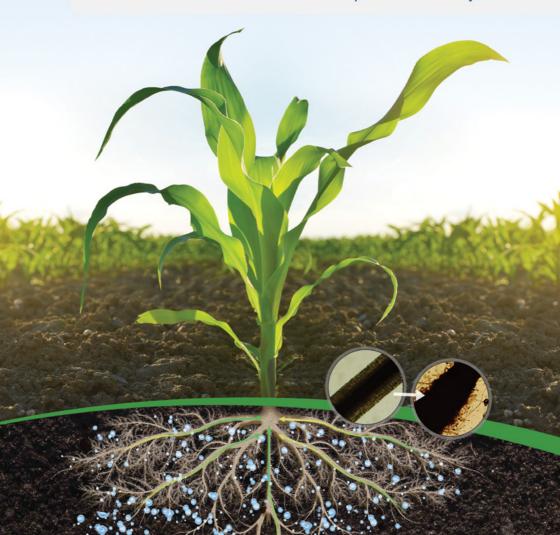




MYCOFRIEND

MYCORRHIZA FOR YOUR FIELD AND GARDEN

- ROOT COLONIZATION by mycorrhizal fungi
- PROVISION of balanced mineral nutrition
- INCREASE IN THE AREA of absorption of the root system





MYCOFRIEND is a complex mycorrhizal preparation for plant nutrition and improving soil health. It facilitates the colonization of the root zone and rhizosphere with mycorrhizal fungi and saprophytes, rhizospheric bacteria, increases resistance to stressful situations and intensifies metabolism.

Mycorrhiza is a symbiotic association between plant roots and fungi. Their major role is to enhance nutrient and water uptake by the host plant by exploiting a larger volume of soil than roots alone can do.

Competetive advantages:

- Root colonization by mycorrhizal fungi
- Increase in the area of absorption of the root system
- Provision of balanced mineral nutrition
- Water retention

MYCOFRIEND is available in liquid and peat forms.

Certified for organic farming



- Listed in the Input list for organic farming in Germany.
- The product is confirmed by Organic Standard Certification (approved for the use in organic agriculture according to the IACB Equivalent Union Organic Production&Processing Standard for Third Countries to the Regulations EU №834/2007 and №889/2008).

More than 150 000 ha is treated with Mycofriend worldwide

We provide more than 220 researches every year:

- individual more than 175
- with other biological products more than 45, including 72 at research stations



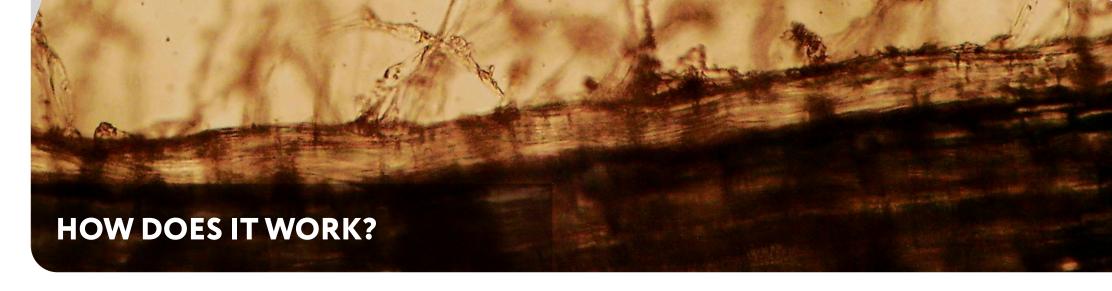
83% of farmers have positive results, where income covers application cost



Average additional income per ha is more than **125** \$

The average incomes per hectare and yields increasing are demonstrated in the sheet.

	Trial		Incom	Income, \$/ha		se, t/ha
	total	% successful	Average	Maximum	Average	Maximum
Cereals	65	74	107	397	0,35	1,28
Corn	68	84	137	433	0,53	1,68
Sunflowers	33	85	137	290	0,19	0,41
Legumes	24	92	165	400	0,33	0,90



The composition of Mycofriend includes the vital microorganisms:

- A complex of mycorrhiza-forming fungi Glomus and Trichoderma harzianum;
- microorganisms supporting the formation of mycorrhiza and plant rhizosphere: Streptomyces sp., Pseudomonas Fluorescens;
- phosphate-mobilizing bacteria: Bacillius Megaterium var. phosphaticum, Bacillus Subtilis, Bacillus Muciloginosus, Enterobacter sp, the total number of viable cells (1.0-1.5) x108 CFU/ml;
- bacteria biologically active metabolites: phytohormones, vitamins, amino acids.

In the composition of the preparation fungi of the genus *Glomus* provide the formation of highly effective endomycorrhiza, fungi of the genus *Trichoderma* can form ectomycorrhiza, and the bacterial component promotes the development of the root system, in particular, stimulates the formation of mycorrhiza



Watch the video about mycorrhiza in cultivated plants, an episode of the free course for agronomists "SIMPLY ABOUT MICROBES".



The effect of each microorganism:



Fungi of the genus Glomus — provide assimilation of nutrients (mainly phosphorus and nitrogen-containing) from the soil, contribute to the survival of plants under adverse environmental conditions. In turn, plants supply carbohydrates and lipids to arbuscular mycorrhizal fungi.



Trichoderma harzianum — fungi that actively colonize soil and contribute to the rapid decomposition of plant residues, and also produce biologically active substances.



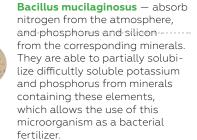
Bacillus subtilis — bacteria that can fix molecular nitrogen; mobilize phosphorus, produce enzymes for the degradation of complex organic compounds of the soil and their transformation into forms accessible to plants (humus, etc.).

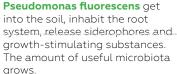


Enterobacter — bacteria that can bind atmospheric nitrogen, improve plant phosphorus, produce phytohormones, biopolymers



Bacillus megaterium var. phosphaticum — produce various biologically active substances that stimulate the growth and development of plants.











The preparation can be used:

- 1.5 5 l/t for pre-sowing seed treatment
- 1.5 5 kg/t for seed treatment in a seeder
- 0.2-0.5 l/ha application in a row at the time of sowing.



The use of Mycofriend at a rate of 1.5 l/t steadily increases the yield of winter wheat, sunflower and corn, regardless of the fertilizer system.



The use of Mycofriend at a rate of 1.5 l/t can be combined with innoculants **for legumes**, which increases the yield of legumes



For corn and sunflower, the use of Mycofriend in furrow application with a rate of 0.2-0.3 l/ha, provides a stable increase in yield. Can be combined with other biological preparations and LCF.

RECOMMENDED APPLICATION RATES IN INTEGRATED AND ORGANIC FARMING

	Seed trea	atment, l/t		ertilization, ation, l/ha	Seedling t		
Crop	MYCOFRIEND, I/t	Working solution, I/t	MYCOFRIEND, I/ha	Working solution, I/ha	MYCOFRIEND, 1/1000 pcs	Working solution, I/1000 pcs	
	Number of treatments						
	1			1-2	1		
Cereals	1.0-1.5	10-15			-	-	
Corn	3.0-5.0	5-10	02.05	20.50	-	-	
Technical	4.0-6.0	10-20	0.2-0.5	0.2-0.3	20-50	-	-
Legumes	1.0-1.5	15-20			-	-	
Vegetables	20-30 ml/kg	0.7-1.0 l/kg	0.5-1.0	Water	0.2-0.5	20-50	
Horticultural	-	-	application 1.0-2.0 rate	-	-		
Berries	-	-	1.0-2.0		-	-	

+ 0,23 t/ha + 0,25 t/ha + 0,18 t/ha

INDUSTRIAL AND SCIENTIFIC TRIALS

Location: Institute of agriculture of Steppe zone NAAS of Ukraine

Crop: sunflower

about - water

Predecessor: corn for grain

Soil agrochemical properties:

Level of humus content — 4,72 % Alkaline hydrolyzable nitrogen — 10,4

Soil available phosphorus and potassium -

19,1 and 14,2 mg per 100 g of soil



The effectiveness of Mycofriend on sunflower depending on the level of mineral nutrient content

Trial 1. Without fertilizer

The seeds treatment
Control: —
Trial: Mycofriend 5 l/t

Trial 3,88 0,23 6,3

Trial 2 Minoral fortilizors N. P. K					
Trial 2. Mineral fertilizers N ₄₀ P ₄₀ K ₄₀					
The seeds treatment Control: Only mineral fertilizers N ₄₀ P ₄₀ K ₄₀ Trial: Mycofriend 5 l/t		Yield, t/ha	Increment o	ver control, %	
Trial: Mycofriend 5 l/t	Control	3,99	_	-	
+ Mineral fertilizers N ₄₀ P ₄₀ K ₄₀	Trial	4,24	0,25	6,26	

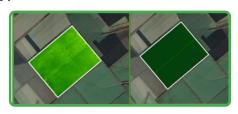
Trial 3. Organic — mineral fertilizers $N_{40}P_{40}K_{40}$ The seeds treatment
Control: Only organic mineral fertilizers $N_{40}P_{40}K_{40}$ Trial: Mycofriend 5 l/t + Organic mineral fertilizers $N_{40}P_{40}K_{40}$ Trial 4,33 0,18 4,33

Location: Ukraine, Kahrkiv region

Crop: sunflower

Predecessor: winter wheat

Soil: typical chernozem





In furrow Experience in 3-fold repetition. Seeding with GPS fixation.

Control: LCF Diafan 5:20:5 (30 l/ha).

Trial: Mycofriend-l 0.25 l/ha + LCF Diafan 5:20:5 (30 l/ha).

The average increase -+0,29 t/ha



+ 0,80 t/ha

Location: Ukraine,
Poltava region
Crop: sunflower
Soil: typical chernozem



In furrow

Control: —

Trial: Mycofriend 0,2 l/ha

	Yield, t/ha	Increment ov t/ha	ver control, %
Control	2,34	-	-
Trial	2,62	0,28	11,96

Location: Haren (Ems), Germany

Crop: **corn**Soil: **Gleysols**





In furrow

Control: —

Trial: Mycofriend 5 l/t

	Yield, t/ha	Increment over t/ha	er control, %
Control	12,7	-	
Trial	13,5	0,8	6,29

Location: Ukraine, Vinnitsa region

Crop: corn

Predecessor: **sugar beat**

Soil: chernozem





In furrow **Control:** —

Trial: Mycofriend 0,2 l/ha

Trial	12,9	0,89	7,35
Control	12,1	-	_
	Yield, t/ha	Increment or t/ha	ver contro %

Location: Ukraine, Sumy region

Crop: corn

Fore corn for grain

Soil: chernozem podzolized





Seed treatment in seeder Date of sowing 30.04.21

Control: -

Trial: Mycofriend-t 4kg/t

Yield, Increment over control, t/ha t/ha %

Control 7,89 -
Trial 8,7 0,8 7,35

+ 0,07 t/ha + 0,12 t/ha

Location: Institute of agriculture of Steppe zone NAAS of Ukraine

Crop: winter wheat Predecessor: fallow

Soil agrochemical properties:

Level of humus content — 4,72 %

Alkaline hydrolyzable nitrogen — 10,4

Soil available phosphorus and potassium —

19,1 and 14,2 mg per 100 g of soil

The effectiveness of Mycofriend on winter wheat depending on the level of mineral nutrient content

Trial 1. Without mineral fertilizers The seeds treatment Control: — Trial: Mycofriend 1,5 l/t Control 3,78 — — Trial 4,4 0,62 16,4

Trial 2. With mineral fertilizers N ₉₀ P ₆₀ K ₆₀					
The seeds treatment Control: Only mineral fertilizers $N_{90}P_{60}K_{60}$ Trial: Mycofriend 1,5 l/t + mineral fertilizers $N_{90}P_{60}K_{60}$		Yield, t/ha	Increment of t/ha	ver control, %	
	Control	4,59	-		
7711761dt 161 titl 2613 1 1 ₉₀ 1 601 60	Trial	4,84	0,25	5,45	

Trial 3. With organic — mineral fertilizers $N_{90}P_{60}K_{60}$ The seeds treatment Control: Only organo — Yield, Increment over control, t/ha % Trial: Mycofriend 1,5 I/t + organic-mineral fertilizers $N_{90}P_{60}K_{60}$

Location: Institute of agriculture of Steppe zone NAAS of Ukraine

Crop: soybean

Soil agrochemical properties:

Level of humus content — 4,72 % Alkaline hydrolyzable nitrogen — 10,4

Soil available phosphorus and potassium -

19,1 and 14,2 mg per 100 g of soil



The effectiveness of Mycofriend on soybean depending on the level of mineral nutrient content

Control: Background (Rizoline 2l/t+ Rizosave 1 l/t)* Trial: Mycofriend 1,5 l/t + Background (Rizoline 2l/t+ Rizosave 1 l/t) Trial: 2,62 Trial 2,62 Trial 2,62

Trial 2. With mineral fertilizers N ₄₀ P ₄₀ K ₄₀						
The seeds treatment Control: Background (Rizoline 2l/t + Rizosave 1 l/t) + Mineral fertilizers $N_{A0}P_{A0}K_{A0}$		Yield, t/ha	Increment o t/ha	ver control, %		
Trial: Mycofriend 1,5 l/t + Background	Control	2,73	_	-		
(Rizoline 2l/t + Rizosave 1 l/t) + Mineral fertilizers $N_{40}P_{40}K_{40}$	Trial	2,85	0,12	4,39		

Trial 3. With organic — mineral fertilizers $N_{40}P_{40}K_{40}$					
The seeds treatment Control: Background (Rizoline 2l/t + Rizosave 1 l/t) + Ogranic-mineral		Yield, t/ha	Increment o	ver control, %	
fertilizers N ₄₀ P4 ₀ K ₄₀ . Trial: Mycofriend 1,5 l/t + Background	Control	2,6	-	-	
(Rizoline 2l/t+ Rizosave 1 l/t) + Ogranic-mineral fertilizers N9 ₄₀ P ₄₀ K ₄₀	Trial	2,98	0,43	16,53	

^{*-} Background includes inoculant Rizoline and bioptotector Rizosave

12

0.48

9.86

5,35

+ 0,38 t/ha + 0,80 t/ha

Location: Ukraine, Zhytomyr region Crop: winter wheat

Predecessor: sunflower

Soil: dark-grey



Control: -

Trial: Mycofriend-t 2kg/t

Trial	5,18	0,38	7,91
Control	4,8	_	-
	Yield, t/ha	Increment ov t/ha	ver control, %

Location: **Ukraine, Zhytomyr region**Crop: **soybean**

Predecessor: winter wheat

Soil:

Date of sowing: 14.05.2019

Date of harvesting: 13.09.2019



Control: (Optimize + Maxim XL)

Trial: Mycofriend 1 l/t
+ Control (Optimize + Maxim XL)

Trial	2,8	0,80	40
Control	2,0	-	
	Yield, t/ha	Increment ov t/ha	er control, %

Location: Ukraine, Chercasy region

Crop: **potato**

Predecessor: winter wheat

Soil:

Date of sowing: 14.05.2019
Date of harvesting: 13.09.2019



Treatment with an applicator during planting 23.04.2021 **Trial:** Farm technology

Trial: Farm technology + Mycofriend — 0.5l/ha

	Yield, t/ha	Increment ov t/ha	ver control, %
Control	71,56	_	-
Trial	72,55	0,99	1,38

MYCOFRIEND. EFFICIENCY STUDY OF HAZELNUT GROWN BY LAYERING

The effectiveness of Mycofriend application was studied with different methods of hazelnuts layering using sawdust as a substrate

WITH A VERTICAL METHOD OF SHOOTS GROWING:

variety Praznichnyi + MycoFriend: 20.5 pieces / Parent plant Per 1 ha — 455,5 thousand pieces/ha Sawdust: 231.1 thousand pieces/ha WITH A HORIZONTAL METHOD OF SHOOTS GROWING:

variety Praznichnyi + MycoFriend: 39,2 pcs. / running meter Per 1 ha — 261.3 thousand units/ha Sawdust: 229.3 thousand pieces/ha

Result +224,4 thousand pieces/ha

Result +32 thousand pieces/ha

MYCOFRIEND is relevant for garden and vegetable crops. Both consumers buy the product very well both, for garden and vegetable crops. Especially those who have drip irrigation. Of a high importance for them that trees and bushes are extremely strongly responsive to mycorrhiza.

Mycofriend is an excellent solution for provision of balanced mineral nutrition and to increase the area of the nutrients absorption by root system.



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