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RESEARCH ON ESTABLISHMENT OF TEHNOLOGICAL LINKS TO *GYPSOPHILA PANICULATA* L. ON SANDY SOILS

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ABSRACT. Diversifying the range of plants grown on sandy soils, by introducing the culture of some species able to exploit existing natural conditions and which also contributes to their setting is a necessity. Research conducted at Central Research Station for Agricultural Plants on Sandy Soils of Dăbuleni, Dolj county, Romania, in *Gypsophila paniculata L.* in sandy soil conditions, have demonstrated the possibility of introducing the culture of this species to exploit these types of higher ground. In type bifactorial experience was aimed at establishing the distance between the lines and the amount of useful seed, used for sowing, taking into study four distances between rows (37.5 cm, 50 cm, 62.5 cm and 75 cm) and three standard seed (4 kg / ha and 6 kg / ha and 8 kg / ha). The standard distance between rows and sowing the seed used in the production of roots influences. Normal growth of seed from 4 kg / ha to 6 kg / ha and 8 kg / ha is not justified in terms of production. By sowing at a distance of 62.5 cm between rows, using a quantity of seed sown useful to 4 kg / ha, there was a production of 11 t / ha, which enables us to opt for inclusion in the culture of the species *Gypsophila paniculata* L. sandy soils in southern Oltenia.

Key words: *Gypsophila paniculata*; Sandy soils; Distances between rows, The provision of seed; Roots production.

REZUMAT. Cercetări privind stabilirea unor verigi tehnologice la *Gypsophila paniculata* L. pe solurile nisipoase. Diversificarea sortimentului de plante cultivate pe solurile nisipoase, prin introducerea în cultură a unor specii capabile să valorifice condiţiile naturale existente şi care să contribuie, totodată, la fixarea acestora se impune ca o necesitate. Cercetările efectuate la CCDCPN Dăbuleni-Dolj, la *Gypsophila paniculata* L., în condiţiile solurilor nisipoase, au demonstrat posibilitatea introducerii în cultură a acestei specii, în vederea valorificării superioare a acestor tipuri de sol. Într-o experienţă de tip bifactorial, s-a urmărit stabilirea distanţei dintre rânduri şi a cantităţii de sămânţă utilă, folosită la semănat, luîndu-se în studiu patru distanţe între rânduri (37,5 cm, 50 cm, 62,5 cm şi 75 cm) şi trei norme de sămânţă (4 kg/ha, 6 kg/ha şi 8 kg/ha). Atât distanţa dintre rânduri, cât şi norma de sămânţă

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folosită la semănat influențează producția de rădăcini. Creşterea normei de sămânță de la 4 kg/ha la 6 kg/ha, respectiv 8 kg/ha, nu se justifică din punctul de vedere al producțiilor realizate. Prin semănatul la distanța de 62,5 cm între rânduri, folosind o cantitate de sămânță utilă la semănat de 4 kg/ha, s-a realizat o producție de 11 t/ha, care ne îndreptățește să optăm pentru introducerea în cultură a speciei *Gypsophila paniculata* L. pe solurile nisipoase din sudul Olteniei.

Cuvinte cheie: *Gypsophila paniculata* L.; soluri nisipoase; distanțe între rânduri; norma de sămânță; producție rădăcini.

INTRODUCTION

Due to low natural fertility, plus the semi-arid climatic conditions and wind deflation, the area is sandy soil in the agricultural landscape of the area, an area with disabilities, where farmers have available a small range of species of crops, which soil conditions to maximize profitability (Şoimu *et al*., 2001, Mihaela Croitoru *et al*., 2009).

The main objective of the research in this area is to diversify the range of plants grown on sandy soils, by introducing the culture of some species able to exploit existing natural conditions and which also contributes to fixing them (Marinică *et al.,* 2003) . *Gypsophila paniculata* L. is a herbaceous perennial species that are grown for medicinal purposes, food and furniture. The raw material is the roots, which have wide use in the food industry, textiles, detergents, furs, the sparkling beauty and cosmetics.

The saponozids, such as triterpene, present in the roots, have a strong irritant action on tissues, relieves artificial membrane permeability changes, increasing fluid secretions and expectorant action. This species is fond of heat and light to moderate and humidity requirements is due to highly developed root system (Crăciun *et al*., 1977, Păun; 1986 and Racz *et al*., 1987). Sandy or sandy-clay soils allow better development of the deep roots of the plant and their removal easier. In order to take in the culture of this species was considered necessary to establish specific technological links sandy soils.

MATERIAL AND METHOD

To determine the distance between rows and quantity of seed used to sow conceived a two-way experience, the following factors: Factor A - distance between rows: a1 - 37.5 cm, a2 - 50 cm, A3 - 62.5 cm; a4 - 75 cm. Factor B - amount of useful seed, used for sowing: b1 - 4 kg / ha, b2 - 6 kg / ha, b3 - 8 kg / ha.

Experience has been established for three consecutive years. In each variant, sowing was done on four occasions. Harvesting of roots was the third year of culture, each variant, and the results were statistically interpreted.

RESULTS AND DISSCUSION

Analyzing the influence of the average distance between the rows offresh roots was a trend of increase in with increasing distance between the lines, from 37.5 cm to 50 cm, was produced growth of 0.9 t/ha (*Fig. 1*).

By increasing the distance between rows at 62.5 cm and 75 cm,

there were decreases in production. Depending on the distance between rows in *Gypsophila paniculata* L. root yields ranged between 9.4 t/ha and 10.3 t/ha.The effect of the quantity of seed used for sowing, it was found that root production varied in very narrow limits, ranging between 9.6 and10 t/ha *(Fig. 2).*

Using a quantity of seed and 4 kg/ha provided an average of 10 t/ha. Yields decreased with increasing amount of seed used for sowing at 6 kg/ha and 8 kg/ha, because increased plant density, root growth was hampered.

At the same distance between rows, the amount of seed used for sowing useful influenced by different root production *(Table 1).*

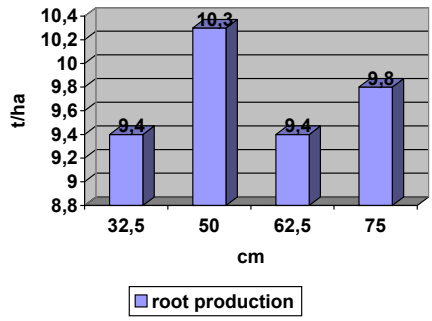

Figure 1 - Influence of distance between the lines on the production of fresh roots from *Gypsophila paniculata* L.

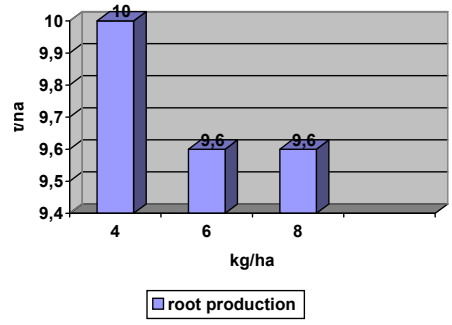

Figure 2 - Influence of amount of seed used for sowing on the production of fresh roots from *Gypsophila paniculata* L.

Table 1 - Influence of the seed production standard of roots at the same distance between the lines

Distance between rows (cm)	Rule seed (kg/ha)	Root production (t/ha)	Relative production (%)	Difference (t/ha)	Significance
32,5	4	8.6	92	-0.8	
	6	9.4	100	Mt.	
	8	10.1	107	+0.7	
50	4	10.6	104	+0.4	
	6	10.2	100	Mt.	
	8	10.2	100	0	
62,5	4	11.0	134	+2,8	*
	6	8.2	100	Mt.	
	8	9.1	111	+0.9	
75	4	9.9	94	-0.7	
	6	10.6	100	Mt.	
	8	9.0	85	-1,6	

DL 5% = 2,4 t/ha; DL 1% = 3.4 t/ha ; DL 0,1% = 4.6 t/ha

Thus, at a distance of 37.5 cm between rows, root production increased gradually with increasing the amount of seed used for sowing, 4 kg/ha to 8 kg/ha, resulting in production of 8.6 t/ha, when they used to sow seed, 4 kg/ha, 9.4 t/ha, when they used 6 kg seed/ha and 10.1 t/ha, a quantity of 8 kg seed/ha.

At a distance of 50 cm between rows, yields were very close in value, ranging between 10.2 and 10.6 t/ha, the highest yield being obtained for the variant that were used to sow, 4 kg/ha of seed.

The variants that sowed at a distance of 62.5 cm between rows, root production varied between wide limits, ranging between 8.2 and 11 t/ha, the highest yield being obtained by using a quantity 4 kg seed/ha, using the differences to the amount of seed sown 6 kg/ha, recommended on other soil types, being statistically significant.

At a distance of 75 cm between rows, yields increased with increasing root seed quantity of 4 kg/ha to 6 kg/ha and decreased with increasing amount of seed to 8 kg/ha.

CONCLUSIONS

Roots productions, obtained from *Gypsophila paniculata* in sandy soil conditions, demonstrates the possibility of introducing the culture of this species to exploit these types of higher ground.

The standard distance between rows and sowing the seed used in the production of roots influences.

It is recommended for sandy soils, sowing at a distance of 62.5 cm between rows, using a quantity of seed sown useful to 4 kg / ha.

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