Science Societies

Drought Tolerance and Water Use Efficiency in Hemp

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Hemp plants 20 days after transplanting growing in a greenhouse before experiencing drought stress. Photo by Wayne Morgan.

Production of hemp (*Cannabis sativa* L.), a reemerging crop, has interested many producers. However, due to its past illegal status, there is a lack of research‐based knowledge about the physiological effects of drought on hemp growth.

A new study published in *Crop Science* examines the effects of drought intensity and timing on physiological parameters such us water use efficiency, photosynthesis, and stomatal conductance and evaluates the possibility of selection for drought‐tolerant cultivars. Over two years, researchers performed a greenhouse experiment with two hemp cultivars (BaOx and Cherry Mom) and seven drought timings and intensities. They found that moderate water stress (30–50% field capacity) had the least effect on the physiological parameters studied while intense water stress significantly reduced many of the parameters. They also found cultivar variation in water use efficiency with BaOx showing higher values.

The results show that hemp is negatively affected by different timings and intensities of drought and that there is physiological variation in the response between cultivars, pointing to the possibility of breeding for higher water use efficiency and possible drought tolerance.

Adapted from

Morgan, W., Singh, J., Kesheimer, K., Davis, J., & Sanz‐Saez, A. (2023). Identifying physiological traits related with drought tolerance and water‐use efficiency in floral hemp (*Cannabis sativa* L.). *Crop Science*, *64*, 354–372. https://doi.org/10.1002/csc2.21150

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