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The Influence of Soil Tillage System upon Weed Development on a Soybean Crop

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SUMMARY

The strategy for suppressing weeds in a minimum tillage system has to be prior and different from the classical soil tillage system. A tremendous importance must be taken for the indirect methods of weed suppressing, especially crop rotation method. The soil tillage system and weed suppressing methods play a key role for the entire weeding soybean. Especially at the first stages of plant development all the weeding crops are extremely sensible for weed activity. The most common weed species that infestate soybean crops are: *Avena fatua, Echinochloa crus-galli, Setaria sp., Digitaria sanguinalis, Sorghum halepense, Agropyron repens, Amaranthus retroflexus, Chenopodium album, Galinsoga parviflora, Xanthium sp., Abutilon teophrasti, Polygonum sp., Cirsium arvense, Convolvulus arvensis.*

The present results where obtained in Jucu experimental plots, property of the Agricultural Faculty of Cluj-Napoca. The eco-pedological conditions consisted in: faeoziom soil with a humus content of 4.72 % and a pH of 6.8, multi annual precipitation with values between 550-650 mm and the average thermal regime of 8.0-8.2^{0}C.

For soybean crop, applying the minimal tillage systems, an increase in weeds number, especially of perennial di-cotyledonated ones, is observed (Table1). The weeding degree is 10,5-18,4% higher in unconventional variants. The percent of perennial di-cotyledonated weeds is 10% for plough variants and reaches 14-18% in minimal tillage systems variants. In similar working conditions and same dosage of herbicides, the higher degree of weeding in unconventional variants can be put on the working system.

Tab. 1

Weed development on a soybean culture influenced by different soil tillage system

Segment of weeds	Average number of weeds /m^2, on harvest time			
	Classic plow + harrow (2 times)	Paraplow + rotative harrow	Cizel + rotative harrow	Rotative harrow
M*	18.3	21.6	26.4	25.8
DA*	51.3	50.1	49.6	49.7
DP*	8.1	14.2	12.4	16.5
TOTAL	77.7	85.9	88.4	92.0
%	100(MT)	110.5	113.8	118.4

*M- monocothiledonates , DA- dicothiledonate annuals, DP- dicothiledonate perenial.

REFERENCES

1. Guş, P., T. Rusu and I. Bogdan. (2004). Agrotechnique, Print house Risoprint. Cluj-Napoca.
2. Guş, P., T. Rusu and I. Bogdan (2004). Crop rotation and territory structure. Risoprint Cluj-Napoca.
3. Bogdan I. (2003). Herbology. Print house Risoprint. Cluj-Napoca.