Science Societies

DNA-based predictions can reduce maize field testing

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Nick Ames analyzing DNA and field-performance data to determine how genomewide predictio

Nick Ames analyzing DNA and field-performance data to determine how genomewide predictions can reduce field testing in maize.

Plant breeding is like a *Survivor* competition in which many candidates are first evaluated in a few field tests. Those that do well are subjected to further testing, which becomes increasingly rigorous, to the extent that a new corn hybrid has typically been tested in hundreds or even thousands of locations before it is released as a variety that farmers can grow. One field plot costs about $15, and the costs of field testing add up quickly.

In an article recently published in *Crop Science*, researchers found that predictions from DNA fingerprints (i.e., genomewide predictions) can substitute for at least a portion of the first round of field testing in maize. On average, predictions were

equivalent to testing at one location for yield, two locations for grain moisture, and three locations for test weight. However, the equivalency between genomewide predictions and field testing varied widely across maize populations.

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Ames, N. C., & Bernardo, R. (2020). Genomewide predictions as a substitute for a portion of phenotyping in maize. *Crop Science, 60*.
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