RESEARCHES ON FLORISTIC COMPOSITION AND FIGHT AGAINST HERBS FROM SOYBEAN CULTIVARS IN THE CONDITIONS OF SCDA LIVADA

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Abstract

In order to fight against weed specific to SCDA Livada area, we placed a technological experience of soybean culture. Investigations carried out in the year 2016 aimed to establish the effectiveness of simple and associated herbicides applied in pre-emergence and post-emergence on the floral composition and the influence of herbicide treatments on production of soybean. The effectiveness of the treatments was different depending on the herbicide used and the degree of weed. It was pointed out that two herbicidal treatments are required for the soybean culture: the first pre-emergence treatment (immediately after sowing) and the second post-emergence (vegetation) applied to the stage of four true leaves of the soybean.

Keywords: soybean, floristic composition, herbicide efficacy, production

INTRODUCTION

Among legume cultivars soybean (*Glycine max* L.) is classified as an oil plant, recognized for its high protein content, as well as its high oil content (Perkins, 1995).

Soybean has a particularly high nutritional value, with multiple uses in human nutrition, animal feed and as raw material in industry.Achieving a large and steady production continues to remain a priority in soybean research.

This cannot be achieved without proper protection against weeds due to the large damages caused by them, which can exceed 50-90% of the production potential of the various varieties cultivated (Ciobanu Cornelia, 2003).

MATERIAL AND METHOD

Researches were performed at SCDA Livada on a typical preluvosol with pH of 5.6, clay content of 22.4% and humus content of 1.8%. The experience was placed in a randomized block, 10 variants in three replicates, the area of one parcel being 21 square meters.

The experimental plots meant to test the efficacy of herbicide are detailed in table 1.

Plan for herbicide apllication on soybean culture

Plot no.	Herbicide	Dose l,kg/ha	Period of application	Active substances
1	Dual Gold	1,5	Preem	S-metolaclor 960 g/l
2	Dual Gold+Pulsar	1,5+1,2	Preem+Post	S-metolaclor 960 g/l+imazamox 40g/l
3	Pendigan 330EC	4	Preem	pendimetalin 330g/l
4	Pendigan330EC+ Pulsar40	4+1,2	Preem+Post	pendimetalin 330g/l+ imazamox 40g/l
5	Frontier Forte+Pulsar	1+1,2	Preem+Post	dimetenamid 720g/l+ imazamox 40g/l
6	Sencor 70WG	0,3	Preem	metribuzin 70g/kg
7	Agil 100EC+Basagran Forte	1+2	Post	propaquizafop100g/l+bentazon480g/l
8	Rango+Basagran Forte	2+2	Post	quizalofop40g/l+bentazon480g/l
9	Corum	1,9	Post	bentazon480g/l+imazamox 22,4g/l
10	No treatment	-	-	-

The biological material used in the experimental field was the Onix variety. It is an early variety (maturity group 00), with good preference for mechanized harvesting having special qualities.

During the vegetation period, after the treatments, observations were made on the herbicide efficacy on weeds and on production. Determination of the degree of weed was made by counting weeds from 1sqm/ plot. Harvesting was done with the harvesting combine for experimental plots. The weed species found before the post-emergence treatments were: *Amaranthus retroflexus, Capsela bursa-pastoris, Chenopodium album, Galinsoga parviflora, Polygonum aviculare Sonchus arvensis, Raphanus raphanistrum and Echinochloa crus-galli monocots, Eriochloa villosa, Elymus repens, Digitaria sanguinalis, Setaria viridis.*

RESULTS AND DISCUSSION

Analyzing the efficacy of herbicides, it can be observed that in most cases where we had a pre-emergence + post-emergence herbicide combination we had good efficacy and where we applied a single pre-emergent or post-emergence herbicide, the efficacy was much lower (table 2). The EWRS marks also reflect the efficacy of herbicide treatments, with the best efficacy in V4, where we had a Pendigan herbicide combination applied pre-emergence at a dose of 4 l / ha, after which the Pulsar herbicide at a dose of 1.2 l / ha .

The efficacy of herbicide treatments on soybean culture

Plot no.	Treatment	Dose Kg,l/ha	Period of application	Efficacy	
				Efficacy %	Note EWRS
1	Dual Gold	1,5	Preem	30	4
2	Dual Gold+Pulsar	1,5+1,2	Preem+Post	76	7
3	Pendigan 330EC	4	Preem	71	7
4	Pendigan330EC+Pulsar40	4+1,2	Preem+Post	88	8
5	Frontier Forte+Pulsar	1+1,2	Preem+Post	61	6
6	Sencor 70WG	0,3	Preem	34	4
7	Agil 100EC+Basagran Forte	1+2	Post	0	1
8	Rango+Basagran Forte	2+2	Post	21	3
9	Corum	1,9	Post	28	4
10	No treatment	-	-	-	1

Note: EWRS :   1- very weak ; 9 – very good.

Results on soybean production pointed out that in all herbicide variants the yields were clearly superior to the non-herbicidal variant (table 3). Based on the average of the experience, it was found that the best variant was the variant treated with the pre-emergent Pendigan herbicides at a dose of 4 l / ha, after which the Pulsar herbicide at a rate of 1.2 l/ha was applied in post-emergence, where the production increase is ensured statistically gaining positive significance from the average of the experience.

Table 3

The influence of treatments with herbicide on soybean culture

Plot no.	Treatment	Dose Kg,l/ha	Period of application	Production q/ha	D±	D±	Significa tion	
1	Dual Gold	1,5	Preem	26,6	9,6	-3,2	xx	
2	Dual Gold+Pulsar	1,5+1,2	Preem+Post	35,9	18,9	6,0	xx x	
3	Pendigan 330EC	4	Preem	35,8	18,8	5,9	xx x	
4	Pendigan330EC+Pulsar40	4+1,2	Preem+Post	37,4	20,4	7,5	xx x	x
5	Frontier Forte+Pulsar	1+1,2	Preem+Post	33,3	16,3	3,4	xx x	
6	Sencor 70WG	0,3	Preem	27,1	10,1	-2,7	xx	
7	Agil 100EC+Basagran Forte	1+2	Post	26,4	9,4	-3,4	xx	
8	Rango+Basagran Forte	2+2	Post	28,5	11,5	-1,3	xx	
9	Corum	1,9	Post	30,2	13,2	0,3	xx x	
10	Netratat	-	-	17,0				

DL 5% = 6,65 q/ha   DL 1% = 9,12 q/ha   DL 0,1% = 12,4 q/ha
AverageX = average production/experience = 29,82 q/ha

CONCLUSION

For effective weed control we need to know the floristic composition of weeds. A very good efficacy in weed control was achieved with Pendigan330EC 4l / ha + Pulsar 40 1.2l / ha followed by Dual Gold 1.5 + Pulsar 40 1.2l / ha. In the year 2016, statistically assured increased in production was achieved on the experimental plots treated with Pendigan 330 EC 4l / ha + Pulsar 40 1.2l / ha.

Based on this experience, we conclude that a pure soybean culture can be maintained only through treatments associated with sowing and vegetation (pre-emergence + post-emergence).

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