Science Societies

Exploring maize diversity for fall armyworm resistance

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A farmer and extension worker scout for fall armyworm on maize in Malawi. Photo by CABI.

A farmer and extension worker scout for fall armyworm on maize in Malawi. Photo by CABI.

Current maize production in Africa and Asia is under serious threat from the pest fall armyworm (*Spodoptera frudiperda*), or FAW. Climate change exacerbates this threat. A simulation study based on four years of FAW monitoring indicated that a one-degree increase in weekly mean temperature may nearly double FAW populations (**https://bit.ly/3biXLD9**).

A recent study conducted by researchers at the Centre for Agriculture and Bioscience International (CABI) shows evidence of FAW resistance acting through diverse mechanisms in several maize landraces, germplasm lines, native populations, and crop wild relatives such as Antigua race, Zapalote Chico, FAW Tuxpeno, etc.

New *Crop Science* research calls for a scheme that outlines strategies and approaches for pre-breeding for FAW resistance traits and their introgression into elite maize varieties as a possible way forward to help secure maize production and the livelihoods of millions of smallholder farmers.

The scientists contest that while pre-breeding is a long and laborious process—immediate products from pre-breeding are uncommon—the creation of bridging and introgression populations to improve allelic diversity in the primary gene pool may assist in the efficient utilization of genetic resources.

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Singh, G.M., Xu, J., Schaefer, D., Day, R., Wang, Z., & Zhang, F. (2021). Maize diversity for fall armyworm resistance in a warming world. *Crop Science*. **https://doi.org/10.1002/csc2.20649** (in press)

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