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APPLICATION OF MUTATION BREEDING TO THE IMPROVEMENT OF UNDERSTUDIED CROP TEF

Tef [*Eragrostis tef* (Zucc.) Trotter] is the most important cereal crop in the Horn of Africa, especially in Ethiopia, where it is annually cultivated on over three million hectares of land, which is equivalent to 30% of the total area allocated to cereals. The large-scale cultivation of tef is due to its resilience to diverse environmental stresses. In addition to being nutritious, tef is considered a healthy food due to the absence of gluten in its grain. Despite its huge importance in the economy of Ethiopia, the productivity of tef is very low. The major yield-limiting factor in tef production is the susceptibility of its stem to lodging (i.e., the displacement of the stem from the upright position). Here, we describe the Tef Improvement Project, which employs mutation breeding to improve the crop. We highlight a new variety, Tesfa, developed in this pipeline and possessing a novel and desirable combination of traits. Tesfa's recent approval for release illustrates the success of the project and marks a milestone as it is the first variety (of many in the pipeline) to be released. We have established an efficient pipeline to bring improved tef lines from the laboratory to the farmers of Ethiopia. Of critical importance to the long-term success of this project is the cooperation among participants in Ethiopia and Switzerland, including donors, policy makers, research institutions, and farmers. Together, European and African scientists have developed a pipeline using breeding and genomic tools to improve the orphan crop tef and bring new cultivars to the farmers in Ethiopia.

Country or International Organization

Switzerland

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