

## **PRODUCTION POTENTIAL OF GRAIN SORGHUM (SORGHUM B.VAR. EUROSORGHUM) UNDER THE INFLUENCE OF FERTILIZATION AND HYBRIDS STUDIED**

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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 fitom 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 (CO<sub>2</sub>), while other crops, eg cereals, only 3 to 10 tons per year CO<sub>2</sub>/ha . It should be noted that the sorghum plant is not lost anything after processing. 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.

**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 (NOPOK0)

B2 = N80P80K80,

B3 = N160P80K80,

B4 = N240P80K80,

B5 = N 160 P 160 160K

### RESULTS AND DISCUSSION

Production results obtained from the interaction of the two experimental factors (hybrid - A and fertilization - B) studied are presented in Table 1 highlights some essential elements.

Table 1.

The average yields of grain produced under the influence agrofond and grain sorghum hybrids

Factor A Hibrid	Factor B- Fertilization					A - Media Factor			
						Yield (kg/ha)	%	Differe nce (kg/ha)	Significa nce
	NOP0 K0	N80P80 K80	N160P80 K80	N240P80 K80	N160P160K 160				
ARAKA N	702	1241	1580	1607	1593	1345	10 0	-	
FUNDUL EA F32	1975	2035	2080	3123	2352	2313	17 2	968	xxx

DL5% - 166kg/ha; DL1% - 227kg/ha; DL0,1% - 478kg/ha;

Yield (kg/ha)	1339	1638	1830	2365	1973
%	100	122	137	177	147
Difference (kg/ha)	-	299	491	1026	624
Significance		xxx	xxx	xxx	xxx

DL5%- 197kg/ha; DL1%- 249kg/ha; DL0,1%- 486 kg/ha.

Production results obtained from the interaction of the two experimental factors ( hybrid - A and

fertilization - B ) studied are presented in Table 1. shows the following :

- yields are strongly influenced by the interaction between hybrid and agrofond ;

As in other years of production , the best grain yields obtained hybrid F32 - 2313kg/ha , increase

production of 968 kg / ha is provided statistically very significant to Arakan hybrid production .

Analysis of the production potential of the five agro agrofunds shows that strongly influence grain

yield in the two hybrids even under less favorable weather for crops including sorghum grain .

The agro N80P80K80 average yield of grain is higher than 299kg/ha 1638kg/ha with production carried out agro fertilized 1939kg/ha . Production growth achieved is provided statistically very significant. Increasing doses of nitrogen from 160kg/ha to agrofond and 240 kg / ha et al spore production was determined that 491kg/ha 1026kg/ha statistically as very significant.

In terms of doubling doses of NPK in rotation P160K160 its output is obtained on the agro in the NPK ratio is 2:1:1 ie N160P80K80 .

In agricultural practice is not justified doubling the dose of phosphorus and potassium , yields obtained do not justify the extra cost of increasing doses of phosphorus and potassium. Analysis of grain production in two grain sorghum hybrids obtained influenced agrofond ( hybrid interaction agrofond ) highlights the agro F32 hybrid production with N240 , where to get the highest yield of grain in 2012 , 3123kg/ha is the recommended option to be applied to grain sorghum fertilization in terms of the Răcăjdia - Caras Severin .

### CONCLUSIONS

Results of research conducted on sorghum grain in terms of Caras Severin Racasdia allow us to draw some conclusions about the influence of hybrids and fertilization on grain production.

In the experimental field from Caras-Severin Racasdia were recorded good results obtained in sorghum grain yields.

Climatic conditions during sowing and harvesting were largely positive influence on the level of the sorghum grain yield.

The soil on which were placed the experiences they provide nutritional support for proper growth and development of grain sorghum plants.

Grain yield in grain sorghum differs depending on the influence of the studied (hybrids, fertilization).

Interacting hybrid fertilization strong influence on sorghum grain yields.

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