



Advanced Sustainable Biofuels for Aviation



Cultivation of Camelina in semi-arid land with a high risk of desertification

19 April 2023

Webinar BIO4A-BIKE Low ILUC risk biomass feedstock for SAF and soil carbon sequestration in Mediterranean marginal land

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INTRODUCTION TO THE CAMELINA CROP



Camelina sativa

Camelina is an oilseed from the **Brassicaceae** family. It is a resilient crop that is fully cultivated with **commercial machinery**.



Germination



Leaves



Rosette



Elongation



Flowering



Harvest

INTRODUCTION TO THE CAMELINA CROP



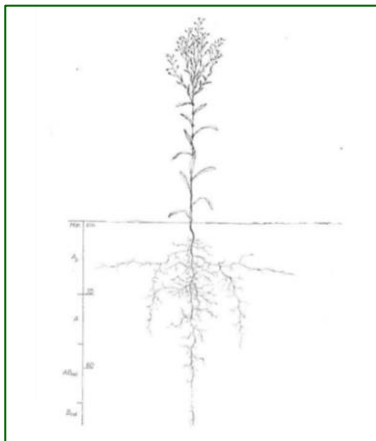
Resilient oilseed

- drought resistant
- cold/heat tolerant
- pest & disease tolerant
- Allelopathic effect
- Low nitrogen required
- Commercial machinery

Unique precocity

- Very short cycle varieties
- Winter & spring varieties

Cover crop harvest
without impacting
the main crops



Pivoting root system



METHODOLOGY APPLIED IN THE BIO4A PROJECT SCOPE



Objectives

YEAR 1

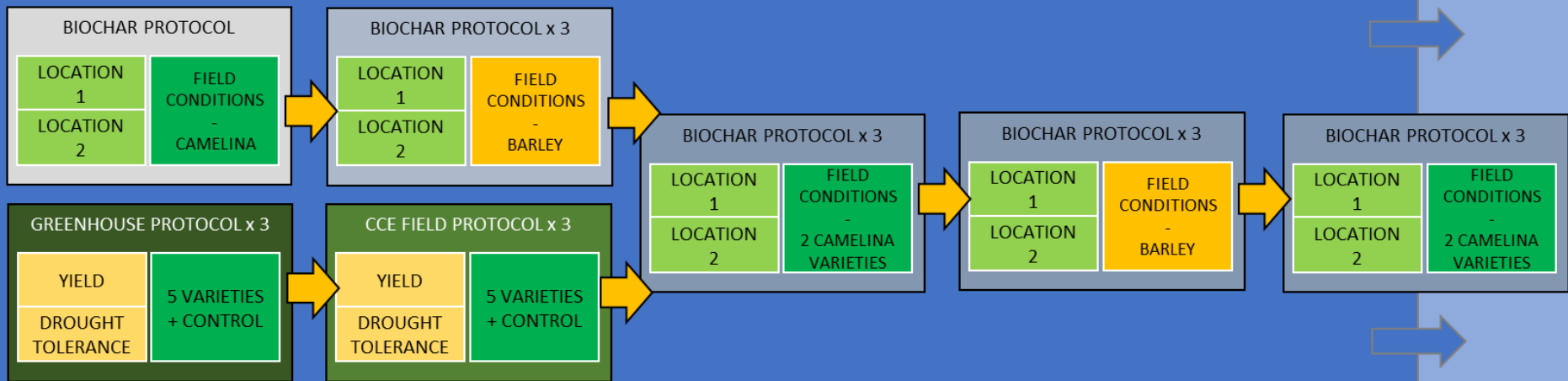
YEAR 2

YEAR 3

YEAR 4

YEAR 5

O1: Biochar+compost agronomic protocol

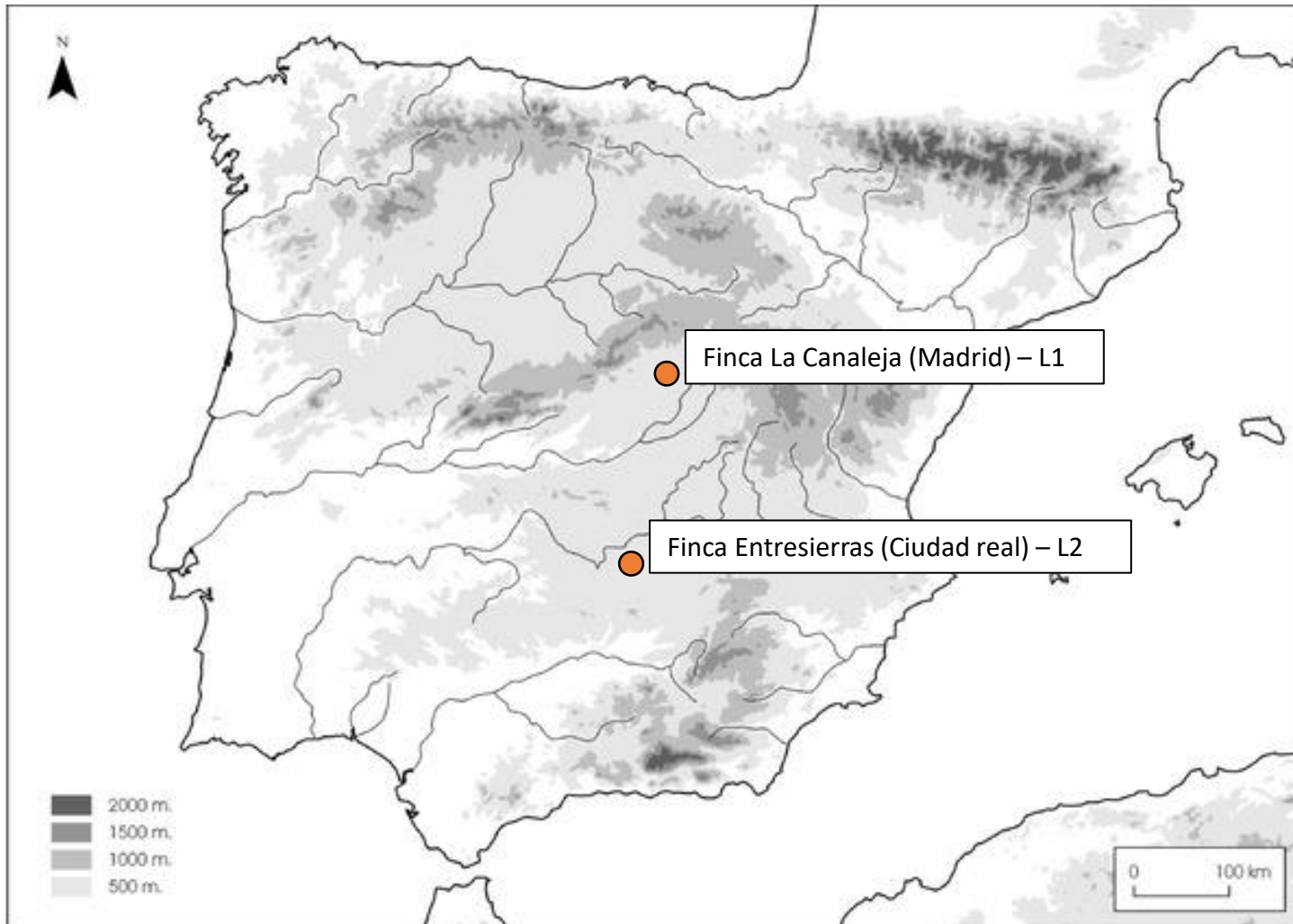


O2: High yielding camelina variety

METHODOLOGY APPLIED IN THE BIO4A PROJECT SCOPE



Locations



METHODOLOGY APPLIED IN THE BIO4A PROJECT SCOPE



Biochar protocol: Treatments

1. **No fertilization:** No fertilization product has been applied in this treatment.
2. **Mineral fertilization:** 250 kg/ha of NPK (8:24:8) as background fertilization
3. **COMBI containing 10% Biochar**
4. **COMBI containing 15% Biochar**
5. **COMBI containing 20% Biochar**
6. **Biochar** supplied by RECORD + 250 kg/ha of **NPK** (8:24:8) as background fertilization
7. **100% Compost** supplied by RECORD

Biochar and compost mixes have been **applied only once**, previous to the first-year experiment.

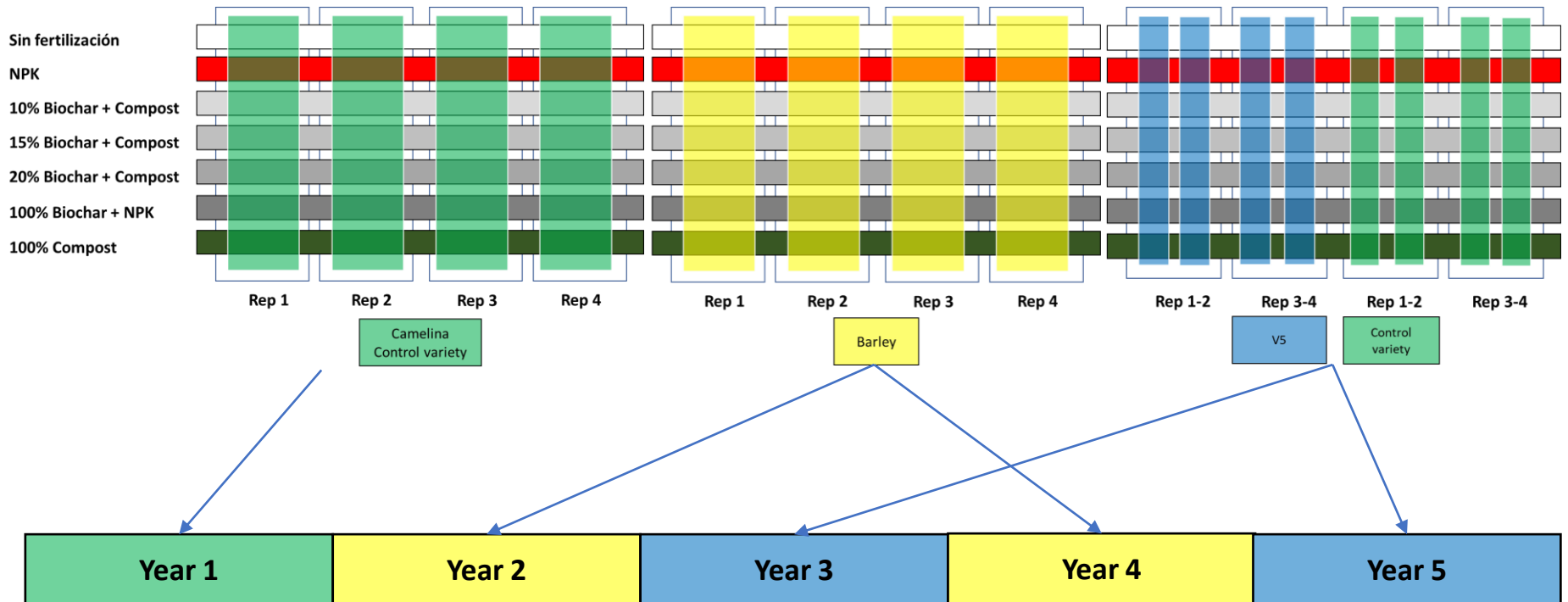
Background fertilization (NPK), has been **applied every year** before sowing (only to Mineral fertilization treatment and Biochar+NPK treatment).

Dressing fertilization has been applied in all treatments during spring every year with the exception of “No fertilization treatment”.

METHODOLOGY APPLIED IN THE BIO4A PROJECT SCOPE



Design



DEVELOPMENT



Objective 1: Biochar+compost agronomic protocol

YEAR 1

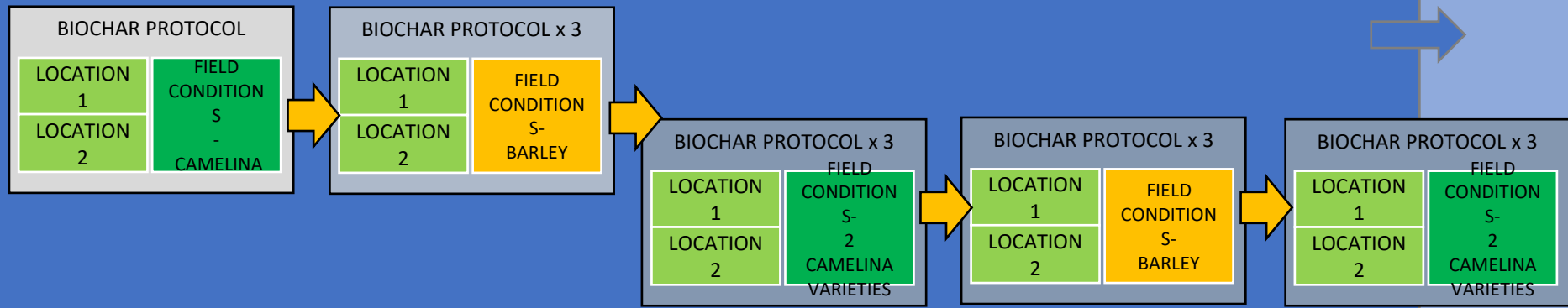
YEAR 2

YEAR 3

YEAR 4

YEAR 5

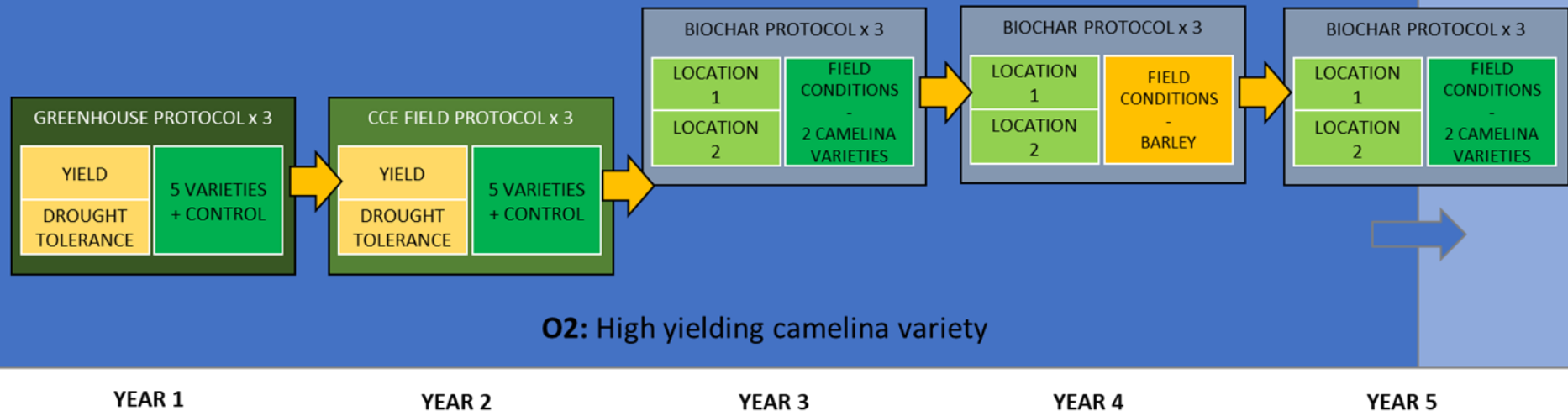
O1: Biochar+compost agronomic protocol



DEVELOPMENT



Objective 2: High yielding camelina variety

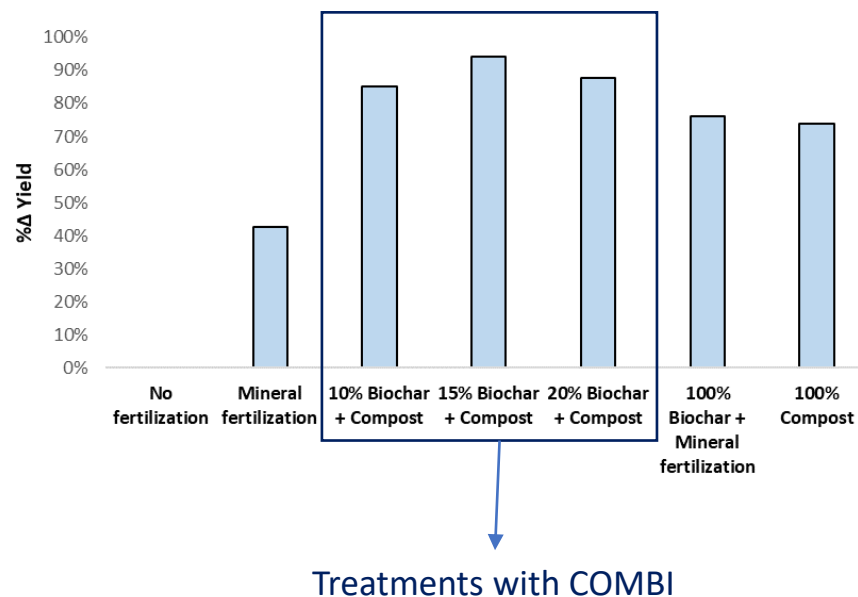
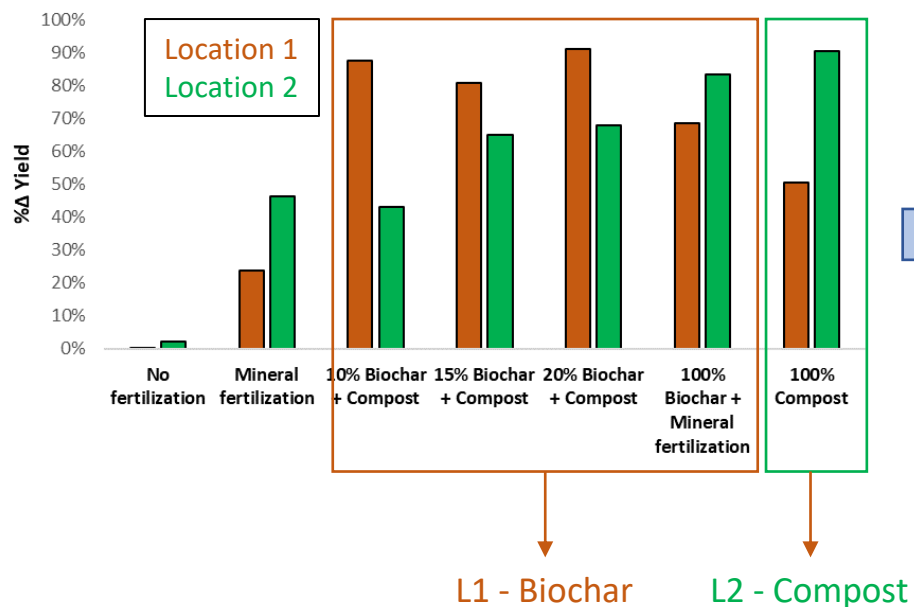


RESULTS



Yield response

- 1° Positive yield response of Biochar and compost application.
- 2° Different effect in both locations. Location 1 showed a better response to biochar than Location 2.
- 3° Combination of both products (COMBI) has obtained the best results

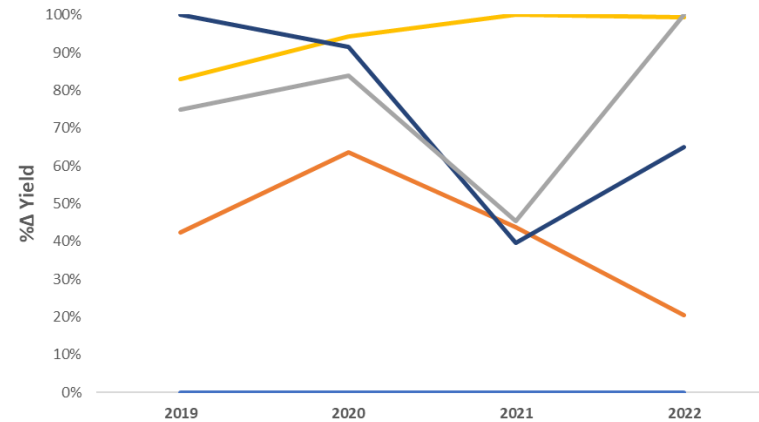
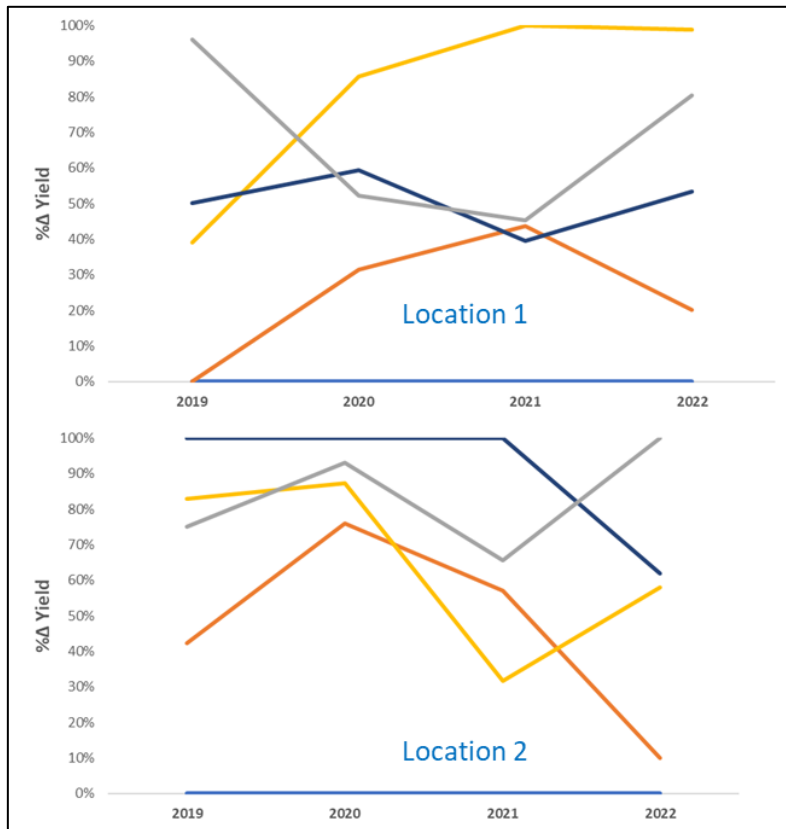


RESULTS



Yield stability

- 1° Mineral fertilization treatment shows a progressive decrement.
- 2° Compost treatment yields tend to go down.
- 3° Biochar treatments have shown a higher stability over time.



No fertilization
Mineral fertilization
Combi (15%)
Biochar + Mineral fertilization
100% Compost



Advanced Sustainable Biofuels for Aviation



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Project Partners



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