

## Biosafety Risk Assessment of Novel Traits in Sorghum in the Context of Gene Flow with Weedy Relatives

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Sorghum is a staple in many parts of the developing world, and the United States is the top producer of grain sorghum in the world. It is also an important animal feed, with both grain and stover fed to livestock. Sorghum has high adaptive potential and can grow well even in marginal environments, making this a valuable feedstock for bioenergy production. Given its importance and multitude of use, sorghum has been considered a viable candidate for genetic improvement with various novel traits through transgenic and non-transgenic means. However, weedy relatives of sorghum, notably johnsongrass and shattercane are often found in some of the key sorghum production areas in the US, and there is a high likelihood for transfer of novel traits from cultivated sorghum to its weedy relatives through pollen-mediated gene flow (PMGF). The actual environmental and/or agronomic risk associated with PMGF depends on various factors, including the nature of the trait (offering agronomic benefit such as herbicide resistance vs fitness advantage such as drought tolerance) and the type of sorghum being considered for modification (grain sorghum vs biomass sorghum). A number of prevention and mitigation measures could be implemented to address pollen-mediated transfer of novel traits between sorghum and its weedy relatives.