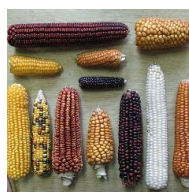




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ADJUVANTS AND NOZZLES EFFECTS IN JOHNSONGRASS (*Sorghum halepense* (L.) Pers.) CONTROL USING NICOSULFURON

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Johnsongrass is one of the most troublesome weed species to control, since it belongs to the same family as maize. The sulfonylureas have been the first selective herbicides for Johnsongrass control in maize. Non-proper use of sulfonylureas had led to herbicide resistance development, and weed control failures. However, an optimization of herbicide performance through different adjuvants and spraying nozzles application can improve Johnsongrass control. Adjuvants are able to change physico-chemical properties of herbicide solution, while nozzles influence coverage rate and potential drift. A field trial regarding the influence of adjuvants and nozzles on Johnsongrass control started 2020 at the experimental field of the Maize Research Institute “Zemun Polje”. Nicosulfuron (OD formulation) was applied at 5-6-leaf stage, tank-mixed with NIS (non-ionic surfactant) or AMS (ammonium-sulphate) using XR11002 or TTI11002 nozzles. Spraying was done when maize developed 5-6 leaves (15-16 BBCH) using CO₂ backpack sprayer calibrated to deliver a spray volume of 140 l ha⁻¹ of solution at 275.8 kPa. Following applications, weed density and biomass were evaluated on the 28th day. After harvest, maize grain yield was measured. According to obtained data, the highest Johnsongrass suppression was obtained using XN nozzle when nicosulfuron was tank-mixed with NIS adjuvant. Spraying with XR nozzle provided 96.3% of the biomass reduction compared to the untreated check, while spraying with TTI nozzle provided 87.5% of biomass reduction. Addition of AMS as adjuvant reduced to 70% of biomass, as it was noticed in the treatment without adjuvant. Consequently, the highest grain yield of 12.3 t ha⁻¹ was recorded when nicosulfuron was tank-mixed with NIS adjuvant and sprayed with XR nozzle, while the yield of 11.7 t ha⁻¹ was recorded when the TTI nozzle was used. The lowest yield, ranging from 10.6 to 11.4 t ha⁻¹, was recorded in treatments without adjuvants.

Key words: *herbicide, application technology, efficacy.*