BEHAVIOR OF SOME VARIETIES OF TRITICALE (*TRITICOSECALE WITTMACK*) IN THE CLIMATIC CONDITIONS OF CARAŞ-SEVERIN RĂCĂŞDIA

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REZUMAT. Lucrarea de faţă îşi propune să analizeze efectul soiurilor de triticale luate în studiu în condiţiile climatice de la Răcăşdia sub influenţa fertilizării şi densităţilor, asupra producţiei de boabe la triticale (*Triticosecale Wittmack*). Din analiza rezultatelor privind producţia de boabe, se constată că aceasta e influenţată mai mult de fertilizare decât de soi şi densitate. Diferenţele dintre variante privind producţiile de boabe la triticale sunt mai evidente în cazul variantelor sub efectul fertilizării luate în studiu. Din analiza rezultatelor privind producţiile de boabe se constată că în majoritatea variantelor experimentale realizate prin utilizarea fertilizării, producţia de boabe depăşeşte 6200 kg/ha. Cele mai mari valori ale producţiei de boabe se înregistrează la varianta fertilizată N160P06K60 – 6239 kg/ha, la soiul românesc Stil – 6216 kg/ha, la densitatea de 750bg/m²– 6026 kg/ha.

Cuvinte cheie: triticale, soi, fertilizare, densitate, calitate.

ABSTRACT. This paper aims to analyze the effect of triticale varieties studied under the climatic conditions of fertilization and densities Răcăşdia influence on grain yield in triticale (*Triticosecale Wittmack*). The analysis results on the production of grain, it appears that it is influenced more fertilizer than the variety and density. Differences between versions of the triticale grain yields are more obvious if under the effect of fertilization variants studied. The analysis results on grain production is found in most versions made by using experimental fertilization, grain yield than 6200 kg/ha. The highest values of grain yield recorded in the variant fertilized N160P06K60 - 6239 kg/ha, the Romanian variety Style - 6216 kg/ha, the density of 750bg/m² – 6026 kg/ha.

Keywords: triticale, variety, fertilization, density, quality.

1. INTRODUCTION

Although triticale species had a short development being created by a man recently became an important cereal in the world occupying approximately 4 million ha, of which over 70% in Europe. New varieties of triticale are equal or superior performance to other cereal crops, forage and biomass production for human food, animal feed or industrial applications. Cereal grains for feeding humanity provides 55-60% of total calories consumed, 60% protein, 15% from fat and 70% from carbohydrates. In human nutrition it provides over 90% of calories from 30 species of cultivated plants. rodusele food grains can be consumed daily body requirements are appropriate and appreciated both in terms of taste and their nutritional value. Cereal grains is the raw material for other industries such as beverages industry (manufacture of spirits and beer from corn, triticale, barley, rice etc.), pharmaceuticals (chemical substances in scleroţii antihemoragice Cleviceps purpureea fungus obtained from the rye, rice etc. of drugs). Straw (stems) cereal grain used in pulp and paper industry, in small industry (knitting) and other manufacturing activities. Cereals are the main raw material for production of meat, milk and eggs. No concentrate feed intake can not be deprived of corn, oats, barley etc. triticalei The most effective juicy fodder obtained from corn mash even feed fibers are made up of a cereal straw. Among cereals are good bee plants (corn). Manufacturing scraps cereals (bran, borhoturi etc.) is an excellent feed and not least secondary production of cereals (straw, stems) are used as bedding or even feeding. Recently gaining worldwide cultivation of cereals in the energy (sorghum as energy fitomasă), but the cultivation of cereals for biofuels production (triticale, corn etc.). Grains are a rich source of trade. The physical and chemical properties of grains allow their transport over long distances and keeping them without difficulty. You can eat in harvest, or after several years without spoiling or significantly change their nutritional qualities. Interaction density strongly influences fertilization production.

2. MATHERIAL AND METHOD

Experience has been placed in specific climatic conditions Caraş-Severin Răcasdia village. Experimental field was located on a brown soil type, I-mezogleizat moderate slope deposits formed from decomposition and alteration of basic metamorphic rocks. Experience is the type trifactorial, with annual repeat. Densities: 250 bg/m^2, 500 bg/m^2, 750 bg/m^2 were used in the experiment, and following fertilization systems.

Factor A – varieties of triticale used for zoning and their influence on grain yield.

A_1 – CASCADOR; A_2 – HAIDUC;
A_3 – TITAN; A_4 – STIL;
A_5 – GORUN;

Factor B – seeding density

B_1 – 250 bg/mp; B_2 – 500 bg/mp;
B_3 – 750 bg/mp;

FactoR C – fertilization system

C_1 – UNFERTILIZED ($N_0P_0K_0$); C_2 – $N_{80}P_{60}K_{60}$
C_3 – $N_{160}P_{60}K_{60}$

Climatic conditions Răcăşdia is moderate continental, with Mediterranean influences.

3. RESULTS

Located in south-west of the country, not far from the Adriatic Sea, sheltered by the Carpathian Mountains, the village is within the temperate continental climate, subtype Banat, with Mediterranean colors, the annual average temperature of 11^0 C, and the seasonal average temperatures satisfy requirements of most crop plants. Rainfall, characterized by a value of 680 mm average annual rainfall varies with relief, lower values being recorded in the meadow, and the highest in the crossing of the high plains and hills, satisfying, in general, requirements of crop plants, additional water intake is necessary only in vegetable crops (table and figure 2.). Regarding the wind regime, the dominant winds blow from the V-SW, is reported the presence of wind Cosava's (hairdryer), reaching in some very fast times, being a negative factor for crops and emphasizing integrity of surface erosion soil cover.

Triticale production obtained under the influence of variety, density and fertilization in the experimental field from Răcăşdia in 2011.

In table 3 are presented results obtained from the interaction of variety with planting density and fertilization level considered.

Table 1

Average monthy temperatures (° C) at the Meteorological Station in Oravița compared to multiannual averages

Specification	I.	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Year 2011	-0,4	-0,8	-0,1	12,9	13,1	19,2	18,7	23,5				
Multiannual averages	- 0,7	2,03	6,67	14,2	16,5	19,8	23,15	24,6	19,9	14,8	10,0	5,6

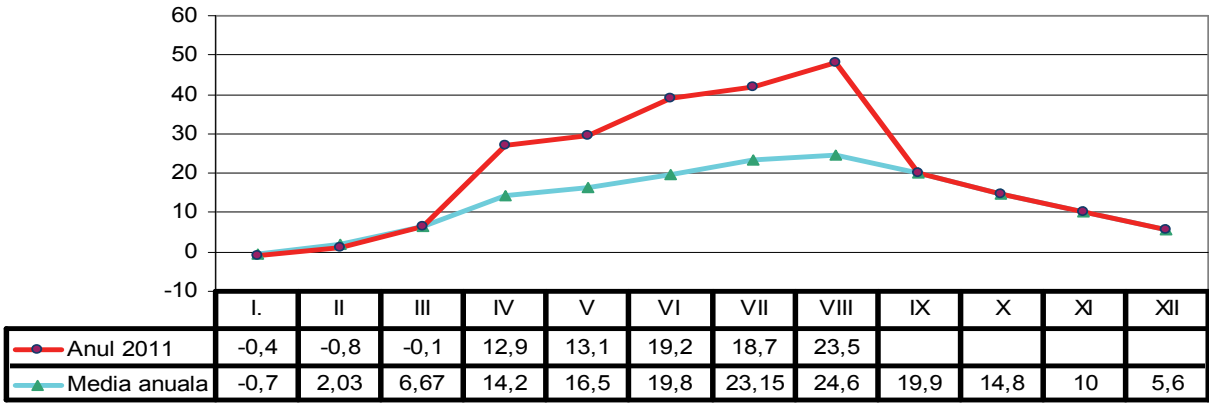

Fig. 1. Variation of monthly average temperatures (° C) recorded in 2011 Oravita resort weather compared to multiannual averages

Table 2

Monthly rainfall (mm) at the Meteorological Station in Oravita during 2011 compared with multiannual averages

Specification	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Year 2011	70,2	89,6	62,7	68,9	89,1	78,6	102,3	0,6				
Multiannual averages	65,9	119,8	86,9	46,2	64,1	155,6	76,1	38.8	22,9	123,6	80,3	75,5

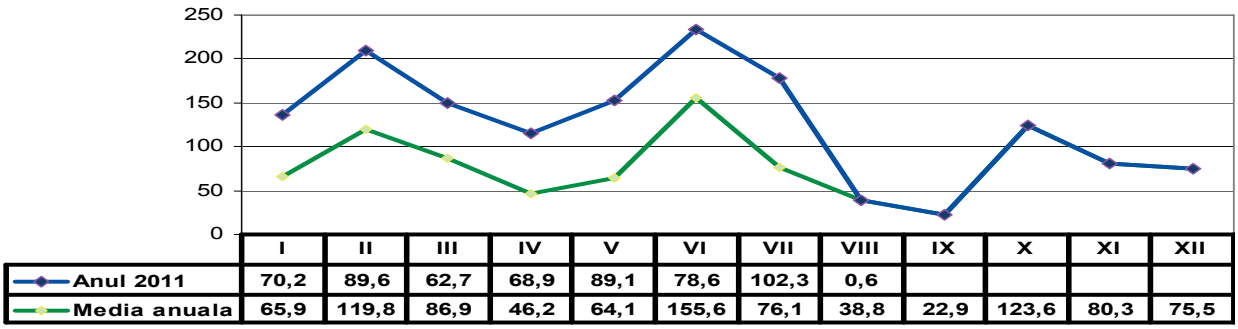

Fig. 2. Variation of mean monthly rainfall (mm) recorded at the resort weather Oravita in 2011 compared with multiannual averages.

Table 3

Triticale production obtained under the influence of variety, density and fertilization in the experimental field from Răcăşdia in 2011

		Factor C Fertilization			A Factorial averages			
FactorA Variety	**Factor B Density [bg/m^2]**	**N0P0K0**	**N80P60K60**	**N160P06K60**	**Production [kg/ha]**	**%**	**Diference**	**Significance**
CASCADOR	250	3950	4265	5096	5043	100	-	
	500	4352	4874	5779				
	750	4978	5123	6972				
HAIDUC	250	3910	4356	5685	5213	103	130	
	500	4292	5462	5967				
	750	4800	5798	6647				
TITAN	250	3927	4989	5852	5412	107	369	
	500	4721	5212	6292				
	750	4970	5768	6980				
STIL	250	5200	5462	6125	6216	123	1173	xxx
	500	5387	5968	6790				
	750	6789	6810	7410				
GORUN	250	3811	4768	5385	5186	103	143	
	500	4324	5175	5866				
	750	4989	5620	6742				

Dl 5% -389 kg/ha;Dl1% - 611 kg/ha;Dl0,1% - 932 kg/ha.

C Factorial averages

	N0P0K0	N80P60K60	N160P06K60
Production [kg/ha]	4693	5310	6239
%	100	113	133
Diference	-	617	1546
Significance		xx	xxx

Dl 5% - 211 kg/ha;Dl 1% -432 kg/ha;Dl 0,1% - 659 kg/ha.

B Factorial averages

	250 bg/m^2	500 bg/m^2	750 bg/m^2
Production [kg/ha]	4852	5364	6026
%	100	111	124
Diference	-	512	1174
Significance		xx	xxx

Dl 5% - 245 kg/ha;Dl 1% -409 kg/ha;Dl 0,1% -662 kg/ha.

Among the three factors, variety and density play a role in increasing the triticale grain production in 2011 at Răcăşdia experimental Caras-Severin. In Style has been a variety 5302 kg/ha production is 5% higher than the production version is made witness to a production increase of 1173 kg/ha provided statistically very semnifivativ.

The variety was a Titan 5412 kg/ha production that made a positive difference from the control of production is not statistically. Sowing density on the analysis of results shows that differences in production between variants is low as in 2010. Thus by increasing the density from 250 bg/m^2 to 500 bg/m^2 production increased by 512 kg / ha increase was statistically significant as distinct, and by increasing the density to 750 bg/m^2 production of 6026 kg / ha more than the production of the version control to 1174 kg / ha provided statistically very significant increase.

Analysis of the production potential of the two variants fertilized production compared with control variant (N0P0K0) shows that all variants are considered superior to that witness experimental pot cheese in 2010.

The version N160P60K60 6239 kg/ha achieved a production with a production increase of 1546 kg/ha, being provided statistically very significant.

Production increase obtained in the variant fertilized with 80N kg/ha (617 kg/ha) is provided ststistic witness as distinct from production significantly.

Analysis results from the interaction of variety with planting density and fertilization level indicates that the highest grain yield in triticale varieties are obtained from the density 750bg/m^2 Style on fertilization N160P60K60 - 6216 kg/ha.

4. CONCLUSIONS

In the experimental field of Caras-Severin Răcăşdia there were good results in the production of triticale grains.

Climatic conditions during sowing and harvest were largely favorable influence on the level of grain yield in triticale.

The soil that was placed for nutritional support experience ensure good plant growth and development of triticale.

Triticale grain production to vary the influence of the factors taken into study (variety, density and fertilization). Interaction of variety, density, fertilization strongly influences production.

Under the influence of the best varieties of grain production was achieved in Romanian variety Style - 6216 kg/ha.

The variants were sown under the influence of density obtained from the best production version 750 bg/m^2 density with an average production of 6026 kg / ha.

Under the influence of fertilization best productions were obtained from alternative N160P60K60 - 6239 kg/ha.

BIBLIOGRAPHY

[1] Bilteanu Gh., Birnaure V. (1979), *Fitotehnie*, Ed. Ceres, Bucuresti.
[2] Bilteanu G, Roman G. (1981), *Producţia vegetală*. Cereale şi Plante tehnice nr. 3.
[3] Bilteanu Gh. (2003), *Fitotehni*e, Ed. Ceres, Bucureşti.
[4] Dragomir N. şi colab (2004), *Culturi furajere*, Ed. Waldpress, Timişoara.
[5] Gaspar L, Butnaru G (1985), *Triticale – o nouă cereală*. Ed. Academiei Romane, Bucureşti.

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