Science Societies

New Maize Hybrids Produce Leaves Faster Than Older Ones

December 11, 2023

Illustration of a corn plant with fully developed leaves at the end of the vegetative phase. Image

Illustration of a corn plant with fully developed leaves at the end of the vegetative phase. Image by Olivia Pavlak.

Accurate prediction of corn's development stage is essential for making management decisions, such as timing irrigation, N fertilizer application, and pesticide application. Models are used to make this prediction based on air temperature and the rate of leaf appearance. Maize breeders continuously release new hybrids in the market, and it is not known if new and old hybrids have the same rate of leaf appearance.

A recent study published in *Crop Science* seeks to fill this knowledge gap. Researchers studied 78 maize hybrids released from 1980 to 2020 and planted in 13 locations across the United States Corn Belt. Every week, they measured the leaf number per plant and found that breeding has indirectly altered the rate of leaf appearance in maize, with leaves appearing faster in newer hybrids than older ones. Silk emergence,

which marks the start of the plant's reproductive stage, also occurs earlier in the newer hybrids. However, maize breeding did not affect the total number of leaves produced.

The results expand knowledge of the genotypic variability in maize development traits and can be used to improve models used for crop stage and yield prediction.

Adapted from dos Santos, C. L., Miguez, F. E., King, K. A., Ruiz, A., Sciarresi, C., Baum, M. E., … & Archontoulis, S. V. (2023). Accelerated leaf appearance and flowering in maize after four decades of commercial breeding. Crop Science, 63, 2750–2762. https://doi.org/10.1002/csc2.21044
