



BBioNets

Boosting the adoption  
of Bio-Based Technologies

# Cross-Fertilisation Meetings

Bio-Based Practices on Farms & Forests

“Innovations in Nutrient Recovery”

## Short Value Chains: Turning Circular By-products into Biofertilizers

Luca Brenna – Tersan Puglia

Online, December 11, 2025



Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency (REA). Neither the European Union nor the granting authority can be held responsible for them.

# Tersan – History, Vision & mission



**1974:** TERSAN PUGLIA IS FOUNDED, THE FIRST PLANT IN ITALY DEDICATED TO RECOVERING ORGANIC WASTE TO PRODUCE BIOFERTILIZERS.



NOURISHING THE EARTH, TO CARE FOR THE ENVIRONMENT.



DEVELOPING INNOVATIVE SOLUTIONS WITH LOW ENERGY AND ENVIRONMENTAL IMPACT, TO PROMOTE INCREASINGLY SUSTAINABLE AGRICULTURE AND AN INCREASINGLY LIVEABLE WORLD.



# Tersan – Plants and support structures

Our facilities for studying, testing, and producing a unique BIOFERTILIZER



**FACTORY**



**R&D  
LABORATORY**



**EXPERIMENTAL  
GREENHOUSES**



**EXPERIMENTAL  
FIELDS**



BBioNets

# BioVegetal - The "philosophy" behind our biofertilizer

## Organic matter



High fulvic and humic acid content (>20%)

Balanced carbon/nitrogen ratio (C/N=15)

## Microorganisms



Selected mix of over 200 different types of microorganisms,  
over 10 billion microorganisms per gram of product



bioagricert  
international



**The perfect combination of rich, stable organic matter and microorganisms (fungi and bacteria) make BioVegetal a unique fertilizer, ideal for increasing the biological fertility of the soil**



# BioVegetal - Chemical-physical and microbiological profile

BBioNets

Organic carbon	30
Organic nitrogen N	2
Phosphorus P <sub>2</sub> O <sub>5</sub>	2
Potassium K	2
<b>Humic and fulvic acids</b>	<b>20</b>
<b>Sulfur</b>	<b>2</b>
pH	7.5
EC	1.5 dS/m
Copper	0.02
Manganese	0.01
Iron	0.05
Zinc	0.05
Boron	0.05
<b>Prevailing bacteria:</b>	<b>Bacillus - Pseudomonas</b>
<b>Prevalent fungus</b>	<b>Trichoderma - Mycorrhiza</b>

The origin of the raw materials (humid waste, pruning clips, and byproducts from food manufacturers) characterizes Bio Vegetal in several fundamental ways:

- **Low sodium chloride content**, which is abundant in organic fertilizers of animal origin.
- **High percentage of organic compounds, such as glycine betaine.** Empirical evidence and scientific research have confirmed that these compounds make plants more resistant to environmental stress (salinity, drought, and extreme temperatures).
- **High fulvic and humic acid content**
- **Balanced carbon/nitrogen ratio (C/N=15)**, which characterizes the stable fraction of soil organic matter (humus)





# BioVegetal – Direct and indirect benefits...

BioVegetal biofertilizer, through **the addition of over 200 types of microorganisms**, increases the **biological fertility of the soil** and thus generates a triple effect of Plant Growth Promotion (PGP), induction of resistance to abiotic stress, and induction of resistance to biotic stress.

## SOIL



### Improved soil biodiversity

Enrichment of the soil microbiome,  
better management of extreme  
weather events and pathogens

## ENVIRONMENT



**Improved carbon footprint** thanks to  
high stable carbon content and reduced  
use of mineral fertilizers.

CO<sub>2</sub> soil stock (CARBON FARMING),  
production of CARBON CREDITS

## FOOD

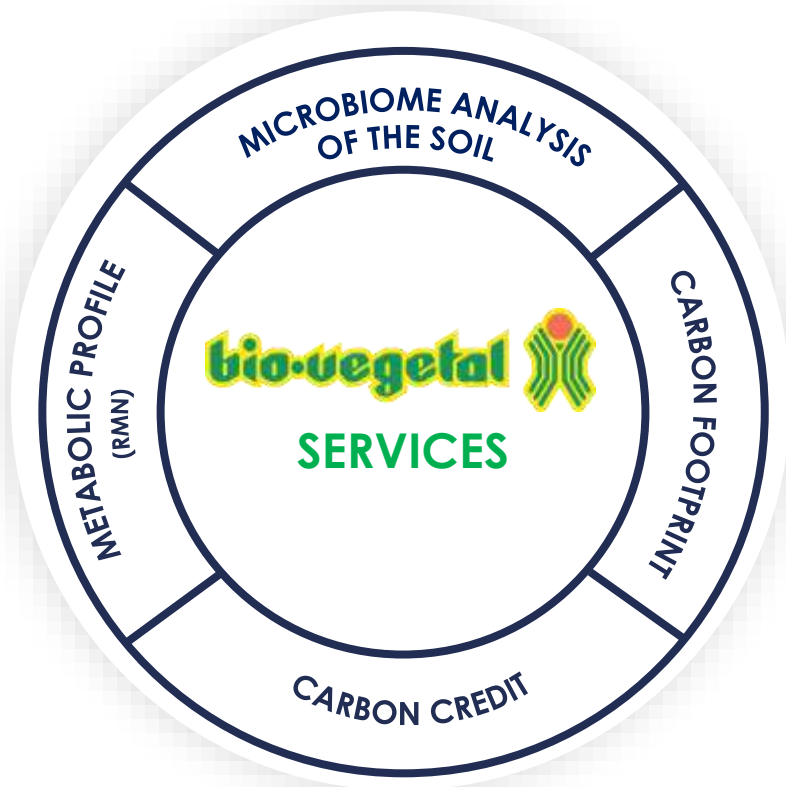


### Better Production Quality

Nutritional and metabolomic profile,  
organoleptic qualities, shelf life



# BioVegetal – The service portfolio



## OBJECTIVES

**OBJECTIVIZING THE INDIRECT BENEFITS  
OF BIOVEGETAL**

**MEETING THE NEW NEEDS  
OF CUSTOMERS TO GIVE THEM VALUE**



# BioVegetal – Direct and indirect benefits, and how they are measured

BioVegetal biofertilizer, through the addition of over 200 types of microorganisms, increases the **biological fertility of the soil** and thus generates a triple effect of Plant Growth Promotion (PGP), induction of resistance to abiotic stress, and induction of resistance to biotic stress.

## SOIL



### Improved Soil Biodiversity

Enrichment of the soil microbiome, better management of extreme weather events and pathogens

## ENVIRONMENT



**Improved carbon footprint** thanks to high stable carbon content and reduced use of mineral fertilizers.

CO<sub>2</sub> soil stock (CARBON FARMING),  
CARBON CREDITS production

## FOOD



### Better Production Quality

Nutritional and metabolomic profile, organoleptic qualities, shelf life



# Tersan & BioVegetal – Our approach

## What is the real challenge?

Incorporating "circularity" into companies' existing business models,  
minimizing the impact on:





# Tersan & BioVegetal – The circular supply chain model

**SCOPE OF REFERENCE:** PLAYERS IN THE AGRO-INDUSTRIAL SECTOR

INPUT

**BYPRODUCT OF THE INDUSTRIAL PROCESS OF THE PLAYER**

OUTPUT



**BIOFERTILIZER**

**PRODUCT**



**SOIL BIODIVERSITY**

**CARBON FOOTPRINT**

**QUALITATIVE  
IMPROVEMENT OF  
PRODUCTION**

**SERVICES**

# Circular Die Heads – Assoprolì Case History

RECOVERY  
PRODUCTION WASTE  
FROM ASSOPROLI OIL MILLS  
(olive leaves)



PRODUCTION  
BIOFERTILIZER  
FROM THEIR WASTE



QUANTIFICATION  
CARBON FOOTPRINT  
and CARBON FARMING

GENERATION  
CARBON CREDITS



# Circular Die Heads – Assoprolì Case History

From the collaboration between Assoprolì and Tersan  
a specific biofertilizer for olive trees  
under the **BioVegetal & Assoprolì** brand.

The leaves of olive trees, a by-product of Assoprolì oil mills, thus  
become a raw material for producing this biofertilizer!



RAI3-TGR PUGLIA

[Click here to watch the video](#)

REPUBBLICA

[https://bari.repubblica.it/cronaca/2025/05/21/news/tersan\\_pu\\_nta\\_all\\_hi-tech\\_dagli\\_scarti\\_dell\\_olio\\_nasce\\_il\\_biofertilizzante\\_filiera\\_100\\_circolare-424521560/#:~:text=Tersan%20Puglia%20can%20boast%20a,in%20collaboration%20with%20Assoprolì%20Bari](https://bari.repubblica.it/cronaca/2025/05/21/news/tersan_pu_nta_all_hi-tech_dagli_scarti_dell_olio_nasce_il_biofertilizzante_filiera_100_circolare-424521560/#:~:text=Tersan%20Puglia%20can%20boast%20a,in%20collaboration%20with%20Assoprolì%20Bari)

AGRICOLTURA.IT

[Circular supply chains: from olive farming waste to biofertilizers](#)





# Circular Extruders – Case History Andriani (Gluten-free pasta)

WASTE RECOVERY  
FROM  
PRODUCTION  
(slurry hoppers and  
production tailings)



PRODUCTION  
BIOFERTILIZER



WATER FOOTPRINT,  
CARBON FOOTPRINT  
& CARBON FARMING  
QUANTIFICATION

(quantification and certification for  
Andriani's Sustainability Report  
and Felicia brand  
storytelling)







METABOLIC ANALYSIS  
OF THE NUTRITIONAL  
PROFILE OF PASTA

(focus on proteins,  
fats and vitamins B1  
and B2)



# Circular Supply Chains – Our Partners

## CURRENT PROJECTS

MARKET	COMPANY	BYPRODUCT TO BE VALORIZED
<p>Grapes</p> <p>Wine</p>		<p>Stems</p> <p>and Pomace</p>
<p>Olive Oil</p>		<p>Leaves</p> <p>from Oil Mills</p>
<p>Fresh</p>		<p>Processing waste</p> <p>Fresh fruit and vegetables</p>
<p>Pasta</p> <p>Gluten Free</p>		<p>"Mash"</p> <p>from the hoppers</p>

# Thank you!

Luca Brenna – Tersan Puglia

[l.brenna@tersan.it](mailto:l.brenna@tersan.it)

[www.bbionets.eu](http://www.bbionets.eu)



[/bbionets-eu](https://www.linkedin.com/company/bbionets-eu)



[/bbionets.eu](https://www.facebook.com/bbionets.eu)



[@bbionets\\_eu](https://twitter.com/bbionets_eu)



[@bbionets-eu.bsky.social](https://bsky.app/profile/bbionets-eu.bsky.social)



[@bbionets\\_eu](https://www.instagram.com/bbionets_eu)



[@BBioNetsEU](https://www.youtube.com/channel/UCBBioNetsEU)