

RESEARCH ON THE PRODUCTIVITY OF SOME FLAX VARIETIES FOR OIL IN BIHOR COUNTY

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Abstract

Flax, a plant with blue flowers and small brown seeds, is one of the oldest cultivated plants on earth, originating in India and China. It is cultivated in our country for its stems from which textile fibers are extracted and for the seeds from which a fatty oil is extracted, used both in painting and in medicine.

Key words: flax for oil, production, surface, repetition, parcel

INTRODUCTION

Flax is used to extract fibers and oil. Flax seeds are rich in oil and protein. Flax seeds for fiber contain 30-36% oil and flax varieties for oil up to 44%, after pressing results 60-70 kg cakes rich in protein, carbohydrates and fats, which is a high-quality concentrated feed in feeding animals in particular dairy cows with a beneficial effect on its quality.

MATERIAL AND METHODS

In 2018 we studied in Inand, Bihor county 3 varieties of flax: Lirina, Star and Elan. We sowed an experiment in 4 repetitions, the surface of the experimental parcel being 10 m² harvestable, at a distance of 12.5 cm between rows, at a density of 1000 germinating grains per m².

For the preparation of the land, a plowing of 30 cm was performed in the autumn of the previous year, and in the spring we performed a passage with a disc harrow at a depth of 8-10 cm. In order to have a quality of the germination bed before sowing, we performed a work with the combine.

The seed was executed at a depth of 2-3 cm with the Wintersteiger TC 2700 experimental seed drill.

Fertilization was carried out with complex fertilizers 20.20.20, 250 kg / ha in a dose of 50.50.50. active substance, ammonium nitrate 150kg /

ha in a dose of 50.0.0 active substance and in the vegetation a foliar fertilization with cropmax 11 / ha was performed.



Fig.1. Aspect in the experimental field

In order to maintain the crop, a herbicide was performed with dual gold EC 1.5 l / ha and in the cotyledon phase to control the pest *Aphthona euphorbiae* (earth flea) I sprayed with the insecticide Decis 2.5 CE 0,5 l / ha.

Harvesting was done with a combine for experiments.

Determination of MMB (mass of 1000 grains) and MHL (hectolitre mass) was made with the Perten AM 5200-A facilities.

RESULTS AND DISCUSSION

The productions obtained in 2018 for flax for lei varieties Lirina, Star and Elan vary between 1.7 kg and 2.5 kg / parcel with humidity between 8.0% and 10.5 %

Table 1

The results obtained on the experimental parcels

NO.	VARIETY	SURFACE AREA IN m ²				PRODUCTION/ PARCEL (KG)				HUMIDITY %				MMB (g)	MHL (kg)
		R ₁	R ₂	R ₃	R ₄	R ₁	R ₂	R ₃	R ₄	R ₁	R ₂	R ₃	R ₄		
1	LIRINA	10	10	10	10	2.1	2.3	2.5	2.4	8.2	8.4	8.6	8.6	6.7	71
2	ELAN	10	10	10	10	1.8	1.7	1.9	1.8	10.5	10.3	10.0	10.5	7.3	69
3	STAR	10	10	10	10	2.3	2.5	2.2	2.1	8.1	8.2	8.0	8.0	6.8	71

R₁,R₂,R₃,R₄ = repetitions 1,2,3 and 4

MMB= mass of 1000 grains

MHL= hectolitre mass

In table 1 are presented the productions of the flax varieties for oil Lirina, Elan, respectively Star on the experimental parcels repetitions 1,2,3 and 4, also at each production / repetition we have the humidity%.

The Lirina variety recorded yields per parcel between 2.1 and 2.5 kg, Elan between 1.7 and 1.9 kg and Star between 2.1 and 2.5 kg.

The highest mass of 1000 grains (MMB) was determined for the Elan 7.3g, Star 6.8g and Lirina varieties 6.7 g.

The hectolitre mass (MHL) is equal to the varieties Lirina and Star 71 kg and to Star is 69 kg.

Table 2

Calculation of productions per hectare at the humidity of 10%

NO.	VARIETY	Production / parcel / ha (kg)				Productions / parcel / ha at humidity of 10% in kg				Average productions /ha in kg
		R ₁	R ₂	R ₃	R ₄	R ₁	R ₂	R ₃	R ₄	
1	LIRINA	2100	2300	2500	2400	2142	2340	2538	2437	2363
2	ELAN	1800	1700	1900	1800	1790	1694	1900	1790	1794
3	STAR	2300	2500	2200	2100	2348	2550	2248	2146	2323

In order to be able to calculate the yields per hectare for each variety and to see the production differences between varieties, in table 2 we calculated the yields per parcel per hectare the repetitions 1,2,3 and 4 at the harvest humidities presented in table 1, then we calculated the productions / parcel / ha at a humidity of 10% and we averaged the 4 parcels in order to obtain the production potential per hectare of each variety.

The variety with the best production is Lirina 2363 / ha followed by Star 2323 kg / ha and Elan with 1794 kg|ha

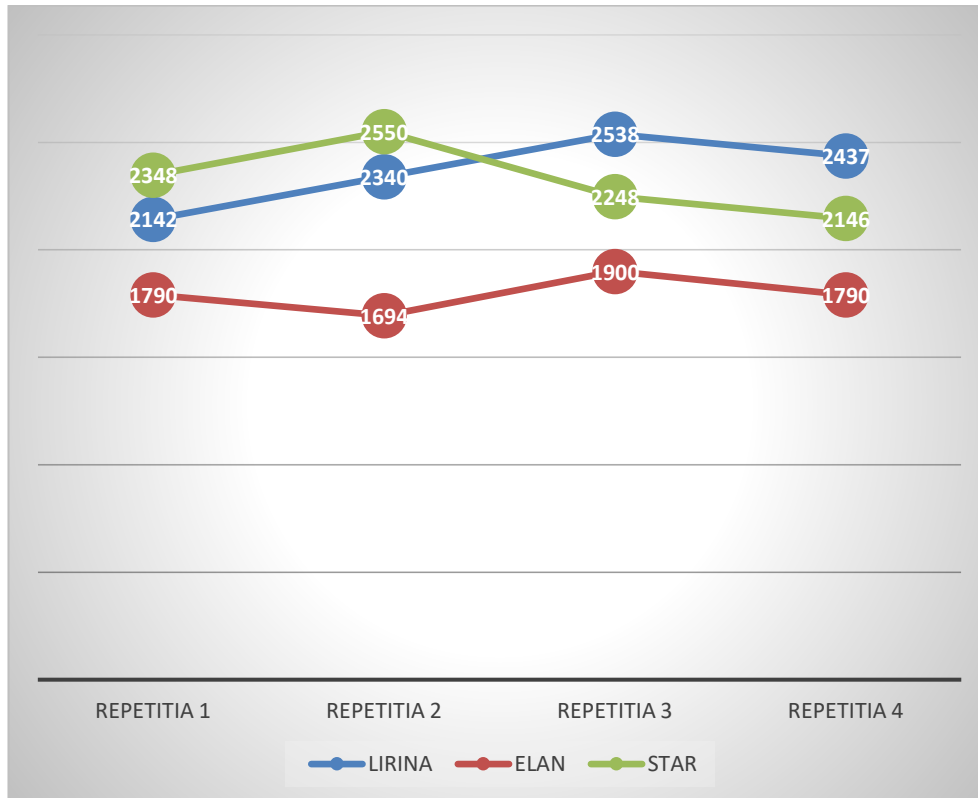


Fig.2. Variation of production per hectare per repetition

Figure 2 shows the production graph per hectare for each repetition where we observe that the Lirina variety exceeds the production of the Star variety in repetitions 1 and 2 and the Star variety exceeds the production of the Lirina variety in repetitions 3 and 4.

The productions of the Elan variety are lower in all 4 repetitions than the productions of the Lirina and Star varieties.

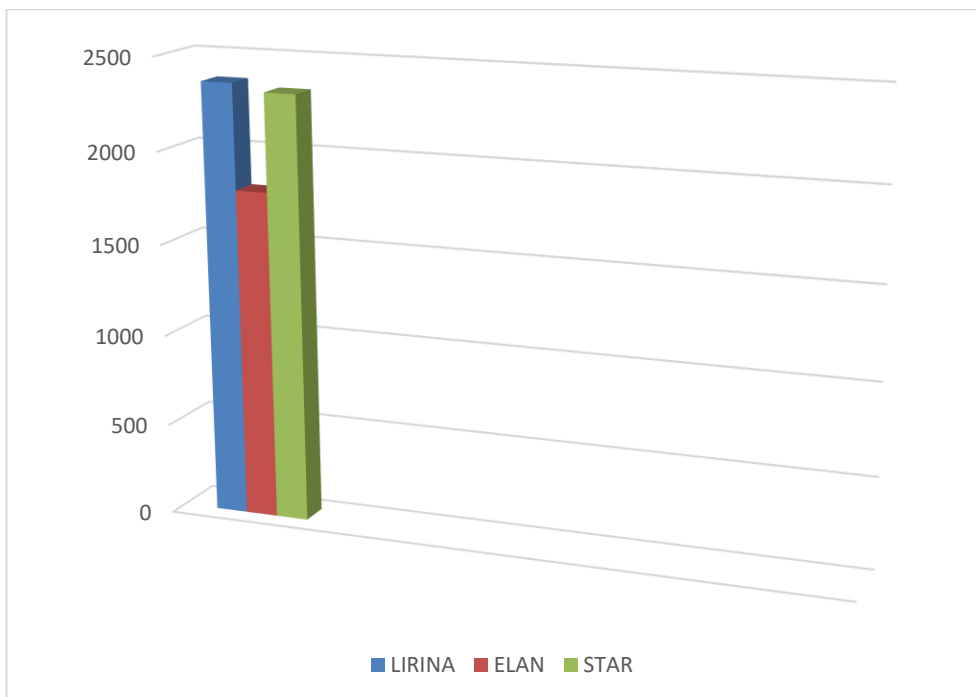


Fig.3. Graph of productions registered for flax varieties for oil in the year 2018

Figure 3 shows the graph of production per hectare of varieties at a humidity of 10%, so Lirina has the highest production 2363kg / ha by 1.7% higher than the Star variety which has a production of 2323 kg / ha and 32% higher than the Elan variety, which has a production of 1794 kg/ha.

CONCLUSIONS

Following this study, the Lirina variety has the highest production of 2363kg / ha, 1.7% higher than the Star variety, which has a production of 2323 kg / ha and is 32% higher than that of the Elan variety, which has a production of 1794 kg / ha.

The highest mass of 1000 grains (MMB) was determined for the Elan 7.3g, Star 6.8g and Lirina 6.7g varieties.

The hectolitre mass (MHL) is equal to the varieties Lirina and Star 71 kg and to Star is 69 kg.

REFERENCES

1. Bogdan Ileana, Guș P., Rusu T., 2003, Agrotehnica diferențiată. Editura Risoprint, Cluj-Napoca
2. Borcean I., Gh. David, A. Borcean 2006, Tehnici de cultura și protecție a plantelor tehnice, editura de vest Timisoara
3. Borza I.M., A,Ș Stanciu 2010, Fitotehnie, editura Universității din Oradea
4. Brejea R., 2010, Știința solului – îndrumător de lucrări practice, Editura Universității din Oradea
5. Brejea R., 2011, Practicum de pedologie, Editura. Universității din Oradea.
6. Ciobanu Gh., Domuța C., 2003, Cercetări agricole în Crișana. Editura. Universității din Oradea.
7. Constantinescu M., Gheorghe Sinulescu –Cultura plantelor pentru ulei, editura M.A.S.T
8. Csep N. și colab., 2004, Bolile, dăunătorii și buruienile principalelor plante cultivate. Editura. Universității din Oradea.
9. Domuța C., 2006, Agrotehnica diferențiată. Editura. Universității
10. Domuța C., Sabău N.C., 2001, Agrotehnică partea I, partea II, Editura Universității din Oradea.
11. Gradila Marga 1998, Cultura plantelor tehnice și medicinale, Editura M.A.S.T.
12. Guș P. și colab., 1997, Influența lucrărilor solului asupra producției și a unor însușiri ale solului. Simpozionul „Alternative delucrare a solului”, 9-10 oct. Cluj-Napoca
13. Păcurar I., 2007, Producerea semintelor de cereale, leguminoase pentru boabe și plante tehnice, Academia de Științe Agricole și Silvicultură, Gheorghe Ionescu Sisesti”, Institutul National de Cercetare și Dezvoltare Agricolă Fundulea, Editura Phoenix Brasov .
14. Suci Z. Berar V., Lăcătușu N. 1988, Indrumător tehnică experimentală
*Institutul de Stat pentru Testarea și Înregistrarea Soiurilor București, 2008, Metodologia examinării valorii agronomice și de utilizare.