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Genetic improvement of wheat yield in southwestern China

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Field performance of eight wheat cultivars at the heading stage. Photo courtesy of Chaosu Li.

To meet future global wheat production needs, improving grain yield is the primary goal of wheat-breeding programs across the globe. Investigations of the contribution of morphophysiological traits to wheat yield potential and knowledge on the limiting factors for wheat yield improvements are essential to the continuous improvement of grain yield in wheat-breeding strategies.

In an article recently published in *Crop Science*, researchers evaluated the grain yield and associated traits of eight milestone wheat cultivars that were released between 1969 and 2012 in southwestern China. Their results showed that significant genetic improvement has been achieved in this region with annual grain yield gains averaging 52.52 kg ha^{-1} yr^{-1} over the last 40 years.

This progress was mainly attributed to the increases in dry matter production, grain weight, photosynthetic capacity, and N use efficiency. In addition, some key physiological traits closely related to grain yield can be used as selection criteria for further improving yield potential by breeders. Findings from this study also reveal the huge potential for using synthetic hexaploid wheat in high-yielding wheat breeding.

Dig Deeper

Liu, M., Tong, H., Liu, Y., Li, C., Wu, X., Li, M., Li, X., & Tang, Y. (2021). Genetic progress in grain yield and the associated physiological traits of popular wheat in southwestern China from 1969 to 2012. *Crop Science*.
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