Agroecology: a new path for European agriculture



Alain PEETERS Secretary general of Agroecology Europe 8 October 2020

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



Ecosystem services provided by biodiversity

- crop disease management → living soil (reduced tillage techniques, high carbon input), stopping the use of soluble fertilisers
- crop pests management by a well-designed ecological infrastructure
 populations of natural enemies
- weeds management → legume-based temporary grasslands, complex mixtures of green manures, aggressive crop cultivars and species, long and diverse crop rotations,...
- nitrogen fixation → perennial and annual legumes. N partly available for the non-legume annual crops of the crop rotation → interesting yields



CostsRevenueConventional farm



CostsRevenueConventional farm

Costs

Agroecological farm



CostsRevenueConventional farm

CostsRevenueAgroecological farm



Value Added

CostsRevenueConventional farm

CostsRevenueAgroecological farm

Ecological infrastructures Herbaceous strips natural enemies of crop pests



Ecological infrastructures Herbaceous strips natural enemies of crop pests



Overfly, larva and adult





Designing crop rotation and restoring soils Legume-based temporary grasslands: One of the system pillar

- Sequester carbon
- Restore soil fertility, structure and life
- Fix important nitrogen amount
- Control perennial and annual weeds



Biomax = complex mixture of green manure

Rolling biomax and sowing crop in one single operation



Triticale sown in a white clover sward = perennial soil cover



Triticale sown in a white clover sward



Reduced and shallow soil tillage



Carbon sequestration and reduction of GHG emissions

Annual sequestration of about 1 t Carbon/ha

Quantities of GHG emitted by synthetic nitrogen fertilization according to a life cycle analysis: 150 kg of nitrogen per ha on a crop generates: - an emission of approximately 1,350 kg of CO₂ equivalent per ha

- or about 370 kg of Carbon equivalent per ha

Restoration of biodiversity





Henneron et al. 2014

Economic performance

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 of75-80% in a 3-4year period
UK, sheep farming	Gross Value Added/ewe	+ 10%
Spain, Mediterranean crops	Gross Value Added	+ 35%



L'OBSERVATOIRE TECHNICO-ÉCONOMIQUE DES SYSTÈMES BOVINS LAITIERS

ÉVOLUTION SUR 10 ANS

EXERCICES COMPTABLES DE 2008 A 2017



Grassland-based systems are more agroecological than intensive systems based on maize, soybean, fertilizer, pesticide,...

'With less land, fewer animals and lower investment, grassland-based systems:

- generate more income,
- create more jobs,
- protect better the environment,
- are more resilient to economic stress.'

www.agroecology-europe.org



