Science Societies

Genetic Variability and Path Analysis of Wheat Yield Traits in Ethiopia

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Demonstration of field experiment activities (selection of yellow rust resistant genotypes) in Bale, Ethiopia. Photos by Mohamedamin Abdurazake, Haramaya University.

Wheat (*Triticum aestivum* L.) is one of the most important strategic crops to overcome global food security problems, including in Ethiopia. This can be achieved through genetic improvement of the crop and its production practices.

In the 2021–2022 production year, researchers undertook a field experiment to estimate the extent of genetic variability, path analysis, and association of yield and yield‐related characteristics for the selection of desirable wheat genotypes. The researchers used a total of 64 bread wheat genotypes for the field experiment, including varieties resistant and susceptible to yellow rust. They found that grain yield positively correlated with several traits, including days to maturity, grain‐filling period, plant height, number of kernels per spike, thousand‐seed weight, and biological yield at both genotypic and phenotypic levels. The study also found high heritability and genetic advance, higher phenotypic coefficient of variation, and genotypic coefficient of variation for grain yield, biological yield, and grain‐filling period.

The study underscores the value of understanding trait relationships to enhance wheat yield and genetic resistance to yellow rust.

Adapted from

Abdurezake, M., Bekeko, Z., & Mohammed, A. (2024). Genetic variability and path coefficient analysis among bread wheat (*Triticum aestivum L.*) genotypes for yield and yield-related traits in Bale highlands, southeastern Ethiopia. *Agrosystems, Geosciences & Environment*, *7*, e20515. https://doi.org/10.1002/agg2.20515

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