

# Feasibility of double cropping system with camelina and sunflower in Serbia

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## Background

The sustainable production of agricultural commodities, such as vegetable proteins and oils, is currently facing the challenge of developing new cropping strategies more efficient in terms of water, nutrients, and land, while being able to increase the supply of domestic feedstocks. Double cropping of camelina (*Camelina sativa* L.), sown in the autumn, with sunflower (*Helianthus annuus* L.) can be proposed as a sustainable way to produce in the same growing season and land, multiple feedstocks for both energy, feed and food uses.

## Method

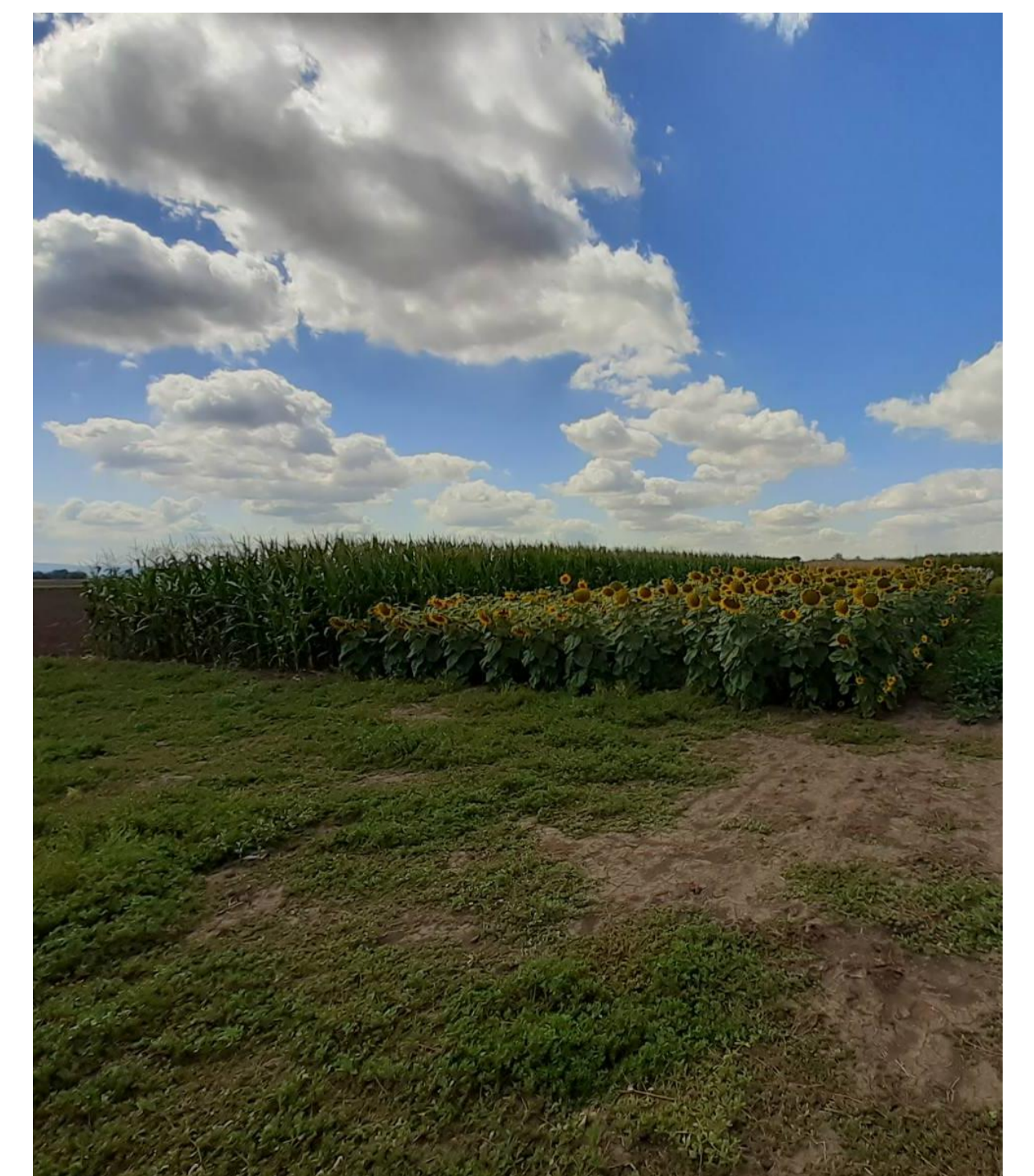
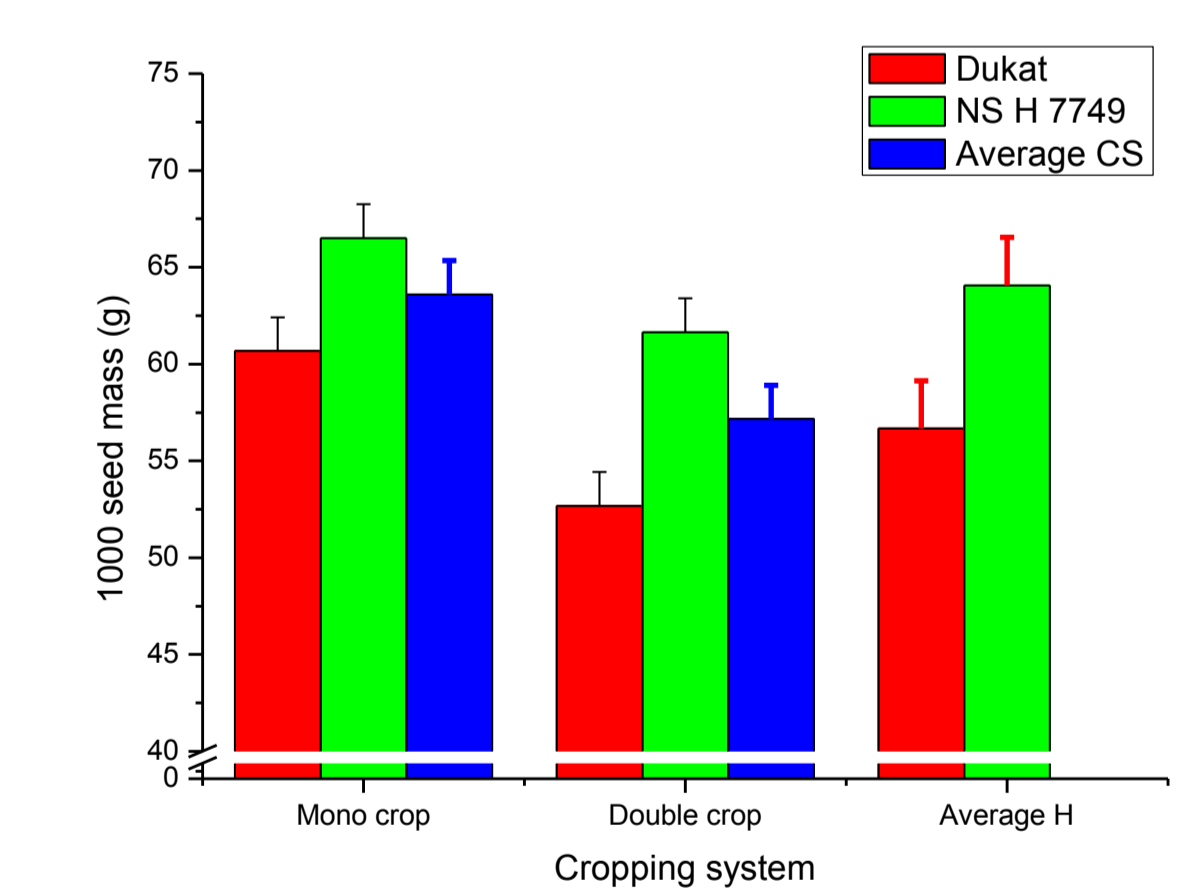
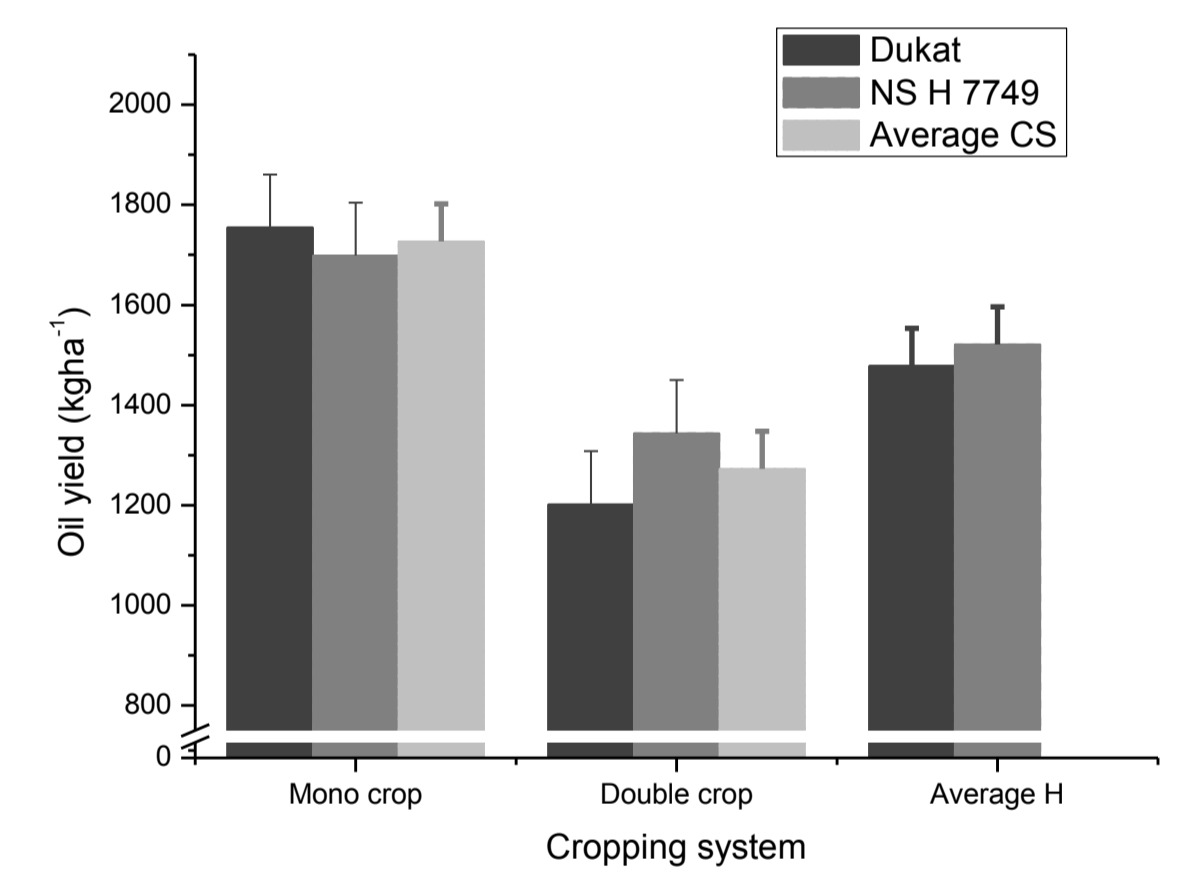
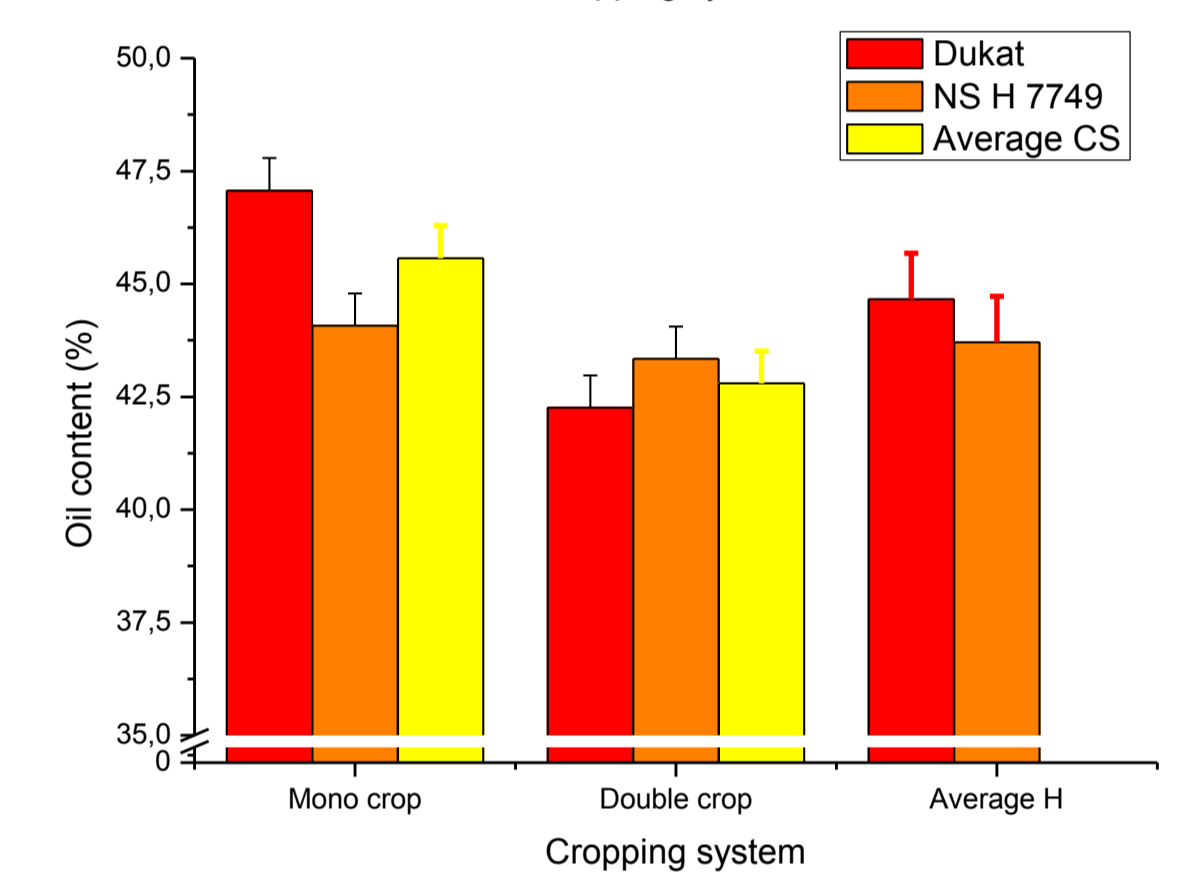
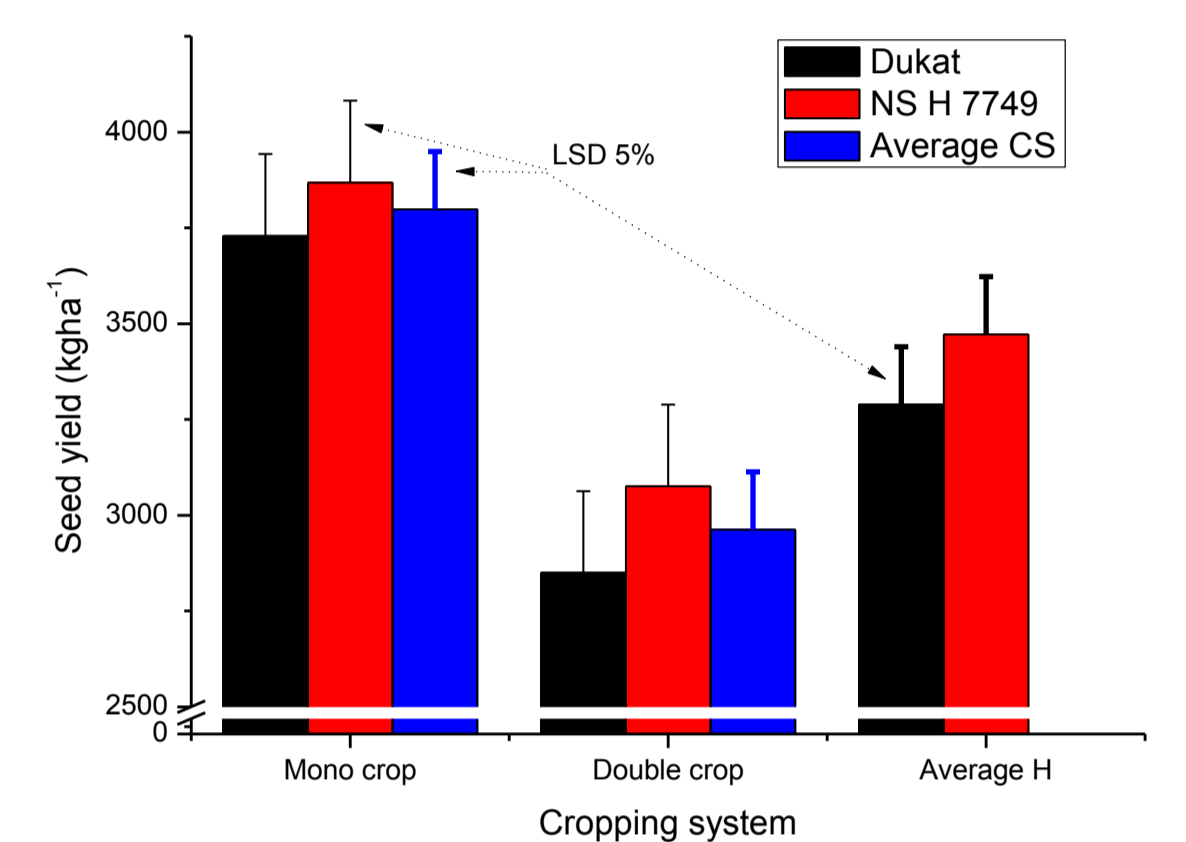
A preliminary trial was conducted in Novi Sad (Serbia) during the 2018/19 growing season to test: yield performance, oil content and 1000 seed mass of two early sunflower hybrids (NS Dukat and NS H 7749) sown just after the harvest of two camelina varieties (NS Slatka and NS Zlatka which average seed and oil yield were 920 and 257 kg/ha respectively). Sunflower hybrids were also grown in the monocropping system as control.

## Results

Both sunflower hybrids had higher seed yields in the monocropping system (+20-24%), but when considering the total yield of the two crops in the double cropping seed yield resulted slightly higher (+1-3%) than that of sunflower in the monocropping system. Although the average oil content and oil yield of sunflower was 6% and 27% higher in the monocropping system, respectively. In average total of double crop oil yield is only 12% lower, but the high nutritional value of camelina's oil, which is rich in omega-3, should be also carefully evaluated. The cultivation system of both the oilseed crops is low input since nitrogen demand is moderate to low, and chemical plant protection is not needed. Differences between the two sunflower hybrids were evident with NS H 7749 reporting better results in all surveyed parameters, except for oil content.

## Conclusion

These preliminary results indicate that double cropping of camelina with sunflower might represent an attractive system for producers seeking for high yield and new oil products with increased nutritional value, with low risk of complete failure due to adverse meteorological conditions having two crops grown in one season. Furthermore, winter soil cover, produced by camelina plants, promotes water infiltration and reduces nutrient leaching making the double cropping system with sunflower characterized by low environmental footprint.



## Acknowledgements

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