

EFFECTIVENESS OF FUNGICIDES ON BARLEY SPRING AGAINST SMUT PATOGEN

O. ANTONENKO, AL- YASIRI HUSAM MOHANAD

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

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

Significant loss of yield of barley spring have parasitic diseases, including large harmfulness determined smut. Smut transmitted by seeds. Therefore, sowing seeds infected by smut leads to destruction of seedlings of barley and further development of the disease in young plants. Affected seedlings slow down their growth and development, some of them are killed, as result in reduced germination and crop density.

Planting has direct yield losses when instead grain is formed spore mass of fungus and covert yield losses.

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

Treatment of seeds provides protection for young seedlings from infection contributes to further their growth and increases plant productivity and improve product quality.

Research Methods. The aim of our study was to investigate the effectiveness of disinfectants on the most common sort barley spring Golden, seed which has been previously infected teliospores of smut.

1. The scheme of the experiment for the study of the effectiveness of disinfectants 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. Phytopathological 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 disinfectants on seedlings seeds spring barley infected by barley smut. Found that the most effective disinfectants was Lamardor 400- 0,25 l/t. Defect seedlings of barley smut in this Variant was 1,5%, which is 13,5 times less than the control. Other disinfectants have also shown high efficiency in the laboratory.

2. Effect of disinfectants 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 disinfectants on the destruction of seedlings 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 about the effectiveness of control occupy an intermediate position relative Lamardore (Table 4)

The biological effectiveness of desinfectants on barley spring against smut all gears of research by an average of 80,0-89,5%. The highest efficiency found in the form of fungicide Lamardor- 400-0,25 l/t, which years investigation 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 disinfectants on barley spring of variety Golden Showed that all disinfectants significantly increased grain yield. From the data presented in Table 6 shows that the highest yield 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 yield relative to control was 0,4 t/ha and 0,35 t/ha. In the version with Vitavax 200 ff – increase yield was 0,14 t/ha

6. Economic efficiency of disinfectants 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 treatment of barley is an important part of intensive technology cultivation of barley spring. First of all, it increasing plant productivity, improving product quality.

References

1. Пересыпкин В. Ф. Болезни зерновых культур./В.Ф. Пересыпкин- М.: Колос, 1979.- 279с.
2. Болезни сельскохозяйственных культур в 3 т. [В. Ф. Пересыпкин, Н. Н. Кирик, М. П. Лесовой и др.]; под. ред. В. Ф. Пересыпкина..
3. Доспехов Б. А. Методика полевого опыта. М.: Агропромиздат.- 1985.- 347с.
4. Болезни зерновых и зернобобовых культур. – Т.1. К.: Урожай, 1989.- 216с.

5. Ретьман С. В., Горбачова Н. М., Джам О. В., Горбачова Н. М. Передпосівна обробка насіння/ С. В. Ретьман // Захист рослин. – 1999. - №1.- С.4-5.
6. Бабаянц О. В. Висока ефективність фунгіцидних препаратів - протруювачів насіння – надійний захист майбутнього врожаю /О. В. Бабаянц// Агроном. – 2005. - №3.- с.48.
7. Пересипкін В. Ф., Марков І. Л., Шелестова В. С., практикум із основ наукових досліджень у захисті рослин / навчальний посібник для студентів спеціальності: 7.130104- «Захист рослин» для вищих аграрних закладів освіти III-IV рівнів акредитації. – К.: ВЦ НАУ, 2000.- 179 с.