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ABSTRACT BOOK





Welcome Message

The world is going through a rapid change, with increase in demand for food and for agricultural goods. This was happening before the pandemic, but with the challenges and the changes brought by the pandemic, the pace increases a lot. The challenges facing agriculture today is very high, with the increase in demands due to the increase in global population, that reached 8 billion people this year.

Besides the demographic changes, the climate and the stressors behind climate change is another challenge that agriculture is facing, and weeds are one of the most important biological factors affected by these changes.

To cope with the challenges faced by agriculture in this century, weed scientists are bringing to the table novel ways to manage this important agricultural pest.

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Integrated weed management in maize: crop rotation and PRE herbicides

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Crop rotation is a simple and effective part of an Integrated Weed Management (IWM) system. This approach makes it possible to rotate herbicides with different modes of action (MOA), avoiding or postponing herbicide resistance. Besides all the known advantages and benefits, it is still not widely used in maize production. In Serbia, about 30% of total maize production is a continuous cropping. The aim of this research was to test the benefits of growing maize in crop rotation with winter wheat compared with a continuous cropping, combined with pre-emergence herbicide application. Field trials started in 2009, and five maize-winter wheat rotations have been completed. Weeds were controlled with an herbicide mixture of isoxaflutole and S-metolachlor, applied at either the full label rate or half rate, while one plot was kept weed free (manually), and one was a control. Applying IWM decreased the fresh biomass of weeds and their density by 96% and 97%, respectively. In continuous maize, perennial weeds became dominant after the first rotation. Crop rotation significantly influenced maize productive parameters, decreasing the variation in leaf area index and grain yield, and increasing the magnitude of these parameters with the number of cycles. The biggest differences in the analyzed parameters were observed in 2015, 2017 and 2019, indicating many positive long-term benefits of crop rotation on maize leaf area index and grain yield.

Keywords: Crop sequences; isoxaflutole; IWM; maize monoculture; S-metolachlor.