RESEARCHES CONCERNING YIELDING CAPACITY OF SOME AUTOMN WHEAT RACES (TRITICUM AESTIVUM), UNDER FERTILISATION INFLUENCE IN SDE TIMISOARA

CERCETARI PRIVIND CAPACITATEA DE PRODUCTIE LA CATEVA SOIURI DE GRAU DE TOAMNA (TRITICUM AESTIVUM) SUB INFLUENTA FERTILIZARII LA S.D.E. TIMISOARA

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Abstract: *wheat is one of the most important cereals and cultivated plants for Romania. The market value and the profitability of this crop is provided by yielding capacity from genetic potential and maximum of reachable yields point of view.*
From experiments result that, concerning yield capacity, the best wheat races were: Ciprian, Gobe, and Othalom. From applied fertilization treatments we can conclude that the optimum nitrogen dose is 140kg\ha, considering the pedoclimatic conditions of studied year.

Rezumat:*Grâul este una din cele mai importante cereale şi plante de cutură la ora actuală în România. Valoarea de piaţă şi rentabilitatea acestei culturii este dată de capacitatea producţiei din punct de vedere al potenţialului genetic şi realizării producţiilor maxime.*
Din experiment rezultă că cele mai bune soiuri de grâu cu o capacitate de producţie ridicată au fost: Ciprian, Gobe şi Othalom. Din cele cinci doze de fertilizare reiese că doza optimă de fertilizare cu azot este de 140 kg/ha S.A, în condiţiile pedoclimatice a anului agricol luat în studiu.

Cuvinte cheie: *grâu, soiuri, fertilizare, doze, producţii*
Key word: *wheat, varieties, fertilization, dose, production.*

INTRODUCTION

In the present paper is analyzed the wheat yield from SDE Timisoara, in 2007.

MATERIALS AND METHOD

For field testing of some autumn wheat races a bifactorial experience was organized having as experimented factors the following:

A factor – Fertilization
- a1- N60 P60 K60
- a2 - N 80 P60 K60
- a3 - N100 P60 K60
- a4 - N140 P 60 K60
- a5 N60 P60 K60 + foliar fertilization in the skin bag phase.

B factor – variety with 7 graduations:
- b1- ALEX;
- b2- LV34;
- b3- CIPRIAN;
- b4-SERINA;
- b5-G.K. OTHALOM;
- b6-G.K. GOBE;
- b7-BAIKA.

The studied wheat varieties consisted of native and foreign varieties originating from Serbia and Hungary. The previously mentioned wheat varieties are cultivated on large areas in the West Field regions of Romania.

The area for one wheat race on one agrofond was 124m^2, total area for one what race in the experience was 620 m^2, the area of one agrofond was equal to 868m^2, the croping area from one plot\repetition was 30,27m^2, the entire surface of the experimental factors was 4340m^2, the area of roads + bands was 3250m^2.

For maintaining the experience, chemical nitrogen fertilizers were applied respecting the experimental variants requirements, for weed control herbicide MUSTANG was used, there were no treatments against diseases and for leaf pests product SUPERSECT 25 CE was applied.

The harvesting proceeded on complete maturity of plants using an experimental field's combine.

From each experimental variant, sample of plant grains were cropped for biometrical measurements and, respectively, physical characteristics analyze

The analyze of physical characteristics of grains had the goal of MMB and MA determination for each experimental variant.

METEOROLOGIC CONDITIONES

The 2006-2007 agricol year was climatically characterized as a unfavorable year for wheat culture, explaining the reduced yields in this year for most of the wheat races, comparing whit the previous years.

The achieved temperatures in this agricol year are presented in table1 and figure 1.

By analyzing this it is empathies that for the most part of vegetation period, the temperature is higher them the multiyear average (february, march, may, june).

The precipitations registered in october 2006- august 2007, are presented in table2 and figure 2.

Table 1

Monthly average temperatures (^{0}C) registered in Meteorology Station Timisoara, in 2006-2007, compared with multiyear average.

Specification	X	XI	XII	I	II	III	IV	V	VI	VII	VIII
Year 2006/2007	12	6	2	4	6	9	13	18	22	24	23
Multiyear average.	11,3	5,7	1,4	-1,2	0,4	6,0	11,3	16,4	19,6	21,6	20,8

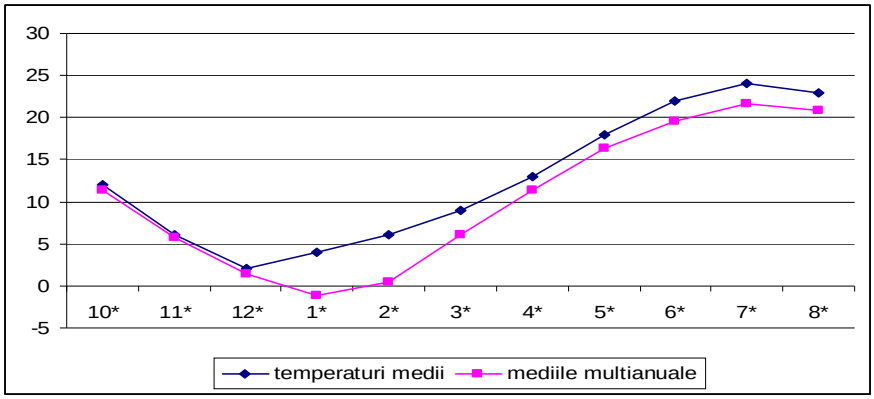

Figure 1 Monthly average temperatures (^{0}C) registered in Meteorology Station Timisoara, in 2006-2007, compared with multiyear average

Table 2

Monthly average precipitations (mm) registered in Meteorology Station Timisoara, in 2006-2007, compared with multiyear average.

Specification	X	XI	XII	I	II	III	IV	V	VI	VII	VIII
Year 2006/2007	54.8	31	21	26	92	57	4	69	65	46	65
Multiyear average.	54,8	48,6	47,8	40,9	40,2	41,6	50,0	66,7	81,1	59,9	52,2

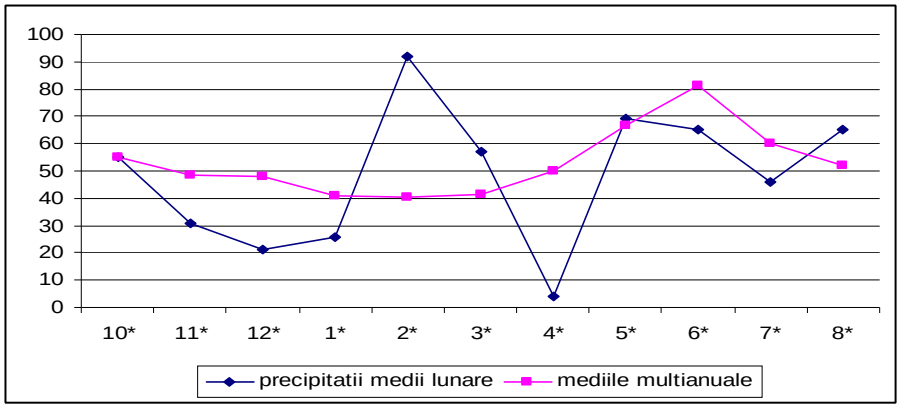

Figure 2 Monthly average precipitations (mm) registered in Meteorology Station Timisoara, in 2006-2007, compared with multiyear average.

Concerning the precipitations, the year is characterized by a deficit in the first part (in autumn) leading to delay in emerge and a very wick brothering. The excess of precipitations from february and march was not enough for compensate the water deficit from december and november.

PRODUCTIONS OF YEAR 2007

The production results are presented in table 3.

Supplementing the nitrogen doses with constant doses of phosphorus and potassium, leads to an increase of yield from 2838 kg/ha on agrofond $N_{60}P_{60}K_{60}$ to 3862 kg/ha on agrofond $N_{100}P_{60}K_{60}$ and 4368 kg/ha on agrofond $N_{140}P_{60}K_{60}$.

Table.3

Production results of 2007 year

Nr. Crt.	B Factor races	A Factor – fertilization					Prod. Kg/ha	Relative Prod. %	Difference ± kg/ha	Signification .
		A0 N_{60} P_{60} K_{60}	A1 N_{80} P_{60} K_{60}	A2 N_{100} P_{60} K_{60}	A3 N_{140} P_{60} K_{60}	A4 N_{60} P_{60} K_{60+} fol				
1	Ciprian	4246	4638	4892	5055	4124	4591	199	2291	***
2	Alex	1370	2840	1993	2861	2436	2300	100	MT	-
3	Serina	2301	3074	3444	3297	2348	2892	125	592	
4	LV34	3187	4245	4046	4665	3055	3839	166	1539	**
5	GK. Göbe	3649	3902	4007	5018	3569	4029	175	1729	***
6	GK.Öthalom	3322	4031	4237	5038	3837	4093	177	1793	***
7	Baika	1794	3694	4416	4647	3680	3646	158	1346	**
A factor - average							DL 5%=1001 kg/ha			
Prod. Kg/ha		2838	3774	3862	4368	3292	DL 1%=1333kg/ha			
Relative Prod. %		100	132	136	153	115	DL 0,1%=1725kg/ha			
Difference ± kg/ha		MT	936	1024	1530	454				
Signification		-	***	***	***	**				

DL 5%=378 kg/ha DL 1%=503 kg/ha DL 0,1%=652 kg/ha

On $N_{60}P_{60}K_{60}$ agrofond supplemented with foliar fertilization, the yield is just 3292 kg/ha, being closed to the yield of agrofond $N_{60}P_{60}K_{60}$.

Concerning the races, best results are obtained with CIPRIAN (4591 kg/ha); GK.GOBE (4029 kg/ha); GK. OTHALOM (4093 kg/ha) and race LV34 (3839kg/ha).

Hectoliter mass is presented in table 4.

Table 4

Average values of the hectoliter mass (MH – kg/hl) depending on race and agrofond in 2007

B Factor Race							MH Average of race		
Nr. Crt.	Races	A0 N_{60} P_{60} K_{60}	A1 N_{80} P_{60} K_{60}	A2 N_{100} P_{60} K_{60}	A3 N_{140} P_{60} K_{60}	A4 N_{60} P_{60} K_{60+} fol	Average	MH relative value a %	Difference ±
1	Ciprian	79.2	78.9	77.5	78.9	78.3	78.56	102	1,78
2	Alex	75.3	77.4	76.8	77.4	77.0	76.78	100	MT
3	Serina	74.0	73.9	73.9	73.8	72.0	73.52	96	-3,26
4	LV34	76.4	76.6	78.0	77.1	74.1	76.44	99	-0,34
5	GK. Göbe	76.2	76.8	76.5	75.6	74.0	75.82	98	-0,96
6	GK.Öthalom	72.5	75.8	75.6	76.5	75.1	75.10	97	-1,68
7	Baika	74.8	74.9	77.6	77.5	74.8	75.92	98	-0,86
MHaverage of agrofond		75.48	76.32	76.55	76.68	75.0			
MH rel value %		100	101	101	101	99			
Difference ±		MT	0,84	1,07	1,2	-0,48			

By analyzing the results concerning the hectoliter mass it ca be concluded that the agrofond has no big influence on MH.

Among the races the highest value is registered at CIPRIAN-78.56 kg/hl, ALEX-76.78 kg/hl. However, the cultivated races have realized an MH value that includes them in good and very good wheat group.

MMB value is presented in table5.

Table 5

Average values of the MMB depending on race and agrofond in 2007

B Factor Race								MMB Average of Agrofond		
Races / Agrofond	Alex	Ciprian	Lovrin 34	GK. Göbe	GK. Öthalom	Serina	Baika	Average	MMB relative Value %	Difference ±
A0 N_{60} P_{60} K_{60}	43,82	44,23	47,57	34,56	42,18	40,63	36,05	41,29	100	MT
A1 N_{80} P_{60} K_{60}	44,34	43,54	53,26	30,48	42,26	35,40	40,29	41,36	100	0.07
A2 N_{100} P_{60} K_{60}	43,13	43,17	52,30	33,49	39,69	37,14	38,19	41.01	99	-0.28
A3 N_{140} P_{60} K_{60}	43,73	42,50	50,83	33,24	41,46	58,84	42,15	44.67	108	3.38
A4 N_{60} P_{60} K_{60} + fol	44,47	44,10	47,20	36,81	46,84	42,76	39,61	43.11	104	1.82
MMB Average A Factor Race										
Race MMB Average	43.89	43.50	50.23	33.71	42.48	42.95	39.25			
MMB rel. a Value %	100	99	114	75	96	97	89			
Difference ±	MT	-0.39	6.34	-10.18	-1.41	-1.41	-4.64			

Among the studied races the highest values of MMB have been registered at Lovrin 34 with a value of 50,23 g. From the results it can be concluded that the agrofond has no influence upon MMB.

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