



# SUSTAINABLE BIODIVERSITY-FRIENDLY INTERCROPPING FOR BIO-BASED PRODUCTS IN CENTRAL-NORTHERN SPAIN UNDER MARGINAL LAND CONDITIONS:

## FIRST RESULTS OF THE **MIDAS** PROJECT

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### EUBCE 2024

32nd European Biomass Conference & Exhibition

24-27 June | Conference & Exhibition

28 June | Technical Tours

Marseille

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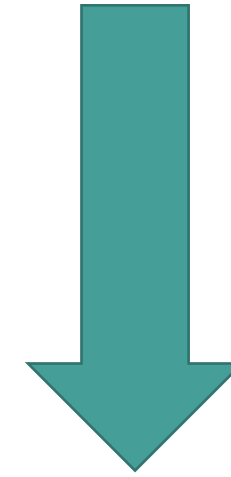
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# FIRST RESULTS OF THE MIDAS PROJECT

## SOCIAL CONSIDERATIONS:

↑ DEMAND OF AGRICULTURAL AND FOREST BIO-BASED PRODUCTS



CHEAP PRODUCTS

SUSTAINABLE BIODIVERSITY FRIENDLY

RESPECTFULL WITH ENVIRONMENT

AVOID THE USE OF PEST AND INORGANIC FERTILIZERS

PRODUCED IN MARGINAL LAND



# FIRST RESULTS OF THE MIDAS PROJECT

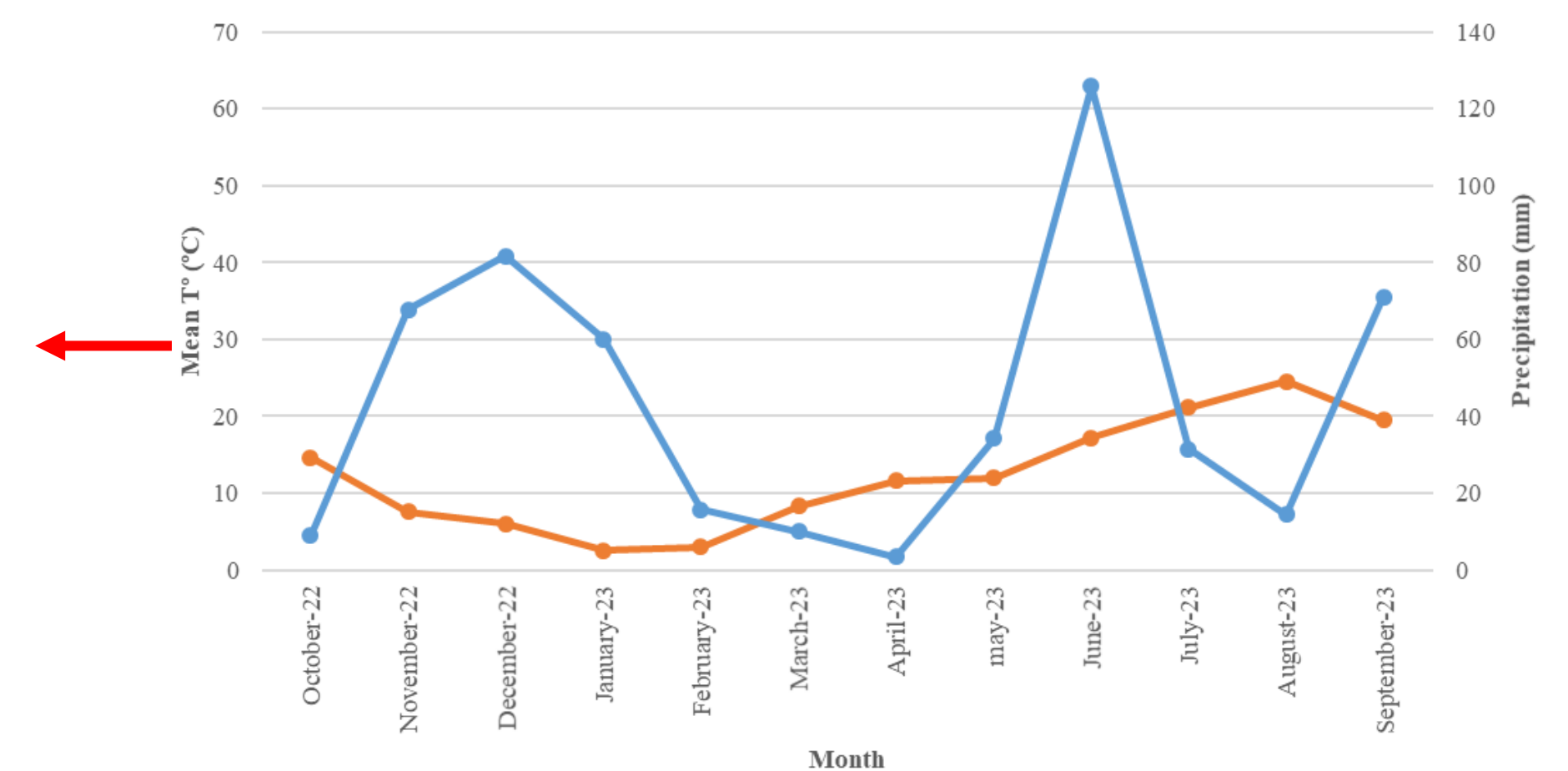
## OUR LIMITATIONS:

MEDITERRANEAN CLIMATE CONDITIONS

1000 M ABOVE THE SEA LEVEL

RAINFED AGRICULTURAL LAND

CROPS WITH INTEREST FOR THE INDUSTRY

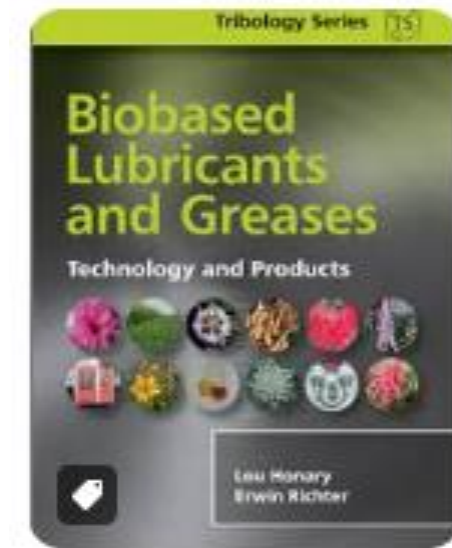




# FIRST RESULTS OF THE MIDAS PROJECT

## SELECTED CROPS WITH INTEREST FOR INDUSTRY

**SAFFLOWER**



**SIBERIAN ELM**



**CRAMBE**



**MELILOT**



**SEVILLE LAVENDER**





# FIRST RESULTS OF THE MIDAS PROJECT

## AGRONOMY OF ANNUALS AND BIENNIAL CROPS

Previous crop → grassland and fallow land

Seed bed preparation →

Primary Tillage: December 2022 (Moldboard plow)

Cultivator passes: February 2023

April 2023

Sowing: April 2023 (Seed drill)

Melilot: 21 kg/ha

Safflower: 23 kg/ha

Crambe: 20 kg/ha

Harvest:

Crambe: August 2023 → 450 kg/ha

Safflower: September 2023 → 1200 kg/ha





# FIRST RESULTS OF THE MIDAS PROJECT

## AGRONOMY OF ANNUALS AND BIENNIAL CROPS

28/04/2023



09/05/2023



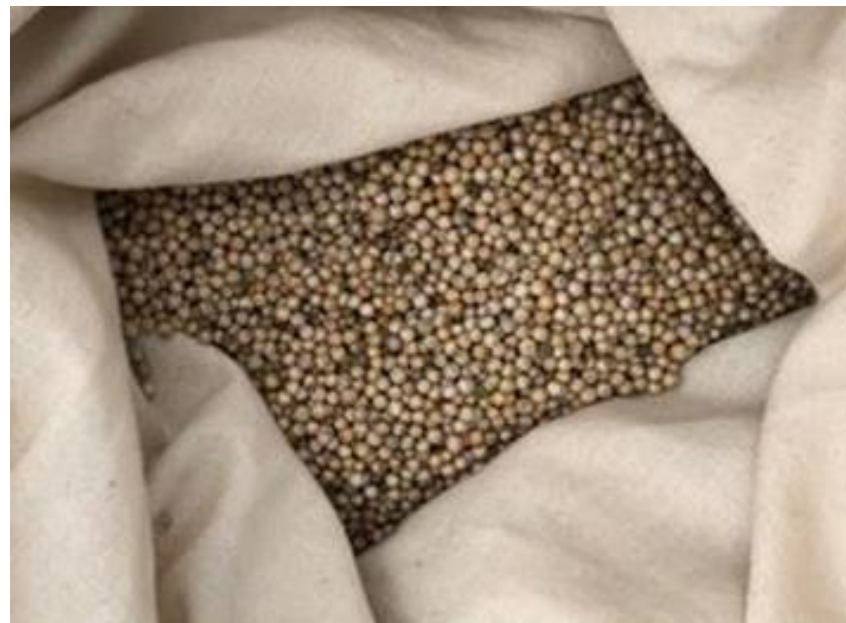
15/06/2023



03/08/2023



27/09/2023





# FIRST RESULTS OF THE MIDAS PROJECT

## AGRONOMY OF PERENNIALS CROPS

Previous crop → Grassland and fallow land  
Seed bed preparation →



Primary tillage: December 2022

Cultivator passes: February 2023

April 2023

Planting → Grown in greenhouse

Semiautomatic planter

Siberian elm: Late May 2023

Lavender: Mid May 2023

Weed control → Without pesticides





# FIRST RESULTS OF THE MIDAS PROJECT

## CONCLUSIONS

- All crops in the study have the potential for growth on marginal soils, but with different results.
- Siberian elm and Seville lavender are crops with promising development after correct establishment under continental Mediterranean climate conditions.
- Safflower achieved competitive yields in both experiments. In contrast, crambe achieved poor yields.
- No significant differences in yield were found in the interaction with the perennial and annual crops studied, perhaps because it is too early to draw clear conclusions.





# FIRST RESULTS OF THE MIDAS PROJECT

## TO DO LIST

- This study shows preliminary results that need to be completed in the following years.
- Melilot, Seville lavender and Siberian elm have not yet been harvested.
- Biodiversity studies should be added to this research for checking the biodiversity-friendly of these intercropping systems.





# FIRST RESULTS OF THE MIDAS PROJECT

## REGIONAL ADVISORY GROUP

- Formed by farmers, researchers and Unions interested in diversifying crop systems
- Sharing information about MIDAS innovative activities
- WhatsApp group







# Thank you



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