

# Bio <sup>®</sup> gel

Organic product for plants and soils



Organic  
Standard  
№21-0659-06



OF&G  
organic  
UKE1316

State registration certificate (UKRAINE)  
**A №06251**

# INTELLECTUAL PROPERTY



# BIO-GEL – is a real way to organic farming



1st year

2-3rd year

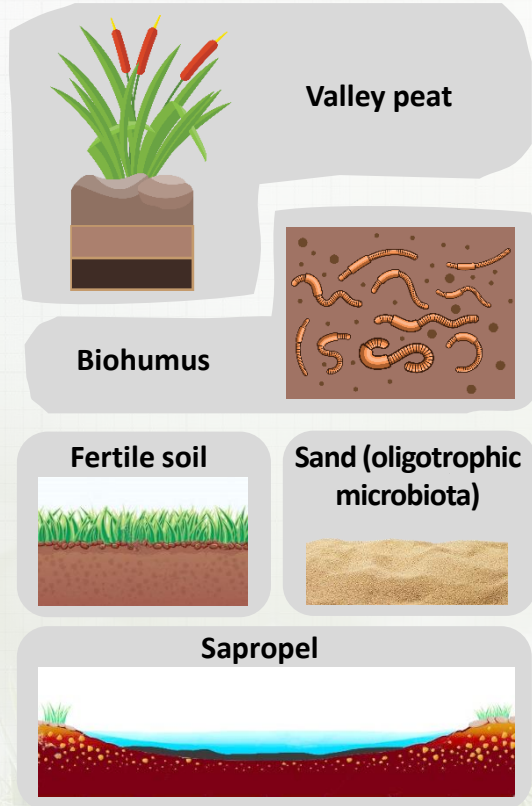
4th year

# HOW WE MAKE BIO-GEL

Only the best organic raw substances with natural bacteria ( $10^4$ - $10^5$  CFU/ml) are used

Soil mixture is treated with water using the patented technology

Thus **BIO-GEL** contains a great number of useful bacteria (50-100 billion/ml)



Effect of low and high temperature



**Containers:**

1L; 5L; 10L; 20L; 1000L

# INNOVATIVE HTD-TECHNOLOGY®



**NEW!!! PATENTED  
TECHNOLOGY**



**THE HYDRODYNAMIC  
MIXER**

**AIR STREAM**

**STREAM OF THE  
BASIC LIQUID**

**WORKING ZONE**

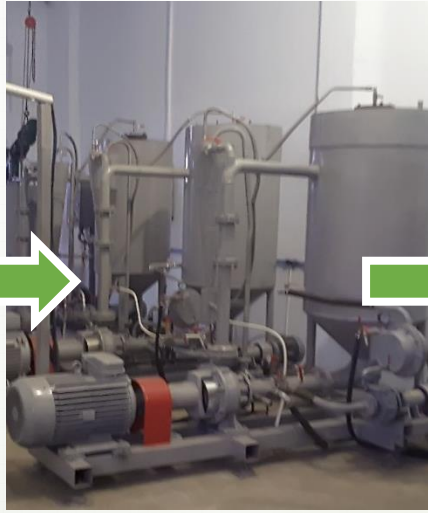
**FORMATION  
OF CAVITATION  
GERMS**

**UPGROWTH**

**COLLAPSE  
ZONE**



# HOW WE MAKE BIO-GEL



# BIO-GEL COMPOSITION

## Enzymes

(glucosidase, gluconase, catalase, glycoside-hydrolase)

## Amino acids

(glycine, lysine, leucine, threonine and other)

## Vitamins

(B1, B2, PP, E, A, carotinoids)

## Fulvic + humic acids

## Carbohydrates

(dextrin, lignin, fiber)



## «WILD» BACTERIA

(natural bacteria)

## Macro elements

nitrogen N-30 g/l,  
phosphorus P-3,1 g/l,  
potassium K-0,5 g/l

## Micro elements

Mg – 100 mg/l, Fe – 100 mg/l, Mn – 13.3 mg/l,  
Zn – 8.0 mg/l, Cu – 1.0 mg/l, Co – 0.7 mg/l,  
B – 0.5 mg/l, Mo – 0.2 mg/l

# SEED SPROUTING

PEA:



2,81 Roots  
1,66 Seedling  
4,47 Altogether

0  
control

100%

Control (water)



3,87 Roots  
2,14 Seedling  
6,01 Altogether

1  
l/t

134%

BIO-GEL, 1 L/t



4,17 Roots  
2,71 Seedling  
6,88 Altogether

2  
l/t

154%

BIO-GEL, 2 L/t



# SEED SPROUTING

## WHEAT:



Control (water)



BIO-GEL, 1 L/t



BIO-GEL, 2 L/t



BIO-GEL, 3 L/t

# SEED SPROUTING

## RAPE:



Control  
(water)



Humate  
of chemical origin

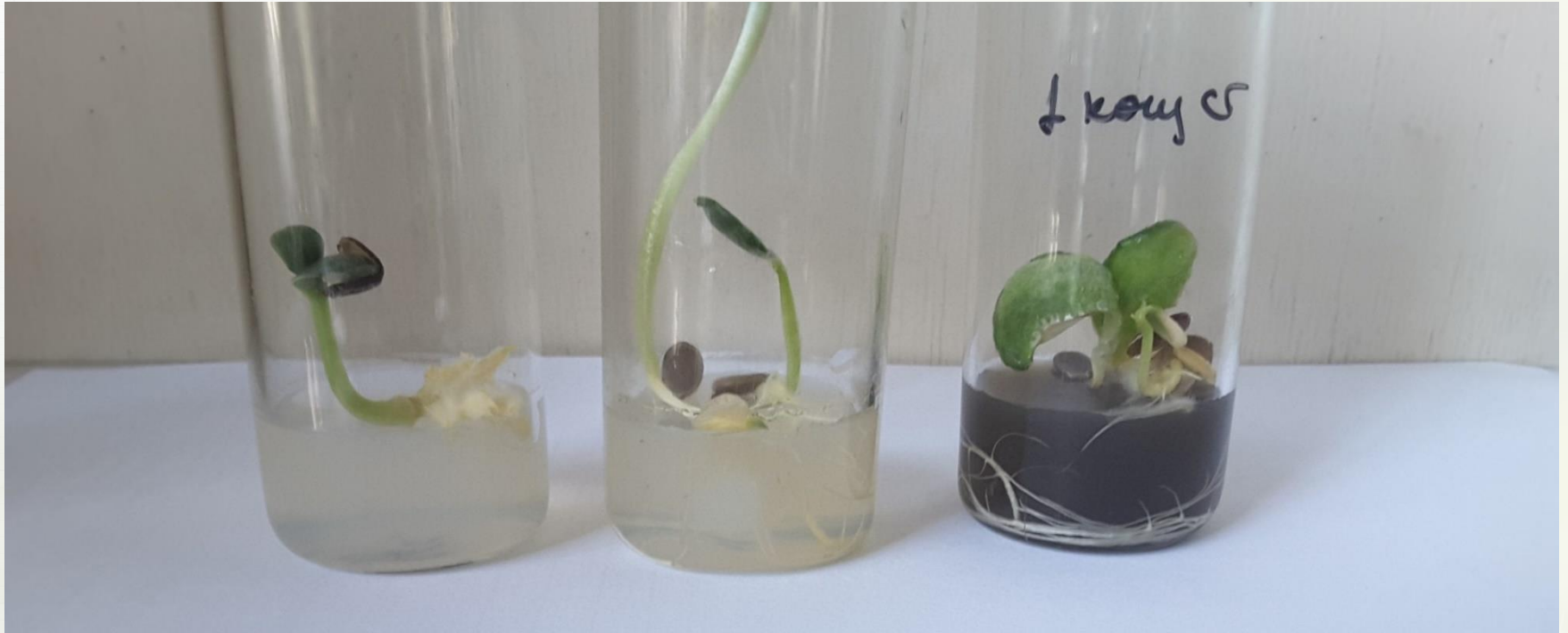


BIO-GEL  
Organic fertilizer

**Seed treatment:** the rate is 2 l per ton of seeds (about 10 l water)

# SEED SPROUTING (concentration experiment)

## SOYBEANS



Control  
(water)

BIO-GEL,  
1:10000

BIO-GEL,  
1:100

# 2015-2018 FIELD TRIAL

## WATERMELON, MELON



+30,0%\*  
+3,0 т/га\*



## WHEAT



+8,0%  
+0,6 т/га



## RICE



+12,7%  
+0,95 т/га



## MILLET



+28,1%  
+1,25 т/га



## TOMATO



+23,2%  
+13,2 т/га



## YIELD

Control  
BIO-GEL

Seed treatment  
foliar spraying  
(1-3 times)



## CORN



+16,0%  
+1,55 т/га



## BUCKWHEAT



+31,6%  
+0,68 т/га



## EGGPLANT



+11,9%  
+5,7 т/га



## SOYBEAN



+25,4%  
+0,52 т/га



## SUNFLOWER



+20,1%  
+0,86 т/га



## BEAN



+60,2%  
+1,33 т/га



# FIELD TRIAL



## YIELD

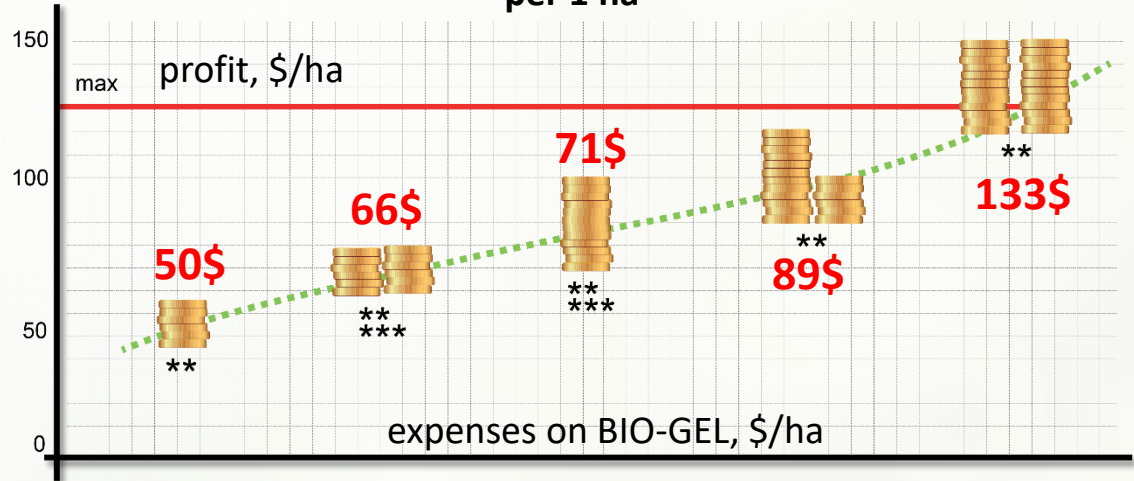
5,1 t/ha

**5,8 t/ha**



**+0,7 t/ha**

## ADDITIONAL PROFIT per 1 ha



5,5 \$/ha (1:9)  
Agrofirma  
Agrotis  
LLC

8,0 \$/ha (1:8)  
Kopani  
farm

8,0 \$/ha (1:9)  
Agrofirma  
Freedom Farm  
International

5,5 \$/ha (1:16)  
Kamyanske  
LLC

3,9 \$/ha (1:34)  
Nibulon  
LLC

\* - seed treatment

\*\* - I foliar spraying

\*\*\* - II foliar spraying

WHEAT

# FIELD TRIAL



## YIELD

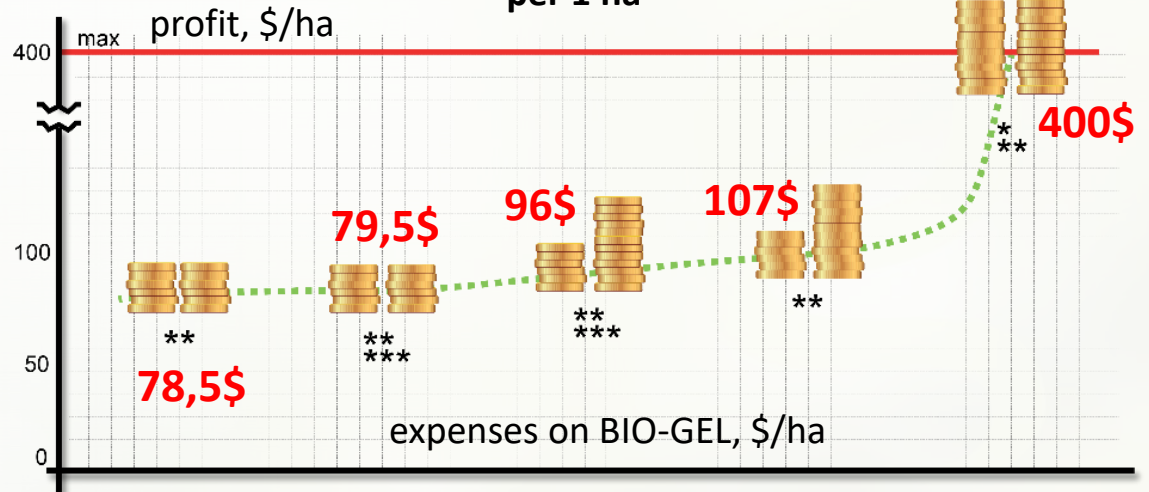
3,4 t/ha

4,5 t/ha



+1,1 t/ha

## ADDITIONAL PROFIT per 1 ha



3,9 \$/ha (1:20)  
Research Institute  
of Irrigated farming

10,3 \$/ha (1:8)  
Agrofirma  
Freedom Farm  
International

9,6 \$/ha (1:10)  
Askaniyske  
LLC

4,7 \$/ha (1:23)  
YUTS  
Agroproduct  
LLC

5,0 \$/ha (1:80)  
Rice  
Institute

\* - seed treatment

\*\* - I foliar spraying

\*\*\* - II foliar spraying

## SOYBEAN

# FIELD TRIAL

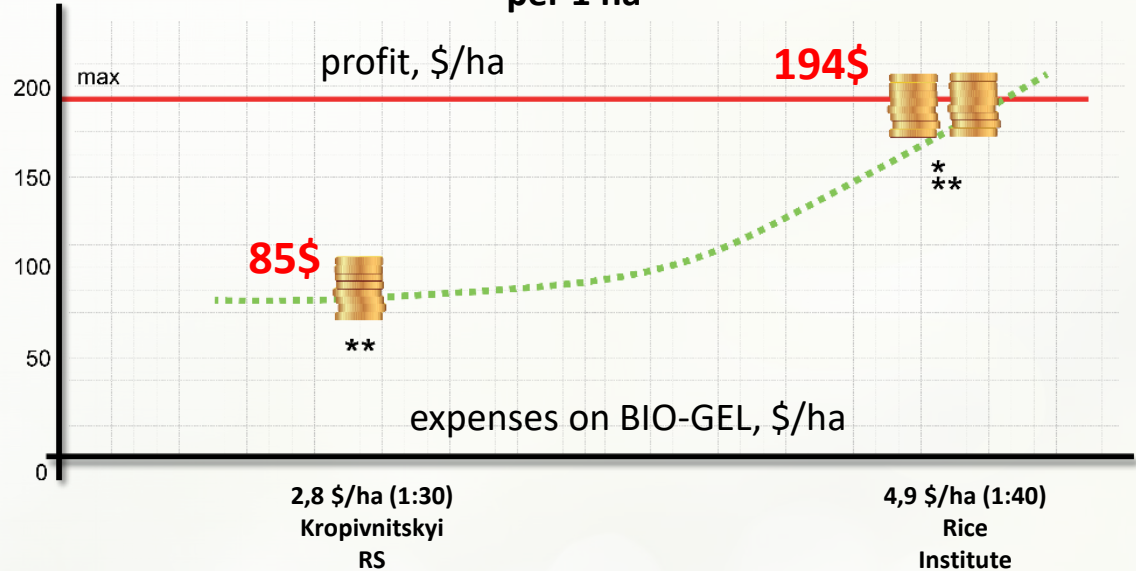


## YIELD

9,7 t/ha

**1,12 t/ha** ↑ **+1,5 t/ha**

## ADDITIONAL PROFIT per 1 ha



\* - seed treatment

\*\* - I foliar spraying

\*\*\* - II foliar spraying

CORN

# FIELD TRIAL

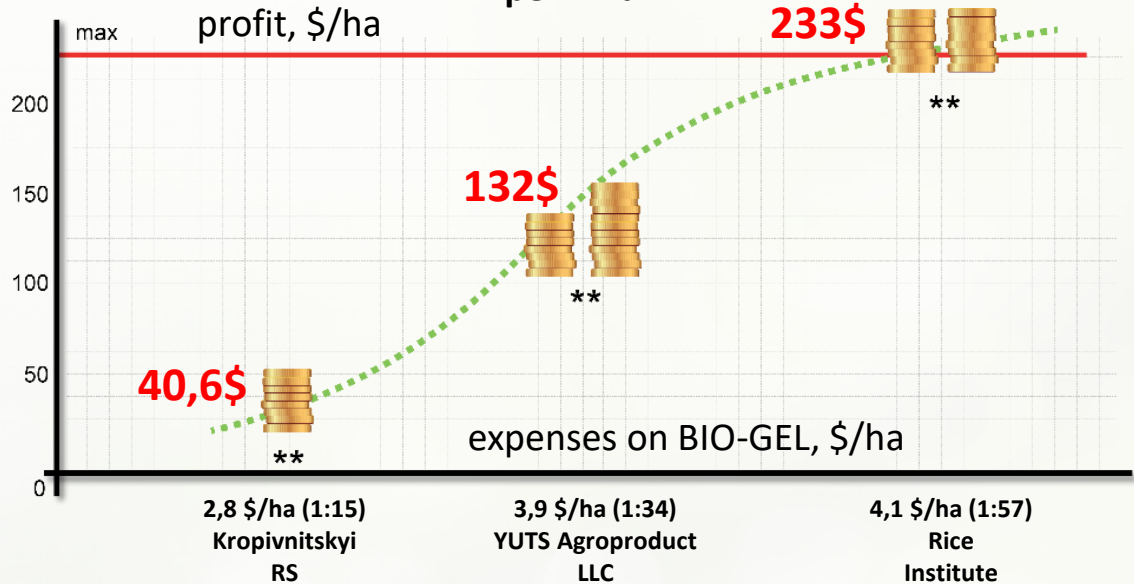


## YIELD

4,2 t/ha

**5,1 t/ha** ↑ +0,9 t/ha

## ADDITIONAL PROFIT per 1 ha



\* - seed treatment

\*\* - I foliar spraying

\*\*\* - II foliar spraying

## SUNFLOWER



# FIELD TRIAL



## YIELD

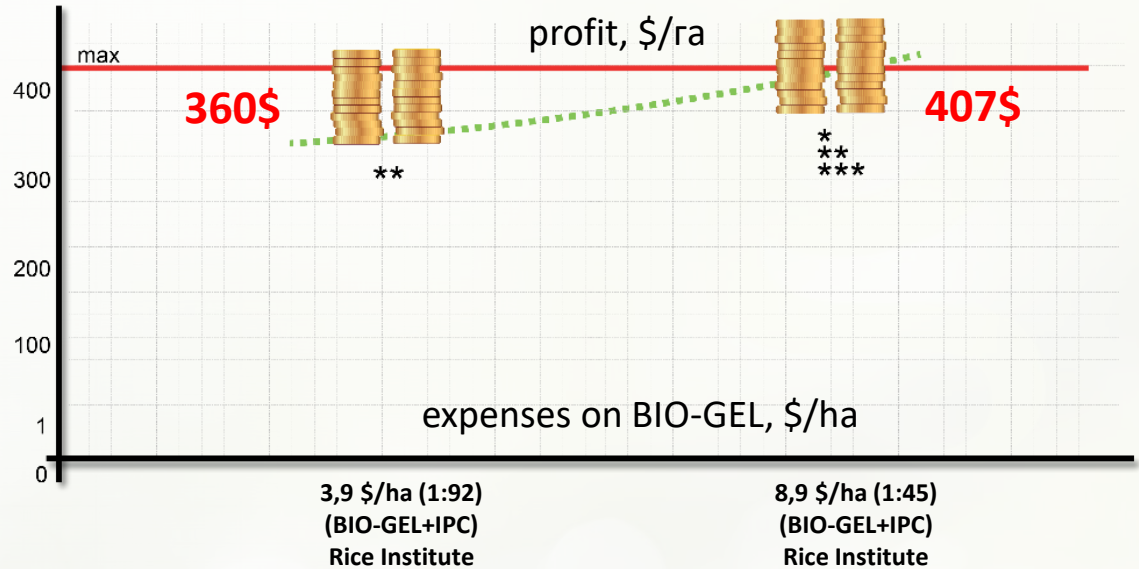
7,5 t/ha

**8,4 t/ha** ↑ +0,9 t/ha

## ADDITIONAL PROFIT

per 1 ha

profit, \$/ra



3,9 \$/ha (1:92)  
(BIO-GEL+IPC)  
Rice Institute

8,9 \$/ha (1:45)  
(BIO-GEL+IPC)  
Rice Institute

\* - seed treatment


\*\* - I foliar spraying

\*\*\* - II foliar spraying

RICE

# FIELD TRIAL



YIELD	
10 t/ha	<b>12 t/ha</b>  +2 t/ha



**EUROPEAN UNION**  
**LITVA**

**RYE**

# FIELD TRIAL



- ✓ **Herbicide and fungicide** rates are reduced by 20-30%
- ✓ Crop preservation **DURING DROUGHT**
- ✓ **YIELD** increase by 30%
- ✓ Higher **QUALITY** and **KEEPING CAPACITY**
- ✓ Absolute **SAFETY** of final products

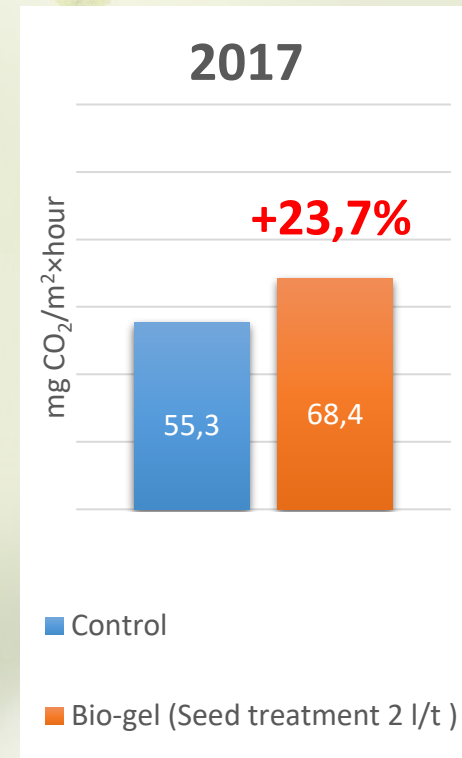
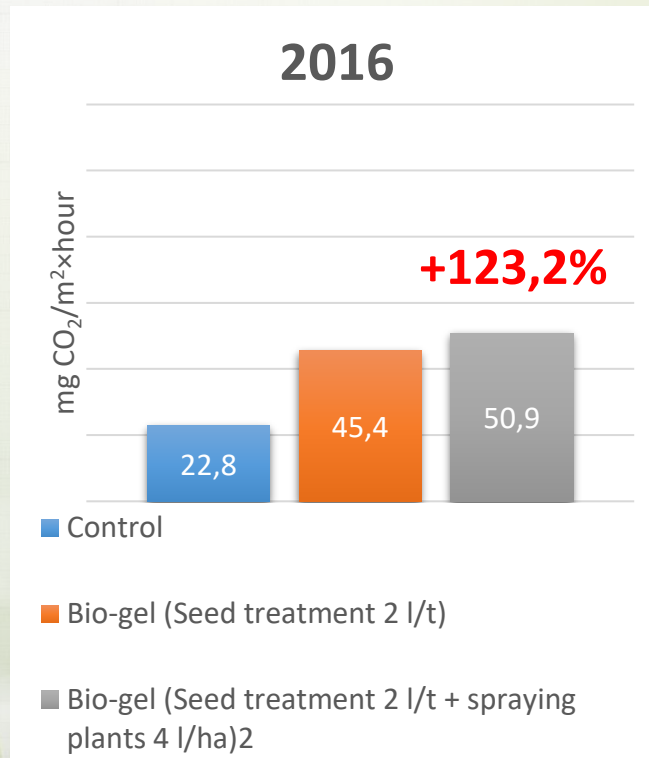
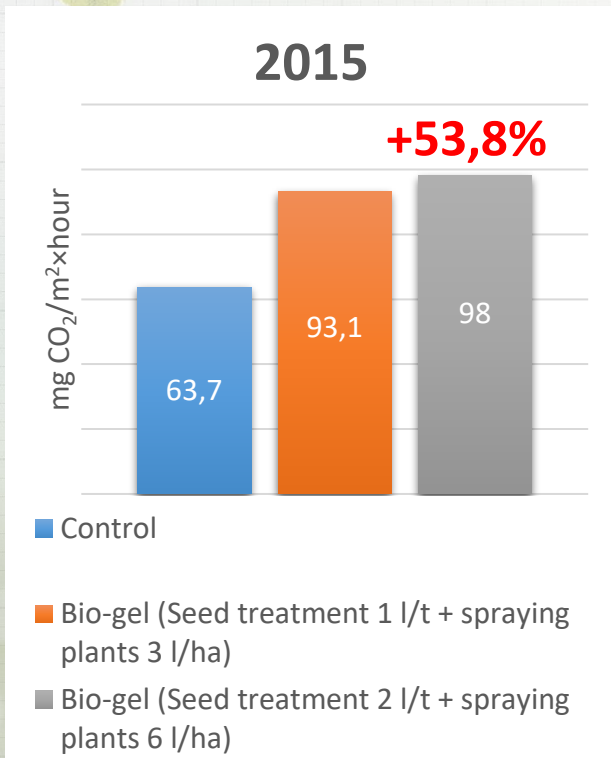
Tests were carried out on  
KAMYANSKE private company and ENOGRAY farm

# SOIL MICROBIOLOGICAL ACTIVITY



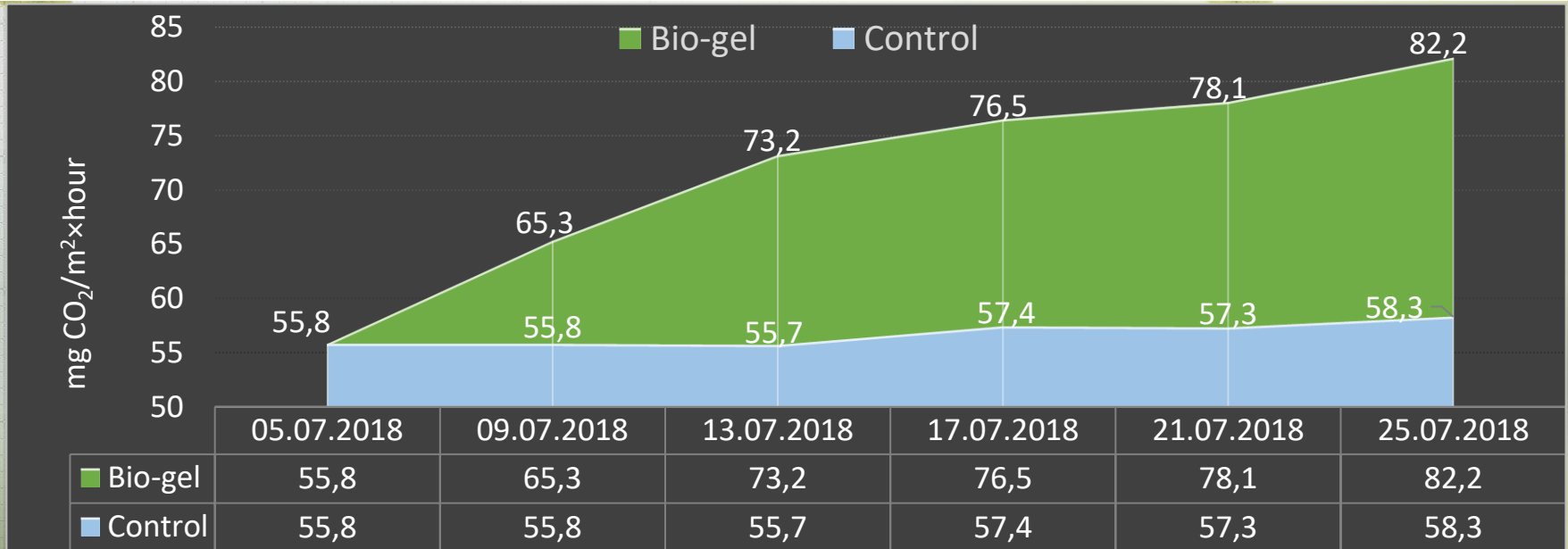
**Volodimir Knish,**  
PhD, senior researcher

# SOIL MICROBIOLOGICAL ACTIVITY 2015-2017



The experiments were carried out at the Southern State Experimental Station, NAAS, Ukraine

# SOIL MICROBIOLOGICAL ACTIVITY 2018



*For light-textures soils a single spraying of soil surface with BIO-GEL (no plowing or disking!!!) in the middle of summer 2018 at the time of soil and air drought resulted in soil microbiota activity increase by 47% in 20 days!*

The experiments were carried out at the Southern State Experimental Station, NAAS, Ukraine

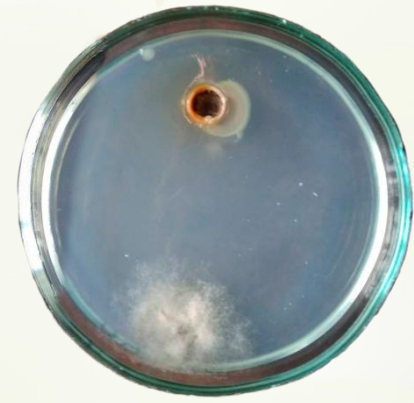
# BIO-GEL FUNGICIDE EFFECT



on  
*Fusarium oxysporum*



on  
*Alternaria alternata*



on  
*Botrytis cinerea*

**CONCLUSION :** PROPHYLACTIC ACTION NATURAL FUNGICIDE

The experiments were carried out at the Zabolotsky Microbiology and Virology Institute, NAS, Ukraine, in 2016-2017

# BIO-GEL FUNGICIDE EFFECT



Effect of **chemical fungicide**.  
Soybean disease is not stopped



**BIO-GEL** effect.  
The disease has been stopped

The experiments were carried out at the Ukrainian Research Institute of  
Irrigated Farming in 2016-2017



# BIO-GEL FUNGICIDE EFFECT



Effect of **chemical fungicide**  
Soybeans are significantly damaged



**BIO-GEL** effect  
Soybeans are not damaged

The experiments were carried out at the Ukrainian Research Institute of  
Irrigated Farming in 2016-2017

# NATURAL ADAPTOGEN

**CONTROL**



**Control  
(water)**

**INHIBITO**



**Acetochlor,  
96 g/l**

**STRESS REDUCTION**



**Acetochlor, 96 g/l  
+ BIO-GEL**

The experiments were carried out at the Zabolotsky Microbiology and Virology Institute, NAS, Ukraine, in 2016-2017

# NATURAL ADAPTOGEN



**Sergiy Zayets,**  
PhD, Head of Agrotechnologies Department

# NATURAL ADAPTOGEN



February, 2017(begin)



February, 2017(end)



April, 2017



July, 2017



June, 2017



May, 2017

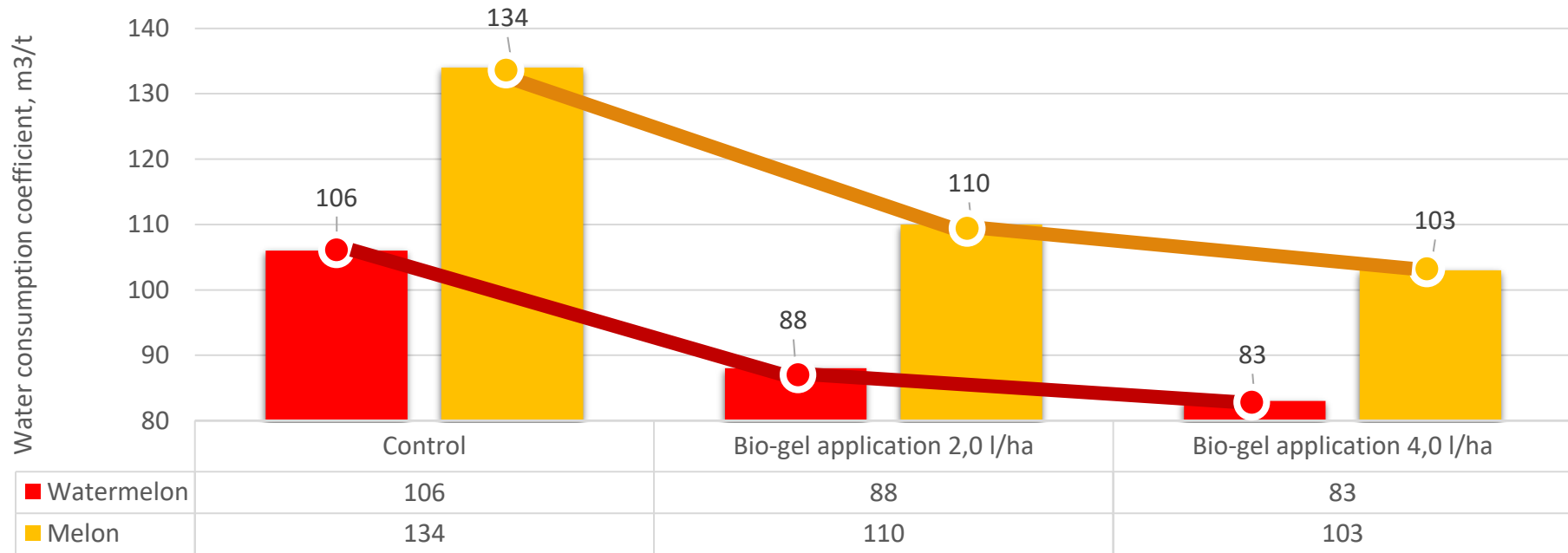
**DO NOT  
PLOW UP  
AGAIN!**

- ✓ Restoration of crops that lost foliage after wintering.
- ✓ Improvement of undeveloped crops

The experiments were carried out at the Ukrainian Research Institute of Irrigated Farming in 2016 – 2017

# LOWER WATER CONSUMPTION

## Water consumption coefficient



The experiments were carried out at the Southern State Experimental Station, NAAS, Ukraine

# DROUGHT



**CONTROL**  
(traditional soaking)

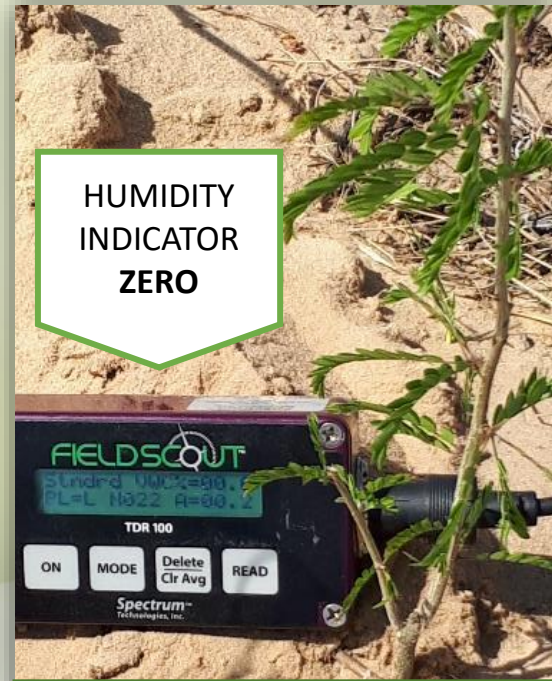


**BIO-GEL +**  
(traditional soaking)

# DROUGHT



**CONTROL**  
**(90% DEAD)**



**BIO-GEL**  
**(90% SURVIVE)**

# DROUGHT



**WINTER WHAET**

Odesa region, UKRAINE



# DROUGHT



No	Root system, m1, g	%	Plant top, m2, g	Drought tolerance coefficient, $K = m1/m2$	%
1	0,172	100	0,344	0,5	100
2	0,232	135	0,324	0,71	142
3	0,218	127	0,310	0,70	140
4	0,280	160	0,331	0,85	170

1 – Control (water)

2 – seeds inoculation with **BIO-GEL**, 2 l/t

3 – spraying soil surface with **BIO-GEL** solution (2 l/ha) immediately after sowing

4 – seeds inoculation with **BIO-GEL**, 2 l/t + spraying soil surface with **BIO-GEL** solution (2 l/ha)

WINTER WHEAT

# DROUGHT



No	WEIGHT	%
1	0,121	100
2	0,31	256,2
3	0,18	148,7
4	0,46	380,1

1 – Control (water)

2 – seeds inoculation with **BIO-GEL**, 2 l/t

3 – surface treatment (20 l/ha, tenfold overdose)

4 – surface treatment (2 l/ha)

WINTER WHEAT

# Implementation

Since 2015, more than 300 agricultural enterprises of Ukraine **BIO-GEL** know, use and have research, including:



# PRODUCT SAFETY



PETS



PETS



INSECTS



HUMANS



BIRDS

# MY GARDEN



**THANKS**

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