



CAN WE PRODUCE BIO-BASED PRODUCTS WHILE ENHANCING BIODIVERSITY IN AGROECOSYSTEMS?

Agroforestry with industrial crops can increase biodiversity in marginal land

MIDAS is running a multi-annual study, monitoring biodiversity in its 19 demo fields on marginal agricultural land across Europe.

Results published in a recent paper by our partner CREA-IT indicate that growing industrial crops such as safflower in an agroforestry system with poplar can actually benefit biodiversity

Both safflower oil and biomass from poplars can be used for a range of bio-based products

The study monitored arthropod diversity across different farming systems

Traditional poplar plantation
Traditional eucalyptus plantation
Safflower field in flowering stage
Field with wheat residues
Agroforestry system (poplar + safflower)

Data collection included total animal biomass, richness and evenness of diversity.



RESULTS

The agroforestry system exhibited higher arthropod abundance, greater diversity richness and evenness than the traditional systems

+ 61.2% than eucalyptus plantation
+ 58.9% than wheat residues
+ 42.6% than flowering safflower
+ 11.6% than poplar plantation

Eucalyptus plantation

368 n. arthropods
5.01 g biomass

Wheat residues

293 n. arthropods
5.35 g biomass

Safflower

1268 n. arthropods
7.47 g biomass

Agroforestry poplar + safflower

3089 n. arthropods
12.92 g biomass

Poplar plantation

1978 n. arthropods
11.46 g biomass

MIDAS demo field at CREA-IT Monterotondo - Rome
Marginality factor: soil wetness, waterlogging

These results confirm that innovative, mixed-cropping approaches such as agroforestry can be highly suitable for supporting biodiversity in rural areas



By implementing well-designed bio-based value chains, we can recover agricultural marginal land, creating opportunities for farmers and protecting our agroecosystems



Midas

MARGINAL LANDS, INDUSTRIAL CROPS
AND INNOVATIVE BIO-BASED VALUE CHAINS

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Article

Role of Agricultural Management in Short-Term Monitoring of Arthropod Diversity at Field Scale

Simone Bergonzoli ^{1,*} , Luca Cozzolino ^{1,*} , Elio Romano ² and Luigi Pari ¹

¹ CREA Consiglio per la Ricerca in Agricoltura e L'analisi Dell'economia Agraria Centro di Ingegneria e Trasformazioni, Via della Pascolare, 16, Monterotondo, 00015 Rome, Italy; luigi.pari@crea.gov.it

² CREA Consiglio per la Ricerca in Agricoltura e L'analisi Dell'economia Agraria Centro di Ingegneria e Trasformazioni, Via Milano, 47, 24047 Treviglio, Italy; elio.romano@crea.gov.it

* Correspondence: simone.bergonzoli@crea.gov.it (S.B.); luca.cozzolino@crea.gov.it (L.C.)

Abstract

In recent decades, a significant decline in arthropods' abundance and biodiversity, as a consequence of intensive agricultural practices and reductions in their natural environments, has been observed. While landscape-scale biodiversity studies are well documented in the literature, the impact of field-level agricultural management remains less understood. To address this gap, a sampling of diversity was carried out through Malaise traps on five agricultural surfaces with different management schemes: two characterized by the presence of trees (*Populus* L. spp. and *Eucalyptus* spp.), two herbaceous fields in different development stages (flowering *Carthamus tinctorius* L. and stubble of *Triticum aestivum*), and one mixed system (an agroforestry plantation composed of *Populus* L. spp. and *Carthamus tinctorius* L.). Data collection focused on evaluating the total animal biomass (weight and number) and the richness and evenness components of diversity using Shannon and Simpson indices at the Order level. The sampled arthropods belonged to six Orders of Insecta and one

Link in description

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