

PARTIAL RESULTS REGARDING THE ESTABLISHMENT OF THE NUTRITION SPACE FOR FODDER SORGHUM IN THE CENTRAL AREA OF OLTENIA

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ABSTRACT

Plant density is the technological element that achieves the balance between environmental conditions (light, temperature, water, nutrients) and the generic characteristics of the species, soil and cultivated hybrid.

In this sense, if we refer both to the density but also to the distance between the rows of fodder sorghum cultivated on the luvisol from SCDA Șimnic Craiova, we find that the level of production is closely related to them.

Thus, the grain production had values from 5.2 t/ha grains dry matter when sowing was carried out at a distance of 25 cm between rows with a density of 75 thousand pl/ha and 9.5 t/ha grains dry matter, respectively 75 cm between rows and using a density of 150 thousand pl/ha.

The crop increase was in the latter case the highest, namely 4.3 t/ha of grains dry matter compared to the control studied.

INTRODUCTION

The realization of large productions is conditioned by the good knowledge of the vegetation factors and their level of assurance in the existing ecological conditions, as well as by the adaptation of the plants to them. (Antahe, I. et al., 1982; Cotigă, C., 2003).

Increasing the number of plants grown per unit area leads to increased water consumption of plants. (Bîlteanu, Gh. et al., 1972)

In the case of strongly twinning crops (such as cereal grains and sorghum in our case) when the foliar surface of the same size is made, the water consumption does not change much under the influence of density. (Szalaky, 1974 quoted by Sipoș, Gh. et al., 1981).

Increasing the number of plants grown per hectare reduces plant production, but increasing the number of plants ensures a continuous increase in production per hectare to a level of density. At this optimum density the maximum production

is formed. (Moga, I., 1987; Cotigă, C., 2012).

MATERIAL AND METHOD

The experiment was located on the luvisol from SCDA Șimnic Craiova, in the spring of 2020.

The method of placing the experiment was in plots subdivided with two factors (bifactorial) as follows:

Factor "A" - distance between rows, with 3 graduations

a1 = 25 cm

a2 = 50 cm

a3 = 75 cm

Factor "B" - sowing density, with 4 graduations

b1 = 75 thousand pl/ha

b2 = 150 thousand pl/ha

b3 = 225 thousand pl/ha

b4 = 300 thousand pl/ha

The agro-fund used was P50 K50, with the mention that the phosphorus and potassium were incorporated under the basic work of the soil (ploughing).

Sowing was carried out in the first decade of May 2020. Harvesting was done at full maturity, from each variant-repetition

taking samples of both grains and straws and leaves to determine the dry matter.

RESULTS AND DISCUSSION

If we analyse the results obtained and presented in table 1 regarding the

effect of the nutrition space on the production of grains in sorghum cultivated for fodder on Luvisol from SCDA Șimnic Craiova we record the following:

Table 1

Influence of nutrition space on grain production in fodder sorghum t/ha dry matter (2020)

Distance between rows cm	Density thousand pl/ha	Absolute production	Relative production%	Difference	Significance
25	75	5,2	100	H/T	-
	150	7,4	142	2,2	**
	225	6,2	119	1,0	*
	300	5,0	96	-0,2	-
50	75	7,1	137	1,9	*
	150	8,5	163	3,3	***
	225	7,2	138	2,0	*
	300	6,1	117	0,9	-
75	75	7,2	138	2,0	*
	150	9,5	183	4,3	***
	225	8,2	158	3,0	**
	300	1,6	146	2,4	**

DL 5%

DL 1%

DL 0,1%

1,0 t/ha dry matter

2,1 t/ha dry matter

3,3 t/ha dry matter

- grain production ranged from 5,2 t/ha dry matter in the variant in which the sowing was carried out at a distance of 25 cm between rows with a density of 75 thousand pl/ha respectively 9,5 t/ha dry matter in the variant at 75 cm distance between rows and the density being 150 thousand pl/ha;

- if we follow the progress of grain production on each distance between rows and density we find that at 25 cm between rows, grain production was between 5.2 - 6.2 t/ha of grain dry matter and the maximum production obtained

being at a density of 225 thousand pl/ha; at 50 cm between rows, the grain production was between 7.1 - 8.5 t/ha grain dry matter with the maximum level achieved at a density of 150 thousand pl/ha; at a distance of 75 cm between rows, the grain production was between 7.2 - 9.5 t/ha grain dry matter with the maximum production achieved at a density of 150 thousand pl/ha.

Regarding the influence of the distance between the rows on the production of grain dry matter (Figure 1) we find the following:

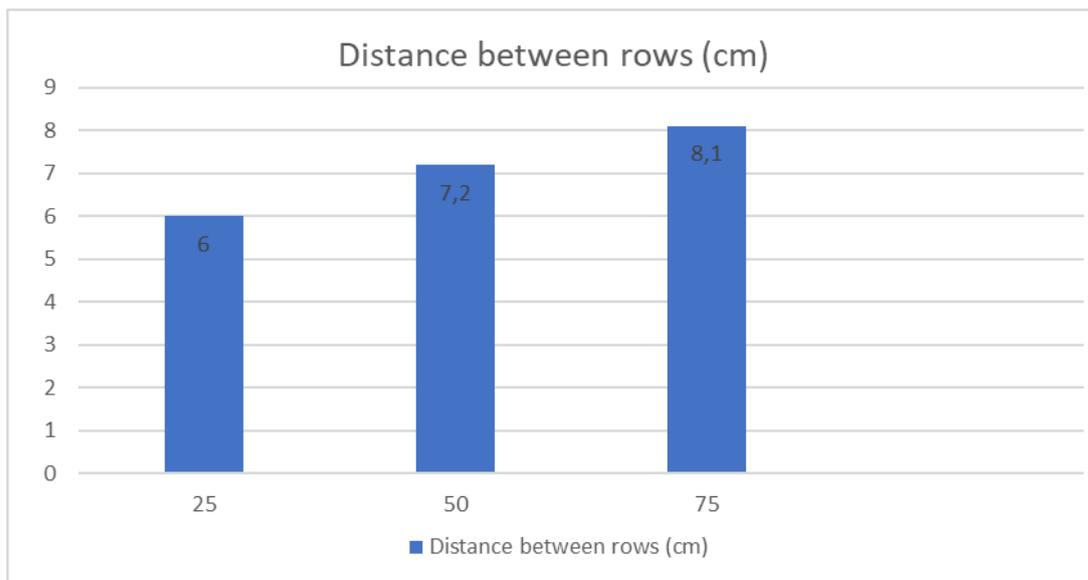


Fig. 1. Effect of row spacing on grain production in fodder sorghum on luvisol in the central area of Oltenia (2020)

- at a distance of 25 cm between rows, a production of 6,0 t/ha grain dry matter was obtained, at a distance of 50 cm between rows the production was 7,2 t/ha grain dry matter with an estimated significant increase compared to the control hybrid, and at a distance of 75 cm

between rows, the grain production was 8.1 t/ha grain dry matter, at which the increase was statistically significant compared to the considered control hybrid.

If we refer to the density factor (Figure 2) we find the following:

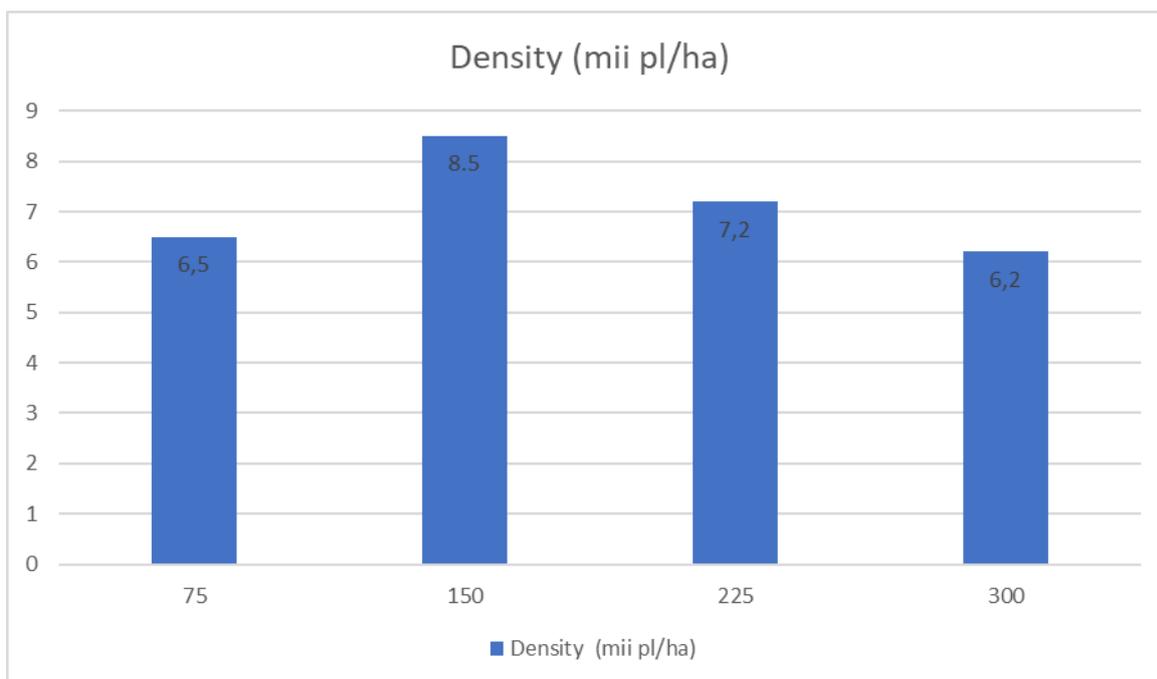


Fig.2. Effect of sowing density on grain production in fodder sorghum

- at a density of 75 thousand pl/ha a production of 6.5 t/ha grain dry matter was obtained;

- at a density of 150 thousand pl/ha, the grain production was 8.5 t/ha grain dry matter, practically the highest crop and the increase brought was very statistically significant compared to the considered control hybrid;

- at a density of 225 thousand pl/ha the production started to produce at the level of 7,2 t/ha grain dry matter with a statistically significant sorghum;

- at a density of 300 thousand pl/ha, grain production decreased to 6,2 t/ha of grain

CONCLUSIONS

Based on the results obtained and presented previously, we can record the following conclusions:

- sowing of sorghum for fodder at a distance of 75 cm between rows leads to a fairly good grain production and over 8,1 t/ha dry matter;

- the smaller the sowing distance, the lower the proportion of grain production;

- the density of 150 thousand pl/ha seems to be the one indicated for the first stage of the cycle compared to the other variants studied, and which brings a very significant increase in production (grain production being 8.5 t/ha dry matter).

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