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GREEN ROOM SESSIONS 2018

**International GEA (Geo Eco-Eco Agro) Conference
1-3 Novembar 2018, Podgorica, Montenegro**

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Phytochemistry and Medicinal Plants, Animal husbandry and Dairy production
Rural development and agro-economy, Rural Environments and Architecture
Environment protection and natural resources management, Forestry**

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Book of Abstracts



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BOOK OF ABSTRACTS

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The effect of cover crops on the weediness, productivity and quality of popcorn (*Zea mays* L. ssp. *everta*)

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Abstract

Providing land cover from the aspect of protection of crops from weeds, diseases and pests and reduced use of pesticides, improvement of the structure and soil regime of the soil, as well as storing of moisture reserves in the soil are the main advantages of growing cover crops. In addition, it often happens that with such a method of growing we obtain more yields of crops compared to the conventional cultivation method.

Experiments with cover crops were carried out at the Maize Research Institute in Zemun polje, on the chernozem soil type during 2013/14, 2014/15 and 2015/16 growing seasons. The experiment included four treatments with winter cover crops (common vetch-V1, oat V2, fodder kale-V3 and field pea-V7), mixtures of legume crops with oats-V4 and V6), another variant in which the land was covered with dead organic mulch (V5), and traditional variant, classical ploughing in the fall and keeping bare land uncovered during the winter (V8). The experiments were located in different plots in each year and winter wheat was the previous crop. In the autumn, before planting of cover crops, we have entered the entire amount of P and K in the forms of monopotassium phosphate plus additional quantity of nitrogen 50 kg/ha by ammonium nitrate, and on the two control variants, also all of P₂O₅ i K₂O and 40 kg ha⁻¹ N in the form AN. In the next spring (May) leguminous cover crops had received another 30 kg ha⁻¹ N in the form of AN (remaining 40 kg ha⁻¹ considered to be provided by nitrogen fixation), oats and fodder kale 70 kg ha⁻¹ N, and control plots another 80 kg ha⁻¹ N, also in the form of AN. Sowing of cover crops were done manually in the last of October or at the beginning of November. Mowing the above-ground biomass of winter cover crops were performed 7-10 days before planting of popcorn.

The legume cover crops expressed greater efficiency in weed control in comparison to different cropping systems. The highest yields of popcorn were achieved in 2014, especially on variants V4 (5.41 t ha⁻¹), V3 (5.26 t ha⁻¹) and V1 (5.11 t ha⁻¹), but these values are also very small compared to the potential of hybrid ZP 611k. The results of grain yields in 2015 and 2016 were significantly lower (3.99 and 4.14 t ha⁻¹); primarily due to meteorological conditions, and in these years a higher moisture content in seed was measured (14.85 % and 14.6 %). The average popping expansion in these studies is equalized by years of investigation, significantly lower (24.53 %) compared to which this hybrid reached earlier (35-40%). Achieving the full effect of such growing system is possible if sowing is done at optimum time, because it is a hybrid of specific properties that is more sensitive to the competitive of weeds.

Key words: Crops, weediness, productivity, quality, popcorn, *Zea mays*