



Science
Societies

New provitamin A-enriched maize lines released

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Piles of yellow maize cobs after harvest by farm families. Photo courtesy of Abebe Menkir.

Vitamin A deficiency is widespread, particularly in sub-Saharan Africa where millions of people depend on white-maize-based diets. Locally grown yellow maize often lacks sufficient provitamin A levels to meet daily vitamin A needs. The HarvestPlus Challenge Program, a crop development project focused on biofortification, has invested in conventional breeding at the International Institute of Tropical Agriculture to enhance provitamin A levels in tropical maize. The goal is to do so by utilizing favorable alleles from temperate maize while maintaining desirable agronomic traits and resistance to tropical diseases.

This initiative has resulted in the development of 21 new provitamin A-enriched maize inbred lines, each with diverse carotenoid profiles and content, researchers report in a new article in the *Journal of Plant Registrations*. These lines exceed the breeding target of 15 $\mu\text{g g}^{-1}$ of provitamin A and provide a diverse genetic base for further increasing carotenoid levels in tropical maize. Additionally, they can serve as essential genetic resources to explore the regulatory mechanisms that enhance carotenoid synthesis and channeling in the biosynthetic pathway to minimize losses during storage, natural degradation, and processing.

By promoting access to the diverse registered maize inbred lines, breeders can further enrich provitamin and other beneficial carotenoids, ultimately improving human health.



A driver enjoying boiled yellow maize sold by street vendors. Photo courtesy of Abebe Menkir.

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Menkir, A., Meseka, S., Gedil, M., Ojo, T., & Mengesha, W. (2024). Registration of provitamin A-enriched tropical maize inbred lines. *Journal of Plant Registrations*, 18, 523–532. <https://doi.org/10.1002/plr.20356>

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