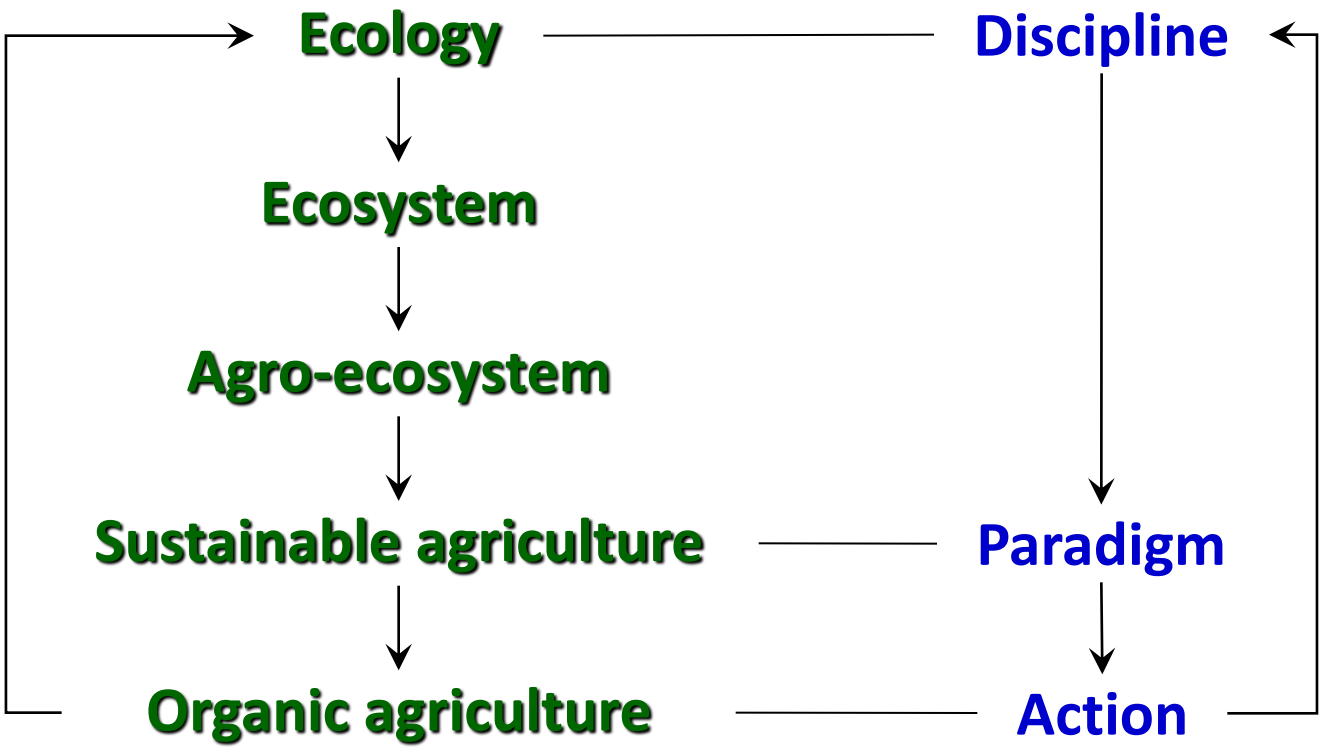
# LUCCIANO FARM

BORGHETTO DI CIVITA CASTELLANA (VT) ITALY

7th November, 2014

# INNOVATION AND RURAL DEVELOPMENT

# Agroecology science and practice



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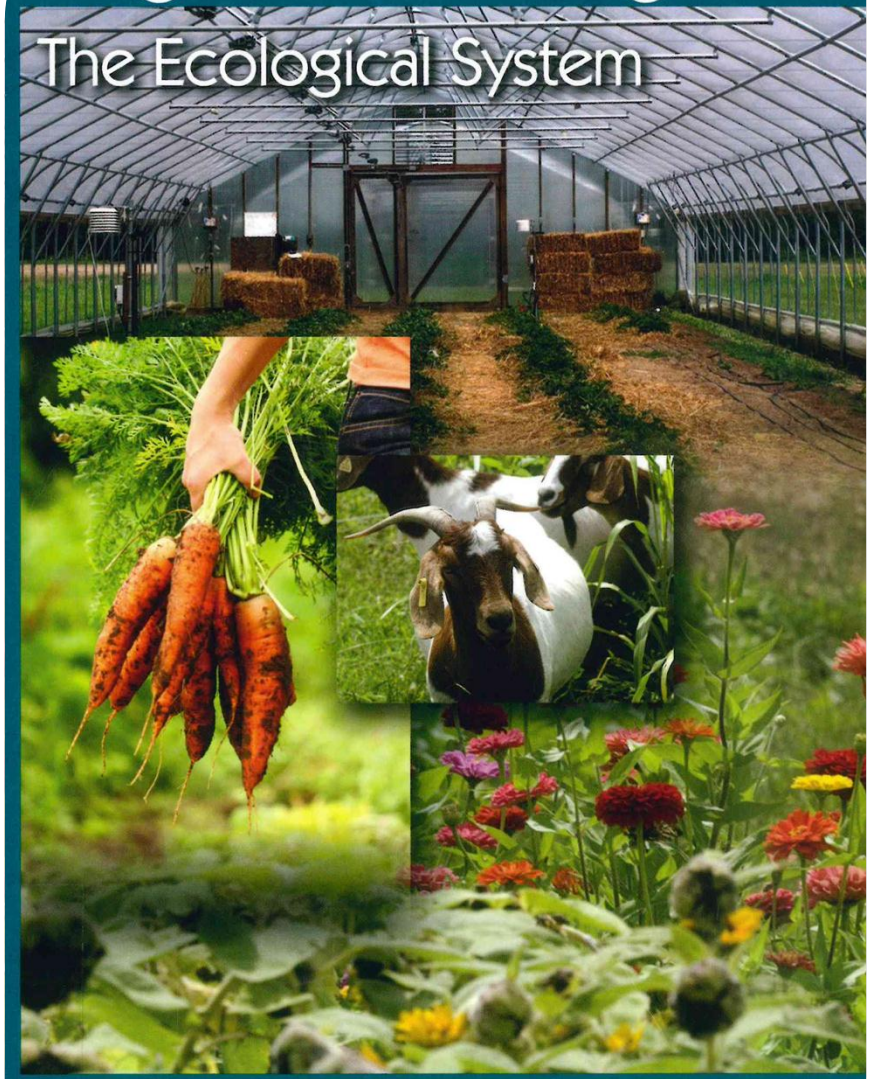
# Organic Farming:

## The Ecological System



Charles Francis, Editor

AGRONOMY MONOGRAPH 54

# IFOAM's principles of organic farming

## Organic agriculture is based on:

**Principle of health**

Organic Agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.

**Principle of ecology**

Organic Agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.

**Principle of fairness**

Organic Agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.

**Principle of care**

Organic Agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

# Principles of Organic Agriculture (adopted as the opening section of the IFOAM Basic Standard of Organic Production in 1981)

| |
|---|
| 1. To work as much as possible within a closed system, and drawn upon local resources |
| 2. To maintain the long-term fertility of soils |
| 3. To avoid all forms of pollution that may result from agricultural techniques |
| 4 To produce foodstuffs of high nutritional quality and sufficient quantity |
| 5. To reduce the use of fossil energy in agricultural practices to a minimum |
| 6. To give livestock conditions of life that conform to their physiological needs and to humanitarian principles |
| 7. To make it possible for agricultural producers to earn a living through their work and develop their potentialities as human beings |
| 8. To use and develop appropriate technology based on an understanding of biological systems |
| 9. To use decentralised systems for processing, distribution and marketing of product |
| 10. To create a system which is aesthetically pleasing to both those within and those outside the system |
| 11. To maintain and preserve wildlife and their habitat. |

# Ten rules for organic farming

**The main criteria and technical rules to follow for the realization of environmental -friendly agro-ecosystems can be summarised in the following ten rules, which represent the reference framework for the definition of the standards, adopted for ecological agriculture:**

1) **to create diversity within the farm;**
2) **to integrate plant production with livestock husbandry;**
3) **to adopt soil conservation measures and minimum tillage practices;**
4) **to adopt crop rotations;**
5) **to adopt intercropping and cover cropping;**
6) **to use genotypes resistant to parasitic attacks;**
7) **to treat the soil with manure and composted organic matter;**
8) **to practice green manuring;**
9) **to foster the biological control of weeds, phytofagous insects and phytopathogens;**
10) **to plant and protect hedges.**

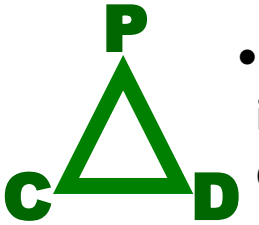
# Profile of a sustainable farming system

- A solar plant, capable of converting solar energy to biomass throughout the year;

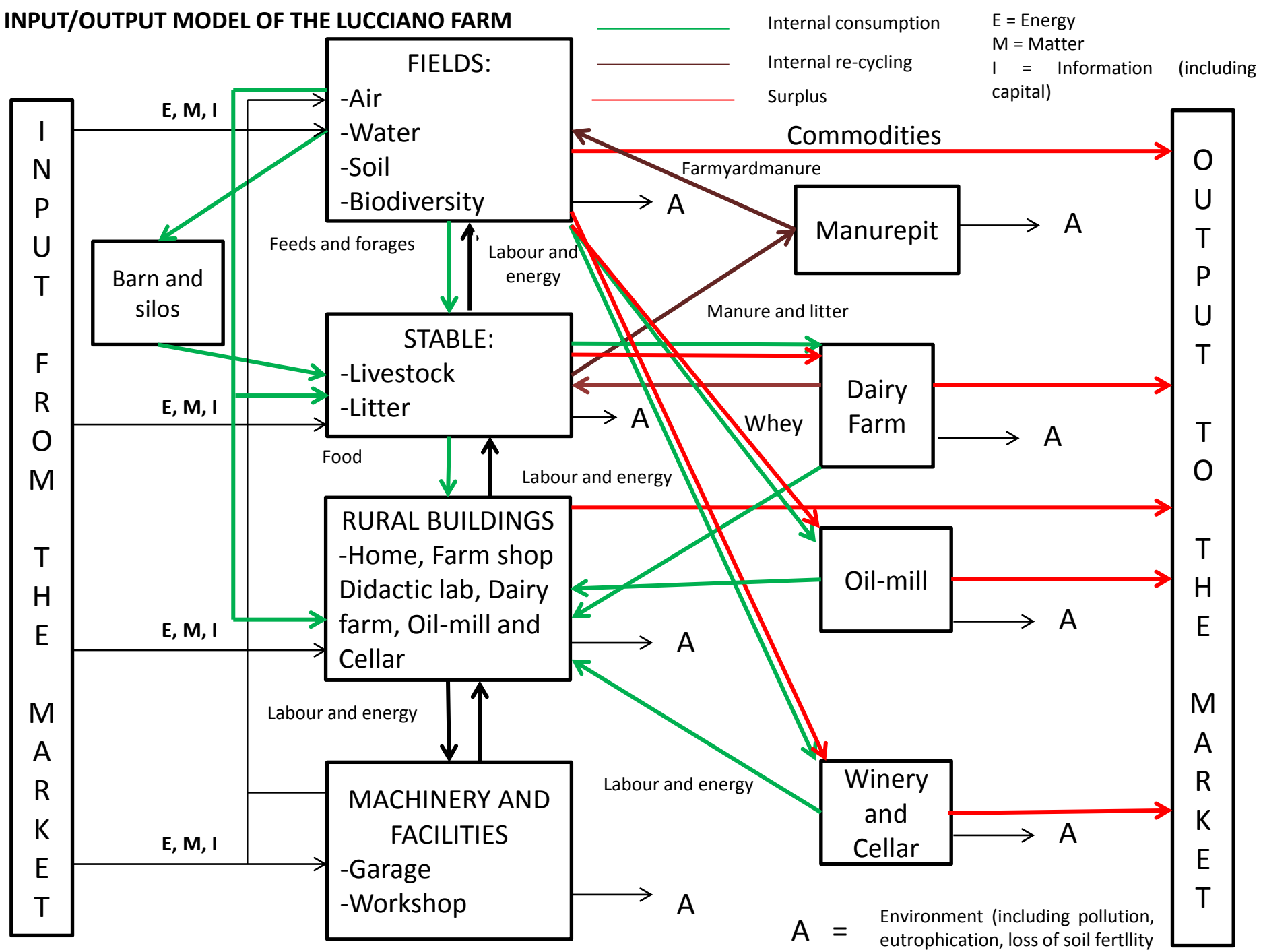
- A storm water catchment area in which infiltration in enhanced over water run-off and soil erosion;


- An area where atmospheric nitrogen fixation is enhanced by the frequent and extensive use of legume crop rotation, intercropping, cover cropping and green manuring;

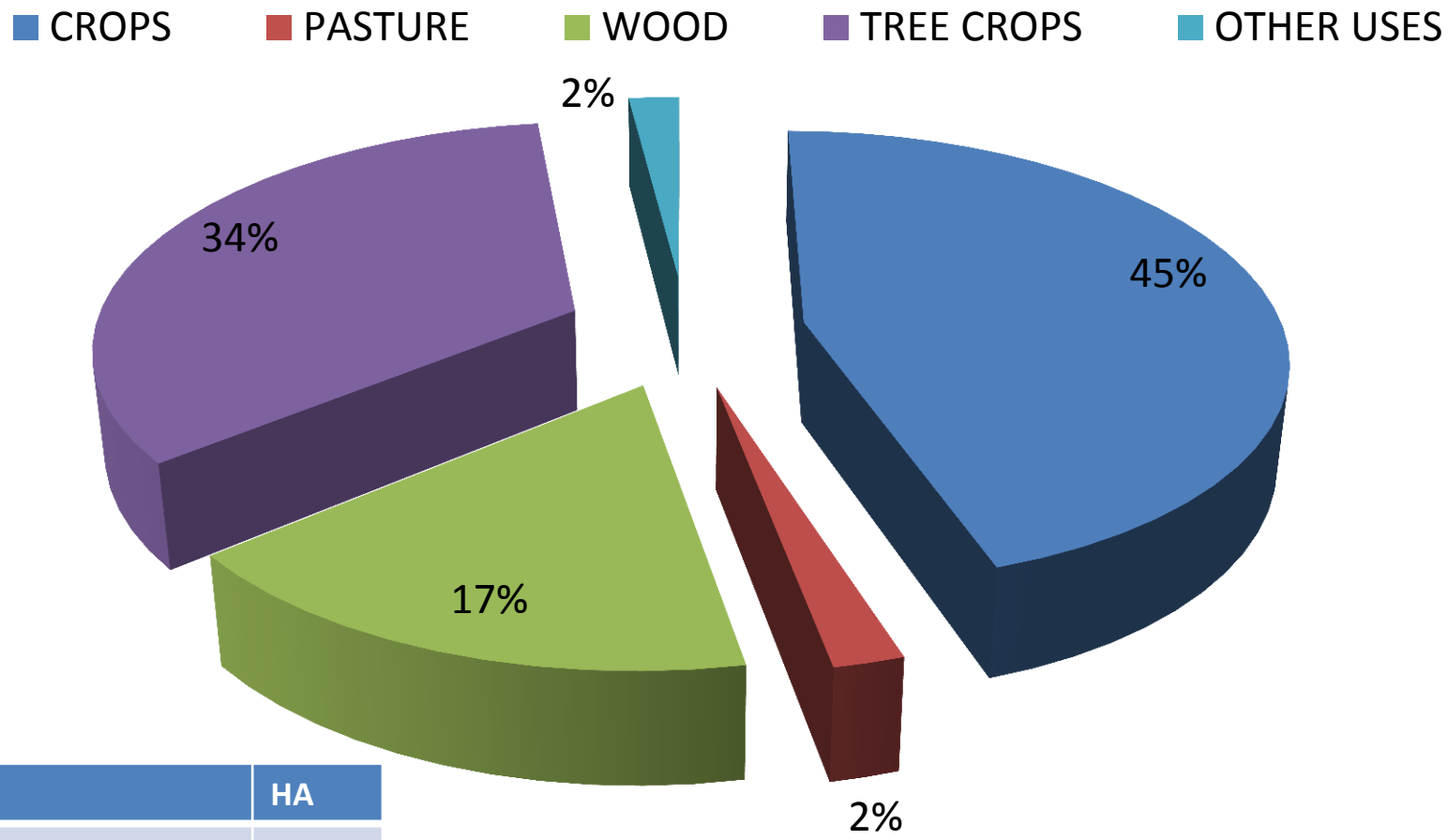
- A mixed farm, which combines crop growing and livestock farming so as to attain the maximum integration of grazing and residue cycling and increased soil fertility;




- An integrated biological community in which biological control relies on diversity inside (crop rotation, intercropping, etc.) and outside (hedges, tree rows, et.) the cultivated field.

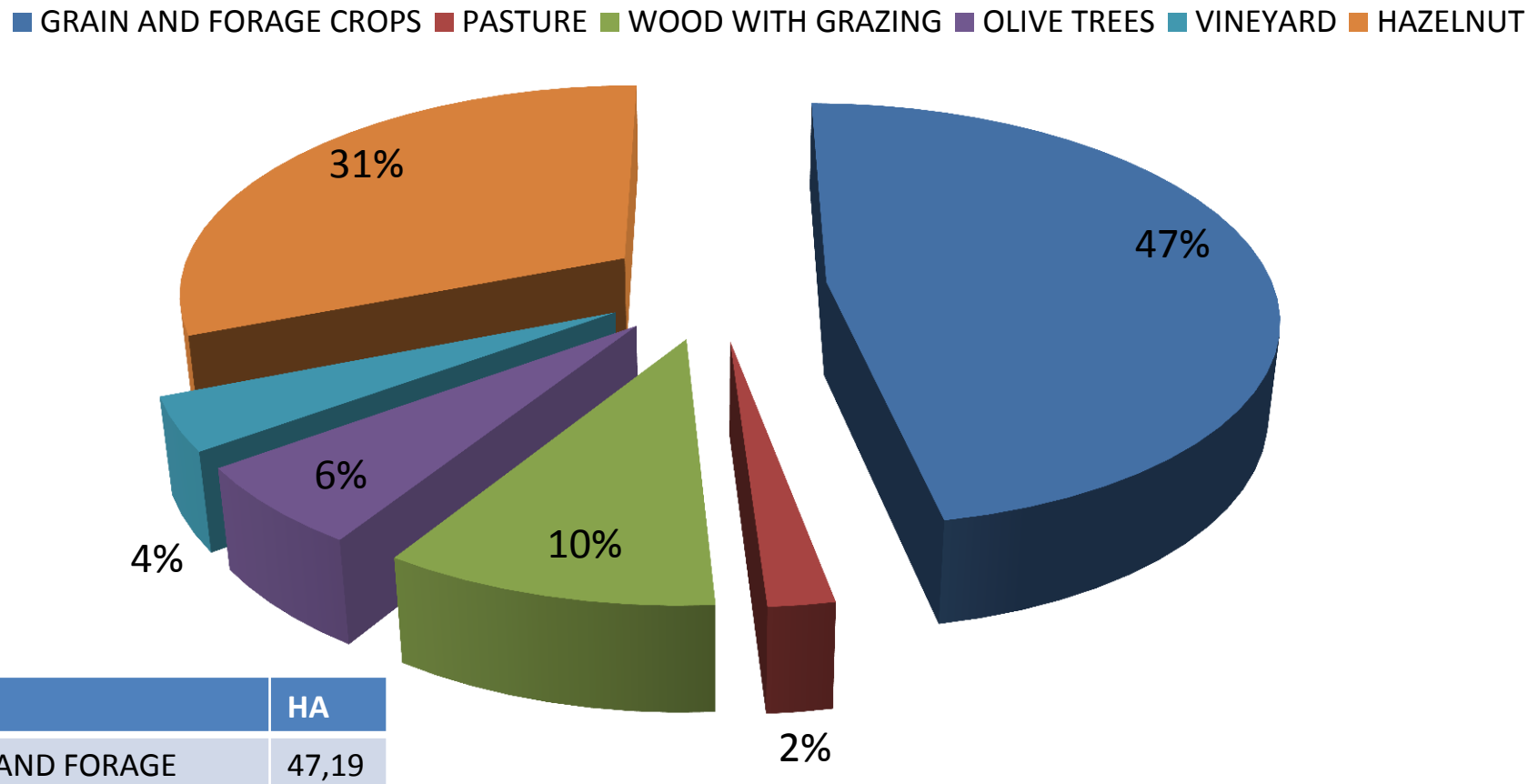

INPUT/OUTPUT MODEL OF THE LUCCIANO FARM
Internal consumption
Internal re-cycling
Surplus
E = Energy
M = Matter
I = Information (including capital)
INPUT FROM THE MARKET
OUTPUT TO THE MARKET
FIELDS:
-Air
-Water
-Soil
-Biodiversity
Barn and silos
STABLE:
-Livestock
-Litter
RURAL BUILDINGS
-Home, Farm shop
Didactic lab, Dairy farm, Oil-mill and Cellar
MACHINERY AND FACILITIES
-Garage
-Workshop
Manurepit
Dairy Farm
Oil-mill
Winery and Cellar
E, M, I
Commodities
Farmyardmanure
Feeds and forages
Labour and energy
Manure and litter
Whey
Food
A
A = Environment (including pollution, eutrophication, loss of soil fertllity

# PERCENTAGE OF TOTAL AGRICULTURAL AREA




| AREA | HA |
|---|---|
| CROPS | 47,19 |
| WOOD | 18,00 |
| PASTURE | 1,74 |
| TREE CROPS | 36,19 |
| OTHER USES | 1,62 |

# PERCENTAGE OF UTILIZED AGRICULTURAL AREA




| AREA | HA |
|---|---|
| GRAIN AND FORAGE CROPS | 47,19 |
| WOOD WITH GRAZING | 8,70 |
| PASTURE | 1,74 |
| HAZELNUT | 27,54 |
| VINEYARD | 3,32 |
| OLIVE TREES | 5,32 |

# FARM DEVELOPMENT

| FEATURES | 1974 | 2014 |
|---|---|---|
| AGRICULTURAL PRODUCTION | MONOCULTURE | POLYCULTURE |
| PERCENTAGE OF UTILIZED AGRICULTURAL AREA | 100 % GRAIN AND FORAGE CROPS | 47 % GRAIN AND FORAGE CROPS<br>2% PASTURE<br>10% WOOD WITH GRAZING<br>6% OLIVE TREES<br>4% VINEYARD<br>31% HAZELNUT |
| LIVESTOCK | NO LIVESTOCK | DAIRY CATTLE AND BEEF |
| LABOUR | 1 EMPLOYEE | 10 EMPLOYEES |
| BUILDINGS | 2 SHEDS | HOME<br>STABLE<br>MILKING PARLOUR<br>DAIRY ROOM<br>2 BARNS<br>3 SHEDS<br>FARM SHOP<br>DIDATTIC LAB<br>HOLIDAYS ROOMS<br>OIL MILL<br>WINERY AND CELLAR |

# FARM DEVELOPMENT

| FEATURES | 1974 | | 2014 | |
|---|---|---|---|---|
| INCOME FROM INSITUTIONAL SOURCES | COMMON AGRICULTURAL POLICY | € 40.000,00 | COMMON AGRICULTURAL POLICY | € 6.500,00 |
| | | | SUPPORT TO MEASURES WITH LOW ENVIRONMENTAL IMPACT | € 36.000,00 |
| | | | RURAL DEVELOPMENT PROGRAMME | € 348.123,15 |


Integrating Sustainability into Agricultural Education:
dealing with complexity, uncertainty and diverging worldviews
Arjen Wals
Richard Bawden
AFANet 2000
Interuniversity Conference for Agricultural and Related Sciences in Europe (ICA)

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# Countries participating in ENOAT

Common European Degree Level Specialisation in

# ECOLOGICAL AGRICULTURE



- **Seven members of the ERASMUS group Plant Sciences elaborated a curriculum ECOLOGICAL AGRICULTURE for the third year of a BSc study.**
- **First it was implemented in Copenhagen [KVL] and Aberystwyth [UWA] as one year study in DK (ss) and UK (ws) {1998: English} and Kassel {GhK} (ss & ws) {since 1994: German}. Viterbo started the same programme in 2001 {Italian}; the same did Torino in 2001 {Italian}.**
- **The group of universities increases gradually. Four new members (P10 – P13) participated at the last annual meeting in Budapest 2001.**

## Partners

| | |
|---|---|
| P1 | University of Wales, Aberystwyth |
| P2 | Den Kgl. Veterinaer og-Landbohøsjkole |
| P3 | Universität Kassel |
| P4 | Universita degli studi della Tuscia, Viterbo |
| P5 | Sveriges Lantbruksuniversitet, Uppsala |
| P6 | Institut Supérieur d'Agriculture Rhônes-Alpes, Lyon |
| P7 | Wageningen University |
| P8 | University of Helsinki |
| P9 | Agricultural University of Norway |
| P10 | St. Isztvan University, Budapest |
| P11 | Agricultural University of Warsaw |
| P12 | University of Maribor |
| P13 | Universita degli studi di Torino |

## Curriculum

### Ecological Agriculture I

- **Introduction to agroecology**
- **Managing of soil ecosystems**
- **Nutrient and energy flows in ecological farming systems**
- **Machinery, technical systems and energy**
- **The principle of ecological cropping system design and mangement**

### Intensive International Summer Course

1998 Wageningen | 1999 Kassel | 2000 Viterbo | 2001 Copenhagen | 2002 Uppsala

- **The historical and philosophical evolution of ecological agriculture**
- **Human health, nutrition and food quality**
- **Economic and social impacts of ecological farming systems**

### Ecological Agriculture II

- **Design and management of ecological livestock production systems**
- **Business and management in ecological agriculture**
- **Environmental impact and enhancement of ecological agriculture**
- **Start of farm analysis and design project**

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# ITALIAN BIO-DISTRICTS

***10 Bio-districts have already been set up in 8 Italian Regions:***

- **Campania**, Cilento
- **Calabria**, Grecanico
- **Lazio**, Via Amerina and Forre
- **Tuscany**, Greve in Chianti, San Gimignano, Chianti storico
- **Liguria**, Val di Vara
- **Piemonte**, Valli Valdesi
- **Trentino Alto Adige**, Val di Gresta
- **Marche**, Il Piceno

***4 Bio-districts are under development in 4 Italian Regions:***

- **Molise**
- **Puglia**
- **Sicilia**
- **Lombardia**

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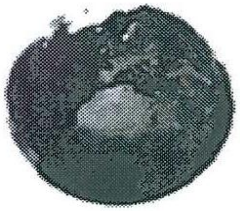
# INTERNATIONAL NETWORK OF BIO-DISTRICTS (ECO-REGIONS)

At the international level, exchanges with similar initiatives in Europe are organized in order to create an international network of bio-districts. Furthermore, the bio-districts were identified and disseminated as a model of social innovation initiative within the UN-supported cooperation program IDEASS (Innovation for Development and South-South cooperation), aimed at facilitating the identification, promotion and dissemination of innovations contributing to human development, conservation and valorisation of environmental resources, to poverty and social exclusion reduction.



International Network of Eco Regions