

# CULTURE RESULTS ON GRAIN SORGHUM (SORGHUM B.VAR. EUROSORGHUM) IN THE TERRITORY RĂCĂȘDIA, CARAȘ-SEVERIN

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**REZUMAT.** Având în vedere faptul că fertilizarea este una din măsurile care, aplicate corespunzător, duc la creșterea producției și implicit calității acestora, multe cercetări efectuate în ultimul timp s-au axat pe găsirea unor formule optime pentru aceasta. Hibridul Joacă și el, un rol important în formarea producției. Lucrarea de față își propune să analizeze efectul fertilizării și hibridilor luați în studiu, asupra producției de boabe la sorgul pentru boabe (*Sorghum B.var. Eurosorghum*). Din analiza rezultatelor privind producția de boabe, se constată că aceasta e influențată mai mult de fertilizare decât de hibrid. Diferențele dintre variante privind producțiile de boabe sunt mai evidente în cazul variantelor sub efectul fertilizării luate în studiu. Din analiza rezultatelor privind producțiile de boabe se constată că în majoritatea variantelor experimentale realizate prin utilizarea fertilizării, producția de boabe depășește 6500 kg/ha. Cele mai mari valori ale producției de boabe se înregistrează la varianta fertilizată N240P80K80 – 6770 kg/ha și la hibridul FUNDULEA F32 – 5523 kg/ha.

**Cuvinte cheie:** sorgul pentru boabe, fertilizare, hibrid, boabe, calitate.

**ABSTRACT.** Given the fact that fertilization is one of the measures which, properly applied, lead to increased production and hence its quality, more research carried out lately have focused on identifying the optimal formula. This paper aims to analyze the effect of fertilization and hybrids studied, the grain production in grain sorghum (*Sorghum B.var. Eurosorghum*). The analysis results on the production of grain, it appears that it is influenced more than the hybrid fertilization. Differences between the versions on grain yields are more evident if variants studied under the effect of fertilization. The analysis results on grain production is found in most versions made by using experimental fertilization, grain yield than 6500kg/ha. The highest values of grain yield recorded in the variant fertilized N240P80K80 - 6770kg/ha and hybrid FUNDULEA F32 - 5523kg/ha.

**Keywords:** sorghum grain, fertilizer, hybrid seeds and quality.

## 1. INTRODUCTION

Grain sorghum is a very important cereal for human food and animal feed. In China and Africa, flowers, leaf sheaths and obtain a dye used to dye fabrics, wool and leather. In many parts of the world, sorghum was traditionally used as food variety, such as porridge, unleavened bread, cookies, cakes, couscous and various soft drinks and alooice. Traditional cooking of sorghum is quite varied, boiled sorghum grains as one of the simplest products. Whole grains can be shown that ground flour or shelled before grinding, which then are used in different traditional foods. The sorghum grain quality and quantity seeks direct fertilization of grain production, for which 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 a favorable effect and phosphorus. Doses applied in the world today vary, depending on experimental conditions. Grain yield of sorghum grain, is very influenced by

the technology used (especially fertilizer) that determines the quality and increase production.

## 2. MATERIAL AND METHOD

Experience has been placed in specific climatic conditions Caraș-Severin Răcășdia 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 bifactorial, with annual repeat. F32 and Arakan hybrids were used in the experiment.

FACTOR A: variety (hybrid)

A1: F32 Fundulea

A2: Arakan

Factor B = B, fertilization system

B1 = unfertilized (N0P0K0)

B2 = N80P80K80,

B3 = N160P80K80,

B4 = N240P80K80,

B5 = N160P160K.

### 3. RESULTS

Production results obtained under the influence of fertilization and hybrid studied in experimental sorghum grain in 2011

Production results obtained under the influence of fertilization on grain sorghum

Production environments under the influence of fertilization on grain sorghum in 2011 are presented in table 1 and figure 1.

Table 1

**Influence of fertilization on grain sorghum production in the experimental year 2011**

| Fertilization | Production [kg/ha] | %   | Diference | Significance |
|---------------|--------------------|-----|-----------|--------------|
| NOP0K0        | 3825               | 100 | -         |              |
| N80P80K80     | 4680               | 122 | 855       | xx           |
| N160P80K80    | 5230               | 137 | 1405      | xxx          |
| N240 P80K80   | 6770               | 177 | 2945      | xxx          |
| N160P160K160  | 5635               | 147 | 1810      | xxx          |

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

Table 1 and figure 1 show that grain yield of sorghum grain is positively influenced by doses up to 240 kg/ha nitrogen, where most production is obtained which has the highest average production

increase of 2945kg/ha, which is provided statistically very significantly.

The average yield reached N160P160K160 version 5635kg/ha and made to increase production yields from the version is 1810kg/ha NOP0K0. Production increase is statistically as very significant.

Average grain yields over 5000kg/ha were recorded variants N160P80K80 - 5230kg/ha and N160P80K80 - 5625kg/ha, both with production increases statistically as very significant.

Positive production increase obtained N80P80K80 version that 855kg/ha is provided statistically significantly distinct from production control.

The results obtained from grain sorghum in terms of 2011 shows that fertilization plays an important role in achieving certain production levels are related and environmental conditions of that year.

Production results obtained under the influence of the sorghum grain hybrids.

Table 2

**Hybrid influence on grain yield in sorghum grain in 2011**

| Hybrid       | Production [kg/ha] | %   | Diference | Significance |
|--------------|--------------------|-----|-----------|--------------|
| ARAKAN       | 4933               | 100 | -         |              |
| FUNDULEA F32 | 5523               | 112 | 590       | x            |

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

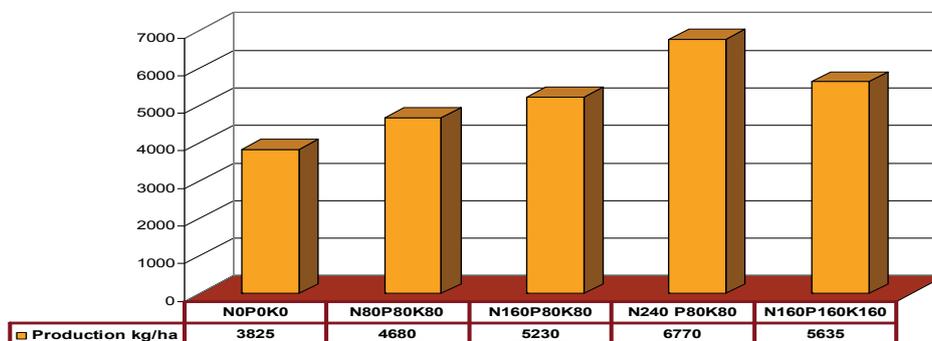


Fig. 1. Grain production in grain sorghum influence fertilization in the experimental field from Răcășdia of 2011.

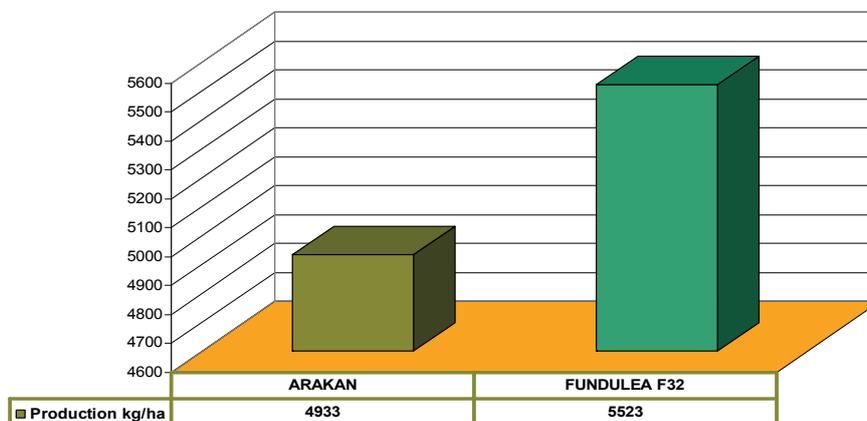


Fig. 2. Grain production in grain sorghum influenced hybrids note at experimental field study in 2011 Răcășdia.

Grain yields obtained under the influence of fertilization and sowing hybrid to grain sorghum in 2011

| Factor A Hybrid | Factorul B- Fertilization |           |            |            |              | Media factor A     |     |                   |              |
|-----------------|---------------------------|-----------|------------|------------|--------------|--------------------|-----|-------------------|--------------|
|                 |                           |           |            |            |              | Production [kg/ha] | %   | Diference [kg/ha] | Significance |
|                 | N0P0K0                    | N80P80K80 | N160P80K80 | N240P80K80 | N160P160K160 |                    |     |                   |              |
| ARAKAN          | 3634                      | 4098      | 4806       | 6724       | 5405         | 4933               | 100 | -                 |              |
| FUNDULEA F32    | 4016                      | 5262      | 5654       | 6816       | 5865         | 5523               | 112 | 590               | xxx          |

DL5%- 178kg/ha; DL1%- 247kg/ha; DL0.1%-315kg/ha;

Mediile Factorului B

|                    |      |      |      |      |      |
|--------------------|------|------|------|------|------|
| Production [kg/ha] | 3825 | 4680 | 5230 | 6770 | 5635 |
| %                  | 100  | 122  | 137  | 177  | 147  |
| Diference [kg/ha]  | -    | 855  | 1405 | 2945 | 1810 |
| Significance       |      | xxx  | xxx  | xxx  | xxx  |

DL5%- 82kg/ha; DL1%- 96kg/ha; DL0.1%- 131 kg/ha.

Hybrids take the field research study (Arakan and Fundullea F32) plays an important role in shaping the conditions of production in 2011.

In the figure above are graphically average production in 2011 in grain sorghum hybrids under the influence of research subjects. It appears that the best average production was achieved in hybrid F32 - 5523 kg/ha with a production increase production to be provided witness 590 kg/ha statistically significant.

Production results obtained from the interaction of the two experimental factors (hybrid - A and fertilization - B) study in 2011 are presented in table 3 and highlights some key elements. The analysis of results shows that yields are strongly influenced interaction of hybrid fertilization.

As in 2010 the best results are obtained and fertilized hybrid F32 N240P80K80 - 5523kg/ha.

Good yields are obtained and fertilization conditions N160P160K160 hybrid F32 - 5635kg/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 increases made by the four variants that are statistically very significant.

## 4. CONCLUSIONS

Results of research conducted on grain sorghum in 2011 in terms of experimental Răcășdia Caras Severin allow us to draw some conclusions regarding the influence of fertilization on production and hybrids. Climatic conditions during sowing and harvest were largely favorable influence on the level of grain sorghum yields. Soil that were located experiences, they provide nutritional support for good plant growth and grain sorghum. Grain yield in sorghum grain varies by influence factors taken into study (hybrids, fertilization).

## BIBLIOGRAPHY

- [1] Drăghici Iulian, Gheorghe Dumitru, Mărinică Gheorghe, Șearpe Doina, Antohe Ioan, *Tehnologia de cultivare a sorgului hibrid pentru boabe pe solurile nisipoase irigate*, Stațiunea de Cercetare-Dezvoltare pentru Cultura Plantelor pe Nisipuri Dăbuleni, pag. 2-5, 2010.
- [2] Gheorghe Bilteanu, *Fitotehnie*, vol. 1, Editura Ceres, 2003, pag. 343-357.
- [3] Ion Antohe, *Realizări în ameliorarea sorgului la Fundulea*, an. I.N.C.D.A. Fundulea, vol. LXXV, 2007, volum jubiliar, pag. 137-145.
- [4] Maria Toader, Gheorghe Valentin Roman, *Importanța speciilor de cereale și pseudocereale pentru agricultură și alimentația umană*.

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