HERBICIDE COMBINATIONS IN CONTROL OF WEED SEEDBANK IN AN UPLAND COTTON FIELD.

José Rodrigues Pereira[1], Antonia Eliene Duarte[2], Napoleão E. de Macedo Beltrão[1], José Wellingthon dos Santos[1], Jana Y. Barbosa de Sousa[3], Whéllyson Pereira Araújo[3], Érica S. A. Barbosa de Almeida[4]
[1] Embrapa Algodão (jose.r.pereira@embrapa.br), [2] Universidade Regional do Cariri, [3] UFCG, [4] UFPB

Soil seedbank studies can be used in predicting the need for control, adjusting different soil, crop and herbicide management with the rational use of the last ones. In Brazil, there is still a lack of information on the use of herbicide combinations, mainly triple and quadruple. Aiming to determine the viable weed seeds number, in an upland cotton crop, and its soil profile disstribution, before and after control by various herbicide treatments, an experiment was conducted on March to July, 2004, at Embrapa Cotton Farm, Barbalha, CE, Brazil. A randomized block design in a split-plot block scheme with six replications was used, where the main plots were constituted by a factorial (13 herbicides treatments x 2 sampling soil depths: 0 - 10 and 10 - 20 cm), and the subplots by two sampling dates (before and 70 days after application of herbicide treatments). The upland cotton cultivar used was BRS 187. The treatments were all applied at pre-emergence, using a well-calibrated Jacto knapsack sprayer, with a 20 L-capacity, equipped with a Teejet 8004 nozzle, mesh 50, with a spray volume of 300 L ha^{-1}. Soil samples, properly identified by sampling dates, herbicides treatments and sampling depths were placed in plastic bags and subjected to a screening process, followed by flotation. In the flotation process, a saturated solution of $CaCl_2.2H_2O$ was used. The seeds were then removed with the aid of a fine brush, placed in specific containers for each sample and left to dry in the shade. The viable seeds obtained were counted, using a magnifying glass with a 60 mm-diameter cable, and put in plastic bags to germinate for validating its viability. So, the total number of viable weed seeds in the soil was confirmed by the emergence of seedlings. Data were analysed using ANOVA, performed using the SAS software. There were significant differences for sampling dates (D), herbicide treatments (T) and sampling depths (S), but not for the interactions tested. There were a higher number of viable weed seeds before the application of herbicides and at the 0 - 10 cm depth. The herbicide treatments diuron + oxadiazon and metalachlor + pendimethalin were less effective for controlling weeds in the soil of the area, as was treatment without herbicide and not weeded the entire cycle, all them producing higher numbers of viable weed seeds. On the other hand, the treatments metalachlor + diuron (1.92 + 1.52 kg brand name ha^{-1}), diuron + pendimethalin (1.52 + 0.88 kg b.n. ha^{-1}), and the last not cited ones behaved like treatment without herbicide and weeded weekly the entire cycle. It was concluded that the highest number of viable weed seeds in the area was found before the application of herbicide treatments, at a soil depth of 0 - 10 cm, and that the herbicides treatments metalachlor + diuron, diuron + pendimethalin and treatment without herbicide and weeded weekly the entire cycle were the most effective in reducing the weed seedbank in the area.