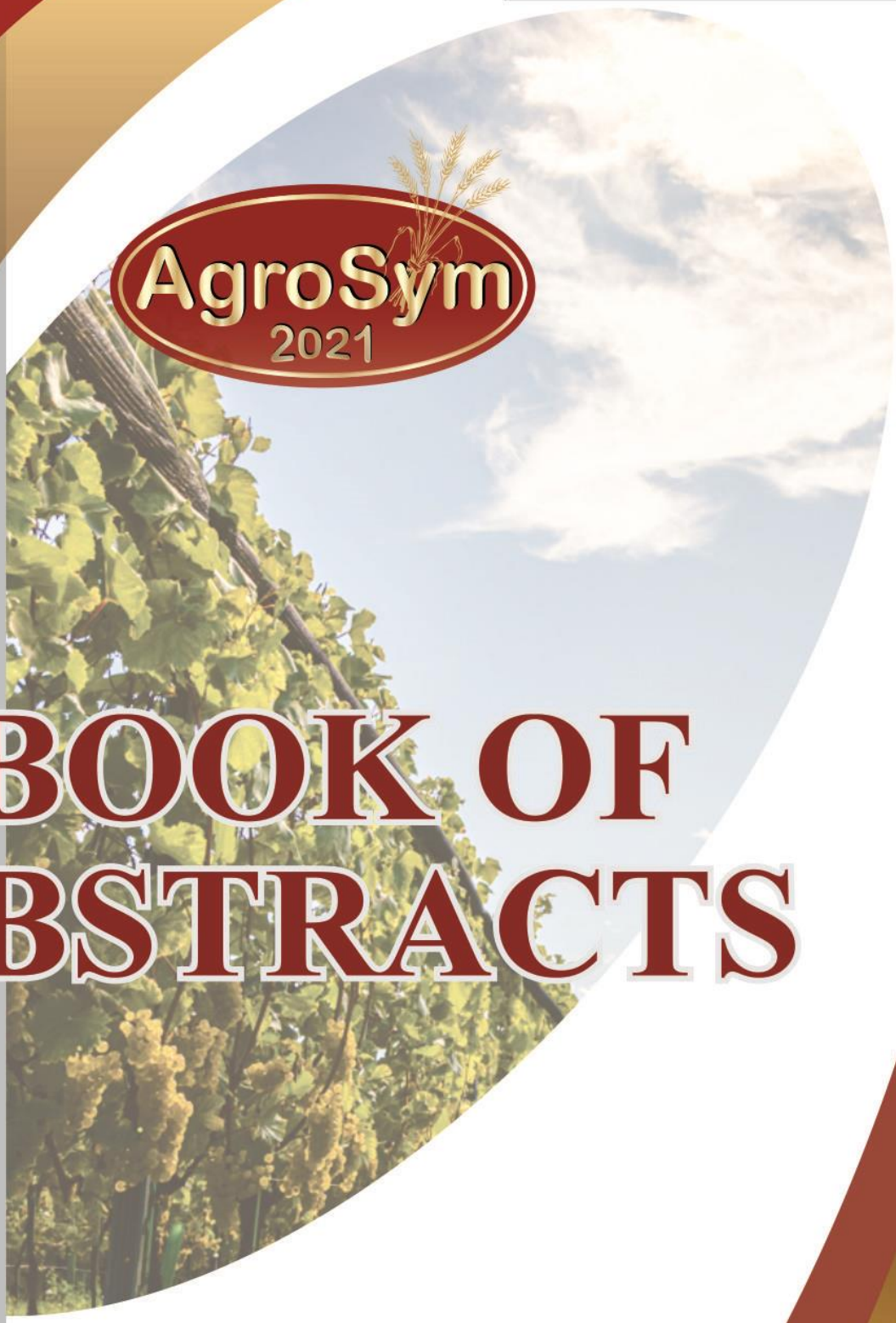

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LOW NICOSULFURON AND MESOTRIONE RATES INFLUENCE ON VARIOUS CROPS

Milan BRANKOV*[1], C. Bruno VIEIRA [2], Milena SIMIĆ [1], Željko[1]DOLIJANOVIĆ, Miodrag TOLIMIR[1], Vesna DRAGIČEVIĆ [1]

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Abstract

Nicosulfuron as sulfonylurea and mesotrione as triketone are some of the most used herbicides for weed control in maize. The potential off-target movement and plant injuries of these herbicides were evaluated in a bioassay under controlled conditions. Both herbicides were applied in rates of 0.005X, 0.001X, 0.05X, 0.01X, 0.1X, 0.25X, 0.5X, 1X, 2X, and 4X, where X corresponds to 60 g ai ha^{-1}, and 120 g ai ha^{-1} for nicosulfuron and mesotrione, respectively. Seven species were tested: lettuce, oil pumpkin, oilseed rape, paprika, soybean, sunflower, and tomato. After applications, plants were returned to the greenhouse and grown for more 21 days and following parameters were evaluated: visual injuries, leaf area, height, and dry biomass. All data were converted into a percentage of reduction compared to untreated control. The data were subjected to a non-linear regression analysis by four-parameter log-logistic model using R statistics. According to obtained results, rates of 0.03 and 0.06 X for nicosulfruon and mesotrione, respectively influenced all measured parameters. The most sensitive species to both herbicides was lettuce. The rates of 4.8 g and 6.1g of nicosulfruon reduced biomass by 80% in tomato and oil pumpkin, while 0.2 g and 0.9 g of mesotrione reduced biomass by 80%. Since our results have reported significant injuries following low herbicide rates, herbicide drift must be mitigated in order to prevent potential negative influence on the environment.

Key words: *herbicide drift, plant damages.*