RESEARCH ON THE INFLUENCE OF CHEMICAL AND FOLIAR FERTILIZERS ON THE CONTENT OF OIL IN A THREE ACHENES SUNFLOWER HYBRIDS IN TERMS OF TIMISOARA

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Abstract: *Market presence in Romania for 10 years Limagrain company and the significant results obtained by testing the potential of hybrid sunflower production, and along with the technology you have available, scientifically argues that culture is placed in the best solution for farmers. The correct application of any specific links sunflower crop, agriculture becomes more sustainable and performance. Sunflower is cultivated for its seeds are used as feedstock in the cooking oil industry, providing 9% of the raw materials processed annually in the world oil industry and 12% of world production of oil. In Romania, became the third sunflower crop in area planted. The importance of this plant is given by oil that it produces seed oil quality in human nutrition, urged consumers. In the present study are highlighted aspects of the importance of sunflower hybrids in Romania Clearfield type, role and foliar fertilizers on growth and development of sunflower plants with subsequent implications on the production of seeds and oil content in pedoclimatic conditions of Timisoara. The study were taken three sunflower hybrids with resistance to herbicides such as imidazoline create by the company Limagrain: Rimisol (approved for cultivation in Romania in 2004), F30008 and Hidalgo. The research topic chosen, the hybrids mentioned are tested against four agro-backgrounds: N0P0K0, N60P60K60, N90P60K60 and N60P60K60 + foliar fertilizer (Fertitel). Bifactorial type experience in the experimental field was located within USAMVB Timişoara. Under the influence of fertilization, increasing oil production hybrids studied. Thus from the agro unfertilized, fertilized with the agro 60kg/ha nitrogen, phosphorus and potassium, oil production increased by 406 kg / ha, the increase was statistically highly significant. Fertitel foliar fertilization with a balanced agrofond fertilized with nitrogen, phosphorus and potassium significantly influence oil production, resulting in a yield of 2230 kg / ha to 1722 kg / ha as is done on the agro control, increase of 508 kg / ha being provided as very significant statistically. Production of oil / ha of producing achenes and oil content, the same level of fertilization (N60P60K0) ranged from 2135 kg / ha to 2259 kg Hidalgo and hybrid / hybrid F 30008 ha to 1991 kg / ha, oil production achieved the control hybrid Rimisol. Regarding agro-background is found that fertilization significantly influence oil content in seed hybrids studied. The oil content of seeds obtained from fertilized agro-backgrounds N60P60K60 N90P60K6 that is 47% compared to only 40% as containing the seeds obtained from unfertilized control agro-background.*

Key words: *sunflower hybrids, oil content, fertilization*

INTRODUCTION

Introducing the culture of type Clearfield hybrids have economic importance for agriculture whereas monocotyledonous and dicotyledonous weeds using herbicides containing the active substance imidazolinele, mechanical works are eliminated 1-2.

Sunflower is cultivated for its seeds are used as feedstock in the cooking oil industry, providing 9% of the raw materials processed annually in the world oil industry and 12% of world production of oil.

In Romania, became the third sunflower crop in area planted. The importance of this plant is given by oil that it produces seed oil quality in human nutrition, urged consumers.

In the present study are highlighted aspects of the role of foliar fertilizers on growth and seed production and oil content.

The research topic chosen, sunflower hybrids compared with four agrofonduri sunttestați: N0P0K0, N60P60K60, N90P60K60 and N60P60K60 + foliar fertilizer - Fertitel.

Although a single year, the results are particularly valuable for practice and highlight the effectiveness of agricultural chemicals and foliar fertilization on yield components.

MATERIAL AND METHODS

Bifactorial type experience in the experimental field was located within USAMVBT on a chernozem soil type drafts, wet groundwater (low gleyed) decarbonated weak, loess, clay argilo-prăfos/luto-argilos, chemical traits with values indicating a potential middle ground with fertility.

Experimental variants were located after three repetitions randomized block method. Fertilization was done by using complex fertilizers 15:15:15 type, applied at seedbed preparation for agrofondurile N60P60K60, K60 + N60P60 N90P60K60 and foliar fertilizer - Fertitel. For agro N90P60K60, supplementing nitrogen level of 90 kg / ha active substance was made by the administration before the first weeding of 50 kg / ha active ingredient, ammonium nitrate.

The study took three sunflower hybrids with resistance to herbicides imidazoline type created by the company Limagrain: Rimisol (approved for cultivation in Romania in 2004), F 30008 and Hidalgo.

To characterize the climate conditions have used the data from Meteorological Station Timisoara.

RESULT AND DISCUSSION

The oil content of seeds is an important quality indicator for sunflowers.

The production of seeds and oil content depends on the amount of oil that can be obtained per unit of area planted with sunflowers.

Table 1 presents results on the average oil production from the three sunflower hybrids in 2008 in experimental conditions in Timisoara.

Average oil yields of the hybrids tested were presented in terms of 2008 levels between 1919 to 2165 kg / ha.

Analysis of oil production of the three hybrids reveal that hybrid F 30008 achieved an average production of oil, 2165 kg / ha compared with an increase of 246 hybrid control Rimisol kg / ha, as very significant statistically. Hidalgo hybrid with oil production 2055 kg / ha production gives an increase of 135 kg / ha compared to the control, statistically as significant.

Under the influence of fertilization, increasing oil production hybrids studied. Thus from the agro unfertilized, fertilized with the agro 60kg/ha nitrogen, phosphorus and potassium, oil production increased by 406 kg / ha, the increase was statistically highly significant. Fertitel foliar fertilization with a balanced agrofond fertilized with nitrogen, phosphorus and potassium significantly influence oil production, resulting in a yield of 2230 kg / ha to 1722 kg / ha as is done on the agro control, increase of 508 kg / ha being provided as very significant statistically.

Figure 1 shows the apparent dependence of sunflower hybrids agrofond studies.

The data analysis presented in Table 2 and plotted in Figure 2 shows that seed oil content varies according to genotype, the variant fertilized, ranging in climatic conditions in Timisoara from 38% in hybrid and Hidalgo and Rimisol in hybrid Hidalgo 43%.

Table 1

Average yields of oil obtained from three hybrid sunflower - the influence of differential fertilization in experimental S.D.E Timisoara 2008

Factor B (The hybrid)	Factor A – The agro-background				Means of the factor B			
	Unfertilized	N60K60 P60	N90P60 K60	N60P60K60+ foliar fertilizer	Mean yield (kg/ha)	Relative yield (%)	Difference ± related to control (MT)	Signification
Rimisol	1659	1991	2083	1943	1919	100	-	
F 30008	1933	2259	2143	2324	2165	113	246	***
Hidalgo	1575	2135	2084	2424	2055	107	135	*

DL 5% = 102 kg/ha, DL 1% = 136 kg/ha, DL 0.1% = 178 kg/ha

Means of the factor A				
Mean yield (kg/ha)	1722	2128	2103	2230
Relative yield (%)	100	124	122	130
Difference ± related to control (MT)	-	406	318	508
Signification		***	***	***

DL 5% = 59 kg/ha DL 1% = 78 kg/ha DL 0.1% = 103 kg/ha

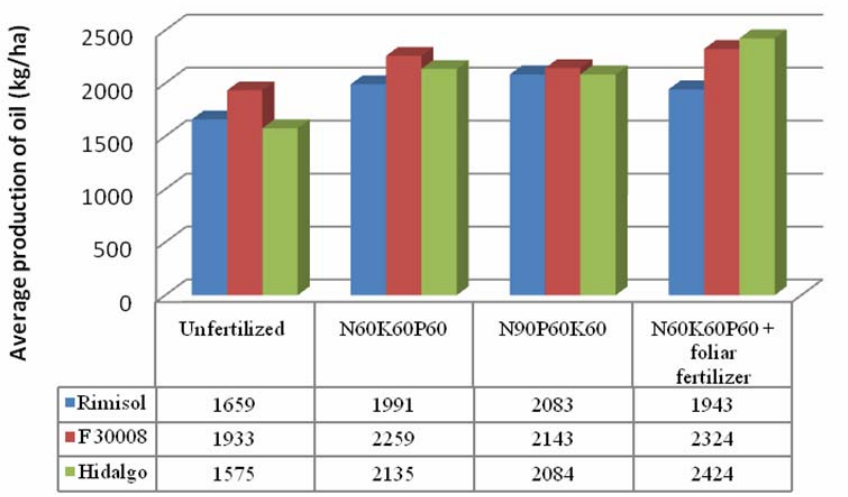

Fig. 1 Mean oil yield of sunflower hybrids to three differential influence fertilization in Timisoara in 2008

Fertilization with 90 kg / ha of nitrogen, phosphorus and 60kg/ha 60 kg / ha potassium increases the oil content of seeds from all hybrids studied. F 30008 Hybrid has an oil content of seeds of 47% compared to only 42% as hybrid seeds contain witness the growth was statistically significantly distinct.

Regarding agro is found that fertilization significantly influence oil content in seed hybrids studied. The oil content of seeds obtained from fertilized agrofondurile N60P60K60

N90P60K6 that is 47% compared to only 40% as containing the seeds obtained from unfertilized agrofond.

Table 2

Seed oil content of sunflower the influence of differential fertilization in experimental S.D.E Timisoara 2008

Factor B (The hybrid)	Factor A – The agro-background				Means of the factor B			
	Unfertilized	N60K60P60	N90P60K60	N60P60K60+ foliar fertilizer	Mean yield (kg/ha)	Relative yield (%)	Difference ± related to control (MT)	Signification
Rimisol	38	43	45	42	42	100	-	
F 30008	43	47	50	46	47	112	5	**
Hidalgo	38	52	47	48	46	110	4	*

DL 5% = 3 kg/ha, DL 1% = 4 kg/ha, DL 0.1% = 5 kg/ha

Means of the factor A				
Mean yield (kg/ha)	40	47	47	45
Relative yield (%)	100	118	118	113
Difference ± related to control (MT)	-	7	7	5
Signification		***	***	***

DL 5% = 2 kg/ha DL 1% = 2 kg/ha DL 0.1% = 3 kg/ha

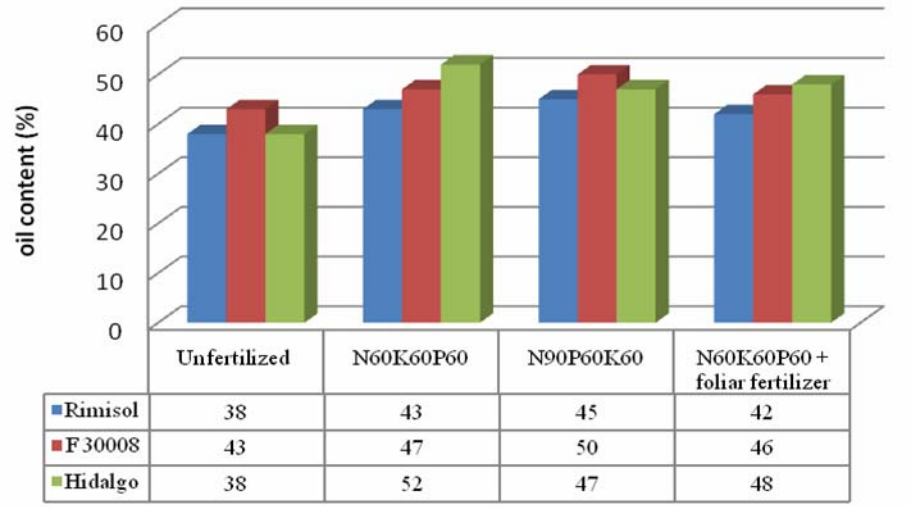

Fig. 2 Influence of fertilization on seed oil content of sunflower hybrids in terms of Timisoara in 2008

CONCLUSIONS

1. Application of the sunflower vegetation of Fertitel foliar fertilizer increases plant resistance to heat and water stress conditions;

2. F 30008 hybrid to other hybrids studied seconded significantly, resulting in an average production of oil from 2143 to 2324 kg / ha;

3. Production of oil / ha of producing achenes and oil content, the same level of fertilization (N60P60K0) ranged from 2135 kg / ha to 2259 kg Hidalgo and hybrid / hybrid F 30008 ha to 1991 kg / ha, oil production achieved in hybrid control Rimisol;

4. Both chemical fertilization increased the seed oil content as well as oil production per hectare.

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