

Book of Abstracts



19th EUROPEAN WEED RESEARCH SOCIETY SYMPOSIUM

**Lighting the Future
of Weed Science**

20-23 June 2022 Athens, Greece

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Athens



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Weed control in sweet maize (*Zea mays* var. *succharata*) eco-farming

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Poster

Sustainability in agricultural systems is largely based on increasing biodiversity and reducing the input of agrochemicals. Weed species occurrence and distribution in fields is driven by anthropogenic factor and cropping measures applied for high yield achievement. In sustainable cropping systems with cultivation of specific maize varieties such as sweet maize, special attention has been usually paid to weed control because these genotypes are additionally sensitive to herbicides. Sweet maize is mainly consumed directly by humans and its cultivation is supposed to be conducted without chemical control of weeds, giving advantage to cover crops. Cover crops influence weed infestation level through competition for space, light, water, and minerals. The aim of the investigation was to identify the most effective species or mixtures of cover crops in weed control of sweet maize in the present agro-ecological conditions. The experiment was conducted at the Maize Research Institute Zemun Polje, Belgrade, Serbia during 2014-2016. Sweet maize was grown after different cover crops: V1-common vetch (*Vicia sativa* L.), V2-field pea (*Pisum sativum* L.), V3-winter oats (*Avena sativa* L.), V4-fodder kale (*Brassica oleracea* convar. *acephala* L.), V5-common vetch+oats and V6-field pea+oats, V7- straw and V8- bare soil as a control. The preceding crop was winter wheat and each treatment had three repetitions. Sowing of cover crops was done in autumn while incorporation by ploughing was performed in spring, one week before sweet maize sowing (hybrid ZP SC 421su) in a density of 65.000 plants ha⁻¹. Six weeks after sowing, the weed association composition was analysed by weed species, number of individuals, and biomass determination per m². After that, weeds were removed by hand hoeing and herbicides were not applied. The 19 weed species were determined during the investigation while seven species were present in each year and made a base of association: *Solanum nigrum* L., *Sorghum halepense* (Pers.) L., *Chenopodium album* L., *C. hybridum* L., *Amaranthus retroflexus* L., *A. hybridus* L. and *A. albus* L.. Number of weed species, weed individuals and their biomass were significantly affected by year, cover crop, and their interaction. The highest number of individuals was detected in 2016 which was favourable regarding sum and distribution of precipitation. V1, V2 and V3 were the most efficient cover crop treatments in weed control, with the lowest number of weed species and individuals. In average for three years, weed biomass was significantly reduced after cultivation of field pea, V2 (820.2 g m⁻²) and its mixture with oats, V6 (794.3 g m⁻²) in comparison to control, bare soil, V8 (1582.6 g m⁻²).

Acknowledgements: Ministry of Education, Science and Technological Development of the Republic of Serbia