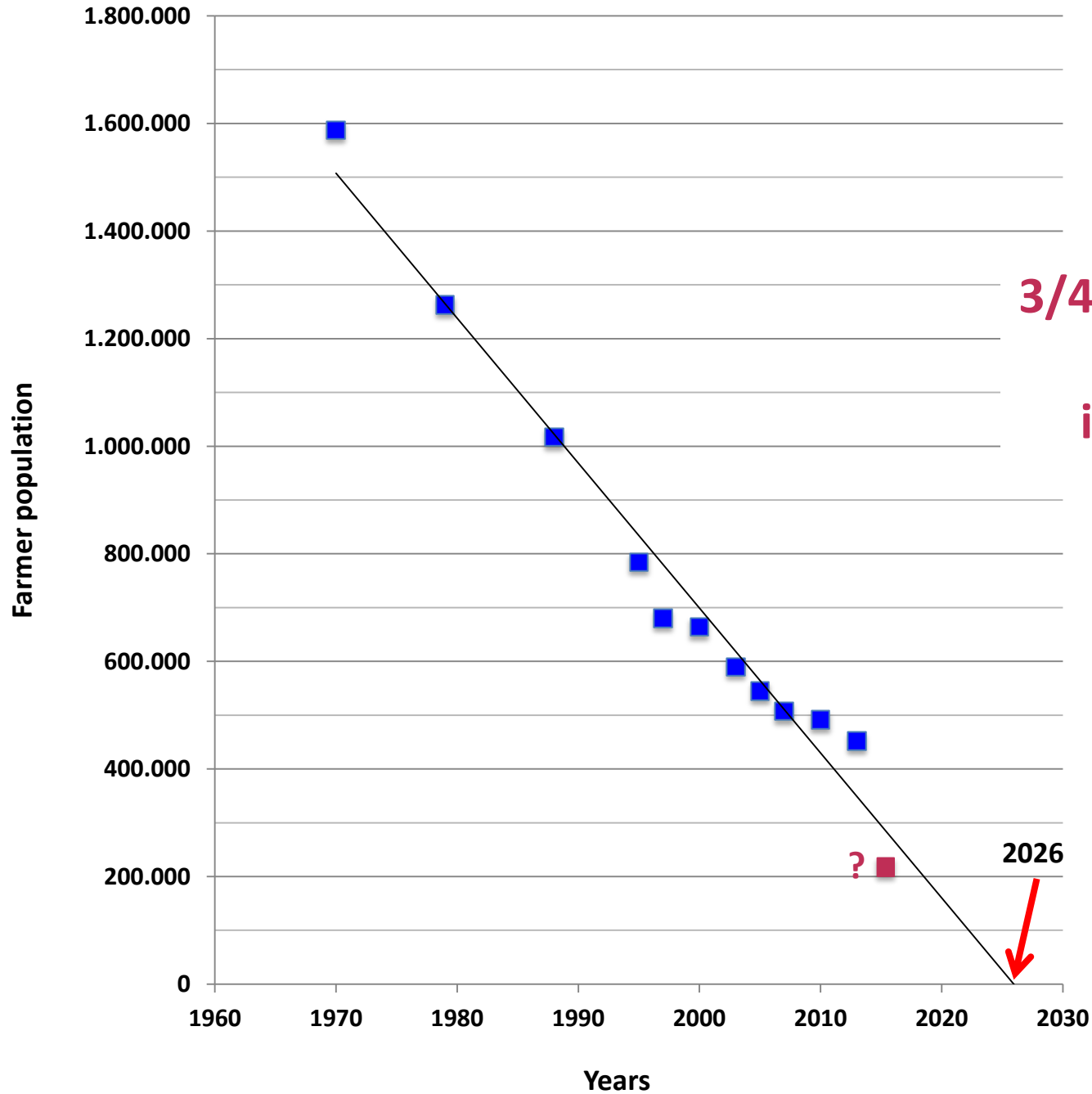


**Agroecology: a system based on
biodiversity and ecosystem services for
better profit and quality of life**



**Alain PEETERS
RHEA Research Centre
Secretary of Agroecology Europe
*15th May 2019, Brussels***

Evolution of the number of farmers in France between 1970 and 2013



3/4 disappeared

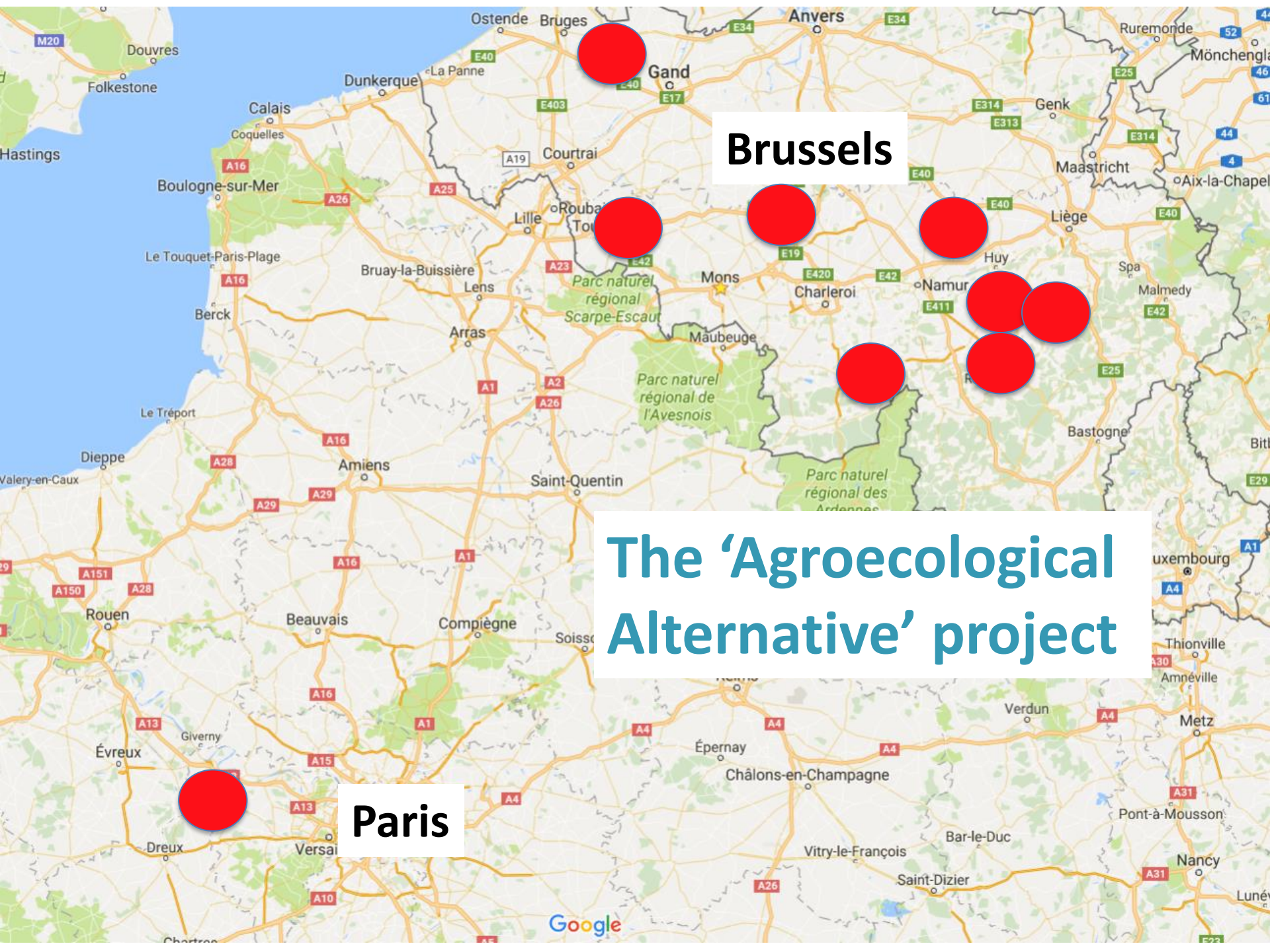
in 45 years

?

2026

Another way is possible:

Agroecological systems



Brussels

**The 'Agroecological
Alternative' project**

Paris

Ecological strategy of agroecology

- Replacing fossil fuels by ecosystem services provided by biodiversity
- Investing in biodiversity at all levels



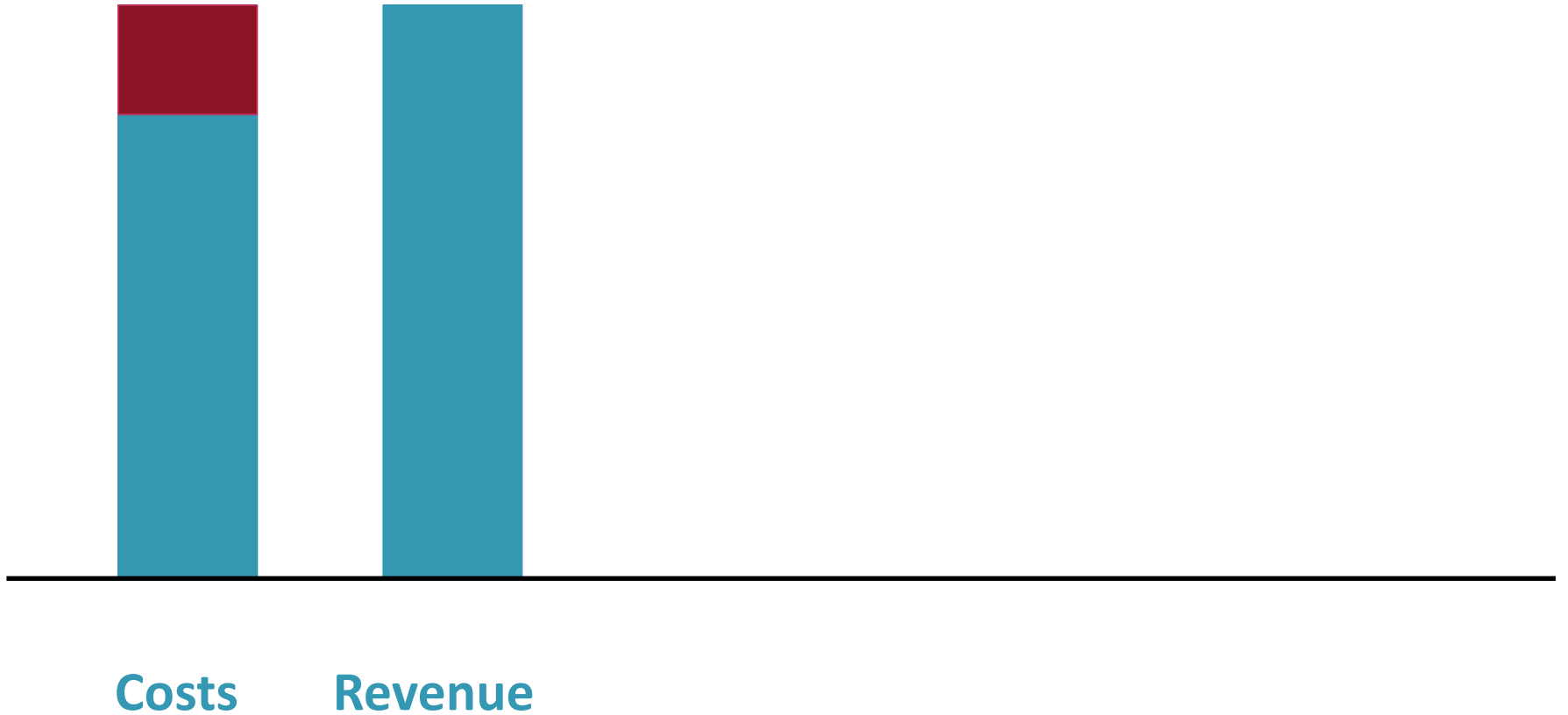
Ecological strategy of agroecology

- Relying on local resources
 - = endogenous soil fertility
 - ≠ massive use of commercial inputs
- Intensive in observations, thinking and knowledge



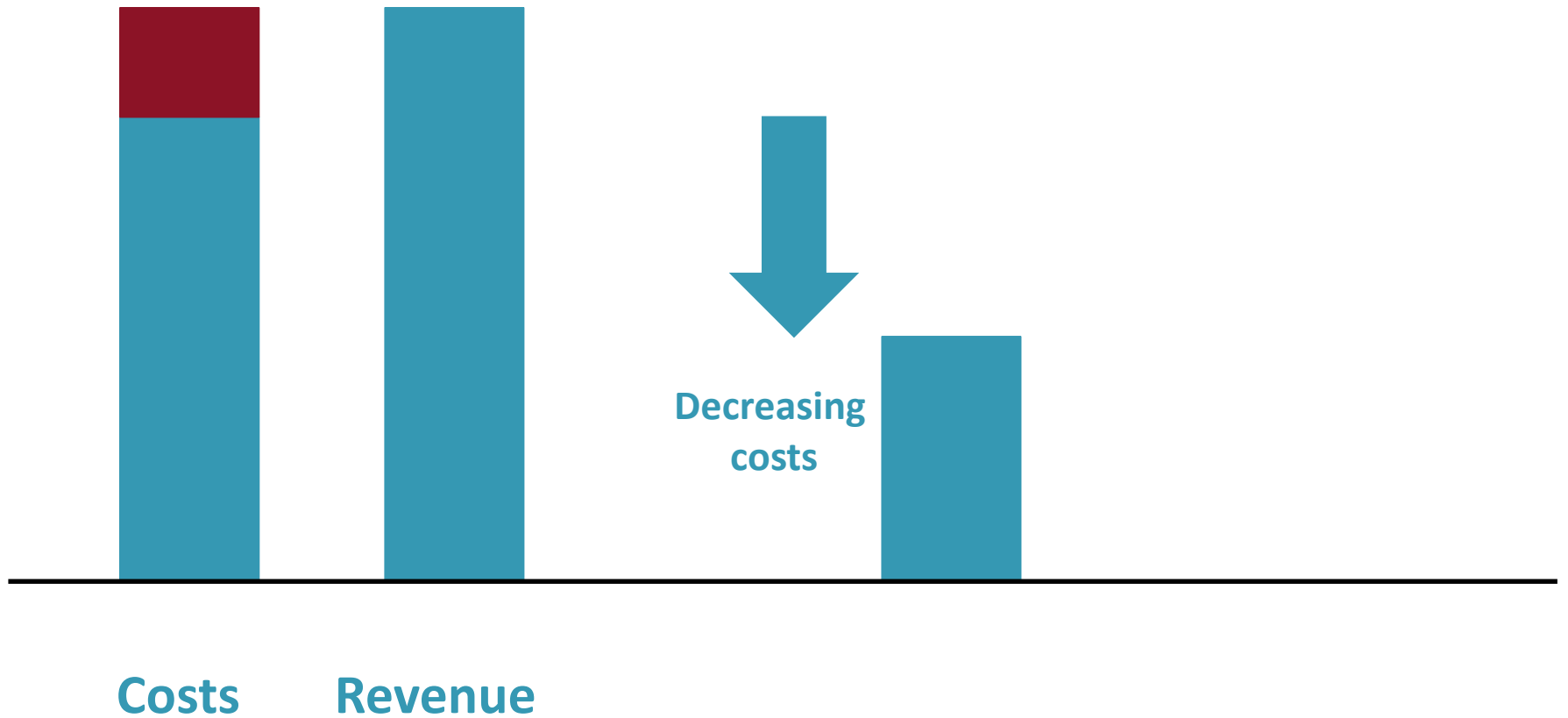
Economic strategy of agroecology

Benefits



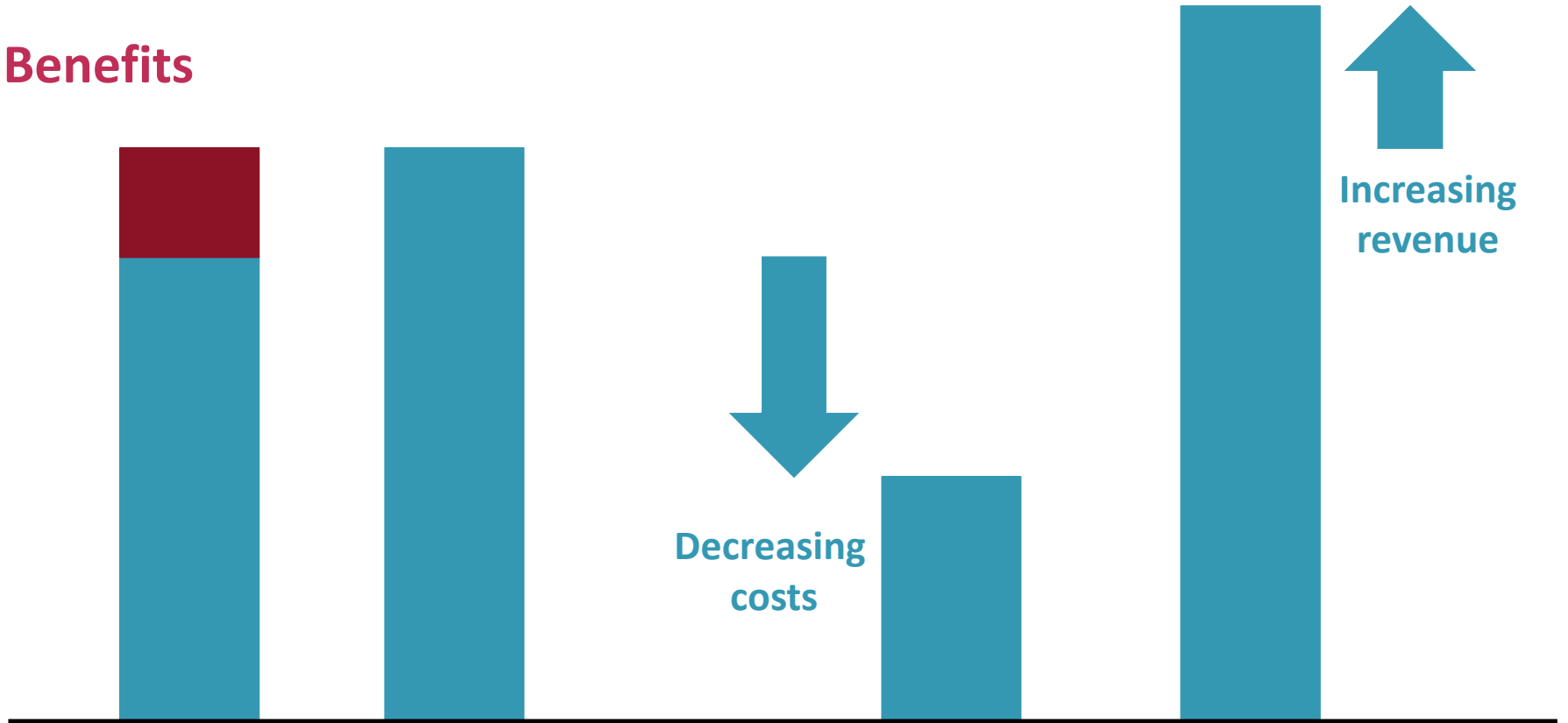
Economic strategy of agroecology

Benefits



Economic strategy of agroecology

Benefits



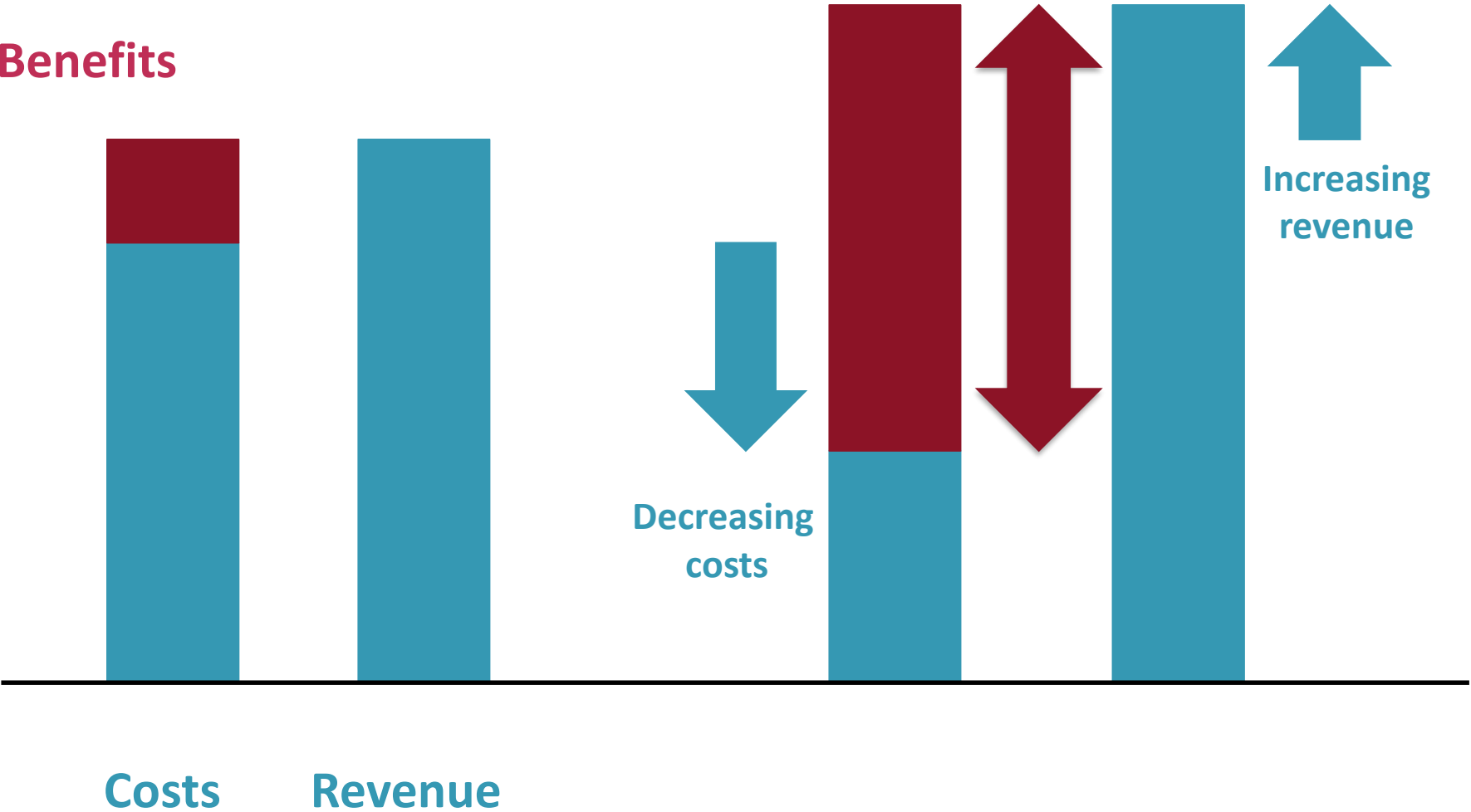
Costs

Revenue

*Shoot for the moon. Even if you miss,
you'll land among the stars!* Oscar Wilde

Economic strategy of agroecology

Benefits



Costs

Revenue

Decreasing costs

Increasing revenue

Developing the ecological network



Pest suppressive ecological infrastructures

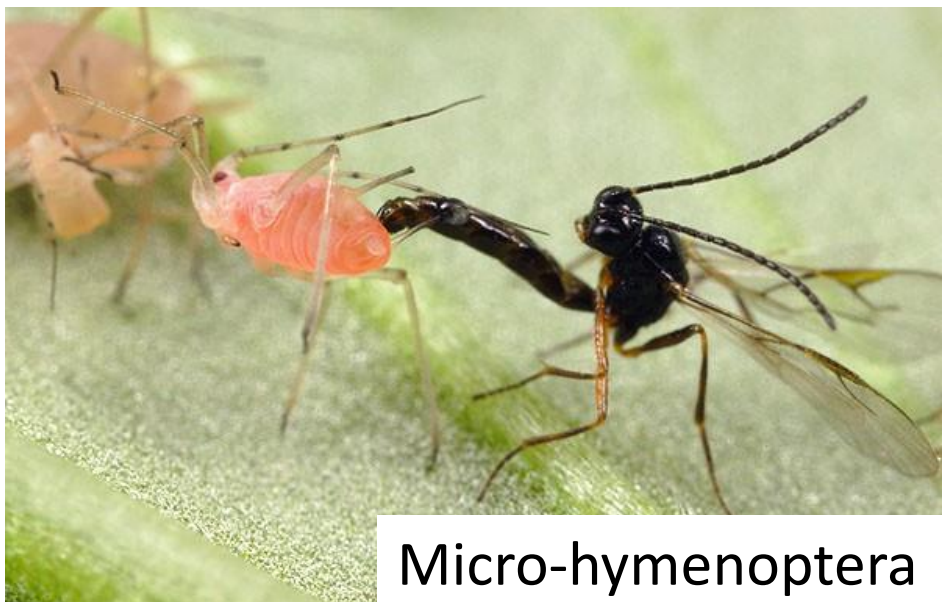
Role of herbaceous strips

➤ Natural enemies of crop pests
and wildlife habitat



Pest suppressive ecological infrastructures

3 mixtures for increasing populations of natural enemies

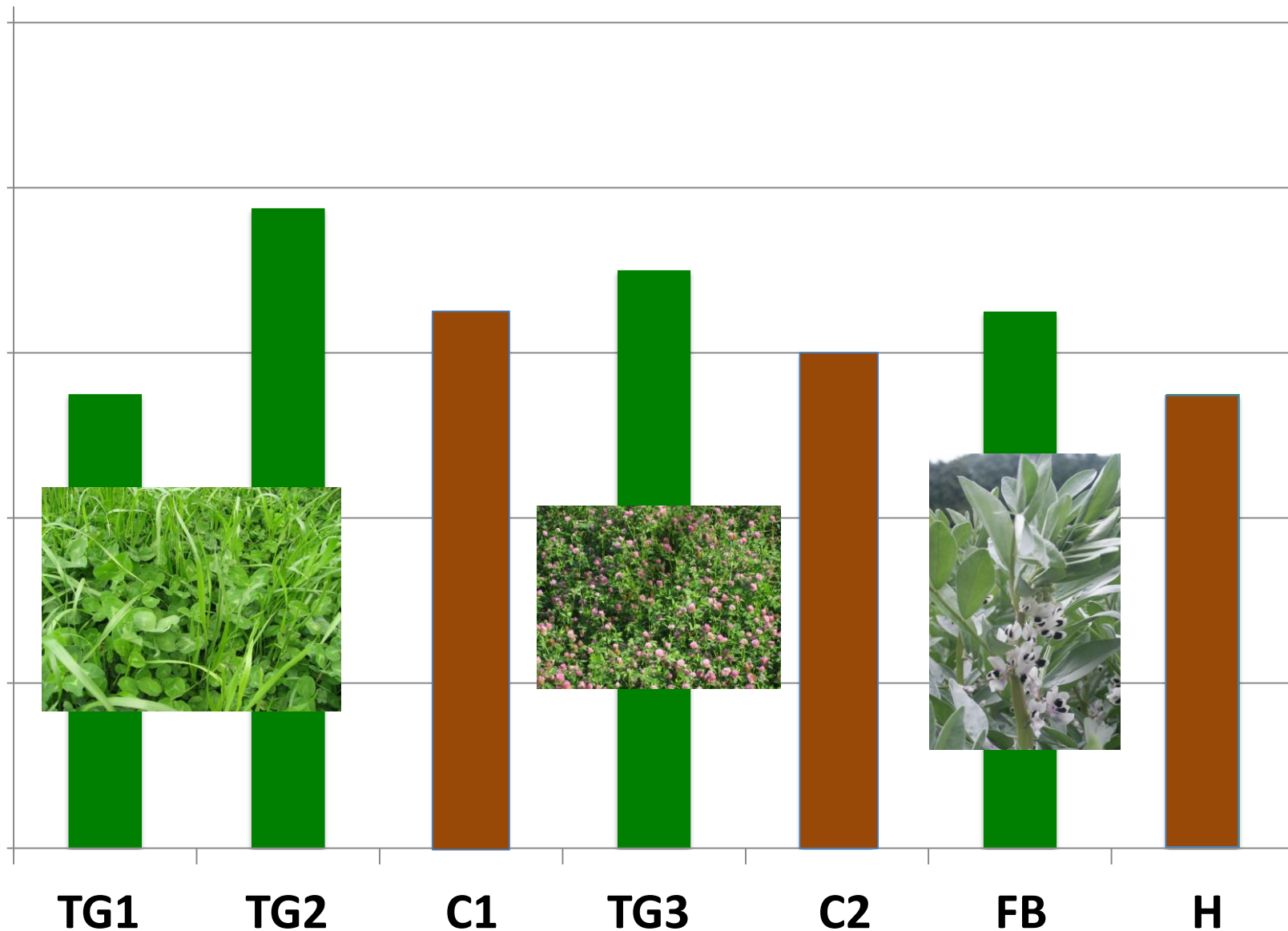


Micro-hymenoptera
Overfly, larvae



Carabid beetles

Long crop rotation: Succession of legume and non-legume crops



**Crop – livestock integration:
mixed systems**

but also specialized arable systems

Agroecological techniques

**Organic non-inversion tillage system,
superficial soil work only**

- Annual soil cover: Biomax between two main crops**
- Permanent soil cover: clover in intercropping or temporary grasslands**

Biomax = Maximum biomass and biodiversity



Rolling biomax and sowing crop in one single operation



A high biomass in October + weed control



Biomax mulch on the ground in October

Biodiversity at soil level



Triticale sown in a white clover sward



Triticale sown in a white clover sward

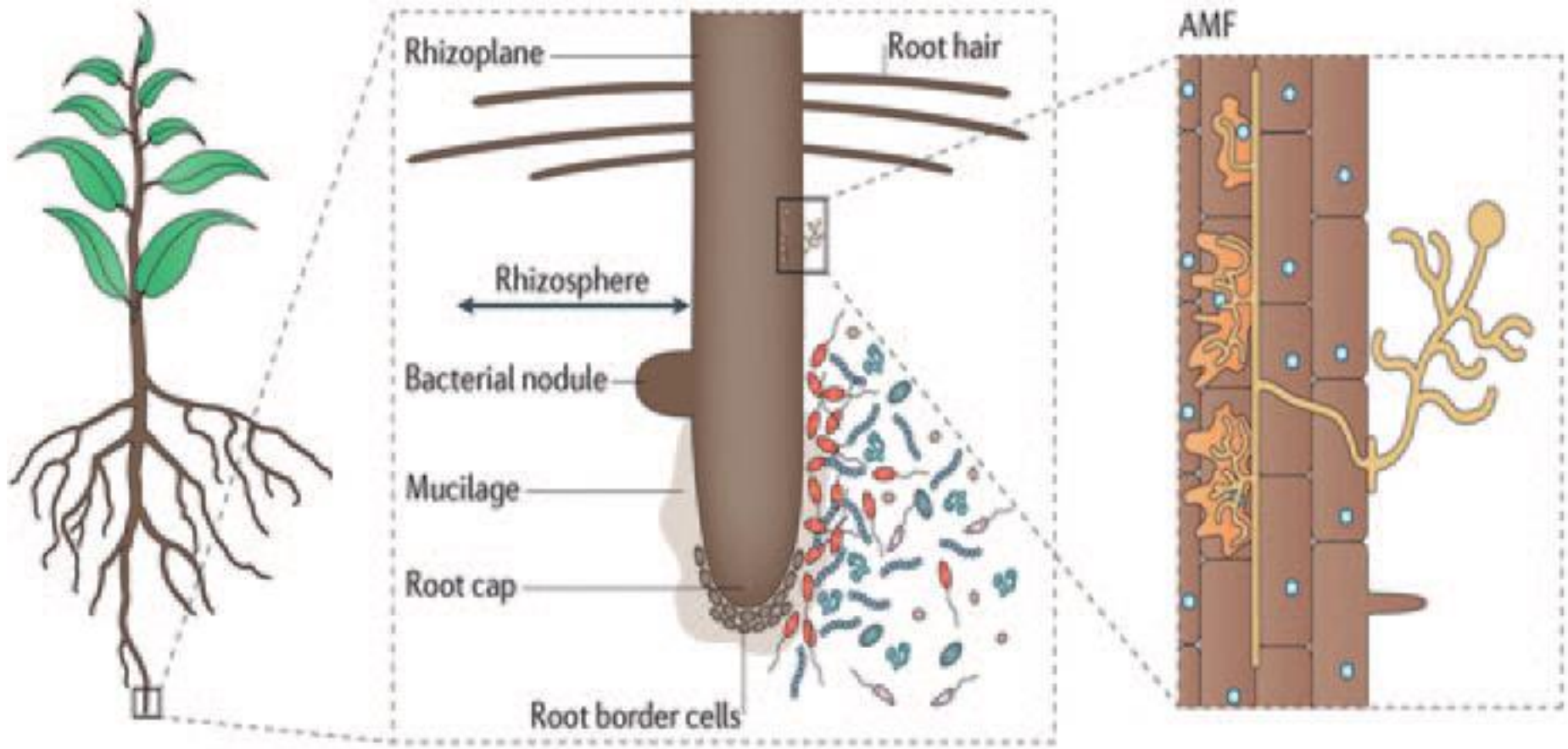


Increasing soil life



for healthier plants

A well-developed rhizosphere



Nature Reviews | **Microbiology**

that controls pathogenic microorganisms

The basis of the whole food chain

Other tools for increasing soil biodiversity and improving plant health and vigour

Compost tea

Plant ferments

Strategic application of amino acids....

Economic performances

Case	Criteria	AE compared to average
Netherlands, 'farming economically'	Labour income/100 kg of milk	+ 110%
Netherlands Centre for Research in Dairy Farming (PR)	Employment generated at volume of production of 800,000 kg of milk	+ 100%
France, grassland-based farming	Family income/family worker	+ 73%
Germany, low concentrate feeding	Income per dairy cow	+ 60%
Italy, Rossa reggiana	Income per hour	+ 15%
Poland, dairy farming	Income according to level of self-provisioning for feed and fodder (0 compared to 51-99)	+ 53%
Ireland, beef and milk	Gross margin per hectare	> in the order of 75-80% in a 3-4 year period
UK, sheep farming	Gross Value Added/ewe	+ 10%
Spain, Mediterranean crops	Gross Value Added	+ 35%
Portugal, vine growing	Fossil energy consumption/ha	- 30%

van der Ploeg et al. in preparation



Thank you

Agroecology Europe

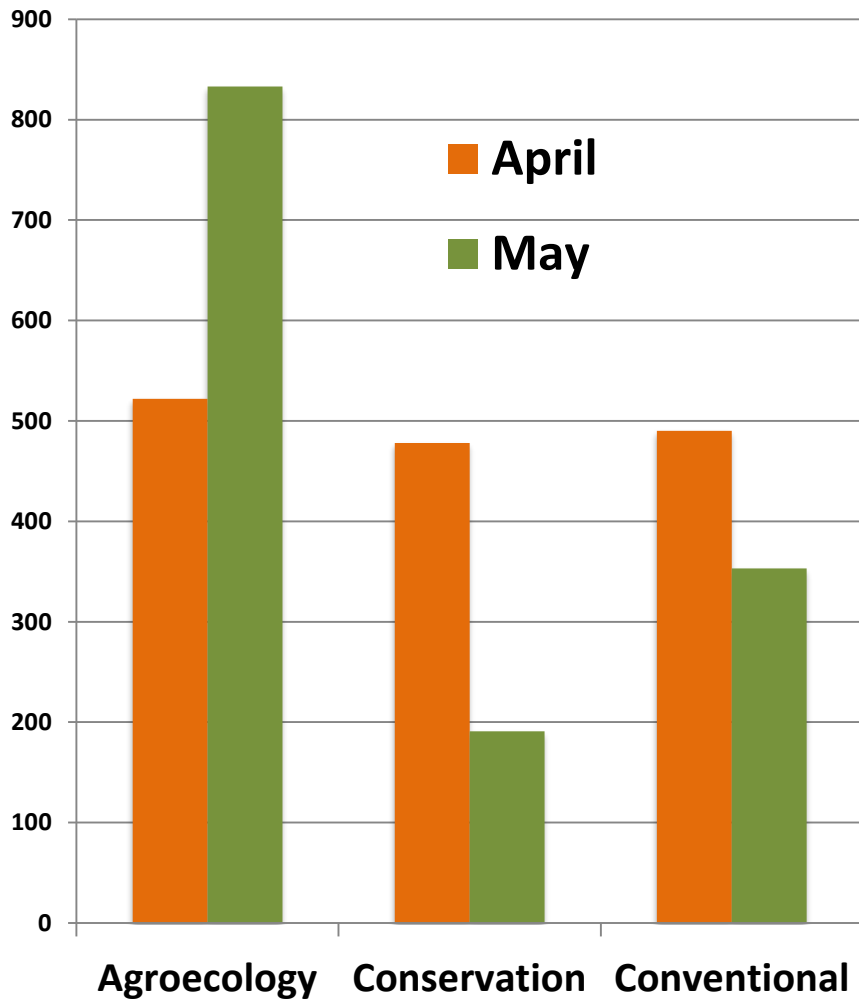
www.agroecology-europe.org

2nd Forum in Heraklion, Crete, 26-28 September 2019

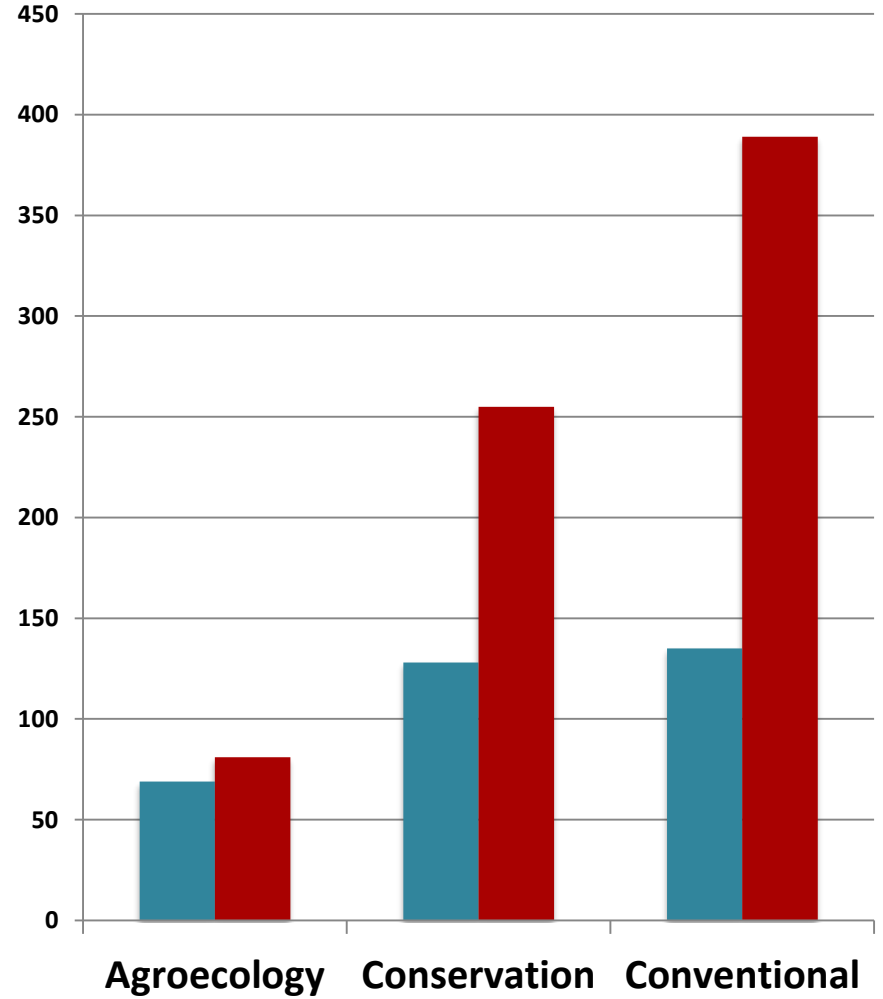


Comparison between agroecology, conservation and conventional agriculture

Number of carabid beetle individuals



Number of slug individuals



Increase of plant diversity after conversion to agroecology

Number of main and cover crop families

