EFFECTIVENESS OF FUNGICIDES ON BARLEY SPRING AGAINST SMUT PATOGEN

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The results of studies of the biological and economic efficiency in the use of barley spring fungicides, desinfectans against infection barley smut.

Key words: *Barley spring, seed infection, fungicides, smut*

Sidnificant loss of gield of barley spring have parasitic diseases, including large hurmfulness determind smut. Smut transmitted by seeds. Therefore, sowing seeds infected by smut leads to destruction of seedlings of barley and furter development of the disease in goung plannts. Affected seedlings slow down their growth and development, sowe of them are killed, as result in reduced germination and crop density.

Planting has direct gield losses when insteid grain is formed spore mass of fungus and covert gield losses.

Therefore treatment of seeds is animportant component of the growing technology of barley spring .

Treatment of seeds provides protection for goung seedlings from infection contributes to further their growth and sncreases plant productivity and improve product guality.

Research Vethods. The aim onr study was to investigata the effectiveness of disinfectants on the most common sort barley spring Golden, seed which has been previonsly infected teliospores of smut.

1. The scheme of the experiment for the study of the effectiveness of disinfectans on barley variety Golden against barley smut

Variant of the experiment	Infections load,h/kh	Drug consumption rate
Control /Infections less/		
Infections sude	2	
Vitavax 200 ff		2,5 l/t
Lamardor 400 FS TH		0,25 l/t
Maxim Star 0,25 FS		1,5 l/t

Feld resedrch was conducted sn the experivental conditions NDG National University of Life and buvironmental Sciences of Ukraine.

The discount area was 25m kw. Recurrence – fdour fold. Sowing drill conducted bruding “maple” Soils of research field - typical chernozem, from humus content to 4,7. Treatment of soil under spring barley, generalli for a given area. Viobility teliospores poreviosly studied in the laboratory. Tufestations of plants in the field were Studied in the ripen phase. The Gield of barley harvested direct combine, usend combine Sampo 150.

The scheme of the experiment is shown in table 1. Inoculation of seeds barley smut conducted before Sowing. Tufestion load was 2h spores per 1kh of seeds. Moisture and mild temperatures in the first holf of the growing season (2013 and 2014) were favorable for the development of barley and affected their barley smut.

Results. Phytopathlogical study carly growth of barley spring on wet paper filtering in the laboratory Showed that fungicides don’t increaced laboratry germination but decreased development of barley smut.(Table 2). From the date in Table 2 shows that all disinfectants compared with control (without inoculation of seeds) haven’t influence of laboratory growth. Field germination of barley spring on variants with treatment of seeds with fungicides was less on 8-10% compared with the control.

In table 3 shows results of laboratory studies on the impact of desinfectans on seedlings seeds spring barley infected by barley smut. Found that the most effective desinfectans was Lamardor 400- 0,25 l|t. Defeact seedlings of barley smut in this Variant was 1,5%, which is 13,5 times less than the control. Other desinfectans hale also shown high efficiency in the laboratory.

2. Effect of desinfectants on seed germination of barley spring

Variant of the experiment	The rate of the drug	Laboratory similarity			Field similarity		
		2013	2014	research	2013	2014	The mean
Control (Infections less)		92	93	92,5	88	90	89
Control Infections	2h|kh	86	88	86,5	81	83	82
Vitavax 200 ff	2,5 l/t	91	92	91,5	77	79	78
Lamardor 400 FS TH	0,25 l/t	92	94	93	81	85	83
Maxim Star 0,25 FS	1,5 l/t	91	93	92	81	85	83
NSR 05		1,5	1,6		2,3	2,4	

3. Effect of desinfectants on the destruction of seed lings spring barley plants barley smut (Laboratory research)

Variant of the experiment	The rate of the drug	Infections of barley smut,%		
		2013	2014	The mean
Control (Infections less)		0	0	0
Control Infections	2h|kh	14,6	15,4	15,0
Vitavax 200 ff	2,5 l/t	2,8	3,2	3,0
Lamardor 400 FS TH	0,25 l/t	1,4	1,6	1,5
Maxim Star 0,25 FS	1,5 l/t	3,0	3,4	3,2
NSR 05		4,2	3,6	

In the field the highest efficiency was also in the form of protectants Lamardor 400 - 0,25 l/t Reducing lesions barley smut was 10,2% less than control (inoculated seeds). The rest of desinfectants were raised obout the effective ness of control occupy an intermediate position relative Lamardore (Table 4)

The biological effectivenese of desinfectants on barley spring against smut all gears af research by an average of 80,0-89,5%. The highest effeciency found in the form of fungicide Lamardor- 400-0,25 l/t, which ycars snvestigation was 90% and 89%.(Table 5).

4. Effect of desinfectants on the destruction of barley plants barley smut (Field research)

Variant of the experiment	The rate of the drug	Infections of barley smut,%		
		2013	2014	The mean
Control (Infections less)		0	0	0
Control Infections	2h|kh	10,5	14,3	12,4
Vitavax 200 ff	2,5 l/t	4,8	5,6	5,2
Lamardor 400 FS TH	0,25 l/t	2,0	2,4	2,2
Maxim Star 0,25 FS	1,5 l/t	3,5	3,7	3,6
NSR 05		4,5	5,6	

5. Biological effectiveness of desinfectants on barley spring variety Golden against barley smut,%

Preparation	2013	2014	The mean
Vitavax 200 ff	80	79	79,5
Lamardor 400 FS TH	90	89	89,5
Maxim Star 0,25 FS	79	89	84,0

Study on the economic efficiency of desinfectants on barley spring of variety Golden Showed that all desinfectants significantly increased grain giеld. From the data presented in Table 6 shows that the highest giеld was obtained in experiments with variations protectants Lamardor 400 FS - 0,25 l/t and Maxim Star 0,25 - 1,5 l/t (3,98 and 3,94 t|ha). Increase in giеld relative to control was 0,4 t|ha and 0,35 t|ha. In the version with Vitavax 200 ff – increase giеld was 0,14 t/ha

6. Economic efficiency of desinfectants on barley spring variety Golden

Variant of the experiment	Barley smut		
	2013	2014	The mean
Control (Infections less)	3,40	3,76	3,58
Control Infections	2,70	2,90	2,80
Vitavax 200 ff	3,60	3,84	3,72
Lamardor 400 FS TH	3,82	4,14	3,98
Maxim Star 0,25 FS	3,90	3,98	3,94
NSR 05	3,8	4,3	

This reason for, preplant seed treament of barley is an important part of intensive technology caltivation of barley spring. First of all, it increasing plant productivity, improving product guality.

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