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Cover crops in wheat–fallow crop rotation

January 21, 2021

Dr. Augustine Obour observing a radish cover crop at the Kansas State HB Ranch. Photo courtesy of Augustine Obour.

Incorporating forage cover crops in the fallow period of a winter wheat–fallow cropping system can increase crop diversity, profitability, and efficiency in using the limited and variable precipitation in semi-arid dryland environments. However, which cover crop type and management system provide the greatest benefit is still an open question.

A new *Crop Science* article reports on a multi-year (2008–2011) field study near Garden City, KS that evaluated the productivity and water use of cover crops and management practices (cover crop left standing or hayed). Results showed water use, productivity, and post cover crop fallow efficiency were greatest for high-biomass cover crops. In addition, available soil water at wheat planting was 4–27% more for cover crops left standing vs. hayed. Post cover crop precipitation storage was positively related to available soil water at wheat planting, but cover crop biomass had a negative linear relationship with available soil water at wheat planting. There was no difference between cover crop single species and mixtures.

The authors concluded that cover crops left standing stored more soil water than when hayed; however, forage use of the cover crop could provide a dual purpose and economic benefit to improve overall system profitability.

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Holman, J.D., Assefa, Y., & Obour, A.K. (2020). Cover crop water use and productivity in the high plains wheat–fallow crop rotation. *Crop Science*. **https://doi.org/10.1002/csc2.20365** (in press)

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