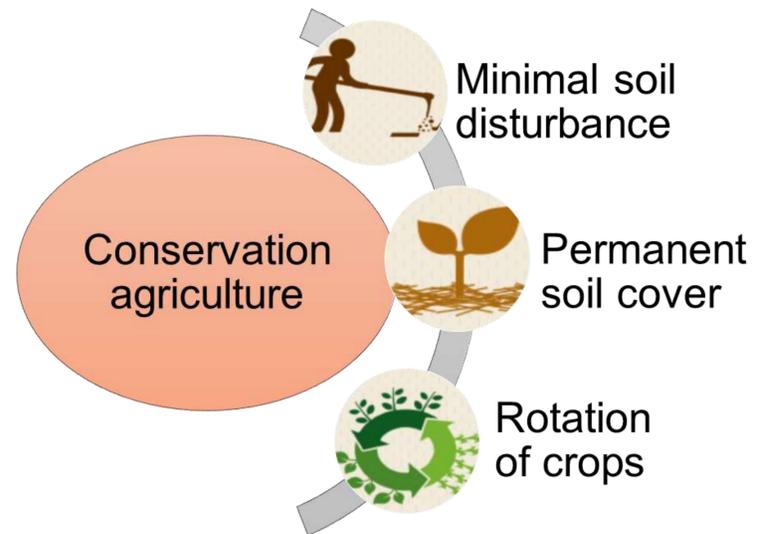


## INTRODUCTION

Conservation tillage systems, compared to conventional ones, have proven to be more effective from a biological, ecological and economic point of view, while at the same time preserving the ecosystem.



## MATERIALS & METHODS



Križevci College of Agriculture (46° 01' 38" N, 46° 33' 32" E)



a split plot experimental design in three replicates



Weed sampling - during the critical period for weediness in soybean crops

**ST tillage** - conventional, plowing

**CTD tillage** - conservation, loosening with a minimum of 30% of crop residues on the surface

**CTS tillage** - conservation, tillage up to 10 cm with a minimum 50% of crop residues on the surface

- The number and above-ground biomass of weeds - counting individual weed species using a square of 0.25 m<sup>2</sup> in four replicates per experimental plot.
- Weeds from each square were cut at ground level, counted, sorted according to species, dried at 65 °C and weighed.
- The applied herbicide treatments were uniform on all tillage treatments.

## RESULTS

Tillage had a statistically significant effect on the total number of weeds, the above-ground biomass and the number of weed species.

- The highest **number of weeds** was found in the CTD treatment (44.67 m<sup>-2</sup>), and the lowest in the ST treatment (7.33 m<sup>-2</sup>), with a statistically significant difference between ST and conservation treatment treatments.
- The CTS treatment resulted in the highest **weed biomass** (48.77 g m<sup>-2</sup>) but without a statistically significant difference compared to CTD (39.98 g m<sup>-2</sup>).
- The highest **number of weed species** was found in the CTS treatment (3.66 m<sup>-2</sup>), and the lowest in the ST (1.33 m<sup>-2</sup>), with statistically significant differences between all tillage treatments.

## CONCLUSIONS

All investigated weed parameters were, on average, the lowest in the conventional tillage system compared to the conservation systems. The CTD treatment resulted in a smaller number of weed species and a lower biomass compared to the CTS treatment, which indicates the need for further research into the impact of conservation tillage on the occurrence of weeds in soybeans.

## ACKNOWLEDGEMENTS

This research work has been financed by the Croatian Science Foundation under the project "Assessment of conservation soil tillage as advanced method for crop production and prevention of soil degradation – ACTIVEsoil" (IP-2020-02-2647)