



Agroecological Service Crop: a tool for farmers



Corrado Ciaccia
(CREA-RPS / CREA-AA)

What is CREA?

Consiglio per la Ricerca e l'analisi dell'Economia Agraria
the Council for Agriculture Research and Economics
mission

CREA operates under the supervision of the Italian Ministry of Agriculture, in the field of the research in agriculture, agro-industry, food, fisheries and forestry

<http://www.crea.gov.it/>



*Ministero delle politiche agricole
alimentari e forestali*

12 Research centers
28 head offices

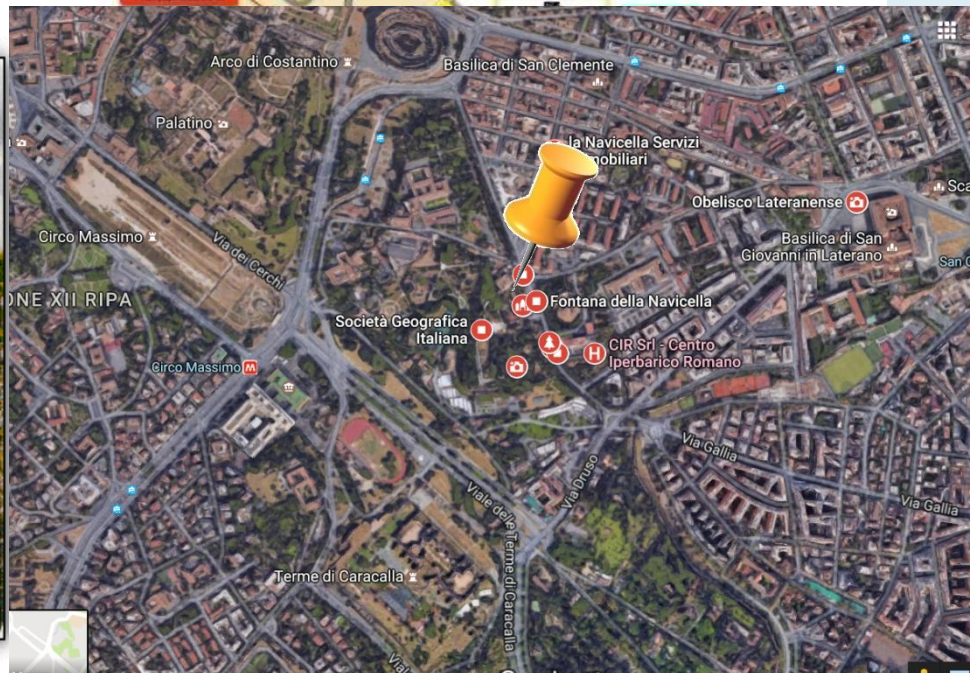
- GB** Genomica e Bioinformatica
- AA** Agricoltura e Ambiente
- DC** Difesa e Certificazione
- IT** Ingegneria e Trasformazioni agroalimentari
- AN** Alimenti e Nutrizione
- PB** Politiche e Bioeconomia
- ZA** Zootecnia e Acquacoltura
- FL** Foreste e produzioni Legnose
- CI** Cerealicoltura e colture Industriali
- VE** Viticoltura ed Enologia
- OF** Orticoltura e Florovivaismo
- CA** Colture Arboree





GB Genomica e Bioinformatica

AA Agricoltura e Ambiente



Restricted team



STEFANO
CANALI
*Senior
Researcher*

System design
Soil fertility management



FABIO
TITTARELLI
*Senior
Researcher*

Composting process
Greenhouse system

Projecting, management and evaluation of organic systems according to agroecological principles

Soil fertility assessment
Allelopathy



ELENA
TESTANI
*Fixed term
Researcher*

Lab analysis
Data entry



STEFANO
TROTТА
*Fixed term
Technician*

A tool for re-designing the entire food production system
(Gliessman, 2016) – five level approach:

1. increased efficiency of conventional practices
2. replacement of external inputs and environmentally degrading practices with renewable inputs and more sustainable practices (e.g. cover crop for N fertility).
3. complete redesign of the agroecosystem to prevent problems rather than controlling them. It is mainly based on more articulated and diverse crop rotation. **ASC role**
4. a strict connection between farmers and consumers. At a local level, it is the creation of “food citizenship”.
5. the global social perspectives of food production pertaining to its ethical aspects.

Agroecological service crops (ASC)

Why a “novel” terminology?

Different terms used for crops having ecological/ agronomic role:

- catch crops;
- cover crops,
- complementary crops
- green manure
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NOT consistent terminology: connected with a i) specific purpose or ii) position in the rotation or iii) termination strategy

NOT considered always appropriate in any situation or broad enough to comprehend all the crops having agro-ecological functions

Agroecological Service Crops (ASCs)

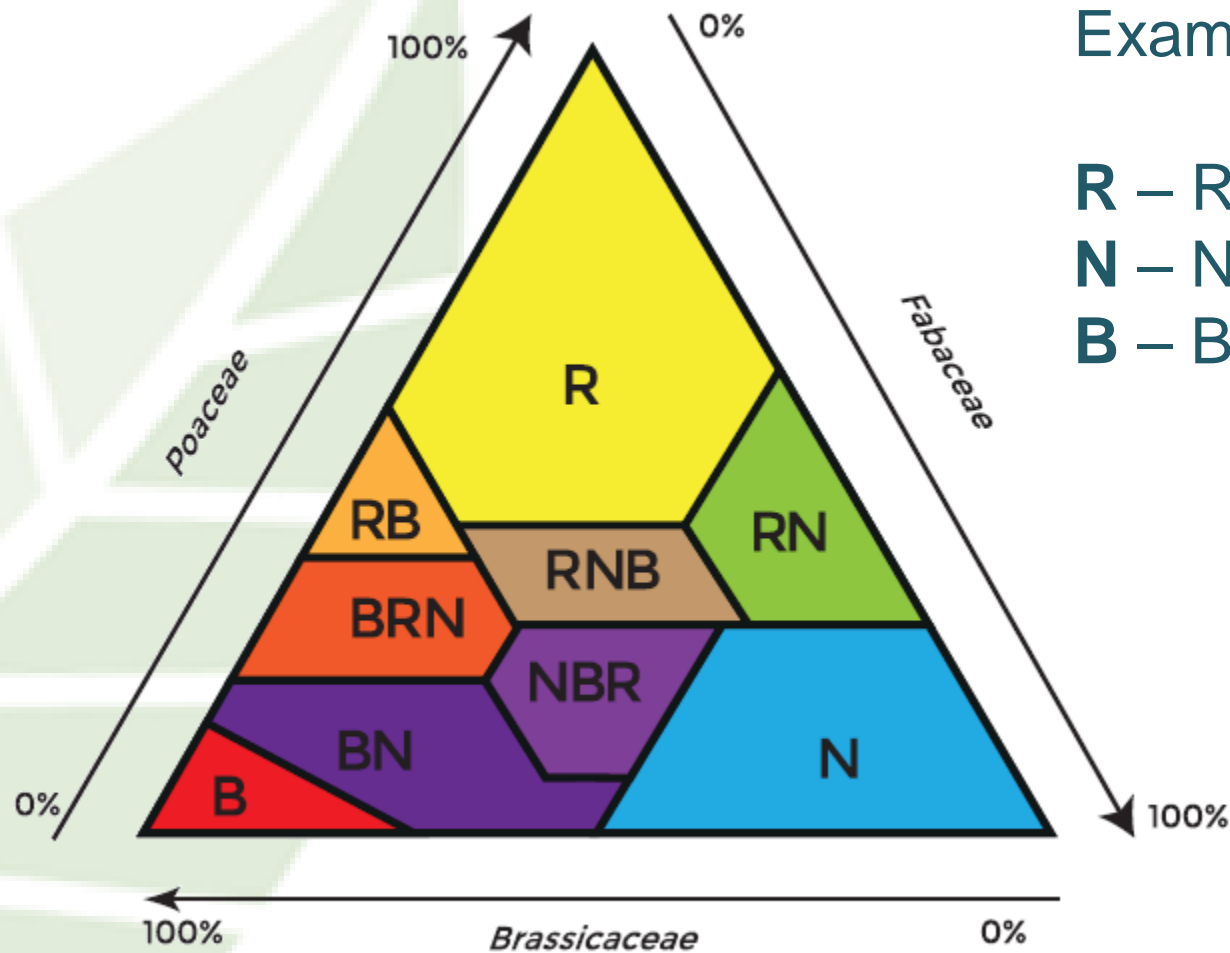
Agroecosystem services (examples)

- nutrients supply and management (i.e. fertility building crop)
- water holding capacity
- **weed control**
- disease and pest control (different mechanisms);
- pollination services
- C sequestration
- resilience to (extreme and severe) weather conditions
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ASCs contribute to reduce negative externalities of agriculture (i.e. environmental and/or social costs).

Not directly aimed at yield.

(Foley et al., 2011; Kremer and Miles, 2012; Thorup Kristensen et al., 2012;)



Example of services

- R** – Reduction of weeds
- N** – Nutritional
- B** – Biofumigant