

Report on the results of the experiment with plant protection products

Applicant	Identification number – trial report number
ekolive s. r. o. Americká trieda 3 040 13 Košice	3/2024

The report was prepared by: RNDr. Ľubica Malovcová

The worker responsible for the experiment: RNDr. Ľubica Malovcová

Authorized/experimental workplace: National Agricultural and Food Center, Piešťany Plant Production Research Institute

Address: Bratislavská cesta 122, 921 68 Piešťany

Phone: 033/794 7133

Place and date of preparation of the report: Piešťany, 2.10.2024

1. Experimental conditions

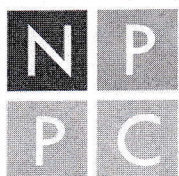
1.1. Basic information

Aim of the trial: To verify the biological effectiveness in spring barley

Variants	Type	Used products
1	control	-
2	testing	Ekofertile 1 %
3	testing	Ekofertile 2 % Microfertile 5 %
4	testing	Microfertile 10 %
5	testing	Ekofertile 2 % Microfertile 5 %

Crop: Sown spring barley: (*Hordeum vulgare*) HORVS

General methodologies used: EPPO PP1/152(4), PP1/181(5), PP1/135(4), PP1/239(3)



Application dates: 15.4.2024; 13.5.2024; 23.5.2024

1.2. Conditions of the experiment

1.2.1. Experimental site (field)

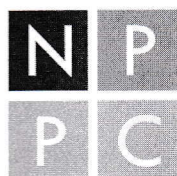
Experimental site	Borovce, Predné pole	Production area:	maize
Phone:			B5
Region:	Piešťany	Slope inclination:	0
Country (state):	SR	Exposure:	-

1.2.2. Crop

Crop:	Sown spring Barley	Variety:	Kangoo
The share of cereals in the sowing process:			
Pre-crop	Sown maize		
Sowing date	8.3.2024	Sowing depth:	3 cm
Sowing	4500000 cl. seeds		
Number of seeds/plants per meter of row length:		State of the seed bed:	good
Beginning of emergence (of control)	15.3.2024	Date of full emergence (of control):	18.3.2024
Line spacing:	12,5 cm	Distance of plants in a row:	
Plant density			

1.2.3. Performed agrotechnical interventions:

Date	Development phase of crops	Type of intervention	Note
15.8.2023	-	Shallow non-inversion	
5.2.2024	-	plowing	
4.3.2024	-	Heavy gates	
11.3.2024	-	Spreader	
15.3.2024	-	Compactor	
18.3.2024	-	Sowing	



1.2.4. Fertilization mode:

Before sowing or by planting a crop	NPK 15-15-15 250 kg.ha ⁻¹	N P ₂ O ₅ K ₂ O	37,5 kg.ha ⁻¹ 37,5 kg.ha ⁻¹ 37,5 kg.ha ⁻¹
The last organic fertilization:	Not fertilized		
year:	-	Amount:	-
type of fertilizer:	-	Amount of net N supplied:	-
method of	Spreader		
Last liming:	-	Quantity:	-
year:	-	Method of application:	-
type of fertilizer:	-		

Fertilization during the experiment: 1; 2; 3rd, 4th variant

Date	Growing phase of the crop	Type of application	Type of fertilizer	Dose fert./ha	Dose /ha	Note
8.4.2024 1., 2., 3., 4 variant	BBCH 13	Spreader	NPK (15:15:15)	107,2 kg.ha ⁻¹	N – 16,1 kg.ha ⁻¹ P – 16,1 kg.ha ⁻¹ K – 16,1 kg.ha ⁻¹	-

1.3. Scope and arrangement of the experiment

1.3.1. Basic data:

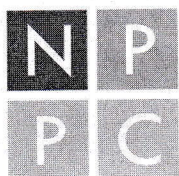
Biometric type by arrangement (accroding to EPPO n.r. 152(4)):

Total number of variants: 5 from that control: 1

Number of repetitions: 4

1.3.2. Site

Total box area:	13,125 m ²	box width:	1,25 m
		field length:	10,5 m
Treated area:	13,125 m ²	width of treated area:	1,25 m
		length of treated area:	10,5 m



Rated area:	10 m ²	width of the eval.surface area:	1,25 m
		length of the assessed area:	8 m
Collection area:	10 m ²	harvesting area width:	1,25 m
		length of harvesting area:	8 m

Box isolation:

Width of the left side	35 cm	Width of the right side	35 cm
Front protection width:	125 cm	Rear protection width:	125 cm

1.3.3. Biometric scheme of the experiment

D	3	5	1	2	4
C	1	3	5	4	2
B	4	2	3	1	5
A	2	1	4	5	3

2. Application of preparations

2.1. Trial applications - summary overview

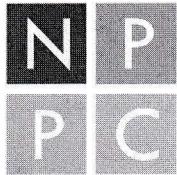
Variant	Type	Nutrition N	Used products + water
1	control	100 %	-
2	tested	100 %	Ekofertile 1 %
3	tested	100 %	Ekofertile 2 % Microfertile 5 %
4	tested	100 %	Microfertile 10 %
5	tested	70 %	Ekofertile 2 % Microfertile 5 %

2.2. Crop stage at application

Application	Prevailing		Minimal		Maximal	
	BBCH	%	BBCH	%	BBCH	%
15.4.2024	21	50	16	30	23	20
13.5.2024	33	65	32	35	33	65
23.5.2024	51	20	49	50	55	30

Evenness of the growth: balanced

Method of application: spraying



2.3. Application device type: backpack sprayer SOLO 425

type of nozzles:	Lumark 02-F80	number of nozzles:	4	nozzle span (m):	0,33
height above the vegetation (cm):	30	frame width (m):	1	application pressure (MPa):	0,2
speed of movement (km/h):	2	direction of movement:		quality of treatment:	good

2.4. Meteorological data during application:

Date of application	air temperature (°C)	air humidity (%)	soil moisture	wind speed (m.s ⁻¹)	cloudiness (%)
15.4.2024	19	64	suchá	0,5	100
13.5.2024	19,5	36	suchá	2,0	37,5
23.5.2024	20,5	68	vlhká	0,3	62,5

Precipitation during application (from - to/mm): 0 mm; 0 mm

Last precipitation before application 2.4.2024 - 8 mm; 12.5.2024 - 0,1 mm; 22.5.2024 - 3,2 mm

2.5. Other pesticides used during the experiment

Product/water l.ha ⁻¹	Application time	Dose.ha ⁻¹	Harmful organism
Mustang Forte/ 300 l/ha	6.5.2024	0,7	weeds
Lontrel 300/ 300 l/ha	6.5.2024	0,3	weeds
Decis EW 50/ 300l/ha	11.5.2024	0,15	leaf beetle
Cyperkill Max/ 300l/ha	13.5.2024	0,05	leaf beetle
Nexide/ 300l/ha	16.5.2024	0,08	leaf beetle

3. Meteorological and soil data

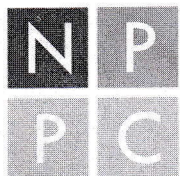
3.1. Meteorological data

Origin of meteorological data:

Place of measurement: Borovce

Method of measurement: meteorological station

Distance from the test: 400 m



3.1.1. Weather conditions March 2024 - July 2024 in Borovce compared with the long-term average

Month	n (1951 – 1980)		March 2024- July 2024	
	x_{td} (°C)	$\sum z$ mm	x_{td} (°C)	$\sum z$ mm
III.	4,2	32	7,9	22
IV.	9,4	43	11,7	42,5
V.	14,1	54	17,8	60,3
VI.	17,7	80	21,1	110,9
VII.	18,9	76	24,3	40,8
x_{td} (°C)/ $\sum z$ mm	12,9	285	16,6	276,5

3.2. Soil

Soil type: black soil degraded on loess (Luvi – Haplic Chernozem) BPEJ 0139002

Fractions:			
clay: 39 %	silt: 58 %	Silty sand: 2 %	sand: 1%
pH: 6,27	Humus proport. (%) : 1,8 - 2	topsoil/substrate depth (cm):	

Last soil analysis done (month/year): March 2021

Proportion found:			
mg/100 g			
Ca: -	P₂O₅: 22,22	K₂O: 23,74	MgO: 46,92

4. Evaluation

Yield (in t/ha counted for 14 % moisture)

	I.rep.	II. rep.	III. rep.	IV. rep.	Average
1	3,83	4,08	4,01	4,12	4,01
2	4,02	4,23	4,49	4,47	4,30
3	4,57	4,34	4,64	4,73	4,57
4	4,32	4,17	4,13	4,55	4,30
5	4,31	4,46	4,09	4,51	4,34

HTZ (in g)

	I.rep.	II. rep.	III. rep.	IV. rep.	Average
1	49,36	49,47	48,89	49,72	49,36



2	49,70	48,42	49,47	49,68	49,32
3	50,88	48,74	49,91	49,13	49,66
4	50,14	48,03	50,10	49,04	49,32
5	49,84	49,07	50,07	49,82	49,70

Volumetric weight (kg/hl)

	I.rep.	II. rep.	III. rep.	IV. rep.	Average
1	68,2	68,6	68,1	68,4	68,3
2	69,4	68,3	68,6	68,1	68,6
3	68,5	67,6	68,4	68,9	68,4
4	68,9	68,3	68,6	68,4	68,6
5	68,8	67,7	69,1	68,7	68,6

Effectiveness of treatment against powdery mildew (according to Abbott in %)

	Date of evaluation		
	13.5.2024	23.5.2024	11.6.2024
	5th leave	5th leave	3rd+ 2 nd leave
1	-	-	-
2	62,03	45,89	43,41
3	61,83	61,38	60,37
4	68,46	60,57	58,84
5	69,71	61,18	59,57

The highest yield was recorded for variant no. 3, where a combination of Ekofertile 2% and Microfertile 5% was applied (an increase of 0.56 t.ha⁻¹ compared to the control). The other variants had an almost identical yield increase on average (increase from 0.29 to 0.33 t.ha⁻¹). From an economic point of view and also from the point of view of environmental protection, variant no. 5. is interesting. For this variant, NPK fertilization was reduced by 30% and the same treatment as on variant No. 3 was carried out. The yield increase is the same as on variants 2 and 4; where preparations were applied separately with 100% fertilization.

The stand was colonized by powdery mildew, which began to appear on the plants at the beginning of the elongation growth. We recorded the highest efficiency in the last evaluation (we evaluated the third and second layer of leaves - the last three leaves are involved in the production of the crop) in the 3rd variant. From BBCH 39, ramular spotting was observed on the leaf surface, which spread independently of the tested preparations.

In Piešťany, 2.10.2024

Lubica Malovcová


NÁRODNÉ POĽNOHOSPODÁRSKE
A POTRAVINÁRSKE CENTRUM
Výskumný ústav rastlinnej výroby
Bratislavská cesta 122, 921 68 Piešťany