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BIOSTIMOLA: Biostimulants in a nutshell

A project to optimize the use of biostimulants in agriculture



PSR
2014 2020
LOMBARDIA
L'INNOVAZIONE
METTE RADICI



Regione
Lombardia

Fondo Europeo Agricolo per lo Sviluppo Rurale: l'Europa investe nelle zone rurali

Initiative implemented within the framework of the BIOSTIMOLA project, co-financed by operation 1.2.01 "Demonstration projects and information actions" of the Rural Development Programme 2014 – 2020 of the Lombardy Region. Responsible for the project is the **DiSAA of the University of Milan**, implemented with the collaboration of **Agricola 2000**.



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Demonstration activities

Marta Guarise | Agricola 2000



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Objectives, demonstration actions and impacts

Crop of interest: soybean (*Glycine max* L. Merr.)

→ Particularly widespread crop and the subject of numerous studies on biostimulants

Project duration/demonstration activities: two years (2023-2024)

D1 – Open field soybean cultivation (optimal conditions): positive effects of treatment with biostimulants

D2 – Use of biostimulants in overcoming water scarcity damage (water stress)

D3 – Use of biostimulants in overcoming damage caused by weed control



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The trial will be conducted in the **open field** using a randomised block experimental design with three replications.



OBJECTIVE

Comparison between thesis managed according to the most common cultivation practices (fertilisation, fungicide and weed control) and thesis with one or more applications of biostimulant products.



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by weed control

The trial will be conducted in a **protected environment** using a randomised experimental design with three replications. Once the water deficit conditions have been reproduced, biostimulant products will be applied.



OBJECTIVE

To demonstrate the efficacy of biostimulants in response to water stress.



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OBJECTIVE

To compare the efficacy in reducing phytotoxicity symptoms of biostimulants applied as an extemporaneous mixture with herbicides or individually.



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ANALYSIS

The following parameters will be assessed:

- Aerial biomass
- Plant height yield
- Grain quality.



PHYSIOLOGICAL RESPONSE ASSESSMENTS

The physiological response of the crop to the application of the biostimulant will be carried out in vivo during the crop cycle.

- Non-destructive determinations will include:
- Fluorescence analysis of chlorophyll a
- Measurement of leaf gas exchange (CIRAS)
- Non-destructive estimation Chl, flavonoids, anthocyanins and NBI



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POST-HARVEST ANALYSIS

- Analysis of mineral content (macro and micronutrients)
- Evaluation of total sugar content in leaves.



DEMONSTRATION DAYS AND DISSEMINATION

- The results obtained will be compared with the scientific literature and discussed during **information events**
- Organisation of **demonstration days** in order to demonstrate the effect of biostimulants in combination with the most common cultivation practices in soybean cultivation
- Demonstration-informative videos production



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Demonstration activities and biostimulant products comparison



End of April: sowing

Second half of May: biostimulant product applications

Second half of June: field demonstration day

D1 – Open field soybean cultivation (optimal conditions): positive effects of treatment with biostimulant product

Formulations based on amino acids, microalgae and brown algae, microelements

D2 – Use of biostimulant products in overcoming water scarcity damage (water stress)

Formulations based on amino acids, microalgae and brown algae, humic acids and fulvic micronutrients

D3 – D3 – Use of biostimulant products in overcoming damage caused by weed control

Formulations based on microalgae, bacteria (*Bacillus Cohn*) microelements



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