

EFFECT OF FERTILIZATION ON YIELD OF MAIZE HYBRID AND THE MASS OF GREEN SORGHUM MELLITUS (*SORGHUM BICOLOR* (L.) MOENCH)

Liviu MUNTEANU, Valeriu TABĂRĂ

Universitatea de Științe Agricole și Medicină Veterinară a Banatului, Timișoara

REZUMAT. Având în vedere faptul că fertilizarea este una din măsurile care, aplicate corespunzător, duc la creșterea producției și implicit a calității acestora, multe cercetări efectuate în ultimul timp s-au axat pe găsirea unor formule optime pentru aceasta. Lucrarea de față își propune să analizeze efectul fertilizării și hibridizării luate în studiu, asupra producției de masă verde la sorgul zaharat (*Sorghum bicolor* (L.) Moench). Din analiza rezultatelor privind producția de masă verde, se constată că aceasta e influențată mai mult de fertilizare decât de hibrid. Diferențele dintre variante privind producțiile de masă verde sunt mai evidente în cazul variantelor sub efectul fertilizării luate în studiu. Din analiza rezultatelor privind producțiile de masă verde se constată că în majoritatea variantelor experimentale realizate prin utilizarea fertilizării, producția de masă verde depășește 55t/ha. Cele mai mari valori ale producției de masă verde se înregistrează la varianta fertilizată N240P80K80 – 55,30t/ha și la hibridul FUNDULEA F135ST – 42,8t/ha.

Cuvinte cheie: sorg zaharat, fertilizare, hibrid, masă verde, 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 mass production of green sorghum (*Sorghum bicolor* (L.) Moench). The analysis results on the production of green mass indicates that it is influenced more than the hybrid fertilization. The differences between variants of green mass yields are more apparent when the variants studied under the effect of fertilization. The analysis results on the production of green mass is found in most versions made by using experimental fertilization, production of green mass than 55t/ha. The highest values of mass production Green records the variant fertilized N240P80K80 - 55.30 t / ha and hybrid FUNDULEA F135ST - 42.8 t / ha.

Keywords: sorghum, fertilization, hybrid, green, quality meal.

1. INTRODUCTION

The most important category of diabetes, sorghum sorghum is considered to be the most productive in terms of obtaining of biomass for food, juice and spirits for biofuels. Sweet sorghum is extracted from a sweet juice, rich in sucrose uses very varied and energy fitomass. In China and Africa, from flowers, leaves and sheaths are used to obtain a stofelor dye-dyeing, wool and leather. In many parts of the world, sorghum has been used traditionally as food, such as: mush bread, cookies, cakes, couscous, and various soft drinks and alooice. Preparation of traditional foods of sorghum is pretty varied, sorghum grains cooked and is one of the simplest products. Wholegrain cereals can be presented as a meal, flour, or shelled before crumbling, which are then used in various traditional food. In the cuisine of the southern United States, sorghum syrup is used as a sweet

condiment, usually for biscuits, corn bread, pancakes, cereals, and beans. Sweet sorghum to watch quality mass fertilization direct and green juice, that is why it is recommended for food purposes, growing on fertile soils. In favourable conditions, conducive to sorghum reacts with nitrogen fertilization both with regard to the level of harvest (green mass, in the present case), and the protein content in the dry areas, favourable effect presents and phosphorus. Doses of fertilizer prices in the world today, and vary depending on the quality and quantity of the product which we want to achieve in the end, the study of the plant taken in, and experience of the conditions used.

2. MATERIAL AND METHOD

Experience has been placed in specific climatic conditions Caras Severin Răcasdia village. Experi-

mental 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. F135ST and Primsilo hybrids were used in the experience.

FACTOR A: variety (hybrid)

A1: F135 ST Fundulea

A2: Primsilo

Factor B = B, fertilization system

B1 = unfertilized (N0P0K0)

B2 = N80P80K80,

B3 = N160P80K80,

B4 = N240P80K80,

B5 = N160P160K160K

3. RESULTS

Production results obtained under the influence of fertilization in sweet sorghum in experimental mass media 2011 green

Productions under the influence of fertilization on grain sorghum experimental diabetes in year 2011 are listed in table 1 and figure 1.

Table 1

Influence of nutrients on production of green mass in experimental diabetes sorghum in year 2011

Fertilization	Production [t/ha]	%	Diference	Significance
N0P0K0	21.33	100	-	
N80P80K80	35.15	165	13.82	
N160P80K80	41.23	193	19.9	
N240 P80K80	55.30	259	33.97	
N160P160K160	49.11	230	27.78	

DI 5% = 2.28 t/ha; DI 1% = 3.97 t/ha; DI 0.1% = 5.85 t/ha.

Table 1 and in Figure 1 show that mass production green sorghum is positively influenced by increasing nitrogen doses up to 240 kg/ha, at which the largest production increase.

Mass production of green sorghum under the influence of fertilization ranged from 21.33 t/ha, the variant fertilized and 55.30 t/ha fertilized variant N240P80K80.

Compared with the control value of production very significant positive differences are found in all four variants studied fertilized.

The production version N240P80K80 increase compared to the control value of 36.97 t/ha, which provided a production increase of 55.30 t/ha and the statistically very significant is assured to witness production.

Production results obtained under the influence of fertilization on sorghum experimental diabetes in 2011

In table 2 and figure 2 average yields are presented by green mass in patients under the influence of sorghum hybrids in 2011.

Table 2

Influence on mass production hybrid sorghum green in 2011 at Răcășdia experimental

Hybrid	Production [t/ha]	%	Diference	Significance
PRIMSILLO	37,99	100	-	
FUNDULEA F135ST	42.8	113	4.81	xxx

DI 5% = 2.16t /ha; DI 1% = 2.56 t/ha; DI 0.1% = 4.77 t/ha.

Hybrid formation plays an important role in production.

Average production of green mass in sorghum ranges from 37.99 t/ha - Primsilo to 42.8 t/ha - F135ST.

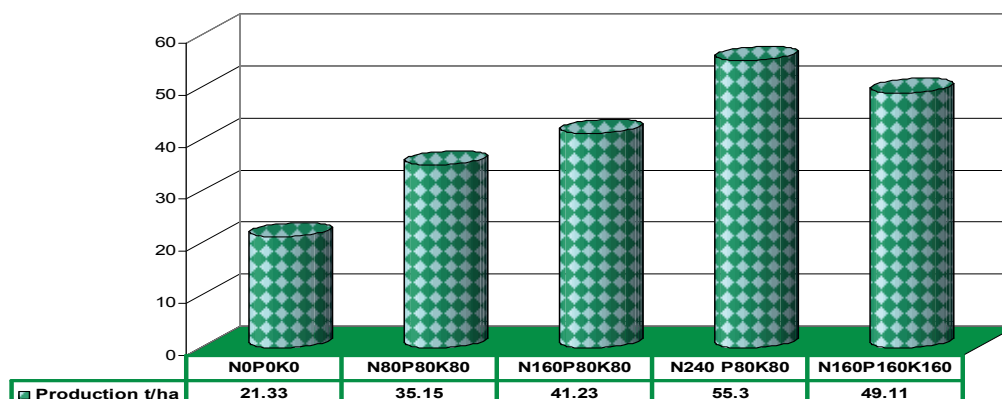


Fig. 1. Production of green mass on sorghum diabetes under the influence of fertilization on field experiment of Răcășdia 2011.

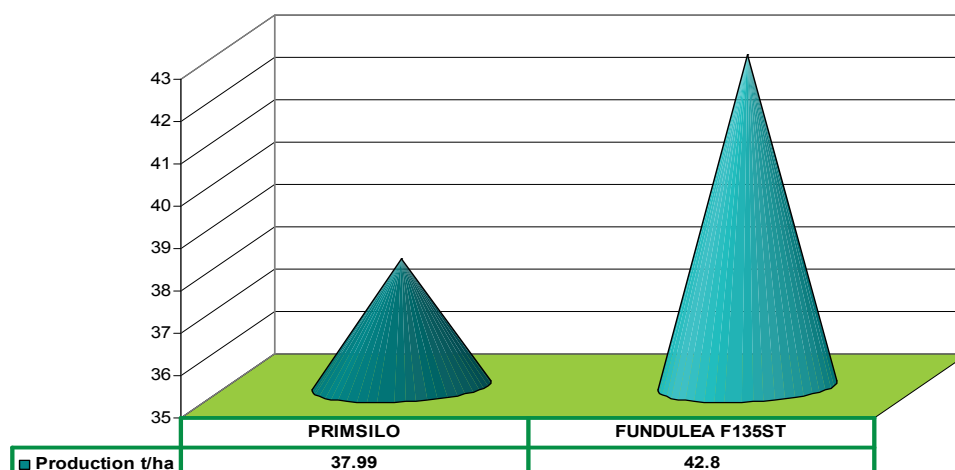


Fig. 2. Mass production of green sorghum hybrids under the influence of the experimental field in 2011 Răcășdia.

Hybrid production F135ST positive difference is 4.81 t/ha and is provided statistically very significant to production control.

Figure 2. graphics are average production in 2011 to influence sorghum hybrids studied.

It appears that the best Romanian hybrid is completed F135ST - 42.8 t/ha.

Table 3 presents the results of the harvest of green mass under the influence of two factors taken into study (hybrid and level of fertilization), obtained in the experimental field of sorghum from Răcășdia in 2011.

Thus the influence of hybrid was obtained an average, green mass of 42.8 t/ha, with an increase of production of 4.81 t/ha, provided statistically significantly distinct.

Fertilization plays a role in increasing the production of green mass in sorghum.

The average yield of 60.4 N240P80K80 variant t/ha is 36% higher than the production version control, which is made to a production increase of 33.97 t/ha and is provided statistically very significant. On the average N160P160K160 version is 49.11 t/ha with a production increase obtained from the 27.78 version N0P0K0 t/ha provided statistically very significant.

Harvests variants N160P80K80 N80P80K80 and bring an increase of production from the control of 13.82 t/ha respectively 19.9 t/ha in the analysis as very significant.

Table 3

Green mass yields obtained under the influence of fertilization and sowing hybrid in sorghum in 2011

Factor A Hybrid	Factorul B- Fertilization					A Factorial averages			
						Production [t/ha]	%	Diference [t/ha]	Significance
	N0P0K0	N80P80K80	N160P80K80	N240P80K80	N160P160K160				
PRIMSIO	20.43	33.1	39.12	50.2	47.1	37.99	100	-	
FUNDULEA F135ST	22.23	37.2	43.34	60.4	51.12	42.8	113	4.81	xx

DL5%-2.97 t/ha; DL1%-4.04t/ha; DL0.1%-5.18t/ha

Media Factor B

Production [t/ha]	21.33	35.15	41.23	55.30	49.11
%	100	165	193	259	230
Diference [t/ha]	-	13.82	19.9	33.97	27.78
Significance		xxx	xxx	xxx	xxx

DL5%= 1.89 t/ha. DL1%= 2.85 t/ha. DL0.1%= 4.11 t/ha

4. CONCLUSIONS

In the experimental field of Caras-Severin, Răcășdia occurred well in mass production of green sorghum.

Climatic conditions during sowing and harvesting of experimental year, largely had a favorable influence on the level of green mass yield from sweet sorghum.

Soil where they were located experiences provide nutritional support for good plant growth and development of sorghum.

Mass production green sorghum varies by influence factors taken into study (hybrid and fertilization).

Under the influence of production hybrids best hybrid Romanian bagasse was obtained F135ST - 42.8 t/ha. The variants were sown under the influence of fertilization achieved the best production from

N240P80K80 version with an average production of 55.30 t/ha.

BIBLIOGRAPHY

- [1] Antohi Ioan, Benczik Ioan, Borcean Ioan, Butnaru Gallia, Cahiță Cosma Dorina Ciucanu Ion, Drăgulescu Aurel, Drănceanu Dan, Ghidău Sorin, Goian Mircea, Lăzureanu Aurel, Matu Sorin, Neguț Gheorghe, Onu Nicolae, Otiman Păun, Papură Dumitru, Pop Augustin, Rokost Tican Lenuța, Roosz Sorina Dana, Rusu Ioan, *Tabără Valeriu*, Table Liviu, Zapirtan Maria, *sorgul zaharat*"- monografie, 1991, USAB Timișoara, editura Helicon, Timișoara,
- [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*.

Despre autor

Drd. ing. **Liviu MUNTEANU**

Șef serviciu, Camera Agricolă a județului Caraș-Severin. Elaborator proiecte FEADR; devize lucrări pajiști, pășuni, fânețe; documentații agricultură ecologică; proiecte și documentații tehnologice pentru ferme zootehnice, vegetale etc. A participat la diferite manifestări științifice, târguri interne și internaționale.