Science Societies

# Transgenic traits could change genetic variations in field crops

June 12, 2021



*Lead author Linghe Zeng taking measurements of cotton germplasm lines. Photo courtesy of Linghe Zeng.*

Genetically modified (GMO) cotton has dominated production for decades. Most public concerns regarding GMO crops have focused on the environmental impact of the transgenic traits, but few studies have reported how, or if, transgenic traits affected genetic variation in crops, especially in cotton.

In a new *Crop Science* study, cotton scientists analyzed transgenic cultivars developed by major U.S. companies and non-transgenic breeding lines developed by major U.S. public cotton breeding programs in 18 years of field tests across the Cotton Belt. Yield, fiber quality, and genetic variations between the two types of cotton were compared.

Genetic variations of lint yield and fiber quality in transgenic cotton were lower than in non-transgenic cotton. However, differences in lint yield diminished after 2015.

The study results suggest that transgenic traits could affect genetic variations in field crops. The researchers posit that discrepancies in genetic variations between the two types of cotton were possibly caused by limited breeding methods in development of transgenic cotton. However, the application of diverse breeding methods aided by molecular markers in recent years led to an increase of genetic variations in commercial GMO cultivars.

**Dig Deeper**

Zeng, L., Wu, J., Bourland, F.M., Campbell, B.T., Dever, J.K., Hague, S., ... & Zhang, J. (2021). Comparative study of transgenic and non-transgenic cotton. *Crop Science*. **https://doi.org/10.1002/csc2.20522** (in press)

More science articles

Back to issue

Back to home

*Text © . The authors. CC BY-NC-ND 4.0. Except where otherwise noted, images are subject to copyright. Any reuse without express permission from the copyright owner is prohibited.*