BEHAVIOR OF A WHEAT ASSORTMENT TO THE ATTACK OF THE MAIN FOLIAR DISEASES BETWEEN 2006-2007

COMPORTAMENTUL UNUI SORTIMENT DE SOIURI DE GRÂU LA ATACUL PRINCIPALILOR AGENȚI PATOGENI FOLIARI ÎN INTERVALUL 2006-2007

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Rezumat. *În perioada 2006-2007, la Staţiunea Didactică a Universităţii de Ştiinţe Agricole şi Medicină Veterinară a Banatului Timişoara au fost efectuate experienţe bifactoriale în care a fost urmărită reacţia a cinci soiuri de grâu în condiţiile aplicării a trei doze de azot pe fond constant de fosfor şi potasiu, la principalii agenţi patogeni ai grâului.*

Abstract. *Between years 2006 and 2007 at Didactic Station of University of Agricultural Sciences of Banat County from Timisoara there was carried out some observations for evaluation of behavior on diseases attack of five wheat varieties fertilized with three different nitrogen amounts on a ground of same level of phosphorus and potassium fertilizers amounts.*

Key words: *wheat varieties, foliar diseases*
Cuvinte cheie: *soiuri de grâu, boli foliare*

INTRODUCTION

In the year 2006 as a part of a research contract there was organized some surveillance of the pathogens of the main field plants. The present paper is the result of the data collected for the foliar disease of wheat. The field was organized on the Didactic Station of University of Agricultural Sciences of Banat County from Timisoara

MATERIAL AND METHOD

The research was carried out in the Timis Plain on a chernozem soil with a medium fertility. Experiences were organized in the years 2006 and 2007 as bifactrial experiments.

The factors taking in observation was the cultivated variety and the nitrogen amount. Those factors were chosen because of their relevance under conditions of an intensive technology.

From the varieties present in the reference area, Flamura 85 was chosen for experimenting, Dropia, Fundulea 4, Romulus and Alex because of the relevance of the cultivated surface with this varieties in this area.

For the second experimental factor there was implemented in the field three different nitrogen doses: 100, 150 and 200 kg /ha active substance. The nitrogen was applied on a constant level of 60 kg/ha phosphorus and 60/ha potassium.

Foliar diseases under surveillance were the endemic pathogens as *Puccinia recondita Rob. et Desm., Puccinia striiformis Westend, Erysiphe graminis DC f.sp tritici* and *Leptosphaeria tritici(Garov.) Pass. f.c. Septoria tritici Roberge*. From this pathogens on the analysed period were constantly present in the field just *Erysiphe graminis DC f.sp tritici* and *Leptosphaeria tritici(Garov.) Pass. f.c. Septoria tritici Roberge* (1,2,3). This is the reason why the present paper contain results of statistic analyze only for this two pathogens.

The witness for the statistic calculations was chosen follow factors:

- for the first factor, experimental year, it was chosen the year 2006;

- for the second factor it was chosen the variety Flamura 85 because it's well known sensitivity to the diseases;
- for the third factor our option was the dosage of 100 kg/ha nitrogen amount;

RESULTS AND DISCUSSIONS

Erysiphe graminis have in the analysed period a constant presence on the experimental field, with a variable attack parameters values after the variety and the nitrogen amount. In the table 1 are the values and the differences between the experimental years, with a difference under the significance limit for both, attack frequency and attack intensity

Table 1

Results concerning the attack frequency of fungus *Erysiphe graminis* between 2006 – 2007

Factorul A Anul	Factorul B Soiul	Factorul C – Doza de azot (kg /ha s.a.)			Mediile factorului A	Diferența	Semnificația
		N_{100}	N_{150}	N_{200}			
2006	Flamura 85	49,8	75,2	81,7	41,2	Martor	-
	Dropia	48,3	66,7	71,7			
	Fundulea 4	55,0	61,7	75,0			
	Romulus	54,3	66,7	73,3			
	Alex	35,0	55,0	70,0			
2007	Flamura 85	28,3	61,7	76,7	41,0	-0,2	-
	Dropia	21,7	43,3	53,3			
	Fundulea 4	26,7	38,3	46,7			
	Romulus	30,0	48,3	51,7			
	Alex	21,7	33,3	36,7			
			DL 5 %= 5,9		DL 1%= 13,5		DL 0,1%= 43,1

Factorul B Soiul	Flamura 85	Dropia	Fundulea 4	Romulus	Alex
Media	62,3	50,8	50,5	54,0	41,9
Diferența	Martor	-11,5	-11,8	-8,3	-20,4
Semnificația	-	000	000	00	000
	DL 5 %= 6,0	DL1%=8,3		DL 0,1%=11,4	

Factorul C Doza de azot	N_{100}	N_{150}	N_{200}
Media	37,1	55,0	63,7
Diferența	Martor	17,9	26,6
Semnificația	-	***	***
DL 5 %= 4,2	DL1%= 5,7	DL 0,1%= 7,5	

Table 2.

Results concerning the attack intensity of fungus *Erysiphe graminis* between 2006 – 2007

Factorul A Anul	Factorul B Soiul	Factorul C – Doza de azot (kg /ha s.a.)			Mediile factorului A	Diferența	Semnificația
		N_{100}	N_{150}	N_{200}			
2006	Flamura 85	18,3	26,3	41,7	19,8	Martor	-
	Dropia	11,7	18,3	30,0			
	Fundulea 4	6,7	16,7	23,3			
	Romulus	11,7	21,7	31,7			
	Alex	6,7	11,7	18,3			
2007	Flamura 85	11,7	18,3	36,7	15,7	-4,1	-
	Dropia	10,0	13,3	16,7			
	Fundulea 4	6,7	15,0	20,0			
	Romulus	8,3	21,7	31,7			
	Alex	5,0	8,3	11,7			
			DL 5 %= 4,7		DL1%= 10,8		DL 0,1%= 34,5

Factorul B Soiul	Flamura 85	Dropia	Fundulea 4	Romulus	Alex
Media	25,8	16,7	14,7	21,1	10,3
Diferența	Martor	-9,1	-11,1	-4,7	-15,5
Semnificația	-	000	000	000	000
	DL 5 %= 2,5	DL1%= 3,5		DL 0,1%= 4,8	

Factorul C Doza de azot	N_{100}	N_{150}	N_{200}
Media	9,7	17,3	26,2
Diferența	Martor	7,6	16,5
Semnificația	-	***	***
DL 5 %= 1,9	DL1%= 2,5	DL 0,1%= 3,3	

Tabelul 3.

Results concerning the attack frequency of fungus *Septoria tritici* between 2006 – 2007

Factorul A Anul	Factorul B Soiul	Factorul C – Doza de azot (kg /ha s.a.)			Mediile factorului A	Diferența	Semnificația
		N_{100}	N_{150}	N_{200}			
2006	Flamura 85	53,3	68,3	70,0	27,5	Martor	-
	Dropia	46,7	61,6	63,3			
	Fundulea 4	23,3	26,6	58,3			
	Romulus	41,7	68,3	76,7			
	Alex	8,3	15,0	25,0			
2007	Flamura 85	21,7	36,7	53,3	19,6	-7,9	o
	Dropia	8,3	16,7	21,7			
	Fundulea 4	13,3	18,3	21,7			
	Romulus	15,0	11,7	23,3			
	Alex	6,7	11,7	13,3			

DL 5 %= 5,5 DL1%= 12,7 DL 0,1%= 40,5

Factorul B Soiul	Flamura 85	Dropia	Fundulea 4	Romulus	Alex
Media	50,5	36,4	26,9	39,4	13,3
Diferența	Martor	-14,1	-23,6	-11,1	-37,2
Semnificația	-	000	000	000	000

DL 5 %= 5,5 DL1%= 7,6 DL 0,1%= 10,4

Factorul C Doza de azot	N_{100}	N_{150}	N_{200}
Media	6,6	12,7	22,2
Diferența	Martor	6,1	15,6
Semnificația	-	***	***

DL 5 %= 2,6 DL1%= 3,5 DL 0,1%= 4,6

Tabelul 4.

Results concerning the attack intensity of fungus *Septoria tritici* between 2006 – 2007

Factorul A Anul	Factorul B Soiul	Factorul C – Doza de azot (kg /ha s.a.)			Mediile factorului A	Diferența	Semnificația
		N_{100}	N_{150}	N_{200}			
2006	Flamura 85	11,7	16,7	38,3	16,3	Martor	-
	Dropia	8,3	13,3	23,3			
	Fundulea 4	6,6	10,0	18,3			
	Romulus	6,7	18,3	31,7			
	Alex	5,0	11,7	25,0			
2007	Flamura 85	11,7	18,3	20,0	11,3	-5,0	-
	Dropia	3,7	8,3	18,3			
	Fundulea 4	5,0	8,3	20,0			
	Romulus	6,7	18,3	20,0			
	Alex	1,0	3,7	6,7			

DL 5 %= 6,0 DL1%= 13,8 DL 0,1%= 43,9

Factorul B Soiul	Flamura 85	Dropia	Fundulea 4	Romulus	Alex
Media	19,4	12,5	11,4	16,9	8,8
Diferența	Martor	-6,8	-8,0	-2,5	-10,6
Semnificația	-	00	000	-	000

DL 5 %= 3,6 DL1%= 5,0 DL 0,1%= 6,9

Factorul C Doza de azot	N_{100}	N_{150}	N_{200}
Media	6,6	12,7	22,2
Diferența	Martor	6,1	15,6
Semnificația	-	***	***

DL 5 %= 2,0 DL1%= 2,6 DL 0,1%= 3,4

From the varieties present on the experimental field, for fungus *Erysiphe graminis* attack frequency, Dropia, Fundulea 4 and Alex registered a very significant negative difference on witness. Romulus variety, known as a high sensitivity variety to this fungus registered only a distinctly significant negative difference compared with witness.

Growing of the nitrogen amount has as result an increasing of the plants on fungus attack. Both varieties fertilized with 150 kg/ha and 200 kg/ha nitrogen registered very significant differences on witness.

The attack intensity of fungus *Erysiphe graminis* as it show in the table 2 follow the frequency trend but it must be underlined the fact that varieties Flamura 85(the witness), Dropia and Romulus had almost equal values of powdery mildew sensitivity. Alex and Dropia varieties point out a relative tolerance to fungus *Erysiphe graminis.*

Regarding the second fungus analyzed on this paper, *Septria tritici* as we can see, the attack frequency show a decrease trend in 2007 comparing to year 2006, with a significant negative statistic difference. The growing of the nitrogen amount has as effect a growing of the plant sensitivity for all five varieties and registered very significant differences for both nitrogen amounts, 150 kg/ha and 200 kg/ha nitrogen active substance.

The most tolerant variety to fungus *Septria tritici* attack, with a statistic very significant negative difference for intensity of attack was Alex and Fundulea 4. Romulus variety shows an equal sensitivity to fungus *Septria tritici* as witness variety.

CONCLUSIONS

Both experimental years were almost the same favorable to the main foliar pathogens of wheat.

from the evaluated varieties the most tolerant at both funguses *Septria tritici* and *Erysiphe graminis* after the registered values of attack frequency and intensity was Alex and Fundulea 4.

LITERATURE

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