

New desmodium species improves livelihoods of smallholder farmers in East Africa



A striga-infested stunted sorghum crop, with small panicles (left), and a healthy sorghum with big panicles, intercropped with greenleaf desmodium in western Kenya (right)

With funding from the European Commission, Bill and Melinda Gates Foundation and the CGIAR Fund Council (through the IITA-led CRP1.2 Integrated Systems for the Humid Tropics-Humidtropics), *icipe* and partners identified a more adaptable and resilient desmodium species, *Desmodium intortum*, commonly known as greenleaf, as a component of the successful push-pull technology for integrated management of the key constraints affecting cereal production in sub-Saharan Africa (cereal stemborer pests, the parasitic striga weeds and poor soil fertility). Through targeted screening and scientific elucidation of the mechanisms involved, *icipe* and partners discovered that like the widely used silverleaf, *Desmodium uncinatum*, greenleaf produces volatile organic compounds that repel stemborer moths. Additionally, it produces allelochemicals through the root systems with components some of which induce germination of striga seeds while others inhibit attachment of the germinated striga to the roots of the cereals (suicidal germination) thereby ensuring effective and sustainable control of the noxious weed. In addition to this, greenleaf also fixes nitrogen into the soil while building the soil organic matter content of the soil. With its moisture-conserving abilities, it thus contributes to building soil health and resilience. Additionally, it is a protein-rich fodder plant that allows integration of cereal and livestock production.

In 2003, a total of 2075 smallholder farmers planted greenleaf as a component of the 'push-pull' technology in western Kenya and parts of Eastern Uganda and reported better establishment of greenleaf, faster growth and thus higher biomass. They also reported significant increases in their grain yields (up to three-fold) and fodder production that translated into higher milk yields and incomes. Through collaboration with Heifer International, 75 households acquired dairy goats as a result of their ability to feed them. This has a direct impact on livelihoods. Partnerships are being expanded to bring this technology to more farmers in the region and to further integrate it with other livelihood approaches in the region.

In addition, 10 women groups, with a total membership of 108 have been trained to produce seeds of greenleaf desmodium for the local market to supplement efforts by commercial seed companies, further contributing to improved incomes and technical capacities.



Women groups being trained to produce desmodium seeds in Bungoma, western Kenya