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Corn tillers retain or boost grain yields

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Rachel Veenstra, a Ph.D. student at Kansas State University, assesses tiller growth and ear development for a corn plant in the project's lowest density (25,000 plants ha–1). Photo by Jessica Veenstra.

Plant density is commonly adjusted to match field resources to crop needs and can be quite low in regions where seasonal conditions are potentially extreme or difficult to predict. Modern corn hybrids maintain vegetative branching ability (producing tillers or "suckers") when plant resources are sufficient. Tillering impact on corn grain yield is unclear, particularly in environments where low plant densities, ideal for tiller development, are a key management strategy.

In a recent *Crop Science* article, Kansas researchers share findings from 10 site-years covering two cropping seasons and eight unique locations across the state. The study evaluated three plant densities with two commercial hybrids, considering final yields with tillers both intact and removed.

Besides the key discovery that tillers never reduced yield, the team also found that tiller development in lower plant densities could potentially match yields of higher densities. Key factors affecting this relationship included soil quality and photothermal quotients, which describe solar radiation available during key stages.

Although calibrating plant density was always key to maximize corn yields, tillering considerations could be useful for risk mitigation in unpredictable environments, particularly if planted densities are too low or if stands are damaged or reduced

unexpectedly.

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Veenstra, R.L., Messina, C., Berning, D., Haag, L.A., Carter, P., Hefley, T., Prasad, P.V., & Ciampitti, I.A. (2021). Effect of tillers on corn yield: Exploring trait plasticity potential in unpredictable environments. *Crop Science*.

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