Researches Regarding the Remanent Effect of the Merlin Duo and Gardorprim Plus Gold 500 SC Herbicides Applied to Sunflower Crops

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SUMMARY

The remanent effect of herbicides was studied by many foreign researchers: Hurle 1980, Hime and coll. 1991, Wuerzer 1985. In Romania, the largest number of experiments regarding the remanent effect of herbicides based on atrazin and simazin upon various crops have been made by dr. Şarpe and his collaborators. During the past 10 years, studies have been also made regarding the remanent effect of dicamba and 2,4-D herbicides upon various crops, namely maize, sunflower, sugar beet and flax for linseed and linen.

The experiments regarding the remanent effect of Merlin Duo and Gardoprim Plus Gold 500 SC are the first ones of this type and unique in Romania; being carried out in the Flood Plain of the Danube river. In the years 2007-2008, experiments were performed at the Agrofam-Holding Agricultural Company from Fetesti, Ialomita County, situated in an area with alluvial soil specific to the aforementioned Flood Plain, the aim being to study the remanent effect of the herbicides Merlin Duo, which contains 37.5 g/l isoxaflutol + 375 g/l terbuthylazin, Gardoprim Plus Gold 500 SC, which contains 312.5 g/l S-metalochlor + 187.5 g/l terbuthylazin. The Merlin Duo herbicide was applied in doses of 3 and 6 litres per hectare, and the Gardoprim Plus Gold 500 SC was applied in doses of 5 and 10 litres per hectare. Both herbicides were applied in July, after the wheat was harvested. After the winter wheat was harvested, a 15 to 18-centimeter-deep disking operation was performed by means of a BISO heavy disk. Both herbicides were applied by means of RAU equipment. After application, the herbicides did not incorporate into the soil. In spring, the soil was submitted again to a 15-cm-deep disking operation, and before sowing another 10-cm-deep intervention was made by means of a combinator machine. The type of sunflower sowed for this experiment was the Justin hybrid produced at the National Institute for Agricultural Research from Fundulea.

The experiment was displayed by the linear method with 3 repetitions, because all the works were executed mechanically. After the sunflower sprouted, the researchers monitored the plants and observed the level of phytotoxicity, conferring grades according to the scale established by the EWRS (European Weed Research Society). At the same time, measurement were made to determine the density of the sunflower plants and the seed yield per hectare, calculated according to the STAS humidity.

Based on the observations made every month during the vegetation stage and on the yield obtained, the authors have reached the conclusion that the Merlin Duo and Gardoprim Plus Gold 500 SC did not present any remanent effects on the alluvial soil from the Flood Plain of the Danube river. Sunflower plant density did not diminish pursuant to the treatments by application of the herbicides Merlin Duo and Gardoprim Plus Gold 500 SC. With both herbicides, the density was of over 45,000 sunflower plants per hectare, being practically equal to the one recorded in case of the untreated variant (reference plot). The sunflower seed yields recorded in case of both herbicides, namely Merlin Duo and Gardoprim Plus Gold, were practically equal to the one obtained from the untreated reference plot.