INFLUENCE HYBRIDS AND FERTILISATION ON THE PRODUCTION OF GRAIN SORGHUM GRAINS (SORGHUM B. VAR. EUSORGHUM) IN THE EXPERIMENTAL FIELD FROM RĂCĂŞDIA CARAS – SEVERIN

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Abstract: *History shows that cereals have always maintained their significance, along the development of human society and to this day. In addition, however, one can see a close link between grain production and progress of civilization. Sorghum is a very old culture, known in India for over 2000 years, cultivated for: beans, brooms, rich in sugar syrup, animal feed or fodder crop as green. Climate Change to heating and unproductive during 2001-2050 in the Balkans, which is located and Romania, requires a reconsideration of sorghum as: cereal food (beans composite flour used in the formula for baking gluten and gluten-free, fresh juice, extracted of strains used in the manufacture of syrup, vinegar and other food), fodder (as green mass, hay storage, feed pellets) and crops (sorghum and sorghum mature mellitus for the production of raw materials for energy (liquid, solid, gas, electricity, heat), chemical (stationery and textile pulp, plastics), building materials and craft industry (of household and industrial brushes, brooms, blended. Sorghum is the second cereal after maize commercially exploiting the heterosis effect in the agricultural farm, which increased the average production per hectare. is the first grain sorghum that has been fully sequenced genome (2006), which will give rhythms in November progress in improving the species in the coming years. sorghum grains used directly in the form of flour feeding people in some parts of Africa, India, China, Middle East and Egypt. In industry is used in the manufacture of starch, alcohol and beer, mixed with grains of barley. The sweet sorghum juice is extracted a sweet, rich and varied sucrose fitomasă energy use. In many parts of the world sorghum was traditionally used in various foods such as porridge , unleavened bread, cookies, cakes, couscous and various soft drinks and alcoholic. Sorghum has unique properties that make it very suitable for food use. Some varieties of sorghum are rich in antioxidants and all varieties of sorghum are without gluten, an alternative attractive for those suffering from wheat allergy. Modern science in food and nutrition, attaches great importance to the role of nutrition in prevention of onset. Special attention is given to the development of food products for people with increased sensitivity to certain foods. The culture of sorghum, using far fewer pesticides than other crops (wheat and corn). It also should not neglect the fact that sorghum, sorghum particularly diabetes, contribute significantly to reduce air pollution ¬ bad. In different literature, shows that one hectare of sweet sorghum absorbs from the atmosphere each year between 40 and 55 tones of carbon dioxide (CO2), while other crops, eg cereals, only 3 to 10 tons per year CO2/ha . It should be noted that the sorghum plant is not lost anything after processing. Experience has been located in specific climatic conditions Răcasdia commune, Caras Severin, on a brown ground, I-mezogleizat moderate slope deposits formed from decomposition and alteration of basic metamorphic rocks. Experience is bifactorial type, so that the annual Repeat the cycle terminates the experimental field we have experience in first year, second year and third year. The biological matherial used were hybrids F32 and Arakan. F32 hybrid obtained from INCDA Fundulea, the seed being certificate, and hybrid Arakan French provenance. Mineral fertilizers applied to grain sorghum crop, increased grain production. Variation in grain production in grain sorghum grain (Sorghum b. var. Eusorghum) vary depending on hybrid and the influence of fertilization. The results of this study are part of a doctoral program, with as theme: "Research on the potential production potential in sorghum mellitus (Sorghum b. var. Saccharatum) and grain (Sorghum b. var. Eusorghum)" funded by the Ministry of Education Tineretului and Sports research, the IOD U.S.A.M.V.B. Timisoara under*

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Keywords: *grain sorghum, grain production, fertilization, hybrids.*

INTRODUCTION

Grain sorghum is a very important cereal for human food and animal feed. In China and Africa, the flower and leaf sheaths to obtain a dye used to dye fabrics, wool and hides. In many parts of the world, sorghum has been used traditionally for various foodstuffs, such as porridge, unleavened bread, cookies, cakes, couscous and various soft drinks and alcoholic. Traditional cooking of sorghum is plentiful, cooked sorghum grain is one of the simplest products. Whole grains can be presented as ground flour or shelled before grinding, which then are used in different traditional foods. The cuisine of the southern United States sorghum syrup is used as a sweet spice, usually biscuits, corn bread, pancakes, cereals or beans. The sweet sorghum juice fertilization seeks to quality, which is why it is recommended for food purposes, growing on fertile soils. Favorable moisture conditions, sorghum react favorable to nitrogen fertilization both in terms of the yield and protein content in dry areas, have positive effect and phosphorus. Doses practiced today in the world varies, depending on experimental conditions. Grain yield of sorghum grain is very influenced by the technology applied (particularly fertilizer) that determines the quality and increase production.

MATERIAL AND METHOD

Experience has been placed in specific climatic conditions Caras 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 bifactorial type, with annual repetition. F32 and Arakan hybrids were used in experience.

FACTOR A: variety (hybrid)

A1: F32 Fundulea

A2: Arakan

Factor B = B, fertilization system

B1 = unfertilized (N0P0K0)

B2 = N80P80K80,

B3 = N160P80K80,

B4 = N240P80K80,

B5 = N 160 P 160 160K

RESULTS AND DISCUSSION

Production results achieved under the influence of fertilization on grain sorghum in the experimental field of Caras-Severin Răcăşdia

Average productions under the influence of fertilization on grain sorghum are presented in table and figure 1.

Table and Figure 1 it is observed that grain yield of sorghum grain is positively influenced by doses up to 240kg/ha nitrogen, where most production is obtained which has the highest average production increase of 3977kg/ha that that is statistically very significant. The average production reaches version 7810kg/ha N160P160K160 and made to increase production yields from the fertilized variant is 3573kg/ha. Production increase is statistically as very significant.

Average grain yields over 5000kg/ha were recorded variants N80P80K80 - 5370kg/ha and N160P80K80 - 6290kg/ha, both with production increases statistically as very significant. The results obtained in sorghum grain in terms of 2010 shows that fertilization plays an

important role in achieving certain production levels are related and environmental conditions of that year.

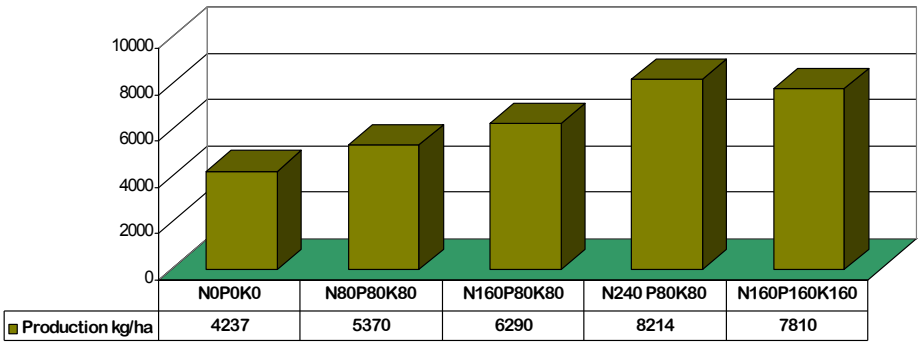

Figure1. Grain production in grain sorghum influence fertilization in the experimental field from Răcăşdia

Table 1

Influence of fertilization on grain sorghum production in 2010 in experimental

Fertilization	Production kg/ha	%	Diference	Significance
N0P0K0	4237	100	-	
N80P80K80	5370	127	1133	xxx
N160P80K80	6290	148	2053	xxx
N240 P80K80	8214	194	3977	xxx
N160P160K160	7810	184	3573	xxx

Dl 5% = 438 kg/ha; Dl 1% = 619 kg/ha; Dl 0,1% =976 kg/ha;

Average productions under the influence of research on sorghum hybrids for grain subjects are presented in figure and table 2.

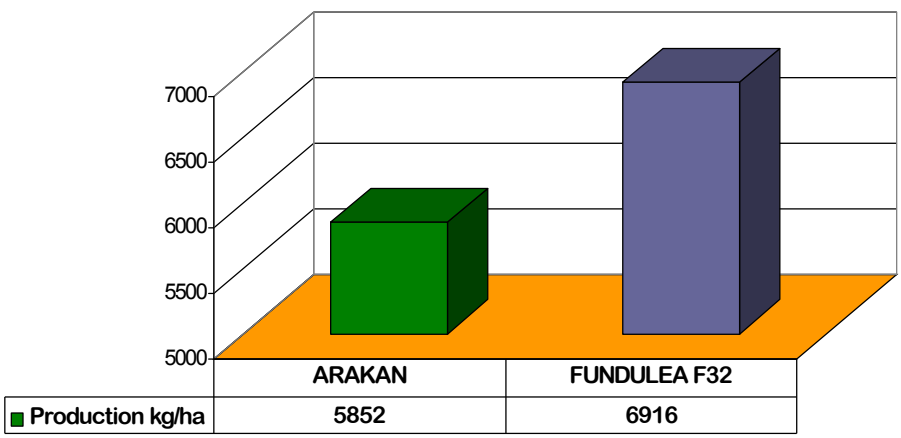

Figure 2. Grain production in grain sorghum influenced hybrids studied in the experimental field from Răcăşdia of 2010

Table 2

Influence on the production of hybrid seeds in sorghum grain in 2010

Hybrid	Production kg/ha	%	Difference kg/ha	Significance
ARAKAN	5852	100	-	
FUNDULEA F32	6916	123	1129	xxx

Dl 5% = 483kg/ha; Dl 1% = 728kg/ha; Dl 0,1% = 1162kg/ha;

Hybrids studied in the research field plays an important role in shaping the conditions of production research.

In the figure above are presented graphically average production from sorghum grain in 2010 under the influence of hybrid research subject.

It appears that the best average production was obtained from hybrid F32 - 6916 kg / ha with a production increase production to witness 1129kg/ha being provided statistically very significant.

In Table 3 are derived from the production of grain sorghum grain harvest in the experimental field from Răcăşdia following interacţiuniii of the two factors studied (hybrid fertilization).

Table 3

Grain yields obtained under the influence of hybrid fertilization and sowing, the grain sorghum in 2010

Factorul A Hybrid	Factorul B- Fertilization					*A Factorial averages*			
						Production (kg/ha)	%	Difference (kg/ha)	Significance
	N0P0 K0	N80P80 K80	N160P80 K80	N240P80 K80	N160P160K 160				
ARAKAN	3684	4507	6066	7878	7125	5852	100	-	
FUNDULEA F32	4790	6233	6514	8550	8495	6916	118	1064	xxx

DL5%- 185kg/ha; DL1%- 237kg/ha; DL0,1%-307 kg/ha;

B Factorial averages

Production(kg /ha)	4237	5370	6290	8214	7810
%	100	127	148	194	184
Difference (kg/ha)	-	1133	2053	3977	3573
Significance		xxx	xxx	xxx	xxx

DL5%- 95kg/ha; DL1%- 110kg/ha; DL0,1%- 145 kg/ha;

In Table 3. average sorghum yields are results mellitus under the influence Răcăşdia hybrids and fertilization in 2010.

The analysis results shows that, yields are strongly influenced by the interaction between hybrid and fertilization . In conditions of 2010 the best results are obtained and fertilized hybrid N240P80K80 F32.

Best yields are obtained in all variants of the hybrid fertilization F32 - 6916kg/ha. Analysis of the production potential of the 4 variants compared with the production version

control (N0P0K0) shows that all variants are considered superior to that witness. Production gains made by the four variants that are statistically very significant.

CONCLUSIONS

In the experimental field of Caras-Severin Răcăşdia there were good results in the production of sorghum grain to grain.

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

The soil that was placed for nutritional support experience ensures good plant growth and grain sorghum.

Grain production in grain sorghum influence varies according to factors under study (hybrid and fertilization).

Under the influence of the best hybrids in grain production was achieved in Romanian hybrid F32 - 6916kg/ha.

The variants were sown under the influence of fertilization achieved the best production from N240P80K80 version with an average production of 8214kg/ha.

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